Prosper is a place where everyone matters.

Agenda

Prosper Town Council Meeting
Council Chambers
Prosper Town Hall
250 W. First Street, Prosper, Texas
Tuesday, June 28, 2022
6:15 PM

Notice Regarding Public Participation

Welcome to the Prosper Town Council. Individuals may attend the meeting in person, or access the meeting via videoconference, or telephone conference call.

Join the Zoom Meeting by clicking on the following link: https://us02web.zoom.us/j/87047432329

To join the meeting by phone, dial (346) 248-7799

Enter Meeting ID: 870 4743 2329

Addressing the Town Council:

Those wishing to address the Town Council must complete the Public Comment Request Form located on the Town website or in Council Chambers.

If you are attending in person, please submit this form to the Town Secretary prior to the meeting. When called upon, please come to the podium and state your name and address for the record.

If you are attending online/virtually, please submit this form to the Town Secretary prior to 5:00 p.m. on the day of the meeting. Please ensure your full name appears on the screen and you are unmuted so the meeting moderator can recognize you and allow you to speak. The Chat feature is not monitored during the meeting. The Town assumes no responsibility for technical issues that are beyond our control.

If you encounter any problems joining or participating in the meeting, please call our help line at 972-569-1191 for assistance.

Call to Order/ Roll Call.

Invocation, Pledge of Allegiance and Pledge to the Texas Flag.

Announcements of recent and upcoming events.

Presentations.

1. Presentation of a Proclamation declaring June 28, 2022, as Hayden Hensley Day. (RB)

2. Receive an update from the Fire & Rescue Department. (SB)

CONSENT AGENDA:

Items placed on the Consent Agenda are considered routine in nature and non-controversial. The Consent Agenda can be acted upon in one motion. Items may be removed from the Consent Agenda by the request of Council Members or staff.

3. Consider and act upon the minutes of the June 14, 2022, Town Council meeting. (MLS)

4. Consider and act upon the minutes of the June 22, 2022, Town Council special meeting. (MLS)

5. Consider and act upon a resolution to deny the application of Oncor Electric Delivery Company LLC for approval to increase system-wide transmission and distribution rates within the Town. (BP)

6. Consider and act upon authorizing the Town Manager to accept the Economic Development Administration Subregional Broadband Assessment and Strategy project grant award from the U.S. Department of Commerce through the State of Texas Economic Development Administration (EDA). (BP)

7. Consider and act upon approving the purchase of manhole rehabilitation services from Fuquay, Inc., through the Texas Local Government Purchasing Cooperative; and authorizing the Town Manager to execute documents for the same. (FJ)

8. Consider and act upon authorizing the Town Manager to execute a Credit Sales Agreement between Mill Branch LLC, and the Town of Prosper, Texas, related to the construction of Fishtrap Road from Stuber Elementary to the Dallas North Tollway. (HW)

9. Consider and act upon authorizing the Town Manager to execute a Mitigation Credit Sales Agreement between Wetlands Management, L.P., and the Town of Prosper, Texas, related to the construction of Fishtrap Road from Stuber Elementary to the Dallas North Tollway. (HW)

10. Consider and act upon adopting the Collin County Hazard Mitigation Action Plan (HazMAP) dated June 6, 2022. (SB)

11. Consider and act upon an ordinance to rezone 0.2± acre from Single Family-15 (SF-15) to Planned Development-Downtown Single Family (PD), located on the north side of Third Street, east of Coleman Street. (Z22-0009). (DS)

12. Consider and act upon an ordinance amending Planned Development-69 (PD-69), on 71.0± acres, generally to modify the allowed uses and landscape standards, located on the southeast corner of Dallas Parkway and Frontier Parkway. (Z22-0007). (DS)

13. Consider and act upon an ordinance amending Planned Development-94 (PD-94), for the Westside Development, on 64.5± acres, northeast corner of US 380 and FM 1385, regarding hotel uses and development standards. (Z22-0001). (DS)

14. Consider and act upon authorizing the Town Manager to execute a Development Agreement between Alpha3 Prosper RI, LLC, and the Town of Prosper, Texas, related to development on the Westside Development, located on the northeast corner of US 380 and FM 1385. (DS)

15. Consider and act upon whether to direct staff to submit a written notice of appeal on behalf of the Town Council to the Development Services Department, pursuant to Chapter 4, Section 1.5(C)(7) and 1.6(B)(7) of the Town's Zoning Ordinance, regarding action taken by the Planning & Zoning Commission on any Site Plans and Preliminary Site Plans, including Westfork Crossing & Westfork Crossing Lot 7. (DS)

CITIZEN COMMENTS

The public is invited to address the Council on any topic. However, the Council is unable to discuss or take action on any topic not listed on this agenda. Please complete a "Public Comment Request Form" and present it to the Town Secretary prior to the meeting.

REGULAR AGENDA:

If you wish to address the Council, please fill out a "Public Comment Request Form" and present it to the Town Secretary, preferably before the meeting begins. Pursuant to Section 551.007 of the Texas Government Code, individuals wishing to address the Council for items listed as public hearings will be recognized when the public hearing is opened. For individuals wishing to speak on a non-public hearing item, they may either address the Council during the Citizen Comments portion of the meeting or when the item is considered by the Town Council.

Items for Individual Consideration:

16. Conduct a public hearing and consider and act upon a request for a Specific Use Permit (SUP) for a Day Care Center (Grace Chapel), on 5.4± acres, located on the southeast corner of FM 1385 and Denton Way. The property is zoned Agricultural (A). (S22-0005). (DS)

17. Conduct a public hearing and consider and act upon a request to amend the Zoning Ordinance, Chapter 3, Section 1.3 Schedule of Uses, Chapter 3, Section 1.4 Conditional Development Standards, and Chapter 3, Section 2.2 Definitions, to include "Food Pantry", in the Agricultural, "A," zoning district. (MD22-0005). (DS)

18. Receive an update of the Downtown Master Plan. (MM)

19. Consider and act upon approving a resolution supporting the proposed revised alignment of FM 1461 from SH 289 (Preston Road) to FM 2478 (Custer Road). (HW)

20. Consider and act upon an ordinance establishing a Homestead Tax Exemption. (HJ)

21. Discussion on Raymond Community Park. (DB)

Possibly direct Town staff to schedule topic(s) for discussion at a future meeting.

22. Discuss format of Council Work Sessions. (HJ)

23. Receive an update on FM 1385 and US 380. (HW)

24. Discuss Frontier Park alternate access. (HW)

EXECUTIVE SESSION:

Recess into Closed Session in compliance with Section 551.001 et seq. Texas Government Code, as authorized by the Texas Open Meetings Act, to deliberate regarding:

Section 551.087 – To discuss and consider economic development incentives and all matters incident and related thereto.

Section 551.072 – To discuss and consider purchase, exchange, lease or value of real property for municipal purposes and all matters incident and related thereto.

Section 551.074 – To discuss and consider personnel matters and all matters incident and related thereto.

Section 551.076 – To deliberate the deployment or specific occasions for implementation of security personnel or devices at Town Hall.

Reconvene in Regular Session and take any action necessary as a result of the Closed Session.

Adjourn.

CERTIFICATION

I, the undersigned authority, do hereby certify that this Notice of Meeting was posted at Prosper Town Hall, located at 250 W. First Street, Prosper, Texas 75078, a place convenient and readily accessible to the general public at all times, and said Notice was posted by 5:00 p.m., on Friday, June 24, 2022, and remained so posted at least 72 hours before said meeting was convened.

_____ _____

Michelle Lewis Sirianni, Town Secretary Date Notice Removed

Pursuant to Section 551.071 of the Texas Government Code, the Town Council reserves the right to consult in closed session with its attorney and to receive legal advice regarding any item listed on this agenda.

NOTICE

Pursuant to Town of Prosper Ordinance No. 13-63, all speakers other than Town of Prosper staff are limited to three (3) minutes per person, per item, which may be extended for an additional two (2) minutes with approval of a majority vote of the Town Council.

NOTICE OF ASSISTANCE AT PUBLIC MEETINGS: The Prosper Town Council meetings are wheelchair accessible. For special services or assistance, please contact the Town Secretary's Office at (972) 569-1011 at least 48 hours prior to the meeting time.

Prosper is a place where everyone matters.

MINUTES

Prosper Town Council Meeting
Council Chambers
Prosper Town Hall
250 W. First Street, Prosper, Texas
Tuesday, June 14, 2022

DRAFT

Call to Order/ Roll Call.

The meeting was called to order at 5:45 p.m.

Council Members Present:
Mayor David F. Bristol
Mayor Pro-Tem Jeff Hodges
Deputy Mayor Pro-Tem Craig Andres
Councilmember Marcus E. Ray
Councilmember Amy Bartley
Councilmember Chris Kern
Councilmember Charles Cotten

Staff Members Present:
Harlan Jefferson, Town Manager
Terry Welch, Town Attorney
Michelle Lewis Sirianni, Town Secretary
Robyn Battle, Executive Director of Community Services
Bob Scott, Executive Director of Administrative Services
Hulon Webb, Engineering Services Director
David Soto, Planning Manager
Betty Pamplin, Finance Director
Leigh Johnson, IT Director
Todd Rice, Communications Manager
Stuart Blasingame, Fire Chief
Doug Kowalski, Police Chief

Invocation, Pledge of Allegiance and Pledge to the Texas Flag.

Mike Martin with Hope Fellowship led the invocation. The Pledge of Allegiance and the Pledge to the Texas Flag were recited.

Announcements of recent and upcoming events.

Councilmember Kern made the following announcements:

Thank you to all those who attended Discover Downtown: Boots on Broadway on Saturday, June 11. It was a great kick off to our Downtown events and a fun evening of entertainment, food, and live music. A special thanks to all the staff who helped make the event a success.

The Summer Reading Program at the Prosper Community Library began on June 1st. This year's theme is "This is Texas!" Summer reading participants will learn about this big Texas state we live in. Library staff will have Discover Days on Mondays and Tuesdays, and Wednesdays and Thursdays will be Create Days. Each event will offer fun facts, activities, and something to create and take home. Visit the Library's website or Facebook page for more information.

The annual Pride in the Sky Independence Day Celebration will take place on Saturday, July 2 at Frontier Park. Festivities begin at 5:00 p.m. and will include live music, Kid Zones, food, games, and fireworks set to music. Come out for a night of celebration and fun.

Join us for the next the Discover Downtown event series on Saturday, July 16 for Fun in the Sun from 3:00 to 6:00 p.m. Come beat the heat and have some fun with water slides, inflatables, games, and fun kid-centered entertainment, topped off with cool summer treats!

Councilmember Bartley extended her thanks to the Prosper Ladies Association for their sponsorship to the Fire and Police banquets. She also recognized Matt Furr, Parks Superintendent for going above and beyond for picking up trash at the downtown event.

Mayor Bristol acknowledged Flag Day and provided a brief history of the holiday.

Presentations.

1. **Receive a presentation regarding the 2022 Mayor's Fitness Challenge. (TH)**

   Mr. Helton gave statistics from this year's fitness challenge with over 81 participants and over 5,000 hours of logged activity. He announced the winner of the Fitbit and congratulated and thanked all those that attended.

CONSENT AGENDA:

Items placed on the Consent Agenda are considered routine in nature and non-controversial. The Consent Agenda can be acted upon in one motion. Items may be removed from the Consent Agenda by the request of Council Members or staff.

2. **Consider and act upon the minutes of the May 24, 2022, Town Council meeting. (MLS)**

3. **Consider and act upon the minutes of the May 25, 2022, Town Council Work Session meeting. (MLS)**

4. **Receive the April financial report. (BP)**

5. **Consider and act upon Resolution No. 2022-24 authorizing the placement of orders for the purchase of replacement vehicles in FY 2022-2023 to realize current incentives related to said purchase with payment to be made from the Town's Vehicle Equipment and Replacement Fund (VERF) in FY 2022-2023. (BP)**

6. **Consider and act upon approving the purchase of athletic equipment and related accessories from Fit Supply, LLC., through the Texas Local Government Purchasing Cooperative. (SB)**

7. **Consider and act upon the purchase of Holmatro Vehicle Extrication Equipment for two new fire apparatus (Pumper Engine & Quint) from Metro Fire Apparatus Specialist, Inc. through the Texas Local Government Purchasing Cooperative. (SB)**

8. **Consider and act upon the purchase of Stryker Medical Equipment for newly ordered Fire Department apparatus from Stryker Medical through the National Association of State Procurement Officials (NASPO) program. (SB)**

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9. **Consider and act upon approving the purchase of one (1) Cascade SCBA Fill Station from August Industries Inc., through the Texas Local Government Purchasing Cooperative. (SB)**

10. **Consider and act upon approving the purchase of 12 SCBA's, 42 Air Cylinders, and two (2) RIT-PAK III's for newly ordered Fire Department apparatus from Municipal Emergency Services through the Texas Local Government Purchasing Cooperative. (SB)**

11. **Consider and act upon approving the purchase of public safety communication mobile radios, portable radios, and equipment for newly ordered Fire Department apparatus from Motorola Solutions through a Texas Department of Information Resources (DIR) Purchasing Contract. (SB)**

12. **Consider and act upon approving the purchase of public safety communication radios and equipment for the new Central Fire Station and Emergency Operations Center, from Motorola Solutions, through a Texas Department of Information Resources (DIR) Purchasing Contract. (SB)**

13. **Consider and act upon approving the purchase of installation services of mobile radios, fire station alerting system, antennas, and all associated equipment. (SB)**

14. **Consider and act upon awarding Bid No. 2022-05-B, EDA Award No. 08-79-05522 to Archer Western Construction, related to the construction services for the Lower Pressure Plane (LPP) Pump Station and LPP Water Line Phase 2 project; and authorizing the Town Manager to execute a construction agreement for same. (HW)**

15. **Consider and act upon awarding CSP No. 2022-38-B to DDM Construction Corporation, related to construction services for Prosper Public Works Highpoint Drive (Hays Road to Betts Drive); and authorizing the Town Manager to execute a construction agreement for same. (FJ)**

16. **Consider and act upon awarding CSP No. 2022-40-B to North Rock Construction, related to construction services for the Tanners Mill Park (2108-PK); and authorizing the Town Manager to execute a construction agreement for same. (PN)**

17. **Consider and act Resolution No. 2022-25 authorizing the Town Manager to execute an application to the Collin County Parks & Open Space Project Funding Assistance Program for the construction of the First Street Pedestrian Tunnel and Trail Project. (PN)**

18. **Consider and act upon Ordinance No. 2022-26 for a Specific Use Permit (SUP) on 0.7± acre, for a Wireless Communication and Support Structure, to allow for additional antennas on an existing tower located in the Bradford Farms subdivision located east of Hays Road, north of First Street. (S22-0003). (DS)**

19. **Consider and act upon an ordinance amending Planned Development-94 (PD-94), for the Westside Development, on 64.5± acres, northeast corner of US 380 and FM 1385, regarding hotel uses and development standards. (Z22-0001). (DS)**

20. **Consider and act upon authorizing the Town Manager to execute a Development Agreement between Alpha3 Prosper RI, LLC, and the Town of Prosper, Texas,**

DRAFT

related to development on the Westside Development, located on the northeast corner of US 380 and FM 1385. (DS)

21. Consider and act upon whether to direct staff to submit a written notice of appeal on behalf of the Town Council to the Development Services Department, pursuant to Chapter 4, Section 1.5(C)(7) and 1.6(B)(7) of the Town's Zoning Ordinance, regarding action taken by the Planning & Zoning Commission on any Site Plans and Preliminary Site Plans, including NWC 380 & Teel and Westside. (DS)

Mayor Bristol pulled item 19, and Councilmember Bartley requested to pull items 4 and 20.

Councilmember Cotten made a motion to approve consent agenda items 2 thru 21 except items 4, 19, and 20. Mayor Pro Tem Hodges seconded that motion, and the motion was unanimously approved.

Councilmember Bartley asked questions regarding expenditures and numbers reflected for the commercial plan reviews by Bureau Veritas in relation to item 4.

Councilmember Bartley made a motion to approve item 4 as presented. Deputy Mayor Pro-Tem Andres seconded that motion, and the motion was unanimously approved.

Regarding items 19 and 20, Councilmember Bartley asked questions within Exhibits C, E, and F of the Development Agreement. She would like to ensure all changes are reflected before approving. Thereby, requested to table both items.

Councilmember Bartley made a motion to table item 19 to June 28, 2022. Councilmember Cotten seconded that motion, and the motion was unanimously approved.

Councilmember Bartley made a motion to table item 20 to June 28, 2022. Deputy Mayor Pro-Tem Andres seconded that motion, and the motion was unanimously approved.

CITIZEN COMMENTS

Nicole Pala, 961 Whistler Lane was not in attendance. Therefore, no comments were made.

Barbara Nugent, 961 Grass Shore Lane, extended her praise to the Parks and Recreation Department for the Senior trip to Mineral Wells. She had a great time as it was entertaining and educational.

Yuricma Oquendo, 2103 West Yorkshire and Lisa Lee, 309 Cypress Garden Drive were not in attendance. Therefore, no comments were made.

Items for Individual Consideration:

Councilmember Bartley stepped away from the dais.

22. Conduct a public hearing and consider and act upon a request to rezone a portion of Planned Development-36, and a portion of Planned Development-63, to Planned Development (PD) for Legacy Gardens, on 121.4± acres, in order to modify the residential development standards, including but not limited to reducing permitted lot sizes, located on the south side of Frontier Parkway, west of Dallas Parkway. (Z20-0019). (DS)

Mr. Soto stated this is a request to rezone 121.4± acres on a portion of Planned Development-36 (PD-36), and a portion of Planned Development-63 (PD-63), to

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establish a new Planned Development. Per the Council's request, the applicant updated the development standards and number of lot sizes. The Planning and Zoning Commission recommended by a 6-0 vote to approve the request subject to the conditions of limiting 8F Type lots to a maximum of 75, 9F Type lots to a maximum of 57, 10F Type lots to a maximum of 148, and increasing the maximum dwelling size to 1,800 square feet for all proposed lot types. Staff recommends approval.

The Town Council discussed the increase in larger lot sizes as well as the minimum dwelling size.

Mayor Bristol opened the public hearing.

No comments were made.

Mayor Bristol closed the public hearing.

Councilmember Ray made a motion to approve a request to rezone a portion of Planned Development-36, and a portion of Planned Development-63, to Planned Development (PD) for Legacy Gardens, on 121.4± acres, to modify the residential development standards, including but not limited to reducing permitted lot sizes, located on the south side of Frontier Parkway, west of Dallas Parkway and subject to approval of a Development Agreement. Mayor Pro-Tem Hodges seconded that motion. The motion passed with a 6-0 vote.

Councilmember Bartley returned to the dais.

23. Conduct a public hearing and consider and act upon a request to rezone 0.2± acre from Single Family-15 (SF-15) to Planned Development-Downtown Single Family (PD), located on the north side of Third Street, east of Coleman Street. (Z22-0009). (DS)

Mr. Soto stated the purpose of this rezoning request is to allow for deviation from the required lot depth from 120 feet to 100 feet for the purpose of developing a single-family downtown residence. The existing house will be demolished in order to re-build. At the May 17, 2022, Planning and Zoning Commission meeting, the Commission recommended approval by a vote of 6-0. Staff recommends approval.

The Council discussed the property to the north and completion time of the re-build.

Mayor Bristol opened the public hearing.

No comments were made.

Mayor Bristol closed the public hearing.

Mayor Pro-Tem Hodges made a motion to approve a request to rezone 0.2± acre from Single Family-15 (SF-15) to Planned Development-Downtown Single Family (PD), located on the north side of Third Street, east of Coleman Street. Deputy Mayor Pro-Tem Andres seconded that motion, and the motion was unanimously approved.

24. Conduct a public hearing and consider and act upon a request to amend Planned Development-69 (PD-69), on 71.0± acres, generally to modify the allowed uses and landscape standards, located on the southeast corner of Dallas Parkway and Frontier Parkway. (Z22-0007). (DS)

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Mr. Soto stated the proposed amendment to PD-69 is to modify the allowed uses and landscape standards. The applicant is proposing to allow the following uses within Tract 1: Big Box, Restaurant with drive-through to be incorporated with the Big Box, convenience store with gas pumps and/or gas pumps, car wash (accessory use to convenience store with gas pumps and/or gas pumps, and outdoor merchandise display. There is no amendment for the uses on Tract 2. The applicant is also requesting modifications to the landscape regulations in order to allow 25' of the required 30' landscape buffer to be allowed within the 100' drainage easement along Frontier Parkway, and to not place earthen berms along Frontier Parkway. At the May 17, 2022, Planning and Zoning Commission, the Commission recommended approval by a vote of 6-0. Staff recommends approval.

The Town Council discussed drive-throughs and their current locations in that area, and the placement of outdoor merchandise displays.

Matt Moore, 301 S. Coleman, with ClayMoore Engineering stated that he has worked continuously with staff to modify the amendment to meet the Town's requirements.

Mayor Bristol opened the public hearing.

No comments were made.

Mayor Bristol closed the public hearing.

Councilmember Ray made a motion to approve a request to amend Planned Development-69 (PD-69), on 71.0± acres, generally to modify the allowed uses and landscape standards, located on the southeast corner of Dallas Parkway and Frontier Parkway. Councilmember Cotten seconded that motion, and the motion was unanimously approved.

25. Conduct a public hearing and consider and act upon a request for a Specific Use Permit (SUP) for a Restaurant with Drive-Through Service on 1.2± acres, located on the north side of US 380, west of Custer Road. (The property is zoned Commercial (C)). (S22-0002). (DS)

Mr. Soto stated this request is to allow for a drive-through restaurant use within a 2,400-standalone building. The site includes adequate parking and stacking. Staff has reviewed the request for the SUP and believes the applicant has satisfied the criteria within the Town's Zoning Ordinance. However, staff is concerned with the total number of drive-through restaurants within the proposed area. Staff recommends approval subject to a Development Agreement including, but not limited to, right-of-way and/or easement dedication, and architectural building materials.

The Town Council discussed the current landscaping, the expansion of US 380 in relation to the project area, and traffic volume.

Mayor Bristol opened the public hearing.

No comments were made.

Mayor Bristol closed the public hearing.

The Council further discussed the traffic flow, consecutive drive-throughs in the area, enhanced landscaping, and removal of the billboard in that location.

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Councilmember Ray made a motion to approve a request for a Specific Use Permit (SUP) for a Restaurant with Drive-Through Service on 1.2± acres, located on the north side of US 380, west of Custer Road subject to the approval of a Development Agreement, including, but not limited to, right-of-way and/or easement dedication, and architectural building materials. Further, the developer shall endeavor to reposition the outdoor trash receptacle to be screened from view along U.S. Highway 380; and the existing billboard on the property shall be removed within 90 days of the effective date of this ordinance. Councilmember Cotten seconded that motion. The motion passed with a 5-2 vote, with Councilmembers Bartley and Kern voting in opposition.

26. Consider and act upon authorizing the Town Manager to execute a First Amendment to the Development Agreement between Founders Classical Academy of Prosper, and the Town of Prosper, Texas, related to the Founders development. (DS)

Mr. Soto stated the initial Site Plan was approved in June 2020 and the Development Agreement in March 2021. As part of the agreement, all the outdoor lighting standards shall comply with a 0.0-foot candle. Staff inspected the lighting on several different occasions and although improvements were made to reduce light pollution, it was not meeting the requirement. The applicant has requested a revised Development Agreement to modify the outdoor lighting standards to follow the Town requirements. Staff recommends approval.

The Town Council discussed the impact of the lights to the surrounding subdivisions, and the difference in the foot candle measurements.

Carrie Moore, 4011 Pepper Grass Lane, expressed her concern of the cost to change out the lights and requested the Council to hold them to the same standards as others.

Bryan Dahlberg, 845 Proton Road, San Antonio, representative of the school, requested to be held to the same standards of others and supports the proposed amendment.

Anthony DeGuerre, 7920 Collin David South, Apt. 201, expressed his concerns on how this may impact the school's budget, and requested to be held to same standards as others.

Austin Tull, 1301 Waters Ridge Dr., Lewisville, stated that the school has made efforts to bring the lighting into compliance with the Town's requirements. He supports the proposed amendment.

Heather Brown, 4300 E. First Street, stated as a teacher at Founders Classical Academy, she indicated the extra measures in place to ensure lighting is not an issue and try to go above and beyond to be good neighbors.

The following citizens requested to speak but were not in attendance.

Annie Kim, 10718 Brandenberg Dr., Frisco.

Heather Richardson, 2365 Weston Road, Celina.

Suzanne Cartmill, 7808 Chief Spotted Tail Drive, McKinney.

Nancy DeBolt, 730 Camden Way, Prosper.

Shelly Creel, 1620 Hidden Glen Court, Prosper.

DRAFT

Brandon Cartmill, 7808 Chief Spotted Tail Drive, McKinney.

The Town Council further discussed the lighting and the Town's current ordinance requirements.

Councilmember Cotten made a motion to authorizing the Town Manager to execute a First Amendment to the Development Agreement between Founders Classical Academy of Prosper, and the Town of Prosper, Texas, related to the Founders development. Councilmember Ray seconded that motion, and the motion was unanimously approved.

27. Consider and act upon Ordinance No. 2022-28 amending Ordinance No. 2021-55 (FY 2021-2022 Annual Budget). (BP)

Ms. Pamplin provided an overview of the proposed amendments from the General Fund.

The Town Council discussed the Energov software implementation and the personnel expenses within the proposed budget amendments.

Councilmember Cotten made a motion to approve Ordinance 2022-28 amending Ordinance No. 2021-55 (FY 2021-2022 Annual Budget). Mayor Pro-Tem Hodges seconded that motion, and the motion was unanimously approved.

28. Receive an update regarding schematic design for Fire Station No. 4. (SB)

Chief Blasingame stated BRW has completed the schematic design for Fire Station No. 4. He provided renderings of the design and indicated staff continues to work with the architect to find cost savings. The anticipated completion date of the project is March to April 2024.

29. Consider and act upon awarding RFP No. 2022-46-B Construction Manager-At-Risk for Prosper Fire Station No. 4 to Pogue Construction Co., LP; and authorizing the Town Manager to execute documents for the same. (SB)

Chief Blasingame stated the Town received five (5) proposals for the project. The proposals were evaluated by a committee of 11 members based on certain criteria set forth in the bid. Upon completion of the evaluation, Pogue Construction Co. was the top ranked contractor. Pogue has extensive fire administration and station construction experience with favorable responses received from references. Staff recommends approval.

Councilmember Cotten made a motion to approve awarding RFP No. 2022-46-B Construction Manager-At-Risk for Prosper Fire Station No. 4 to Pogue Construction Co., LP; and authorizing the Town Manager to execute documents for the same. Councilmember Ray seconded that motion, and the motion was unanimously approved.

EXECUTIVE SESSION:

Recess into Closed Session in compliance with Section 551.001 et seq. Texas Government Code, as authorized by the Texas Open Meetings Act, to deliberate regarding:

Section 551.087 – To discuss and consider economic development incentives and all matters incident and related thereto.

DRAFT

Section 551.072 – To discuss and consider purchase, exchange, lease or value of real property for municipal purposes and all matters incident and related thereto.

Section 551.074 – To discuss and consider personnel matters and all matters incident and related thereto.

Section 551.074 – To discuss appointments to the Board of Adjustment/Construction Board of Appeals, Parks & Recreation Board, Library Board, Prosper Economic Development Corporation Board, and Planning & Zoning Commission.

Section 551.074 - To discuss and consider the Town Manager's performance review.

The Town Council recessed into Executive Session at 8:43 p.m.

Reconvene in Regular Session and take any action necessary as a result of the Closed Session.

The Town Council reconvened into Regular Session at 10:42 p.m.

Mayor Pro-Tem Hodges made a motion to approve the amended and restated Developers Agreement with Prosper Residences, LLC and authorize the Town Manager to execute on behalf of the Town. Councilmember Cotten seconded that motion, and the motion was unanimously approved.

Mayor Pro-Tem Hodges made a motion to appoint David Bristol to the Prosper Economic Development Corporation. Councilmember Ray seconded that motion, and the motion was unanimously approved.

Adjourn.

The meeting was adjourned at 10:44 p.m.

These minutes approved on the 28th day of June 2022.

APPROVED:

David F. Bristol, Mayor

ATTEST:

Michelle Lewis Sirianni, Town Secretary

DRAFT

Prosper is a place where everyone matters.

MINUTES

Prosper Town Council Special Meeting
Council Chambers
Prosper Town Hall
250 W. First Street, Prosper, Texas
Wednesday, June 22, 2022

DRAFT

Call to Order/ Roll Call.

The meeting was called to order at 7:30 a.m.

Council Members Present:
Mayor David F. Bristol
Councilmember Marcus E. Ray
Councilmember Amy Bartley
Councilmember Chris Kern
Councilmember Charles Cotten

Council Members Absent:
Mayor Pro-Tem Jeff Hodges
Deputy Mayor Pro-Tem Craig Andres

Staff Members Present:
Harlan Jefferson, Town Manager
Michelle Lewis Sirianni, Town Secretary
Robyn Battle, Executive Director of Community Services
Hulon Webb, Director of Engineering

Invocation
Mayor Bristol led an invocation.

EXECUTIVE SESSION:
Recess into Closed Session in compliance with Section 551.001 et seq. Texas Government Code, as authorized by the Texas Open Meetings Act, to deliberate regarding:

Section 551.074 - To discuss and consider the Town Manager's performance review and all matters incident and related thereto.

The Town Council recessed into Executive Session at 7:31 a.m.

Reconvene in Regular Session and take any action necessary as a result of the Closed Session.

The Town Council reconvened into Regular Session at 8:04 a.m.

Councilmember Cotten made a motion to authorize the Mayor to execute an agreement with the Town Manager as discussed in closed session. Councilmember Bartley seconded that motion, and the motion was unanimously approved.

Adjourn.

The meeting was adjourned at 8:05 a.m.

These minutes approved on the 28th day of June 2022.

APPROVED:

_____

David F. Bristol, Mayor

ATTEST:

_____

Michelle Lewis Sirianni, Town Secretary

DRAFT

FINANCE DEPARTMENT

TOWN OF PROSPER
Prosper is a place where everyone matters.

To: **Mayor and Town Council**

From: **Betty Pamplin, Finance Director**

Through: **Harlan Jefferson, Town Manager**
Bob Scott, Executive Director of Administrative Services

Re: **Town Council Meeting – June 28, 2022**

Agenda Item:
Consider and act upon a resolution to deny the application of Oncor Electric Delivery Company LLC for approval to increase system-wide transmission and distribution rates within the Town. (BP)

Description of Agenda Item:
Oncor Electric Delivery Company ("Oncor" or "the Company") filed an application on or about May 13, 2022 with cities retaining original jurisdiction seeking to increase system-wide transmission and distribution rates by about $251 million or approximately 4.5% over present revenues. The Company asks the Town to approve an 11.2% increase in residential rates and a 1.6% increase in street lighting rates. If approved, a residential customer using 1,300 kWh per month would see a bill increase of about $6.02 per month.

The resolution suspends the August 1, 2022 effective date of the Company's rate increase for the maximum period permitted by law to allow the Town, working in conjunction with the Steering Committee of Cities Served by Oncor, to evaluate the filing, determine whether the filing complies with law, and if lawful, to determine what further strategy, including settlement, to pursue.

The law provides that a rate request made by an electric utility cannot become effective until at least 35 days following the filing of the application to change rates. The law permits the Town to suspend the rate change for 90 days after the date the rate change would otherwise be effective. If the Town fails to take some action regarding the filing before the effective date, Oncor's rate request is deemed administratively approved.

The Town of Prosper is a member of a 169-city coalition known as the Steering Committee of Cities Served by Oncor ("Steering Committee"). The Steering Committee has been in existence since the late 1980s. It took on a formal structure in the early 1990s when cities served by the former TXU gave up their statutory right to rate case expense reimbursement in exchange for higher franchise fee payments. Empowered by city resolutions and funded by per capita assessments, the Steering Committee has been the primary public interest advocate before the

Public Utility Commission, the Courts, and the Legislature on electric utility regulation matters for the last 30 years.

Although Oncor has increased rates many times over the past few years, this is the first comprehensive base rate case for the Company since March 2017.

Legal Obligations and Review:
Terrance Welch of Brown & Hofmeister, L.L.P., has reviewed the resolution as to form and legality.

Attached Documents:
1. Resolution

Town Staff Recommendation:
Town staff recommends adoption of a resolution to deny the application of Oncor Electric Delivery Company LLC for approval to increase system-wide transmission and distribution rates within the Town.

Proposed Motion:
I move to adopt a resolution to deny the application of Oncor Electric Delivery Company LLC for approval to increase system-wide transmission and distribution rates within the Town.

TOWN OF PROSPER, TEXAS **RESOLUTION NO. ____**

A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF PROSPER, TEXAS, SUSPENDING THE AUGUST 1, 2022, EFFECTIVE DATE OF ONCOR ELECTRIC DELIVERY COMPANY'S REQUESTED RATE CHANGE TO PERMIT THE TOWN TIME TO STUDY THE REQUEST AND TO ESTABLISH REASONABLE RATES; APPROVING COOPERATION WITH THE STEERING COMMITTEE OF CITIES SERVED BY ONCOR TO HIRE LEGAL AND CONSULTING SERVICES AND TO NEGOTIATE WITH THE COMPANY AND DIRECT ANY NECESSARY LITIGATION AND APPEALS; FINDING THAT THE MEETING AT WHICH THIS RESOLUTION IS PASSED IS OPEN TO THE PUBLIC AS REQUIRED BY LAW; REQUIRING NOTICE OF THIS RESOLUTION TO THE COMPANY AND LEGAL COUNSEL FOR THE STEERING COMMITTEE; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, on or about May 13, 2022, Oncor Electric Delivery Company ("Oncor"), pursuant to PURA §§ 33.001 and 36.001, filed with the Town of Prosper, Texas ("Town"), a Statement of Intent to increase electric transmission and distribution rates in all municipalities exercising original jurisdiction within its service area effective August 1, 2022; and

WHEREAS, the Town is a member of the Steering Committee of Cities Served by Oncor ("Steering Committee") and will cooperate with the 169 similarly situated city members and other city participants in conducting a review of the Company's application and to hire and direct legal counsel and consultants and to prepare a common response and to negotiate with the Company prior to getting reasonable rates and direct any necessary litigation; and

WHEREAS, § 36.108 of the Texas Public Utility Regulatory Act ("PURA") grants local regulatory authorities the right to suspend the effective date of proposed rate changes for ninety (90) days after the date the rate change would otherwise be effective; and

WHEREAS, PURA § 33.023 provides that costs incurred by Cities in ratemaking proceedings are to be reimbursed by the regulated utility.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF PROSPER, TEXAS, THAT:

SECTION 1

All of the above premises are found to be true and correct legislative determinations of the Town of Prosper, Texas, and are hereby approved and incorporated into the body of this Resolution as if copied in their entirety.

SECTION 2

The August 1, 2022, effective date of the rate request submitted by Oncor on or about May 13, 2022, is hereby suspended for the maximum period allowed by law to permit adequate time to review the proposed changes and to establish reasonable rates.

SECTION 3

As indicated in the Town's resolution approving membership in the Steering Committee, the Executive Committee of the Steering Committee is hereby authorized to hire and direct legal counsel and consultants, negotiate with the Company, make recommendations regarding reasonable rates, and to intervene and direct any necessary administrative proceedings or court litigation associated with an appeal of a rate ordinance and the rate case filed with the Town or the Texas Public Utility Commission.

SECTION 4

The Town's reasonable rate case expenses shall be reimbursed by Oncor.

SECTION 5

It is hereby officially found and determined that the meeting at which this Resolution is passed is open to the public as required by law and the public notice of the time, place, and purpose of said meeting was given as required.

SECTION 6

A copy of this Resolution shall be sent to Oncor, Care of Howard V. Fisher, Oncor Electric Delivery Company LLC, 1616 Woodall Rodgers Freeway, Dallas, Texas 75202 and to Thomas Brocato, Counsel to the Steering Committee, at Lloyd Gosselink Rochelle & Townsend, P.C., P.O. Box 1725, Austin, Texas 78767-1725.

DULY PASSED AND APPROVED BY THE TOWN COUNCIL OF THE TOWN OF PROSPER, TEXAS, ON THIS THE 28TH DAY OF JUNE, 2022.

_____
David F. Bristol, Mayor

ATTEST:

_____
Michelle Lewis Sirianni, Town Secretary

APPROVED AS TO FORM AND LEGALITY:

_____
Terrence S. Welch, Town Attorney

Finance Department

TOWN OF PROSPER
Prosper is a place where everyone matters.

To: **Mayor and Town Council**

From: **Betty Pamplin, Finance Director**

Through: **Harlan Jefferson, Town Manager**
Bob Scott, Executive Director of Administrative Services

Re: **Town Council Meeting - June 28, 2022**

Agenda Item:
Consider and act upon authorizing the Town Manager to accept the Economic Development Administration Subregional Broadband Assessment and Strategy project grant award from the U.S. Department of Commerce through the State of Texas Economic Development Administration (EDA).

Description of Agenda Item:
This item is for the Economic Development Administration (EDA) grant awarded to the Town of Prosper Subregional Broadband Assessment & Strategy project.

Budget Impact:
This award is for $360,000, which is the 80% Federal match. The Town's match is $90,000 for a total project cost of $450,000. A future budget amendment will be requested to account for the grant income and to allocate funding for this project.

Legal Obligations and Review:
Terrence Welch of Brown & Hofmeister, L.L.P., has approved the terms and conditions and all award documentation as to form and legality.

Attached Documents:
1. U.S. Department of Commerce Award Letter
2. Form CD-450

Town Staff Recommendation:
Town staff recommends the Town Council accept the EDA Subregional Broadband Assessment and Strategy project grant award from the U.S. Department of Commerce through the State of Texas Economic Development Administration (EDA).

Proposed Motion:

I move to accept the EDA Subregional Broadband Assessment and Strategy project grant award from the U.S. Department of Commerce through the State of Texas Economic Development Administration (EDA).

UNITED STATES DEPARTMENT OF COMMERCE
Economic Development Administration
AUSTIN REGIONAL OFFICE
903 San Jacinto Blvd. Suite 206
Austin, TX, 78701

In reply refer to:
Investment No.: 08-69-05611

Harlan Jefferson
Town Manager
Town of Prosper
250 W. First Street
Prosper, TX 75078

Dear Mr. Jefferson,

I am pleased to inform you that the Department of Commerce's Economic Development Administration (EDA) has approved your application for a $360,000 EDA investment to support the Prosper Subregional Broadband Assessment & Strategy project.

Enclosed is the Financial Assistance Award. To accept the grant award, please sign the Financial Assistance Award document. Your signature may be completed either electronically with a secured system or in ink. The executed document must be returned electronically to Lissette Villarruel at lvillarruel@eda.gov. Your signature indicates your acceptance of the terms and conditions for the grant award. If not signed and returned within 30 days of receipt, EDA may declare the Award null and void.

Please do not make any commitments in reliance on this award until you have carefully reviewed and accepted the terms and conditions. Any commitments entered into prior to obtaining the approval of EDA in accordance with its regulations and requirements will be at your own risk.

EDA's mission is to lead the federal economic development agenda by promoting innovation and competitiveness, preparing American regions for growth and success in the worldwide economy. EDA implements this mission by making strategic investments in the nation's most economically distressed communities that encourage private sector collaboration and creation of higher-skill, higher-wage jobs. EDA investments are results-driven, embracing the principles of technological innovation, entrepreneurship and regional development.

I share your expectations regarding the impact of this investment and look forward to working with you to meet the economic development needs of your community.

Sincerely,

Jorge D. Ayala
Regional Director

FORM CD-450
(REV. 10/18)

U.S. DEPARTMENT OF COMMERCE

☑ GRANT ☐ COOPERATIVE AG

FINANCIAL ASSISTANCE AWARD

FEDERAL AWARD ID NUMBER 08-69-05611; URI: 118305	
RECIPIENT NAME Town of Prosper	PERIOD OF PERFORMANCE 36 months from date of approval
STREET ADDRESS 250 W. First Street	FEDERAL SHARE OF COST $ 360,000
CITY, STATE, ZIP CODE Prosper, Texas 75078	RECIPIENT SHARE OF COST $ 90,000
AUTHORITY Public Works and Economic Development Act of 1965 (42 U.S.C. § 3121 et sec	TOTAL ESTIMATED COST $ 450,000

CFDA NO. AND NAME
11.307, Economic Adjustment Assistance - Title II, Section 209

PROJECT TITLE
Prosper Subregional Broadband Assessment & Strategy

This Award Document (Form CD-450) signed by the Grants Officer constitutes an obligation of Federal funding. By signing this Form CD-450, the Recipient agrees to comply with the Award provisions checked below and attached. Upon acceptance by the Recipient, the Form CD-450 must be signed by an authorized representative of the Recipient and returned to the Grants Officer. If not signed and returned without modification by the Recipient within 30 days of receipt, the Grants Officer may unilaterally withdraw this Award offer and de-obligate the funds.

- ☑ DEPARTMENT OF COMMERCE FINANCIAL ASSISTANCE STANDARD TERMS AND CONDITIONS
- ☐ R & D AWARD
- ☐ FEDERAL-WIDE RESEARCH TERMS AND CONDITIONS, AS ADOPTED BY THE DEPT. OF COMMERCE
- ☑ SPECIFIC AWARD CONDITIONS
- ☑ LINE ITEM BUDGET
- ☑ 2 CFR PART 200, UNIFORM ADMINISTRATIVE REQUIREMENTS, COST PRINCIPLES, AND AUDIT REQUIREMENTS, AS ADOPTED PURSUANT TO 2 CFR § 1327.101
- ☐ 48 CFR PART 31, CONTRACT COST PRINCIPLES AND PROCEDURES
- ☐ MULTI-YEAR AWARD. PLEASE SEE THE MULTI-YEAR SPECIFIC AWARD CONDITION.
- ☑ OTHER(S): OIG WFA Powerpoint ARPA Fraud Awareness Training

EDA Regulations set forth at 13 CFR Chapter III (January 2021)

Department of Commerce Standard Terms and Conditions (November 2020)

SIGNATURE OF DEPARTMENT OF COMMERCE GRANTS OFFICER Jorge D. Ayala, Regional Director	Jorge Ayala 2022.04.26 17:22:01 -05'00'	DATE 04/26/22
PRINTED NAME, PRINTED TITLE, AND SIGNATURE OF AUTHORIZED RECIPIENT OFFICIAL Harlan Jefferson, Town Manager		DATE 6/1/2022

PUBLIC WORKS

TOWN OF PROSPER

Prosper is a place where everyone matters.

To: **Mayor and Town Council**

From: **Frank E. Jaromin, P.E., Director of Public Works**

Through: **Harlan Jefferson, Town Manager**

Re: **Town Council Meeting – June 28, 2022**

Agenda Item:

Consider and act upon approving the purchase of manhole rehabilitation services from Fuquay, Inc., through the Texas Local Government Purchasing Cooperative; and authorizing the Town Manager to execute documents for the same.

Description of Agenda Item:

Due to recent smoke testing projects and camera inspections, staff has located nine (9) manholes in need of rehabilitation because of Hydrogen Sulfide damage, which is corrosion from a toxic gas. The manholes are located on the gravity feed line at First Street and Wilson Creek, First Street and Coit Road, near Prosper High School, and in the Stone Creek subdivision. We believe this damage occurred when La Cima 2 lift station pumped into La Cima 1 lift station.

Local governments are authorized by the Interlocal Cooperation Act, V.T.C.A. Government Code, Chapter 791, to enter into joint contracts and agreements for the performance of governmental functions and services, including administrative functions normally associated with the operation of government (such as purchasing necessary materials and equipment).

In June 2005, the Town of Prosper entered into an Interlocal Participation Agreement with the Texas Local Government Purchasing Cooperative. Participation in the cooperative purchasing program allows local governments to purchase goods and services from the cooperative's online purchasing system, BuyBoard, while satisfying all competitive bidding requirements.

Budget Impact:

The total price is $80,629.00 and will be funded from System Improvements, account number 200-5670-50-03.

Legal Obligations and Review:

Terrence Welch of Brown & Hofmeister, L.L.P., has approved the standard construction agreement as to form and legality.

Attached Documents:

1. Proposal

Town Staff Recommendation:

Town staff recommends approving the purchase of manhole rehabilitation services from Fuquay, Inc., through the Texas Local Government Purchasing Cooperative; and authorizing the Town Manager to execute documents for the same.

Proposed Motion:

I move to approve the purchase of manhole rehabilitation services from Fuquay, Inc., through the Texas Local Government Purchasing Cooperative; and authorize the Town Manager to execute documents for the same.

FUQUAY, INC.

4861 Old Hwy 81, New Braunfels, TX 78132

Phone (830) 606-1882 Fax (830) 606-1885

PROPOSAL

DATE: May 23, 2022
PROJECT: TOWN OF PROSPER 2022 MH REHABILITATION (9 MHS)

Cured In Place Pipe CIPP for Pipeline Rehabilitation #635-21

SECTION II: UV CURED PRODUCT

ITEM 22

Structure (Manhole) Rehabilitation and Corrosion Protection and Related Items

					LIST PRICING		MEMBER PRICING			PROJECT SPECIFIC DISCOUNTED PRICING	
		MH 1 - 4' DIA. x 7 VF									
Section II Item 22	22103	Condition Standards and Repair Methods -- Condition 3	SQFT	101	$45.00	$4,545.00	-$3.15	$41.85	$4,226.85	$40.00	$4,040.00
Section II Item 22	22104	Inflow & Infiltration Repair -- Injection of Chemical Grout Material	GAL	1	$267.50	$267.50	-$18.73	$248.78	$248.78	$235.00	$235.00
Section II Item 22	22105	Inflow & Infiltration Repair -- Injection of Chemical Grout Material-Labor & Equipment	HR	1	$203.50	$203.50	-$14.25	$189.26	$189.26	$185.00	$185.00
Section II Item 22	22106	Manhole Bench and Invert Repair 4' Diameter Base	EA	1	$669.00	$669.00	-$46.83	$622.17	$622.17	$600.00	$600.00
Section II Item 22	22130	Travel and Mobilization- Manhole Rehabilitation Crew from New Braunfels, TX	MILE	290	$16.00	$4,640.00	-$1.12	$14.88	$4,315.20	$3.00	$870.00
First St. & Wilson Creek					TOTAL	$10,325.00		TOTAL	$9,602.25	**TOTAL**	**$5,930.00**
		MH 2 - 4' DIA. x 8 VF									
Section II Item 22	22103	Condition Standards and Repair Methods -- Condition 3	SQFT	113	$45.00	$5,085.00	-$3.15	$41.85	$4,729.05	$40.00	$4,520.00
Section II Item 22	22104	Inflow & Infiltration Repair -- Injection of Chemical Grout Material	GAL	2	$267.50	$535.00	-$18.73	$248.78	$497.55	$235.00	$470.00
Section II Item 22	22105	Inflow & Infiltration Repair -- Injection of Chemical Grout Material-Labor & Equipment	HR	2	$203.50	$407.00	-$14.25	$189.26	$378.51	$185.00	$370.00
Section II Item 22	22106	Manhole Bench and Invert Repair 4' Diameter Base	EA	1	$669.00	$669.00	-$46.83	$622.17	$622.17	$600.00	$600.00
First & Wilson Creek					TOTAL	$6,696.00		TOTAL	$6,227.28	**TOTAL**	**$5,960.00**
		MH 3 - 5' DIA. x 16 VF									
Section II Item 22	22103	Condition Standards and Repair Methods -- Condition 3	SQFT	271	$45.00	$12,195.00	-$3.15	$41.85	$11,341.35	$40.00	$10,840.00
Section II Item 22	22104	Inflow & Infiltration Repair -- Injection of Chemical Grout Material	GAL	3	$267.50	$802.50	-$18.73	$248.78	$746.33	$235.00	$705.00
Section II Item 22	22105	Inflow & Infiltration Repair -- Injection of Chemical Grout Material-Labor & Equipment	HR	3	$203.50	$610.50	-$14.25	$189.26	$567.77	$185.00	$555.00
Section II Item 22	22107	Manhole Bench and Invert Repair 5' Diameter Base	EA	1	$776.00	$776.00	-$54.32	$721.68	$721.68	$700.00	$700.00
Prosper High School					TOTAL	$14,384.00		TOTAL	$13,377.12	**TOTAL**	**$12,800.00**
		MH 4 - 4' DIA. x 7 VF									
Section II Item 22	22103	Condition Standards and Repair Methods -- Condition 3	SQFT	101	$45.00	$4,545.00	-$3.15	$41.85	$4,226.85	$40.00	$4,040.00
Section II Item 22	22104	Inflow & Infiltration Repair -- Injection of Chemical Grout Material	GAL	1	$267.50	$267.50	-$18.73	$248.78	$248.78	$235.00	$235.00
Section II Item 22	22105	Inflow & Infiltration Repair -- Injection of Chemical Grout Material-Labor & Equipment	HR	1	$203.50	$203.50	-$14.25	$189.26	$189.26	$185.00	$185.00
Section II Item 22	22106	Manhole Bench and Invert Repair 4' Diameter Base	EA	1	$669.00	$669.00	-$46.83	$622.17	$622.17	$600.00	$600.00
Prosper High School					TOTAL	$5,685.00		TOTAL	$5,287.05	**TOTAL**	**$5,060.00**
		MH 5 - 4' DIA. x 8.5 VF									
Section II Item 22	22103	Condition Standards and Repair Methods -- Condition 3	SQFT	119	$45.00	$5,355.00	-$3.15	$41.85	$4,980.15	$40.00	$4,760.00
Section II Item 22	22104	Inflow & Infiltration Repair -- Injection of Chemical Grout Material	GAL	2	$267.50	$535.00	-$18.73	$248.78	$497.55	$235.00	$470.00
Section II Item 22	22105	Inflow & Infiltration Repair -- Injection of Chemical Grout Material-Labor & Equipment	HR	2	$203.50	$407.00	-$14.25	$189.26	$378.51	$185.00	$370.00
Section II Item 22	22106	Manhole Bench and Invert Repair 4' Diameter Base	EA	1	$669.00	$669.00	-$46.83	$622.17	$622.17	$600.00	$600.00
Stone Creek Sub-Division											

					TOTAL	$6,966.00		TOTAL	$6,478.38		TOTAL	$6,200.00
		MH 6 - 4' DIA. x 13 VF										
Section II Item 22	22103	Condition Standards and Repair Methods -- Condition 3	SQFT	176	$45.00	$7,920.00	-$3.15	$41.85	$7,365.60	$40.00	$7,040.00
Section II Item 22	22104	Inflow & Infiltration Repair -- Injection of Chemical Grout Material	GAL	3	$267.50	$802.50	-$18.73	$248.78	$746.33	$235.00	$705.00
Section II Item 22	22105	Inflow & Infiltration Repair -- Injection of Chemical Grout Material-Labor & Equipment	HR	3	$203.50	$610.50	-$14.25	$189.26	$567.77	$185.00	$555.00
Section II Item 22	22106	Manhole Bench and Invert Repair 4' Diameter Base	EA	1	$669.00	$669.00	-$46.83	$622.17	$622.17	$600.00	$600.00
Stone Creek Sub-Division					TOTAL	$10,002.00		TOTAL	$9,301.86		TOTAL	$8,900.00
		MH 7 - 4' DIA. x 10 VF										
Section II Item 22	22103	Condition Standards and Repair Methods -- Condition 3	SQFT	138	$45.00	$6,210.00	-$3.15	$41.85	$5,775.30	$40.00	$5,520.00
Section II Item 22	22104	Inflow & Infiltration Repair -- Injection of Chemical Grout Material	GAL	3	$267.50	$802.50	-$18.73	$248.78	$746.33	$235.00	$705.00
Section II Item 22	22105	Inflow & Infiltration Repair -- Injection of Chemical Grout Material-Labor & Equipment	HR	3	$203.50	$610.50	-$14.25	$189.26	$567.77	$185.00	$555.00
Section II Item 22	22106	Manhole Bench and Invert Repair 4' Diameter Base	EA	1	$669.00	$669.00	-$46.83	$622.17	$622.17	$600.00	$600.00
Section II Item 22	22110	Structure Repair (any size)	SQFT	19	$48.00	$912.00	-$3.36	$44.64	$848.16	$41.00	$779.00
Stone Creek Sub-Division					TOTAL	$9,204.00		TOTAL	$8,559.72		TOTAL	$8,159.00
		MH 8 - 5' DIA. x 23 VF										
Section II Item 22	22103	Condition Standards and Repair Methods -- Condition 3	SQFT	381	$45.00	$17,145.00	-$3.15	$41.85	$15,944.85	$40.00	$15,240.00
Section II Item 22	22104	Inflow & Infiltration Repair -- Injection of Chemical Grout Material	GAL	3	$267.50	$802.50	-$18.73	$248.78	$746.33	$235.00	$705.00
Section II Item 22	22105	Inflow & Infiltration Repair -- Injection of Chemical Grout Material-Labor & Equipment	HR	3	$203.50	$610.50	-$14.25	$189.26	$567.77	$185.00	$555.00
Section II Item 22	22107	Manhole Bench and Invert Repair 5' Diameter Base	EA	1	$776.00	$776.00	-$54.32	$721.68	$721.68	$700.00	$700.00
First St. & Coit Rd.					TOTAL	$19,334.00		TOTAL	$17,980.62		TOTAL	$17,200.00
		MH 9 - 4' DIA. x 16 VF										
Section II Item 22	22103	Condition Standards and Repair Methods -- Condition 3	SQFT	214	$45.00	$9,630.00	-$3.15	$41.85	$8,955.90	$40.00	$8,560.00
Section II Item 22	22104	Inflow & Infiltration Repair -- Injection of Chemical Grout Material	GAL	3	$267.50	$802.50	-$18.73	$248.78	$746.33	$235.00	$705.00
Section II Item 22	22105	Inflow & Infiltration Repair -- Injection of Chemical Grout Material-Labor & Equipment	HR	3	$203.50	$610.50	-$14.25	$189.26	$567.77	$185.00	$555.00
Section II Item 22	22106	Manhole Bench and Invert Repair 4' Diameter Base	EA	1	$669.00	$669.00	-$46.83	$622.17	$622.17	$600.00	$600.00
Stone Creek Sub-Division					TOTAL	$11,712.00		TOTAL	$10,892.16		TOTAL	$10,420.00

TOTAL FOR 9 MANHOLES: $80,629.00

ALL MATERIAL IS GUARANTEED TO BE AS SPECIFIED, AND THE WORK TO BE PERFORMED IN ACCORDANCE WITH THE DRAWING AND SPECIFICATIONS SUBMITTED FOR THE ABOVE WORK AND COMPLETED IN A SUBSTANTIAL WORKMANLIKE MANNER. ANY ALTERATION OR DEVIATION FROM SPECIFICATIONS AND DRAWINGS INVOLVING EXTRA COSTS WILL BE EXECUTED ONLY UPON WRITTEN ORDERS AND WILL BECOME AN EXTRA CHARGE OVER AND ABOVE THE QUOTATION. WORKER'S COMPENSATION AND PUBLIC LIABILITY INSURANCE ON ABOVE WORK TO BE FURNISHED BY FUQUAY, INC. **THERE MAY BE AN ADDITIONAL CHARGE FOR PROVIDING A WAIVER OF SUBROGATION AND/OR BEING LISTED AS AN ADDITIONAL INSURED ON FUQUAY'S INSURANCE. THE CHARGE SHALL BE EQUAL TO THE AMOUNT CHARGED TO FUQUAY FOR SAID SERVICE.**

EXCLUSIONS:

BOND, SALES TAX, AND OCP
PERMITS, BURDENS, FEES
WASTE HAUL-OFF
SURVEYING
SITE CLEARING
BARRICADES, SIGNS, TRAFFIC HANDLING
INFILTRATION REPAIR
DEWATERING
ALL BYPASS PUMPING AND PIPE PLUGGING
PROVIDING AND/OR PERFORMING ANY TESTING

TERMS:

PAYMENT FOR SERVICES SHALL BE DUE AND PAYABLE WITHIN THIRTY DAYS OF THE DATE/MONTH THE WORK IS PERFORMED. THIS PROPOSAL MAY BE WITHDRAWN BY US IF NOT ACCEPTED WITHIN THIRTY DAYS.

RESPECTFULLY SUBMITTED,

FUQUAY, INC.

ACCEPTED BY: _____

COMPANY: _____

NAME: _____

TITLE: _____

ENGINEERING SERVICES

TOWN OF PROSPER
Prosper is a place where everyone matters.

To: **Mayor and Town Council**

From: **Hulon T. Webb, Jr., Interim Executive Director of Development and Infrastructure Services**

Through: **Harlan Jefferson, Town Manager**

Re: **Town Council Meeting – June 28, 2022**

Agenda Item:
Consider and act upon authorizing the Town Manager to execute a Credit Sales Agreement between Mill Branch LLC, and the Town of Prosper, Texas, related to the construction of Fishtrap Road from Stuber Elementary to the Dallas North Tollway.

Description of Agenda Item:
The construction of Fishtrap Road from Stuber Elementary to the Dallas North Tollway project crosses four stream corridors that are protected under Section 404 of the Clean Water Act. The design process included identifying these protected waters and working to limit impacts. Due to the nature of these water courses position in the roadway corridor, types of aquatic features, and length of impacts, a permit was acquired for the unavoidable impacts. This permit demonstrated all the avoidance and minimization efforts required to secure the permit, but the impacts still required compensatory mitigation. Compensatory mitigation that the regulatory agencies utilize is accomplished through purchasing mitigation credits from a mitigation bank. Mitigation banks are essentially areas where entities create streams and wetlands to sell to permittees who are forced to impact protected areas. Mill Branch Mitigation Bank will provide the intermittent stream credits necessary to satisfy the intermittent stream mitigation obligation for this project.

The Town investigated developing its own responsible mitigation for improvements to offset the mitigation costs for the unavoidable impacts. Prior to 2010 it was standard practice for a municipality to undergo a mitigation plan for improvements to offset the mitigation costs on a project. However, a study conducted by the National Academy of Science found that most “permittee responsible mitigation” sites failed over time. As a result, the USACE has determined that issuing permits with permittee responsible mitigation had a net loss of wetlands and waters of the United States. The Fort Worth District of the U.S. Army Corps of Engineers (USACE) has adopted the position that was established in the federal register based on the study, that they will not allow any permittee responsible mitigation for improvements if there is an open and operational mitigation bank that serves the site. As there are operational mitigation banks serving this area, the Town must purchase mitigation credits.

Budget Impact:

The cost of intermittent stream credits is $747,782. The FY 2021-2022 Capital Improvement Program includes $18,000,000 for the 2012-ST Fishtrap Road (Elem – DNT) project. The funding source is Account No. 750-6610-10-00-2012-ST.

Legal Obligations and Review:

Terrence Welch of Brown & Hofmeister, L.L.P., has reviewed and approved the Credit Sales Agreement as to form and legality.

Attached Documents:

1. Credit Sales Agreement
2. Location Map
3. Areas of Impact Map

Town Staff Recommendation:

Town staff recommends that the Town Council authorize the Town Manager to execute a Credit Sales Agreement between Mill Branch LLC, and the Town of Prosper, Texas, related to the construction of Fishtrap Road from Stuber Elementary to the Dallas North Tollway.

Proposed Motion:

I move to authorize the Town Manager to execute a Credit Sales Agreement between Mill Branch LLC, and the Town of Prosper, Texas, related to the construction of Fishtrap Road from Stuber Elementary to the Dallas North Tollway.

Mill Branch
LLC

CREDIT SALES AGREEMENT

This CREDIT SALES AGREEMENT (hereinafter referred to as "Agreement") is made and entered into this _____ day of_____, 2022 by and between MILL BRANCH LLC, a Delaware limited liability company (hereinafter referred to as "MB"), and the Town of Prosper, Texas (hereinafter referred to as "Purchaser").

1.	**PROJECT NAME:**	Fishtrap Road (hereinafter the "Project")
	USACE PERMIT NUMBER:	SWF-2021-00250
	USACE PERMIT TYPE:	NWP 14
	SERVICE AREA:	Mill Branch Primary
	PURCHASER:	Town of Prosper 250 West First Street Prosper, Texas 75078
2.	**PRICING:**	
	Number of credits purchased:	534.13
	Credit type:	534.13 Intermittent
	Credit price (per unit):	$1,400
	Total Purchase Price	**$747,782.00**

3. PAYMENT:

3.1 Nonrefundable Payment: MB agrees to accept from Purchaser at the time of execution of this Agreement a nonrefundable payment in the amount of seven hundred forty seven thousand seven hundred eighty-two dollars and 00/100 ($747,782.00), representing the Total Purchase Price.

3.2 Sale and Transfer: Immediately following MB's receipt of the Total Purchase Price, 534.13 Credits shall be made available for immediate transfer to Purchaser by MB. Such transfer shall occur at a time of Purchaser's choosing. No credits shall be transferred, sold, or otherwise conveyed by MB to Purchaser pursuant to this Agreement prior to MB's receipt of the Total Purchase Price.

4. DELIVERABLES: See Attached Draft Credit Transaction Notification

5. INFORMATION AND RELIANCE: MB and Purchaser acknowledge and agree that MB is relying upon information provided solely by Purchaser in providing compensatory mitigation pursuant to this Agreement. Purchaser shall indemnify and hold MB harmless in the event that any such information proves to be inaccurate, false, or otherwise deficient or in error.

Purchaser warrants that the information provided to MB for the purposes of determining the nature and amount of compensatory mitigation for the Project is accurate and complete to the best of Purchaser's knowledge.

MB shall not be liable for inaccuracies or omissions in the calculation or determination of the amount of compensatory mitigation required for the Project.

6. LIABILITY FOR COMPENSATORY MITIGATION: In consideration for receiving the Total Purchase Price from Purchaser, MB shall assume liability for providing compensatory mitigation under the terms of this Agreement and in accordance with U.S. Army Corps of Engineers Section 404 permit and Texas Commission on Environmental Quality Section 401 certification requirements.

7. FINAL SALE: The sale of credits by MB to Purchaser pursuant to this Agreement is final. Under no circumstances shall Purchaser be entitled to a refund of any amounts provided to MB for compensatory mitigation for the Project.

8. COMPLETE AGREEMENT: This Agreement constitutes the full and complete agreement by and between MB and Purchaser for the sale of compensatory mitigation credits for the Project.

9. RECEIPT OF TOTAL PURCHASE PRICE: By executing this Agreement the Parties acknowledge that Purchaser has tendered to MB the Total Purchase Price set forth in Paragraph 2, above.

10. GOVERNING LAW: This Agreement shall be construed, interpreted, and enforced under the laws of the State of Texas with the sole proper venue being Travis County, Texas.

11. NONASSIGNABILITY: This Agreement may not be assigned without the consent, in writing, of the other Party.

12. AGREEMENT BINDING ON SUCCESSORS: This Agreement shall be binding upon the Parties, their legal representatives, heirs, successors, and assigns to the fullest extent of prevailing law.

_____(By)	_____(By)
Harlan Jefferson Town Manager	J. Adam Riggsbee, PhD
Authorized for:	Authorized for:
Town of Prosper, Texas	Mill Branch LLC
Date: _____	Date: _____

Mill Branch
LLC

Date

Brian Bartels
US Army Corps of Engineers
819 Taylor Street
Room 3A37
Fort Worth, TX 76102

Delivered via Email

RE: CREDIT TRANSACTION NOTIFICATION for SWF-2021-00250; Fishtrap Road

Dear Mr. Bartels,

Per our Mill Branch Mitigation Banking Instrument (MBI; SWF-2010-00321), we are required to report all credit sales within thirty (30) days of transaction. This letter serves as notice that a transaction was concluded on **Date** with Mill Branch Mitigation Bank covering a portion of the mitigation requirements under **SWF-2021-00250**. The Mill Branch RIBITS Ledger will be debited appropriately within 30 days from the date of this transaction.

The number of credits purchased by the buyer was:

- Five hundred thirty-four and thirteen hundredths (**534.13**) **Intermittent In-Channel Credits** to be debited from the following portions of Mill Branch Mitigation Bank
  - **TBD**

Additional specifics regarding the purchaser and other relevant USACE permit information have been recorded in the Mill Branch Ledger as required under our MBI (Section IV Part 4).

Sincerely,

J. Adam Riggsbee, PhD
President

Cc: Brent Jasper
Rudi Reinecke
Harlan Jefferson

DRAFT

LOCATION MAP

2012-ST Fishtrap (Elem - DNT) - 4 lanes

Figure 1.
General Location Map

Fishtrap Road Improvements
Town of Prosper
Collin and Denton Counties, Texas

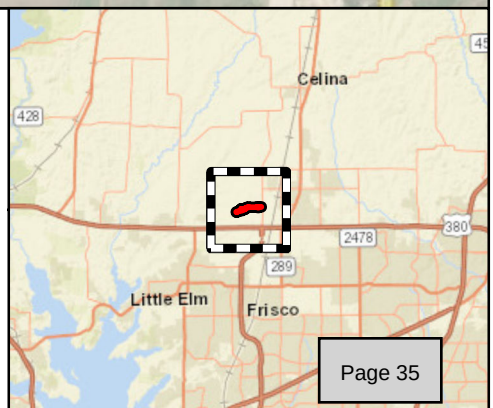
1 in = 2,500 feet

Feet
0 2,500

N
W E
S

File Ref. 04.080.084
Date: 8/9/2021

Survey Corridor



Area of Detail

Scale: 1 inch equals 10 miles

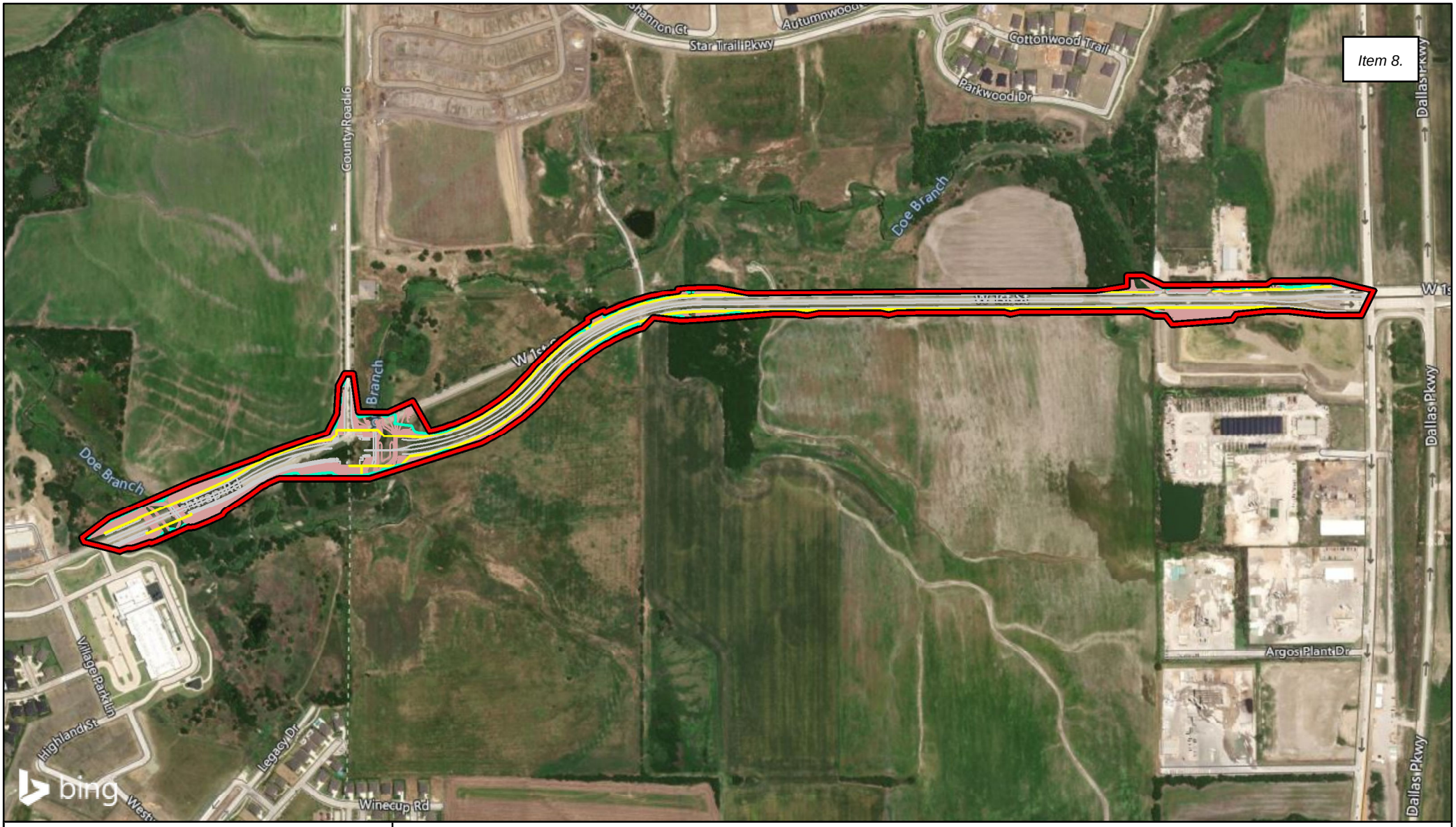


Figure 2
Proposed Site Plan

Fishtrap Road Improvements
Town of Prosper
Collin and Denton Counties, Texas

1 in = 750 feet

Feet
0 750

N
W E
S

File Ref. 04.080.084
Date: 8/9/2021

Survey Corridor

Site Plan

- Limits of Disturbance
- Right of Way Limits
- Pavement
- Grading Contours

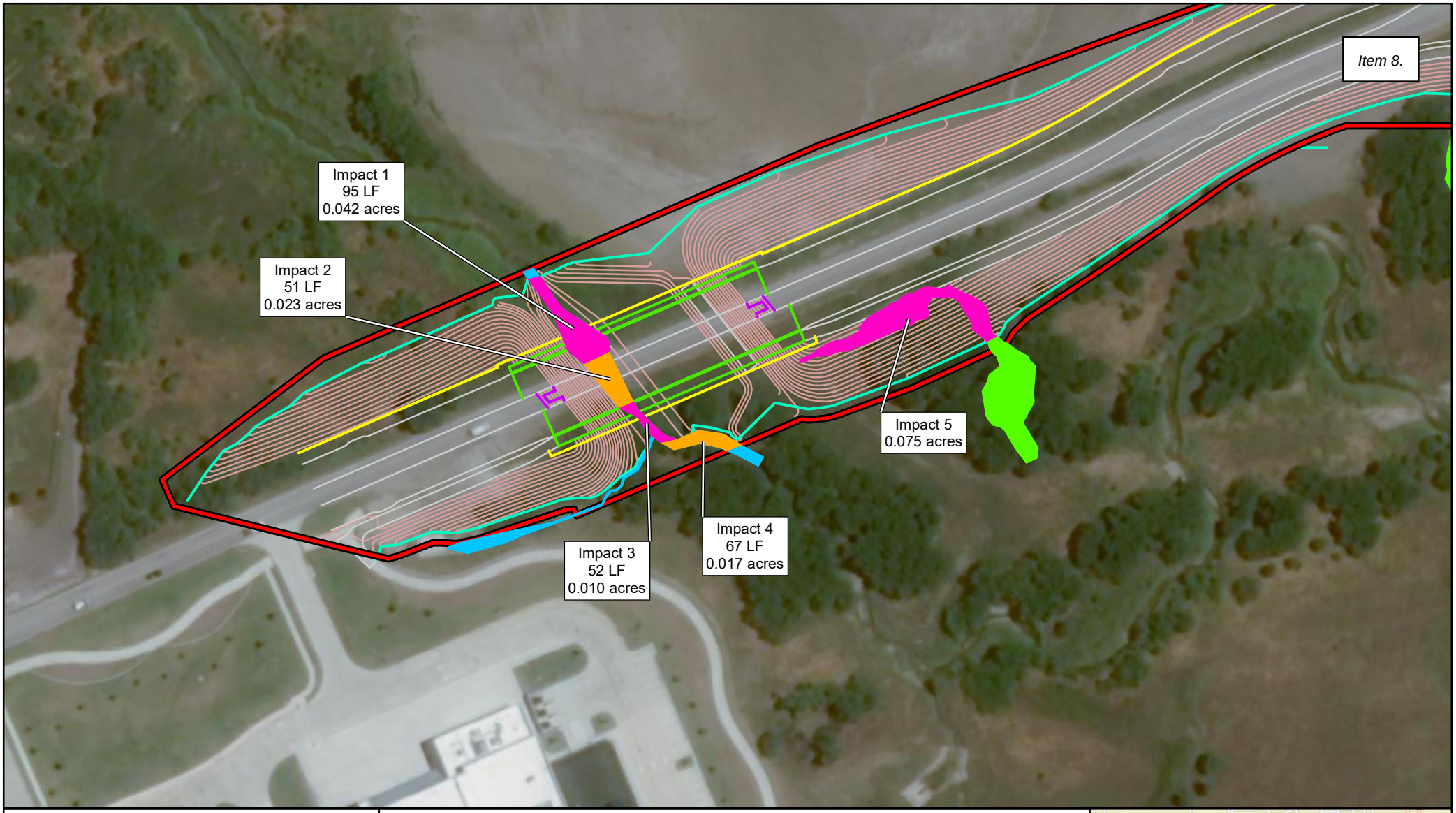


Figure 3
Impacts to Waters of the U.S.
Crossing 1

Fishtrap Road
Town of Prosper
Collin & Denton Counties, Texas

1 in = 125 feet

Feet
0 125

N W E S

File Ref. 04.080.084
Date: 8/17/2021

Survey Corridor

Impacts to Wetlands, Other Special Aquatic Sites, and Other Waters

Direct/Permanent

Direct/Temporary

Wetlands, Other Special Aquatic Sites, and Other Waters

Tributary

Wetland

Site Plan

Limits of Disturbance

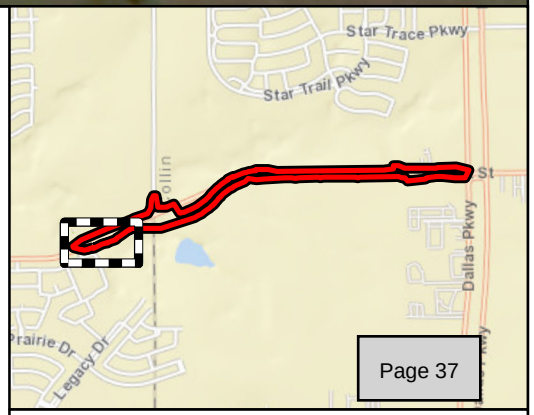
Bridge

Right of Way Limits

Riprap

Pavement

Grading Contours



Area of Detail

Scale: 1 inch equals 3,500 feet

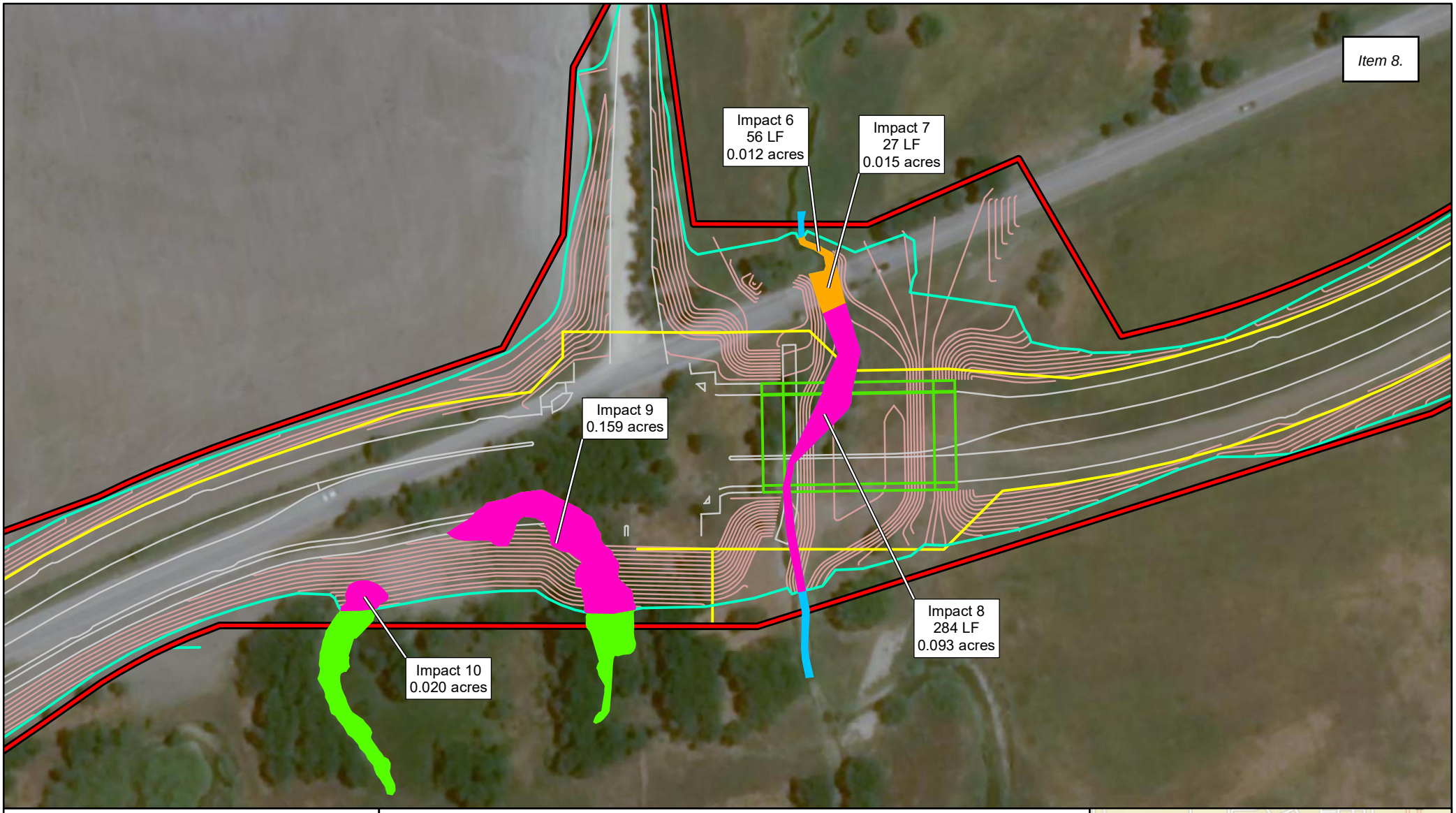


Figure 4
Impacts to Waters of the U.S.
Crossing 2

Fishtrap Road
Town of Prosper
Collin & Denton Counties, Texas

1 in = 125 feet

Feet
0 125

N W E S

File Ref. 04.080.084
Date: 8/17/2021

Survey Corridor

Impacts to Wetlands, Other Special Aquatic Sites, and Other Waters

Direct/Permanent

Direct/Temporary

Wetlands, Other Special Aquatic Sites, and Other Waters

Tributary

Wetland

Site Plan

Limits of Disturbance

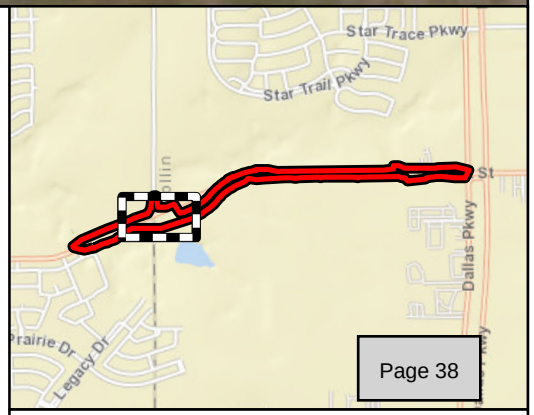
Bridge

Right of Way Limits

Riprap

Pavement

Grading Contours



Area of Detail

Scale: 1 inch equals 3,500 feet

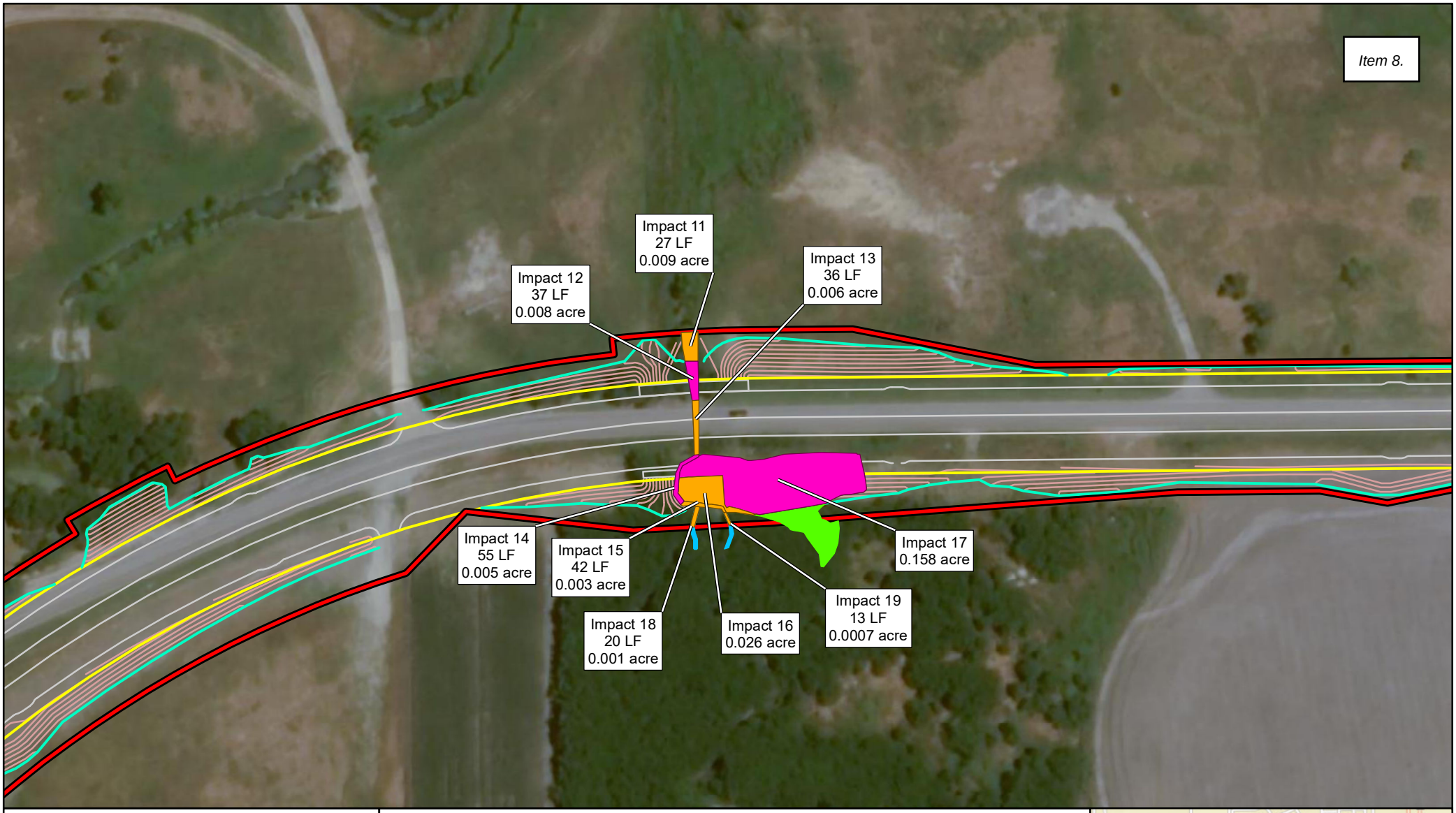


Figure 5
Impacts to Waters of the U.S.
Crossing 3

Fishtrap Road
Town of Prosper
Collin & Denton Counties, Texas

1 in = 125 feet

Feet
0 125

N W E S

File Ref. 04.080.084
Date: 10/21/2021

Survey Corridor

Impacts to Wetlands, Other Special Aquatic Sites, and Other Wetlands

Direct/Permanent

Direct/Temporary

Wetlands, Other Special Aquatic Sites, and Other Waters

Tributary

Wetland

Site Plan

Limits of Disturbance

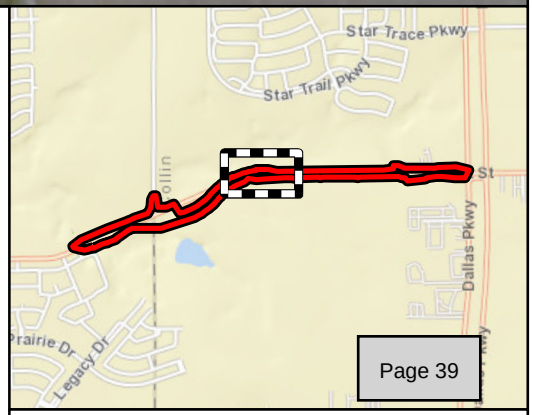
Bridge

Right of Way Limits

Riprap

Pavement

Grading Contours



Area of Detail **Scale: 1 inch equals 3,500 feet**

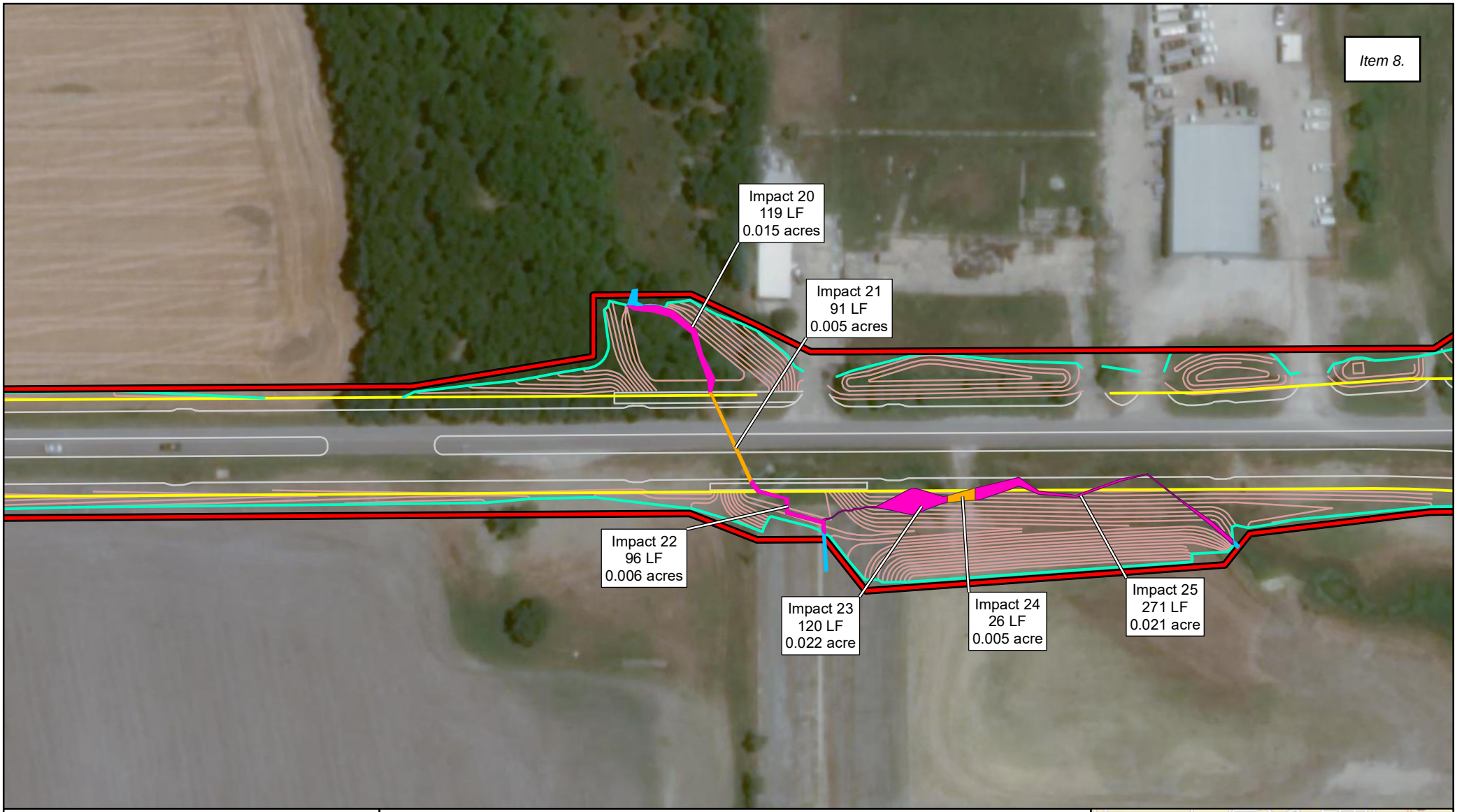


Figure 6
Impacts to Waters of the U.S.
Crossing 4

Fishtrap Road
Town of Prosper
Collin & Denton Counties, Texas

1 in = 125 feet

Feet
0 125

N W E S

File Ref. 04.080.084
Date: 10/21/2021

Survey Corridor

Impacts to Wetlands, Other Special Aquatic Sites, and Other Wetlands

Direct/Permanent

Direct/Temporary

Wetlands, Other Special Aquatic Sites, and Other Waters

Tributary

Site Plan

Limits of Disturbance

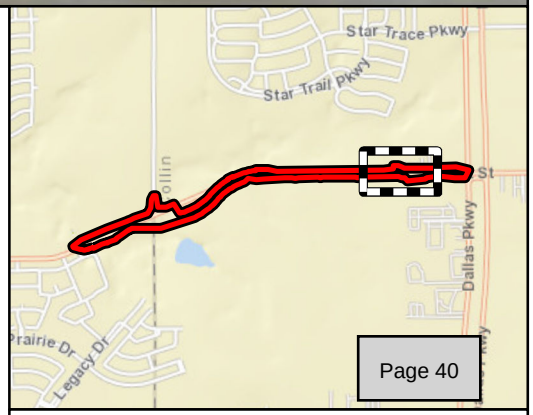
Bridge

Right of Way Limits

Riprap

Pavement

Grading Contours



Area of Detail

Scale: 1 inch equals 3,500 feet

ENGINEERING SERVICES

TOWN OF PROSPER

Prosper is a place where everyone matters.

To: **Mayor and Town Council**

From: **Hulon T. Webb, Jr., Interim Executive Director of Development and Infrastructure Services**

Through: **Harlan Jefferson, Town Manager**

Re: **Town Council Meeting – June 28, 2022**

Agenda Item:

Consider and act upon authorizing the Town Manager to execute a Mitigation Credit Sales Agreement between Wetlands Management, L.P., and the Town of Prosper, Texas, related to the construction of Fishtrap Road from Stuber Elementary to the Dallas North Tollway.

Description of Agenda Item:

The construction of Fishtrap Road from Stuber Elementary to the Dallas North Tollway project crosses four stream corridors that are protected under Section 404 of the Clean Water Act. The design process included identifying these protected waters and working to limit impacts. Due to the nature of these water courses position in the roadway corridor, types of aquatic features, and length of impacts, a permit was acquired for the unavoidable impacts. This permit demonstrated all the avoidance and minimization efforts required to secure the permit, but the impacts still required compensatory mitigation. Compensatory mitigation that the regulatory agencies utilize is accomplished through purchasing mitigation credits from a mitigation bank. Mitigation banks are essentially areas where entities create streams and wetlands to sell to permittees who are forced to impact protected areas. Wetlands Management Mitigation Bank will provide the wetlands credits necessary to satisfy the wetlands mitigation obligation for this project.

The Town investigated developing its own responsible mitigation for improvements to offset the mitigation costs for the unavoidable impacts. Prior to 2010 it was standard practice for a municipality to undergo a mitigation plan for improvements to offset the mitigation costs on a project. However, a study conducted by the National Academy of Science found that most "permittee responsible mitigation" sites failed over time. As a result, the USACE has determined that issuing permits with permittee responsible mitigation had a net loss of wetlands and waters of the United States. The Fort Worth District of the U.S. Army Corps of Engineers (USACE) has adopted the position that was established in the federal register based on the study, that they will not allow any permittee responsible mitigation for improvements if there is an open and operational mitigation bank that serves the site. As there are operational mitigation banks serving this area, the Town must purchase mitigation credits.

Budget Impact:

The cost of wetlands credits is $17,800. The FY 2021-2022 Capital Improvement Program includes $18,000,000 for the 2012-ST Fishtrap Road (Elem – DNT) project. The funding source is Account No. 750-6610-10-00-2012-ST.

Legal Obligations and Review:

Terrence Welch of Brown & Hofmeister, L.L.P., has reviewed and approved the Mitigation Credit Sales Agreement as to form and legality.

Attached Documents:

1. Mitigation Credit Sales Agreement
2. Location Map
3. Areas of Impact Map

Town Staff Recommendation:

Town staff recommends that the Town Council authorize the Town Manager to execute a Mitigation Credit Sales Agreement between Wetlands Management, L.P., and the Town of Prosper, Texas, related to the construction of Fishtrap Road from Stuber Elementary to the Dallas North Tollway.

Proposed Motion:

I move to authorize the Town Manager to execute a Mitigation Credit Sales Agreement between Wetlands Management, L.P., and the Town of Prosper, Texas, related to the construction of Fishtrap Road from Stuber Elementary to the Dallas North Tollway.

MITIGATION CREDIT SALES AGREEMENT

This Mitigation Credit Sales Agreement (the "Agreement") is entered into by and between Wetlands Management, L.P., a Texas limited partnership ("Wetlands"), and Town of Prosper, Texas, (the "Purchaser").

RECITALS:

A. This Agreement is entered into pursuant to that certain Mitigation Banking Instrument Agreement dated April 30, 2008, (the "MBI") between, among others, Wetlands Management, L.P., a Texas limited partnership ("Wetlands"), as the sponsor, and the U.S. Army Corp of Engineers ("USACE") which established the Bunker Sands Mitigation Bank (BSMB) under Permit Number SWF-2004-00420 (the "Bank").

B. Pursuant to the terms of the MBI, Wetlands intends to develop, restore, enhance, create and preserve wetlands, and open water habitat on certain real property described in the MBI in exchange for mitigation bank credits authorized by USACE (the "Credits").

C. The Purchaser is developing certain real property, and in conjunction with such development, USACE has required that the Purchaser provide off-site wetland mitigation to compensate for impacts to USACE jurisdictional wetlands.

D. The Purchaser desires to purchase 0.4 credits (the "Credits") to satisfy the Purchaser's mitigation obligation for 0.412 acres of low-quality wetland habitat. The Purchaser's Permit Number is SWF-2021-00250.

AGREEMENT:

NOW, THEREFORE, for good and valuable consideration described in this Agreement, the receipt and sufficiency of which are hereby acknowledged, the Purchaser and Wetlands agree as follows:

1. Sale of the Credits. Wetlands hereby agrees to sell and assign, and does hereby sell, assign, transfer and convey to the Purchaser, and the Purchaser hereby agrees to purchase and accept, and does hereby purchase, accept, acquire and receive from Wetlands, 0.4 credits (the "Credits").

2. Payment for Credits. In consideration of the delivery of the Credits, the Purchaser agrees to pay to Wetlands the sum of Seventeen Thousand, Eight Hundred Dollars and No/100 ($17,800.00) for all of the Credits purchased pursuant to this Agreement.

3. Representations.

(a) Representations of Wetlands. Wetlands represents to the Purchaser the following:

(i.) The Credits are free and clear of all liens, pledges, security interests or other encumbrances other than those imposed by the MBI;

(ii.) Wetlands has duly taken all action necessary to authorize its execution and delivery of this Agreement and to authorize the consummation and performance of the transactions contemplated by this Agreement;

(iii.) Wetlands shall issue to Purchaser such documentation as is required by USACE to show the purchase of 0.4 Credits was consummated by Purchaser in accordance with the MBI;

(iv.) this Agreement, and all other agreements executed in connection with this Agreement, are the legal, valid and binding obligations of Wetlands, enforceable in accordance with their terms except as such enforcement may be limited by bankruptcy, insolvency or similar laws of general application relating to the enforcement of creditors' rights; and

(v.) Wetlands is operating and will continue to operate the Bank in accordance with all applicable USACE laws, regulations, orders, permit requirements, agreements and guidance, including, without limitation, the MBI and Permit Number SWF-2004-00420.

Other than as expressly set forth above, Wetlands does not make any representations or warranties to Purchaser, including, without limitation, the suitability of the Credits or whether or not the Credits will satisfy, in whole or part, any mitigation obligation of the Purchaser.

(b) Representations of Purchaser. The Purchaser represents to Wetlands the following:

(i.) The Purchaser has duly taken all action necessary to authorize its execution and delivery of this Agreement and to authorize the consummation and performance of the transactions contemplated by this Agreement; and

(ii.) This Agreement, and all other agreements executed in connection with this Agreement, are the legal, valid and binding obligations of the Purchaser, enforceable in accordance with their terms except as such enforcement may be limited by bankruptcy, insolvency or similar laws of general application relating to the enforcement of creditors' rights.

Other than as expressly set forth above, Purchaser does not make any representations or warranties to Wetlands.

4. Confidentiality. The Purchaser shall keep absolutely confidential the existence of this Agreement, its terms, and all information regarding the MBI, Wetlands, the Credits and the Bank that the Purchaser learned, was provided or was otherwise disclosed to Purchaser in connection with the negotiation, execution and consummation of this Agreement, except for the disclosure of those items that are already in the public domain, where disclosure is otherwise required by law, or the disclosure is approved by Wetlands in writing.

5. Notices. Notices or other communications under this Agreement by either party to the other shall be given or delivered sufficiently if they are in writing and are delivered personally, or are dispatched by registered or certified mail, postage pre-paid, or facsimile, addressed or delivered to the other party as set forth on the signature pages to this Agreement.

6. Binding Agreement; Assignment. This Agreement, and its benefits and obligations, shall inure to and bind the respective heirs, executors, administrators, successors and assigns of the parties hereto. This Agreement may not be assigned by Wetlands or the Purchaser without the written consent of the other.

7. Attorney's Fees. If there is a dispute between the Purchaser and Wetlands under this Agreement, the prevailing party shall be entitled to recover all costs incurred, including reasonable attorney's fees, paralegal's fees and appellate and post-judgment proceedings and all costs thereof.

8. Final Agreement. This Agreement embodies the whole agreement of the Purchaser and Wetlands. This Agreement shall supersede all previous communications, discussions, representations, advertisements, proposals or agreements either verbal or written, between the Purchaser and Wetlands not otherwise contained in this Agreement.

9. Captions. The captions in this Agreement are included for convenience only and shall be given no legal effect whatsoever.

10. Modification. This Agreement may not be modified except by written instrument executed by both the Purchaser and Wetlands.

11. Choice of Laws: Venue. This Agreement shall be governed by the laws of the State of Texas, and the venue for all disputes with respect to this Agreement shall be in Dallas, Dallas County, Texas.

12. Partial Invalidity. Should any part of this Agreement be rendered void, invalid or unenforceable by any court of law for any reason, such a determination shall not render void, invalid or unenforceable any other part of this Agreement, provided, however, that the parties receive the full consideration bargained for hereunder.

13. Counterparts. This Agreement may be executed in multiple counterparts, each of which shall constitute an original, and all of which shall constitute one and the same agreement.

(the remainder of this page intentionally left blank)

IN WITNESS WHEREOF, the Purchaser and Wetlands have executed this Agreement effective for all purposes as of the _____ day of _____, 2022.

WETLANDS:

WETLANDS MANAGEMENT, L.P.

By:_____
John M. Dziminski
Its: President

Address: 2101 Cedar Springs Road
Suite 1600
Dallas, TX 75201

Telephone: 214-849-9145

THE PURCHASER:

Town of Prosper, Texas

By: _____
Harlan Jefferson
Town Manager

Address: 250 W. First Street
Prosper, TX 75078

Telephone: _____

LOCATION MAP

2012-ST Fishtrap (Elem - DNT) - 4 lanes

Figure 1.
General Location Map

Fishtrap Road Improvements
Town of Prosper
Collin and Denton Counties, Texas

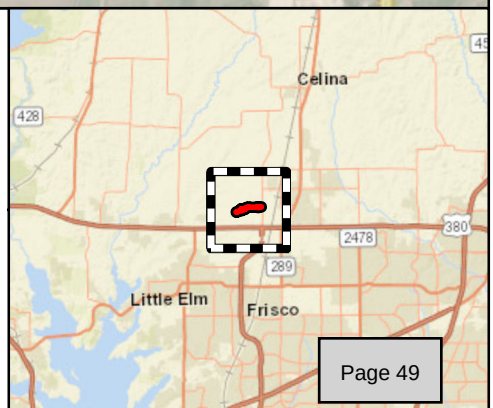
1 in = 2,500 feet

Feet
0 2,500

N
W E
S

File Ref. 04.080.084
Date: 8/9/2021

Survey Corridor



Area of Detail **Scale: 1 inch equals 10 miles**

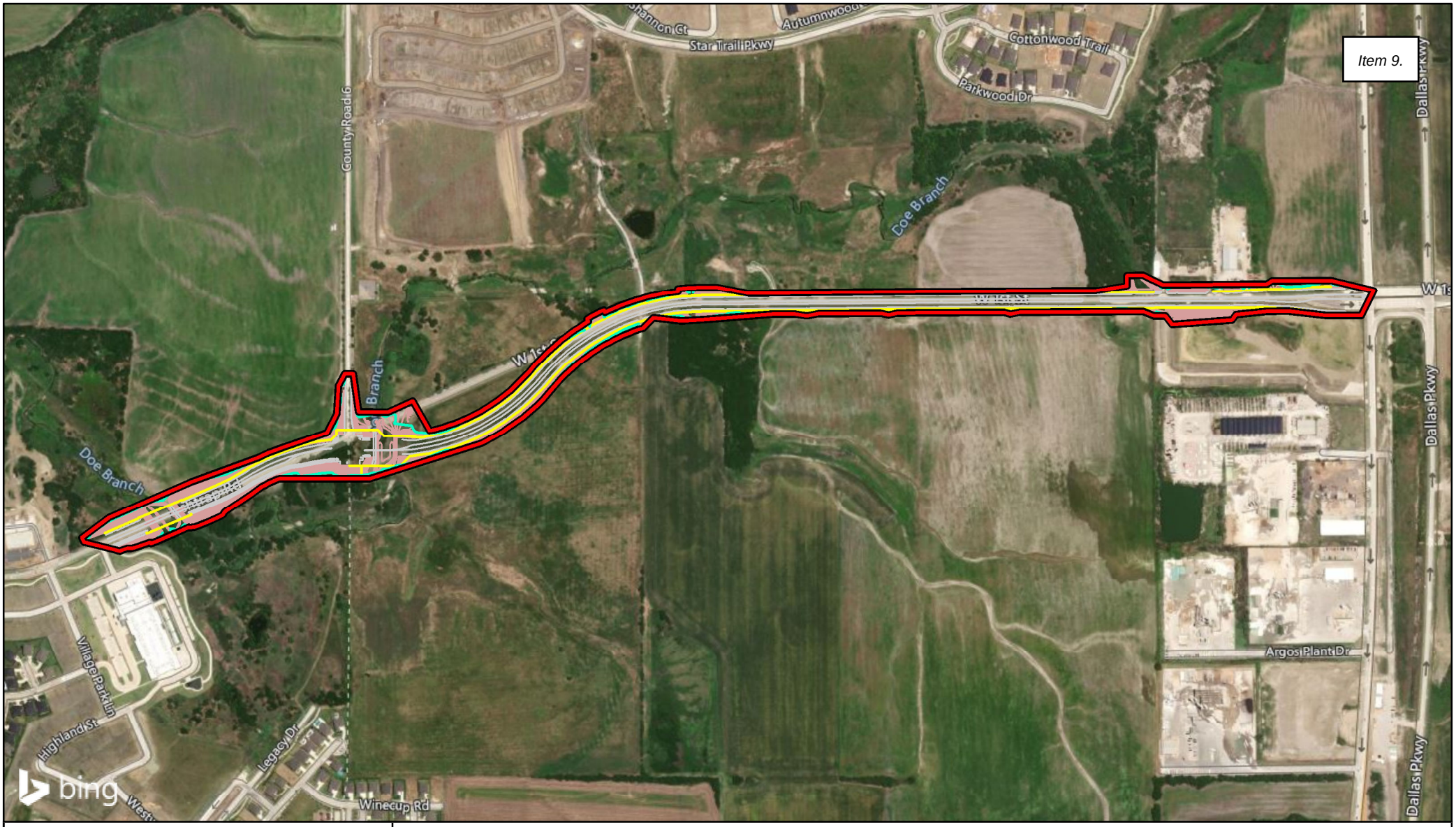


Figure 2
Proposed Site Plan

Fishtrap Road Improvements
Town of Prosper
Collin and Denton Counties, Texas

1 in = 750 feet

Feet
0 750

N
W E
S

File Ref. 04.080.084
Date: 8/9/2021

Survey Corridor

Site Plan

- Limits of Disturbance
- Right of Way Limits
- Pavement
- Grading Contours

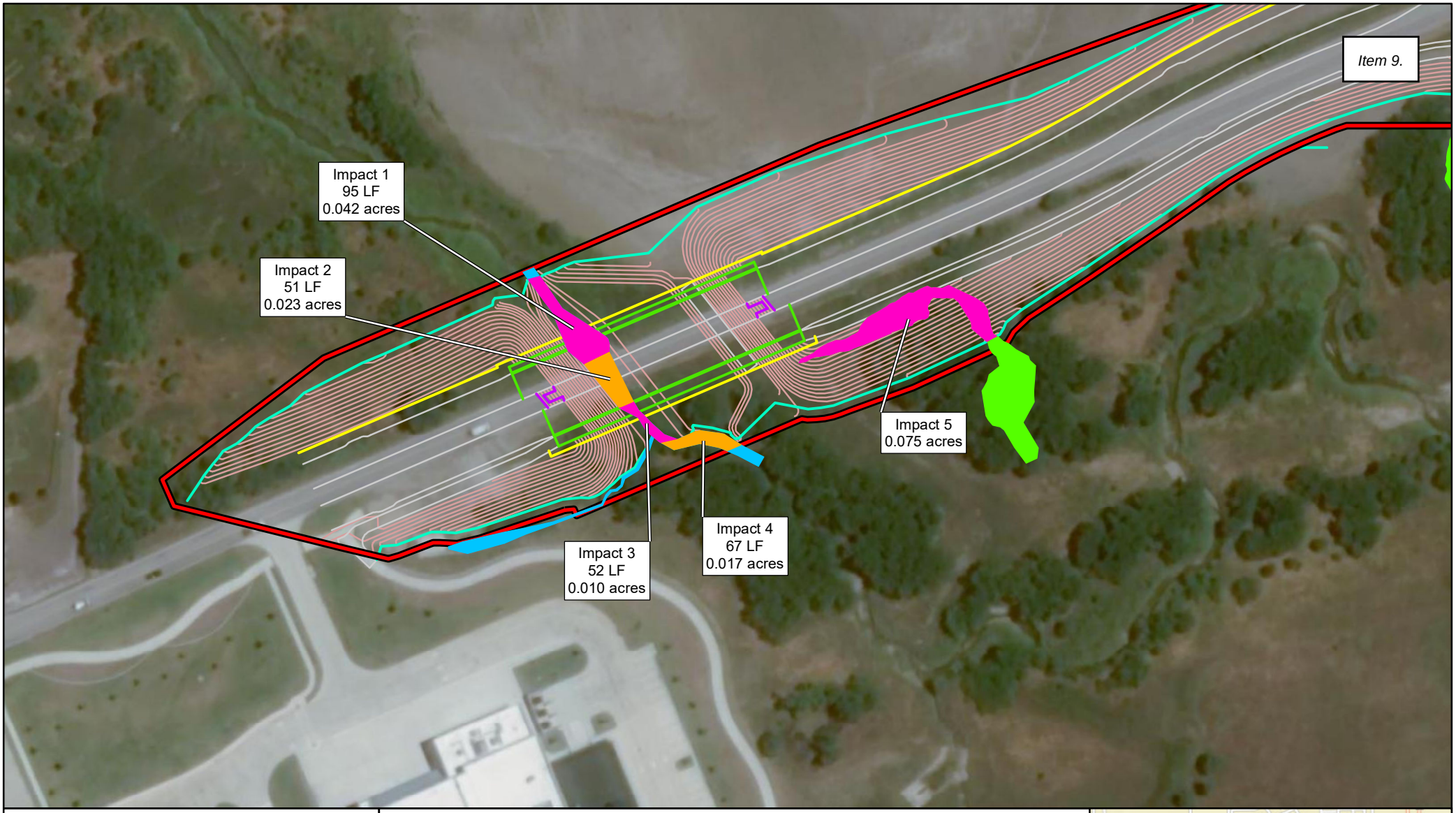


Figure 3
Impacts to Waters of the U.S.
Crossing 1

Fishtrap Road
Town of Prosper
Collin & Denton Counties, Texas

1 in = 125 feet

Feet
0 125

N W E S

File Ref. 04.080.084
Date: 8/17/2021

Survey Corridor

Impacts to Wetlands, Other Special Aquatic Sites, and Other Waters

Direct/Permanent

Direct/Temporary

Wetlands, Other Special Aquatic Sites, and Other Waters

Tributary

Wetland

Site Plan

Limits of Disturbance

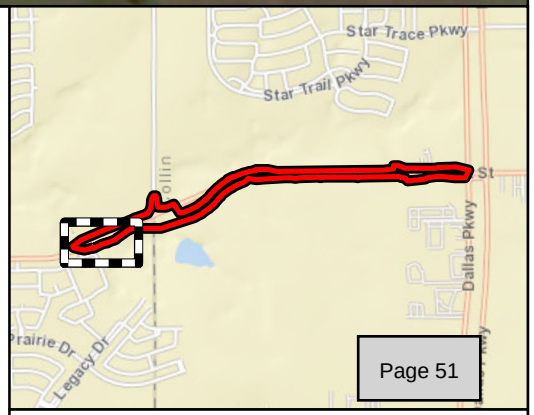
Bridge

Right of Way Limits

Riprap

Pavement

Grading Contours



Area of Detail

Scale: 1 inch equals 3,500 feet

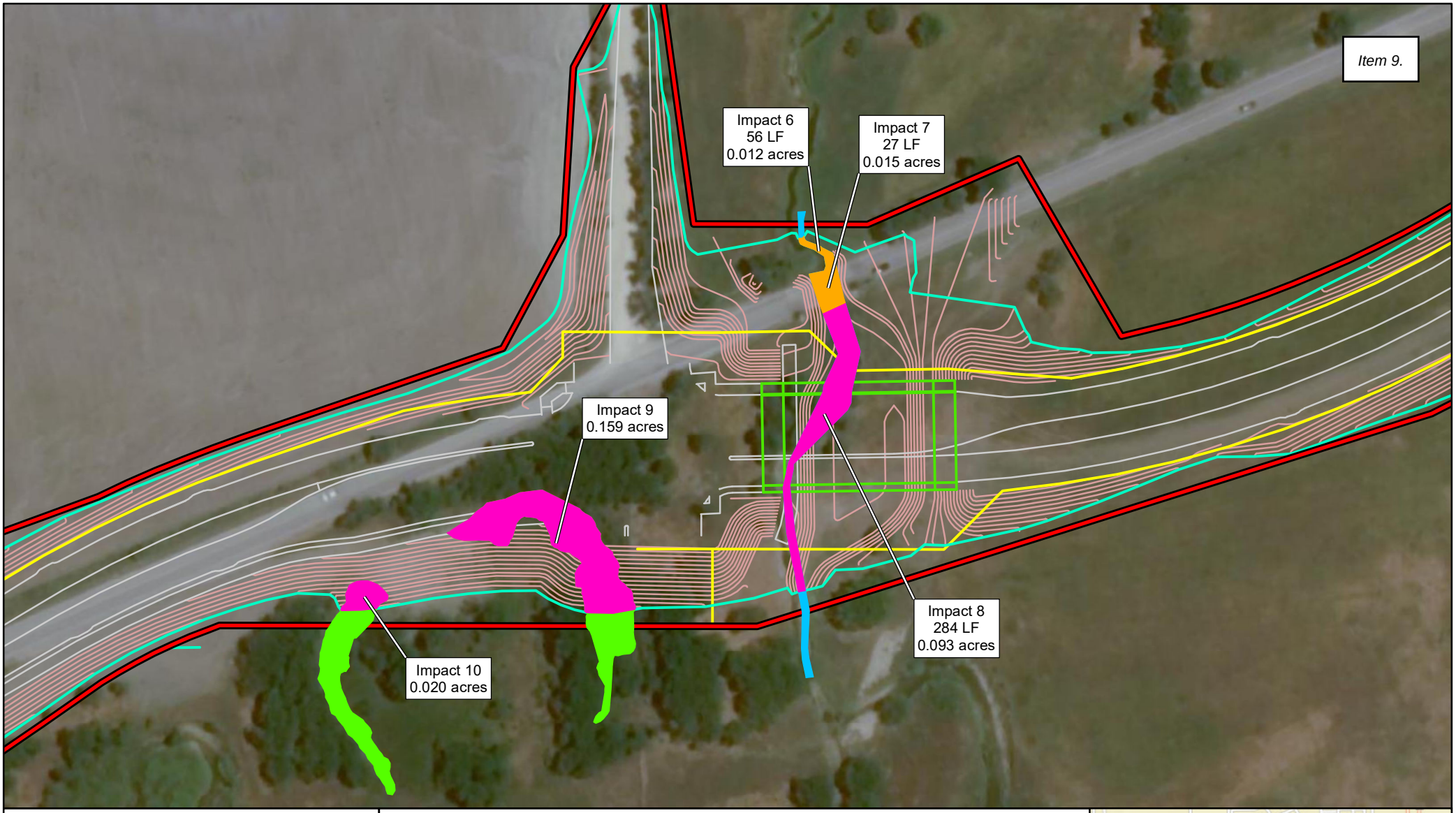


Figure 4
Impacts to Waters of the U.S.
Crossing 2

Fishtrap Road
Town of Prosper
Collin & Denton Counties, Texas

1 in = 125 feet

Feet
0 125

N W E S

File Ref. 04.080.084
Date: 8/17/2021

Survey Corridor

Impacts to Wetlands, Other Special Aquatic Sites, and Other Waters

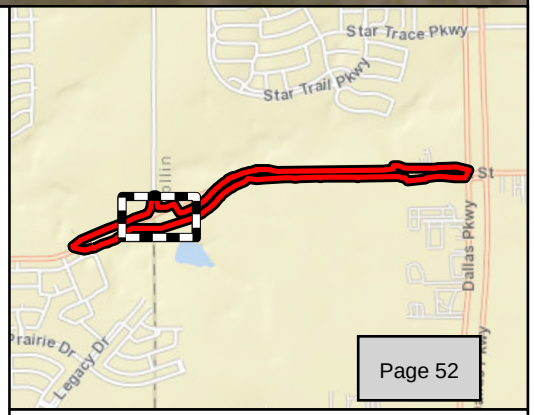
- Direct/Permanent
- Direct/Temporary

Wetlands, Other Special Aquatic Sites, and Other Waters

- Tributary
- Wetland

Site Plan

- Limits of Disturbance
- Bridge
- Right of Way Limits
- Riprap
- Pavement
- Grading Contours



Area of Detail **Scale: 1 inch equals 3,500 feet**

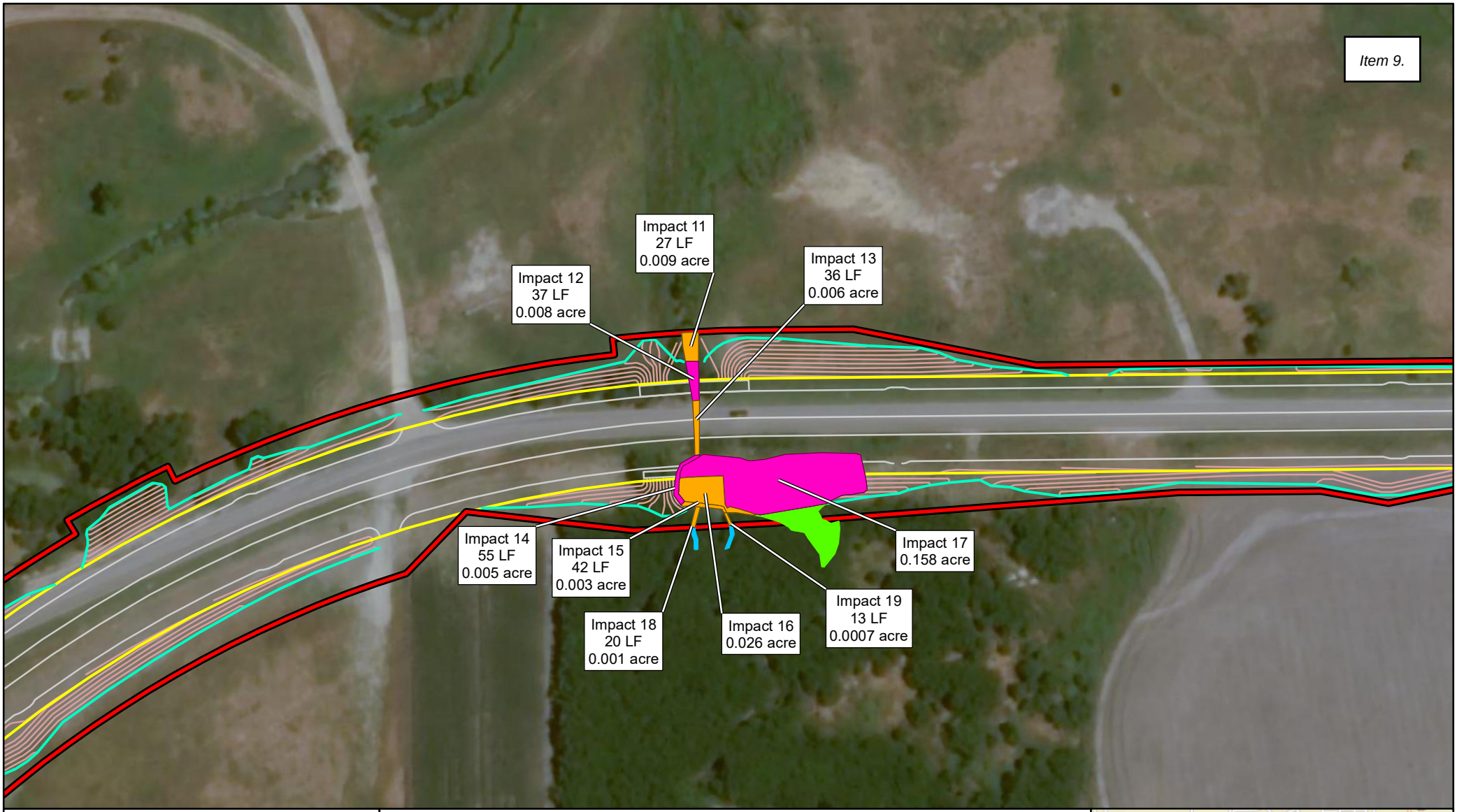


Figure 5
Impacts to Waters of the U.S.
Crossing 3

Fishtrap Road
Town of Prosper
Collin & Denton Counties, Texas

1 in = 125 feet

Feet
0 125

N W E S

File Ref. 04.080.084
Date: 10/21/2021

Survey Corridor

Impacts to Wetlands, Other Special Aquatic Sites, and Other Wetlands

- Direct/Permanent
- Direct/Temporary

Wetlands, Other Special Aquatic Sites, and Other Waters

- Tributary
- Wetland

Site Plan

- Limits of Disturbance
- Bridge
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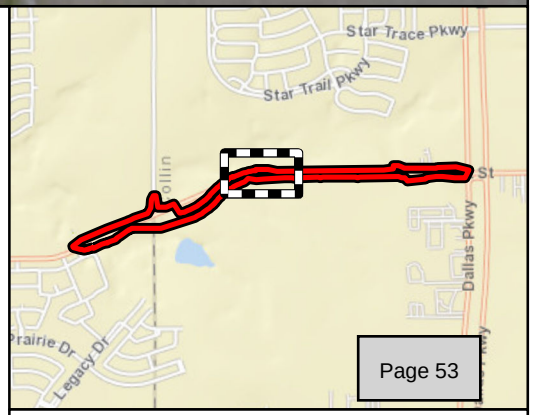
- Riprap
- Pavement
- Grading Contours



Area of Detail **Scale: 1 inch equals 3,500 feet**

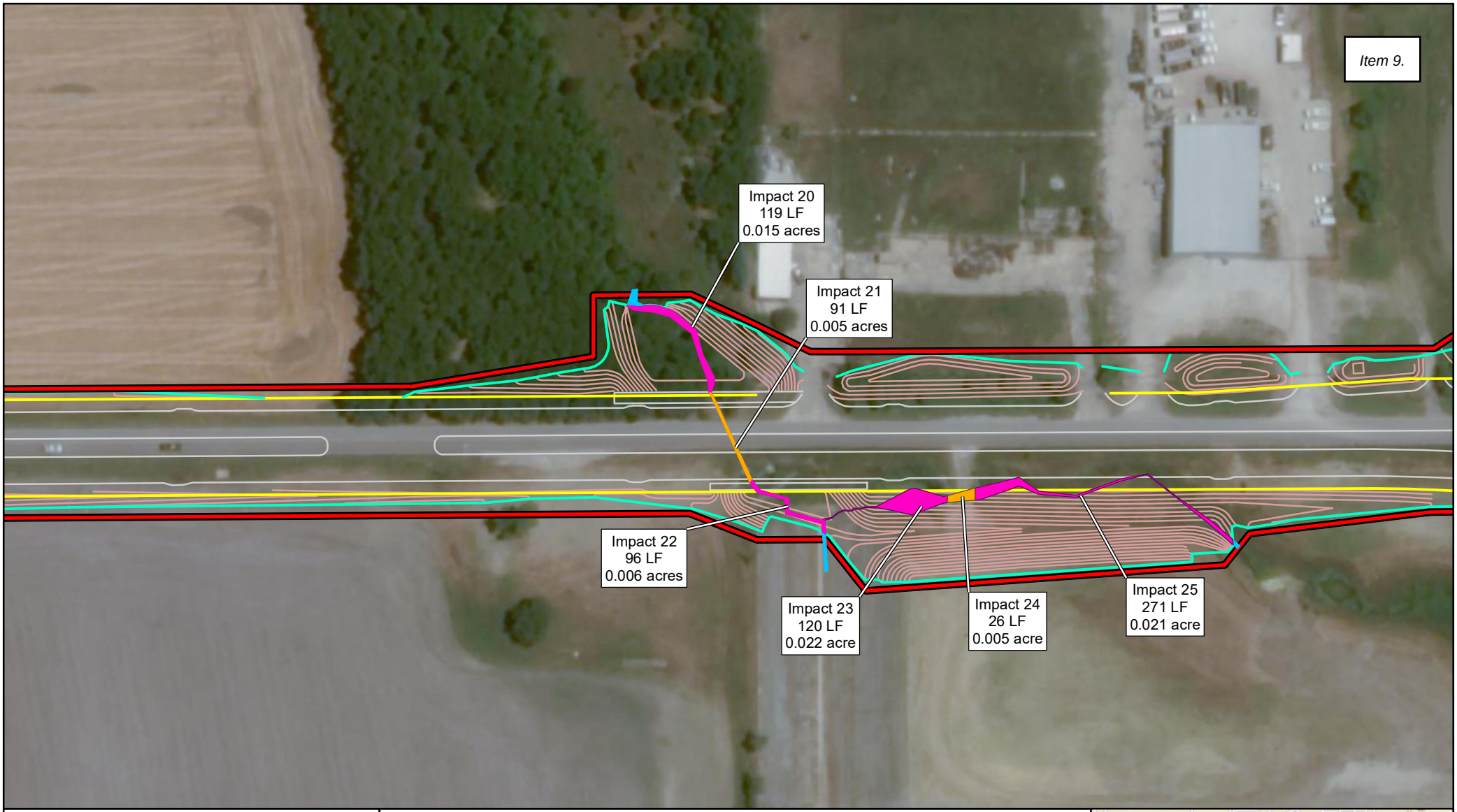


Figure 6
Impacts to Waters of the U.S.
Crossing 4

Fishtrap Road
Town of Prosper
Collin & Denton Counties, Texas

1 in = 125 feet

Feet
0 125

N W E S

File Ref. 04.080.084
Date: 10/21/2021

Survey Corridor

Impacts to Wetlands, Other Special Aquatic Sites, and Other Wetlands

Direct/Permanent

Direct/Temporary

Wetlands, Other Special Aquatic Sites, and Other Waters

Tributary

Site Plan

Limits of Disturbance

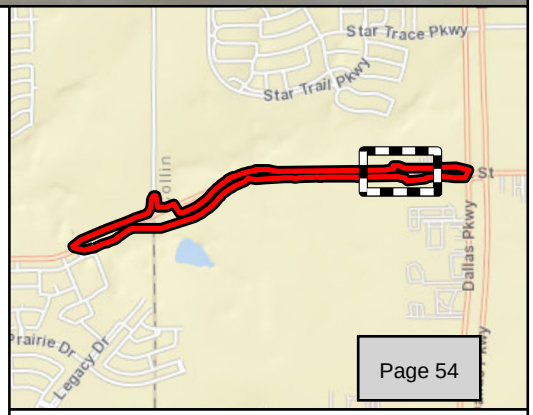
Bridge

Right of Way Limits

Riprap

Pavement

Grading Contours



Area of Detail

Scale: 1 inch equals 3,500 feet

FIRE DEPARTMENT

TOWN OF PROSPER

Prosper is a place where everyone matters.

To: **Mayor and Town Council**

From: **Stuart Blasingame, Fire Chief**

Through: **Harlan Jefferson, Town Manager**

Re: **Town Council Meeting – June 28, 2022**

Agenda Item:
Consider and act upon adopting the Collin County Hazard Mitigation Action Plan (HazMAP) dated June 6, 2022.

Description of Agenda Item:
Collin County Emergency Management and participating municipalities have completed the Collin County Hazard Mitigation Plan. This plan identifies the major potential threats to the county and municipalities, and provides mitigation plans and strategies to address those threats. Following FEMA's evaluation and approval of the plan, the Collin County Commissioners court unanimously approved and adopted the plan. All participating municipalities are asked to formally adopt the plan as well.

Budget Impact:
There is no cost impact as this plan is adopted and sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects.

Legal Obligations and Review:
Terrence Welch of Brown & Hofmeister, L.L.P., has previously reviewed the resolution as to form and legality.

Attached Documents:
1. Resolution
2. Collin County Hazard Mitigation Action Plan, June 6, 2022

Town Staff Recommendation:
Town staff recommends approval of the Collin County Hazard Mitigation Action Plan (HazMAP) dated June 6, 2022.

Proposed Motion:

I move to approve the Collin County Hazard Mitigation Action Plan (HazMAP) dated June 6, 2022.

TOWN OF PROSPER, TEXAS **RESOLUTION NO. 2022-XX**

A RESOLUTION OF THE TOWN OF PROSPER, TEXAS, ADOPTING THE COLLIN COUNTY HAZARD MITIGATION ACTION PLAN, JUNE 6, 2022; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the Town of Prosper recognizes the threat that natural hazards pose to people and property within Collin County, Texas; and

WHEREAS, Collin County has prepared a multi-hazard mitigation plan, hereby known as Collin County Hazard Mitigation Action Plan, June 6, 2022, in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, Collin County Hazard Mitigation Action Plan, June 6, 2022, identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Prosper from the impacts of future hazards and disasters; and

WHEREAS, adoption by the Town of Prosper demonstrates its commitment to hazard mitigation and achieving the goals outlined in the Collin County Hazard Mitigation Action Plan, June 6, 2022.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF PROSPER, TEXAS:

SECTION 1

The Town Council of the Town of Prosper, Texas, in accordance with the Prosper Town Charter, hereby adopts the Collin County Hazard Mitigation Action Plan, June 6, 2022.

SECTION 2

This Resolution shall take effect immediately upon its passage.

DULY PASSED AND APPROVED BY THE TOWN COUNCIL OF THE TOWN OF PROSPER, TEXAS, THIS THE 28TH DAY OF JUNE, 2022.

_____
David F. Bristol, Mayor

ATTEST:

_____
Michelle Lewis Sirianni, Town Secretary

APPROVED AS TO FORM AND LEGALITY:

_____
Terrence S. Welch, Town Attorney

State of Texas	§	**Court Order**
Collin County	§	**2022-519-06-06**
Commissioners Court	§	

An order of the Collin County Commissioners Court approving the adoption of the Hazard Mitigation Action Plan.

The Collin County Commissioners Court hereby approves the adoption of the Collin County Hazard Mitigation Action Plan, as detailed in the attached documentation.

A motion was made, seconded, and carried by a majority of the court members in attendance during a regular session on Monday, June 6, 2022.

Chris Hill, County Judge

Darrell Hale, Commissioner, Pct 3

Susan Fletcher, Commissioner, Pct 1

Duncan Webb, Commissioner, Pct 4

Cheryl Williams, Commissioner, Pct 2

ATTEST: Stacey Kemp, County Clerk

Hazard Mitigation Action Plan

June 6, 2022

Collin County, Texas

Executive Summary

Mitigation is commonly defined as sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects. Hazard mitigation focuses attention and resources on community policies and actions that will produce successive benefits over time. A mitigation plan states the aspirations and specific courses of action that a community intends to follow to reduce vulnerability and exposure to future hazard events. These plans are formulated through a systematic process centered on the participation of citizens, businesses, public officials, and other community stakeholders.

The planning area for this plan update is for Collin County, Texas and includes the following jurisdictions:

A. Collin County (unincorporated)
B. City of Allen
C. City of Anna
D. City of Blue Ridge
E. City of Celina
F. Town of Fairview
G. City of Farmersville
H. City of Frisco
I. City of Josephine
J. City of Lavon
K. City of Lowry Crossing
L. City of Lucas
M. City of Melissa
N. City of Murphy
O. Town of New Hope
P. City of Parker
Q. City of Princeton
R. Town of Prosper
S. Town of St. Paul
T. City of Wylie

The contents of this plan update are designed and organized to be as reader-friendly and functional as possible. The structure and format of this plan has not significantly changed from the Mitigation Plan that was adopted in 2016.

As this plan is an update to previous plans updates to developments and evolutions to the hazard mitigation strategy of Collin County have been included. Each jurisdiction's individual mitigation strategy is discussed in their annex. Jurisdictions that participated in the 2016 HazMAP have changes in development highlighted in their individual annex.

As the growth of Collin County has expanded since the previous version of the plan; however, no new hazards have been included. The vulnerability analysis has changed and these updates have been included.

Discussion of all hazards can be found in chapter 3.

The objectives of this updated plan remain the same as in the previous plans. These include:

- To save lives and reduce injuries.
- Minimize damage to buildings and infrastructure (especially critical facilities).
- Minimize economic losses

Further examination of the action items from the 2016 plan, including the status of each action item, can be found in Chapter 4 of the main plan. New action items for each jurisdiction are located in the jurisdictional annexes.

During the development phase of this updated planning document, the review team noted some changes. While the scope and intent of the 2011 priorities remain the same, some of the underlying factors driving the priorities reflect new external trends, such as public perceptions and expectations, or are indicative of new awareness and approaches to community mitigation strategies.

Areas of 2016 Priories

- Post disaster conditions
  - With the potential for significant reimbursement for post-disaster projects through FEMA grants, it was prudent the plan be updated.
- Financial, legal and political realities
  - The Collin County Hazard Mitigation Action Plan (HazMAP) was updated to new standards utilizing a HMA grant and the North Central Texas Council of Governments (NCTCOG). This provided the necessary financial assistance and personnel to help organize the jurisdictions of Collin County, as well as compile the data into a cohesive plan.
  - Due to a HMA grant funding the NCT Safe Room Rebate Program, there was initial concern that only jurisdictions that were part of the county plan or had their own HazMAP would be eligible. As a result, most of the Collin County jurisdictions opted to participate in the Collin County HazMAP.
- Changes in hazard focus
  - Collin County has not changed the overall focus on hazards but has updated the likelihood of an occurrence based on new data from past meteorological and archival data. With these updates, the data has shown we are more likely to experience certain disasters over others. Through the use of the Priority Risk Index, persons interested in the plan will be able to better understand the rank of disasters and why one disaster may be considered at a higher risk than others. In addition, expansive soils and lightning were included as potential hazards. These hazards were not included in the 2011 plan.

Areas of 2021 Priority Refinement:

- The Plan was updated based on the current standards, which were the same standards during the 2016 update
- The Plan was updated without contractor help and with local jurisdictions updating their areas of responsibility accordingly
- The Plan was simplified in regards to maps. Unless a map was needed for a specific jurisdiction, Countywide maps were used for the 2021 update.

The 2021 Planning Team acknowledges this mitigation plan is a planning document, not a regulatory document. The plan meets Federal Emergency Management Agency (FEMA) planning requirements by addressing hazards, vulnerability and risk.

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Chapter One: Introduction

1.1 Purpose

Collin County is susceptible to a number of different natural hazards that have potential to cause property damage or loss, loss of life, economic hardship, and threats to public health and safety. Occurrence of natural disasters cannot be prevented; however, their impact on people and property can be lessened through hazard mitigation measures.

The Collin County Hazard Mitigation Action Plan has been developed by the Collin County Hazard Mitigation Planning Team (HMPT). The plan represents collective efforts of citizens, elected and appointed government officials, business leaders, non-profit organizations, and other stakeholders.

Through the development of this plan, the Planning Team identified the natural hazards that could affect Collin County, and evaluated the risks associated with these hazards. The implementation of this plan will make Collin County more disaster- resilient because the benefits that can be gained by planning ahead and taking measures to reduce damages before the next disaster strikes have been recognized. The plan will allow Collin County and participating jurisdictions to comply with the Disaster Mitigation Act of 2000 (DMA 2000) and it's implementing regulations 44 CFR Part 201.6, thus resulting in eligibility to apply for federal aid for technical assistance and post-disaster hazard mitigation project funding.

1.2 Collin County Hazard Mitigation Action Plan Planning Process

The Collin County Hazard Mitigation Action Plan (HazMAP) was created in order to meet current federal and state hazard mitigation plan regulations in compliance with the following rules and regulations:

> Section 322, Mitigation Planning, of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as enacted by Section 104 of the Disaster Mitigation Act of 2000 (P.L. 106-390)
>
> Federal Emergency Management Administration's Interim Final Rule, published in the Federal Register on February 26, 2002, at 44 CFR Part 201.

Each jurisdiction participated by having a Hazard Mitigation Planning Committee (HMPC). Each HMPC participated in the creation of and contributed to the Hazard Mitigation Action Plan. The North Central Texas Council of Governments (NCTCOG) Emergency Preparedness Department also participated in the HazMAP update341. NCTCOG's role was to assist in compiling the jurisdictional information and preparing the plan for submission. Collin County hazard mitigation planning meetings were held on August 12, 2020, November 2, 2020, November 5, 2020, November 12, 220, and June 10, 2021.

1.3 HazMAP Planning Process Point of Contact and Demographics

The following were the points of contacts during the HazMAP planning process for 2020:

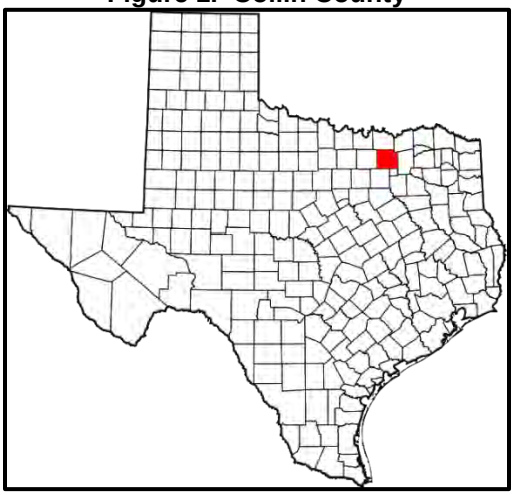
Jurisdiction	Agency	Title	Jurisdiction	Agency	Title
Collin County	Emergency Management	Assistant EMC	Lowry Crossing	Administration	City Secretary
Collin County	Emergency Management	Assistant EMC	Lucas	Fire Dept.	EMC/Asst. Fire Chief
Allen	Fire Department	Division Chief	Melissa	Fire Dept.	Fire Chief
Anna	Fire Dept.	Fire Chief	Melissa	Fire Department	Admin. Assistant
Anna	Fire Department	Bat. Chief	Murphy	Fire Dept.	Fire Chief
Blue Ridge	Public Works	City Secretary	Murphy	Fire Dept.	Fire Marshal
Celina	Fire Dept.	Assistant Chief	New Hope	City Admin.	Town Secretary
Fairview	City Management	Asst. to City Manger	New Hope	City Council	Alderman
Farmersville	Fire Dept.	Police Chief	Parker	Fire Dept.	Fire Lieutenant
Frisco	Fire Dept.	Deputy EMC	Parker	Police Dept.	Police Chief
Frisco	Fire Dept	EM Analysis	Princeton	Administration	EMC/Fire Lt.
Josephine	Fire Dept.	Police Chief	Prosper	Fire Dept.	EMC
Lavon	Fire Department	Fire Chief	St. Paul	City Council	Town Secretary
Lavon	City Management	City Administrator	Wylie	Fire Dept.	EMC

Jurisdiction	2014 Population	2019 Population
Collin County	**846,850**	**1,034,730**
Allen	90,030	105,823
Anna	10,250	15,778
Blue Ridge	822	1,023
Celina	6,660	27,607
Fairview	8,310	12,738
Farmersville	3,292	3,351
Frisco	137,310	200,490
Josephine	811	1,966

Jurisdiction	2014 Population	2019 Population
Lavon	2,740	4,210
Lowry Crossing	1,710	1,756
Lucas	5,970	8,553
Melissa	6,190	12,381
Murphy	18,020	20,500
New Hope	614	705
Parker	4,110	5,177
Princeton	7,840	15,330
Prosper	14,710	28,830
St. Paul	1,070	1,090
Wylie	44,280	53,067

Source: 2020 NCTCOG Population Estimates, United States Census Bureau & Texas Association of Counties

Figure 1. Collin County



Source: Texas National Resource Inventory

1.4 Collin County Hazard Mitigation Action Plan Organization

The Collin County Hazard Mitigation Action Plan is organized into five chapters which satisfy the mitigation requirements in 44 CFR Part 201, with an appendix providing the required supporting documentation.

Chapter One: Introduction

Describes the purpose of the Collin County Hazard Mitigation Action Plan and introduces the mitigation planning process.

Chapter Two: Planning Process

Describes the planning process and organization for each participating jurisdiction, satisfying requirements 201.6(c)(1), 201.6(b)(2), 201.6(b)(1), 201.6(b)(3), 201.6(c)(4)(iii), 201.6(c)(4)(i).

Chapter Three: Hazard Identification and Risk Assessment

Describes the hazards identified, known national extent scales, location of hazards, previous events, and jurisdictional profiles, satisfying requirements 201.6(c)(2)(i), 201.6(c)(2)(ii).

Chapter Four: Previous Action Items

Examines the ability of Collin County and participating jurisdictions to implement and manage a comprehensive mitigation strategy. The past action items are listed with their current status of deferred, in progress, completed or deleted.

Chapter Five: Plan Maintenance

Describes the monitoring, evaluating, updating, plan incorporation, and future public updates for each participating jurisdiction, satisfying requirements 201.6(c)(4)(i), 201.6(c)(4)(ii), 201.6(c)(4)(iii).

Chapter Six: Individual Jurisdictional Annexes

Each participating jurisdiction has written a personalized annex detailing their planning process, hazard analysis, capabilities, mitigation strategies and action items, and maintenance plan.

Appendix A: Documentation from Planning and Public Meetings

1.5 Collin County Hazard Mitigation Strategy Maintenance Process

The Collin County Hazard Mitigation Action Planning Team will continue to collaborate as a planning group and in in coordination with other surrounding jurisdictions and the North Central Texas Council of Governments (NCTCOG) Emergency Preparedness Department as needed. Primary Contact will be through emails and conference calls with strategy meetings to occur at least annually. Collin County will lead the plan maintenance and update processes by:

- Assisting jurisdictional Hazard Mitigation Planning Teams in updating their individual contributions to the County HazMAP
- Assisting interested jurisdictions in the County who would like to begin their mitigation planning process
- Facilitating Collin County HazMAP meetings and disseminating information
- Corroborating data for the county-wide sections
- Requesting updates and status-reports on planning mechanisms
- Requesting updates and status reports on mitigation action projects
- Assisting jurisdictions in mitigation grants
- Assisting jurisdictions in implementing mitigation goals and action projects
- Providing mitigation training opportunities
- Maintaining documentation of local adoption resolutions for the County Hazard Mitigation Action Plan

1.6 Collin County Hazard Mitigation Action Plan Adoption

Once the Collin County Hazard Mitigation Action Plan has received FEMA “Approved Pending Local Adoption” each participating jurisdiction will take the Collin County HazMAP to their Commissioner’s Courts or City Councils for final public comment and local adoption. A copy of the resolution will be inserted into the Collin County HazMAP and held on file at the North Central Texas Council of Governments.

Chapter Two: Planning Process

(In compliance with 201.6(c)(1))

Chapter Two of the Collin County Hazard Mitigation Action Plan (HazMAP) describes the comprehensive planning and open public process utilized by the participating jurisdictions within Collin County during the plan development and through to plan completion. Each of the jurisdictions involved developed an integrated approach specific to their jurisdiction that provided for not only hazard mitigation teams and management input, but also an opportunity for the public to comment on the plan. This information is included in each individual jurisdictional annex. The development of the Hazard Mitigation Action Plan was orchestrated to provide an opportunity for all stakeholders to participate in the planning process. This planning process also included review and incorporation of other existing plans, documents, and studies related to reducing the effects of natural disasters, so as to avoid duplication and streamline hazard mitigation efforts. The following outlines the planning process:

Planning Process

Collin County has been and continues to be proactive in efforts to provide a comprehensive hazard mitigation program. Preparation and use of the Hazard Mitigation Action Plan is expected to bring an even higher level of cohesion and direction to emergency preparation in Collin County.

As a contributor to the Collin County Hazard Mitigation Action Plan (HazMAP), all jurisdictions participated in the planning process. Emergency management staff assessed a readiness to plan, secured political support from elected officials, and began to engage the communities in the process of emergency planning.

Public Involvement

The Hazard Mitigation Planning Team knows that participation and feedback from their community is pertinent in developing a successful Hazard Mitigation Action Plan. Collin County worked to increase public response to the plan by holding public meetings and posting notices on the County and city websites.

The HazMAP planning process provides an excellent avenue for residents to exchange quality information and improve the county response to emergencies. This is accomplished through speaking engagements, website information, disaster awareness campaigns and information pamphlets, among other opportunities.

Plan Incorporation

The Office of Emergency Management made efforts for a comprehensive mitigation plan by incorporating other city plans and creating layers of data. These layers were useful in determining vulnerabilities and susceptible neighborhoods. This information was used when creating current risk assessment data. City and County Appraisal Data (2020), and the Texas Forest Service and Texas Wildfire Risk Assessment

Summary Report were also incorporated. Other sources listed in the annexes were also used for the mitigation action plan.

By reviewing plans and documents from the sources listed in the individual annexes, the Hazard Mitigation Team was able to take pertinent information and turn it into the Hazard Mitigation Action Plan.

Chapter Three: Hazard Identification Risk Assessment

3.1 Profiling Hazards

The Hazard Mitigation Action Plan for Collin County is a tool to assist in the identification and documentation of all the hazards faced in the region.

The 2016 Collin County profile was one of many developed by the North Central Texas Council of Governments (NCTCOG) under the FEMA Hazard Mitigation program. These plans are created by compiling data from the NCTCOG regional natural hazards risk assessments, damage assessments, hazard profiling and identification as well as historical data and geographic information. The current update is an update versus rewrite, and is based on previous data. It is being updated by internal city and county staff.

Hazards Addressed The Collin County Hazard Mitigation Action Plan has identified the following natural hazards as having the potential to cause damage in the county. Of the 15 hazards identified in the State of Texas Hazard Mitigation Plan, 12 will be discussed. The remaining three (coastal erosion, land subsidence, and hurricane/tropical storm) have no impact on the area. Collin County is not in coastal area nor experience land subsidence so these hazards have been omitted at this time. This applies to all participating jurisdictions in this plan, as listed on page 1. Wildland fire, flooding, and dam failure are the only hazards recognized to have predictable vulnerable areas. All other hazards are equally likely to occur throughout Collin County jurisdictions.

Dam Failure A dam is defined as a barrier constructed across a watercourse for the purpose of storage, control, or diversion of water. Dams typically are constructed of earth, rock, concrete, or mine tailings. A dam failure is an accidental or unintentional collapse, breach, or other failure of an impoundment structure that results in downstream flooding. Because dams are man-made structures, dam failures are usually considered technological hazards. However, since most dam failures result from prolonged periods of rainfall, they are often cited as secondary or cascading effects of natural flooding disasters and are not named as the primary hazard that causes disaster declarations.

There have not been any inundation studies for the dams in Collin County and the county does not have information from the owners or Emergency Operations Plans for the dams. Therefore, more research is needed for inundation data before the next update. The data presented is from the National Inventory of Dams (NID). Based on a quantitative analysis of the dams currently in place in Collin County and a qualitative analysis of the potential impacts that dam failures would have on the social, economic, and environmental components of the region, the risk of a dam failure hazard is moderate.

Drought Drought can be defined as a water shortage caused by the natural reduction in the amount of precipitation expected over an extended period of time, usually a season or more in length. It can be aggravated by other factors such as high temperatures, high winds, and low relative humidity. Texas experiences a cycle of extended wet and drought conditions that can extend over a period of months even years. Extended periods of drought can have an enormous impact on an area by affecting the abundance of water supply, the agriculture economy, and foundations of structures. Drought has the potential to occur within the entire planning area.

Earthquake An earthquake is a sudden motion or trembling caused by an abrupt release of accumulated strain on the tectonic plates that comprise the Earth's crust. The theory of plate tectonics holds that the Earth's crust is broken into several major plates. These rigid, 50- to 60- mile thick plates move slowly and continuously over the interior of the earth, meeting in some areas and separating in others. As the tectonic plates move together they bump, slide, catch, and hold. Eventually, faults along or near plate boundaries slip abruptly when the stress exceeds the elastic limit of the rock, and an earthquake occurs. The ensuing seismic activity and ground motion provoke secondary hazards: surface faulting, ground failure, and tsunamis. The vibration or shaking of the ground during an earthquake is referred to as ground motion. In general, the severity of ground motion increases with the amount of energy released and decreases with distance from the causative fault or epicenter. When a fault ruptures, seismic waves are propagated in all directions, causing the ground to vibrate at frequencies ranging from 0.1 to 30 Hz. Seismic waves are referred to as P waves, S waves, and surface waves. Due to the risk associated to a distant quake, earthquakes have the potential to occur anywhere within the planning area.

The most likely risk for a significant earthquake event is associated to a large quake which might occur in Missouri, Tennessee, or Oklahoma, though these earthquakes are probable to occur only once every 500 years. There is no history of earthquakes occurring within Collin County, however, there have been earthquakes measuring up to 3.7 on the Richter scale in nearby counties. Because of the lack of earthquake data for Collin County and increasing quakes in nearby jurisdictions, more research is needed.

Expansive Soils Expansive soils are soils that contain large percentages of swelling clays that may experience volume changes of up to 40% in the absence or presence of water. This type of plastic deformation is common in the North Central Texas region. Over time, expansive soils can be hazardous to buildings and other infrastructure, with the most extensive damage occurring to highways, streets, and building foundations. Expansive soils have the potential to affect the entire planning area, however a study needs to be conducted to collect more precise data.

Extreme Heat Extreme heat is characterized by a combination of a very high temperatures and exceptionally humid conditions. When persisting over a period of time, it is called a heat wave. Extreme heat can also be a factor that drastically impacts drought conditions as high temperatures lead to an increased rate of evaporation. Extreme heat can also lead to heat stroke and even death in vulnerable populations such as the elderly and the very young if exposed to the high temperatures for an extended period of time. Extreme heat has the potential to affect the entire planning area.

Flooding Flooding is defined as the accumulation of water within a water body and the overflow of excess water onto adjacent floodplain lands. The floodplain is the land adjoining the channel of a river, stream, ocean, lake, or other watercourse or water body that is susceptible to flooding. The statistical meaning of terms like “25-year storm” and “100-year flood” can be confusing. Simply stated, a floodplain can be located anywhere; it just depends on how large and how often a flood event occurs. Floodplains are those areas that are subject to inundation from flooding. Floods and the floodplains associated with them are often described in terms of the percent chance of a flood event happening in any given year. As a community management or planning term, “floodplain” most often refers to an area that is subject to inundation by a flood that has a one percent chance of occurring in any given year (commonly and incorrectly referred to as the 100-year floodplain). Common flooding hazards within the planning area include flash flooding and flood hazards resulting from new development.

A flash flood is a rapid flood that inundates low-lying areas in less than six hours. This is caused by intense rainfall from a thunderstorm or several thunderstorms. Flash floods can also occur from the collapse of a man-made structure or ice dam. Construction and development can change the natural drainage and create brand new flood risks as new buildings, parking lots, and roads create less land that can absorb excess precipitation from heavy rains, hurricanes, and tropical storms. Flash floods are a high risk hazard since they can roll boulders, tear out trees, and destroy buildings and bridges.

Hail Hail occurs when, at the outgrowth of a severe thunderstorm, balls or irregularly shaped lumps of ice greater than 0.75 inches in diameter fall with rain. Early in the developmental stages of a hailstorm, ice crystals form within a low-pressure front due to warm air rising rapidly into the upper atmosphere and the subsequent cooling of the air mass. Frozen droplets gradually accumulate on the ice crystals until, having developed sufficient weight, they fall as precipitation. Hail has the potential to occur within the entire planning area.

High Winds Wind is defined as the motion of air relative to the earth's surface. The horizontal component of the three-dimensional flow and the near-surface wind phenomenon are the most significant aspects of the hazard. Straight-line winds are often responsible for the wind damage associated with a thunderstorm. These winds are often confused with tornados because of similar damage and wind speeds. However, the strong and gusty winds associated with straight-line winds blow roughly in a straight line unlike the rotating winds of a tornado. Downbursts or micro-bursts are examples of damaging straight-line winds. A downburst is a small area of rapidly descending rain and rain-cooled air beneath a thunderstorm that produces a violent, localized downdraft covering 2.5 miles or less. Wind speeds in some of the stronger downbursts can reach 100 to 150 miles per hour, which is similar to that of a strong tornado. The winds produced from a downburst often occur in one direction, and the worst damage is usually on the forward side of the downburst. High winds has the potential to occur within the entire planning area.

Lightning Lightning results from the buildup and discharge of electrical energy between positively and negatively charged areas within thunderstorms. A "bolt" or brilliant flash of light is created when the buildup becomes strong enough. These bolts of lightning can be seen in cloud-to-cloud or cloud-to-ground strikes. Bolts of lightning can reach temperatures approaching 50,000° Fahrenheit. While lightning is mostly affiliated with thunderstorms, lightning often strikes outside of these storms, as far as 10 miles away from any rainfall. Federal Emergency Management Agency states that an average of 300 people are injured and 80 people are killed in the United States each year by lightning. Direct strikes have the power to cause significant damage to buildings, critical facilities, infrastructure, and ignition of wildfires which can result in widespread damages to property. Lightning has the potential to occur anywhere in the planning area.

Tornado A tornado is a violently rotating column of air, in contact with the ground, both pendant from a cumuliform cloud or underneath a cumuliform cloud, and often (but not always) visible as a condensation funnel. Tornadoes have the potential to occur anywhere in the planning area.

Wildland Fire Wildland fire is any fire occurring on grassland, forest, or prairie, regardless of ignition source, damages or benefits. Wildland fires are fueled almost exclusively by natural vegetation. They typically occur in national forests and parks, where federal agencies are responsible for fire management and suppression. Interface or intermix fires are urban/wildland fires in which vegetation and the built-environment provide fuel. Firestorms are events of such extreme intensity that effective suppression is

virtually impossible. Firestorms occur during extreme weather and generally burn until conditions change or the available fuel is exhausted. For the purposes of this hazard analysis, wildland fires are assessed under what is known as the Wildland Urban Interface (WUI). The WUI is an area of development that is susceptible to wildland fires due to the amount of structures located in an area with vegetation that can act a fuel for a wildland fire. Wildfires are most likely to occur within the WUI.

Winter Storms Winter storms originate as mid-latitude depressions or cyclonic weather systems, sometimes following the path of the jet stream. A winter storm or blizzard combines heavy snowfall, high winds, extreme cold and ice storms. Many winter depressions give rise to exceptionally heavy rain and widespread flooding and conditions worsen if the precipitation falls in the form of snow. The winter storm season varies widely, depending on latitude, altitude and proximity to moderating influences. Winter storms have the potential to occur within the entire planning area. Cold snaps in which temperatures fall below the freezing point of 32° Fahrenheit do happen on an annual basis in the planning area and can lead to issues with infrastructure, especially frozen roads and bridges.

3.2 Location of Hazards

The following maps illustrate the location of the hazards in Collin County. Maps concerning tornado and hail incidents are in reference to previous events as they have equal potential to occur throughout the county. Winter storms, extreme heat, and drought have potential to occur equally throughout the county and their previous events data is not represented by a map. Likewise, it is assumed that those hazard listed as having equal potential to occur throughout the HazMAP planning area will affect the area as described in each city's critical infrastructure and structure maps G.1-G.6, in section 3.6.

Map Series A Dams/FLOOD ZONES

Map A.1 Collin County Dams/Floodzones
Map A.2 City of Allen Dams/Floodzones
Map A.3 City of Anna Dams/Floodzones
Map A.4 City of Blue Ridge Dams/Floodzones
Map A.5 City of Celina Dams/Floodzones
Map A.6 City of Fairview Dams/Floodzones
Map A.7 City of Farmersville Dams/Floodzones
Map A.8 City of Frisco Dams/Floodzones
Map A.9 City of Josephine Dams/Floodzones
Map A.10 City of Lavon Dams/Floodzones
Map A.11 City of Lowry Crossing Dams/Floodzones
Map A.12 City of Lucas Dams/Floodzones
Map A.13 City of Melissa Dams/Floodzones
Map A.14 City of Murphy Dams/Floodzones
Map A.15 City of New Hope Dams/Floodzones
Map A.16 City of Parker Dams/Floodzones
Map A.17 City of Princeton Dams/Floodzones
Map A.18 City of Prosper Dams/Floodzones
Map A.19 City of St. Paul Dams/Floodzones
Map A.20 City of Wylie Dams/Floodzones

Map Series B – Land Use and Critical Infrastructure

Map B.1 Collin County Land Use and Critical Infrastructure

Map Series C Hail Incident

Map C.1 Collin County Hail Incidents

Map Series D Tornado Incident

Map D.1 Collin County Tornado Incidents

Map Series E Wildfire Risk Assessment

Map E.1 Collin County Wildfire Threat
Map E.2 City of Allen Wildfire Threat
Map E.3 City of Anna Wildfire Threat
Map E.4 City of Blue Ridge Wildfire Threat

Map E.5 City of Celina Wildfire Threat
Map E.6 City of Fairview Wildfire Threat
Map E.7 City of Farmersville Wildfire Threat
Map E.8 City of Frisco Wildfire Threat
Map E.9 City of Josephine Wildfire Threat
Map E.10 City of Lavon Wildfire Threat
Map E.11 City of Lowry Crossing Wildfire Threat
Map E.12 City of Lucas Wildfire Threat
Map E.13 City of Melissa Wildfire Threat
Map E.14 City of Murphy Wildfire Threat
Map E.15 City of New Hope Wildfire Threat
Map E.16 City of Parker Wildfire Threat
Map E.17 City of Princeton Wildfire Threat
Map E.18 City of Prosper Wildfire Threat
Map E.19 City of St. Paul Wildfire Threat
Map E.20 City of Wylie Wildfire Threat

Map Series F Wildland Urban Interface

Map F.1 Collin County Wildland Urban Interface
Map F.2 City of Allen Wildland Urban Interface
Map F.3 City of Anna Wildland Urban Interface
Map F.4 City of Blue Ridge Wildland Urban Interface
Map F.5 City of Celina Wildland Urban Interface
Map F.6 City of Fairview Wildland Urban Interface
Map F.7 City of Farmersville Wildland Urban Interface
Map F.8 City of Frisco Wildland Urban Interface
Map F.9 City of Josephine Wildland Urban Interface
Map F.10 City of Lavon Wildland Urban Interface
Map F.11 City of Lowry Crossing Wildland Urban Interface
Map F.12 City of Lucas Wildland Urban Interface
Map F.13 City of Melissa Wildland Urban Interface
Map F.14 City of Murphy Wildland Urban Interface
Map F.15 City of New Hope Wildland Urban Interface
Map F.16 City of Parker Wildland Urban Interface
Map F.17 City of Princeton Wildland Urban Interface
Map F.18 City of Prosper Wildland Urban Interface
Map F.19 City of St. Paul Wildland Urban Interface
Map F.20 City of Wylie Wildland Urban Interface

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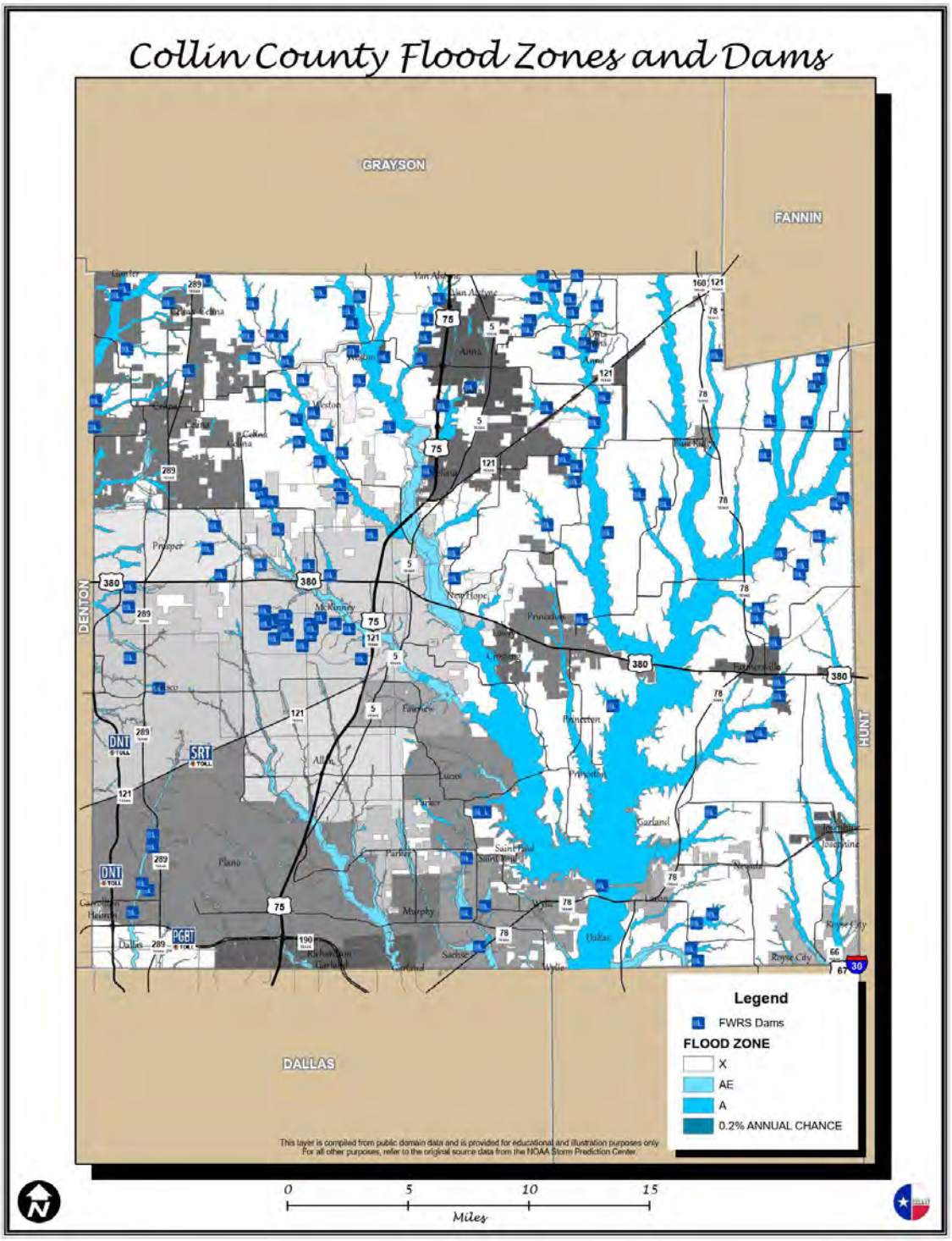
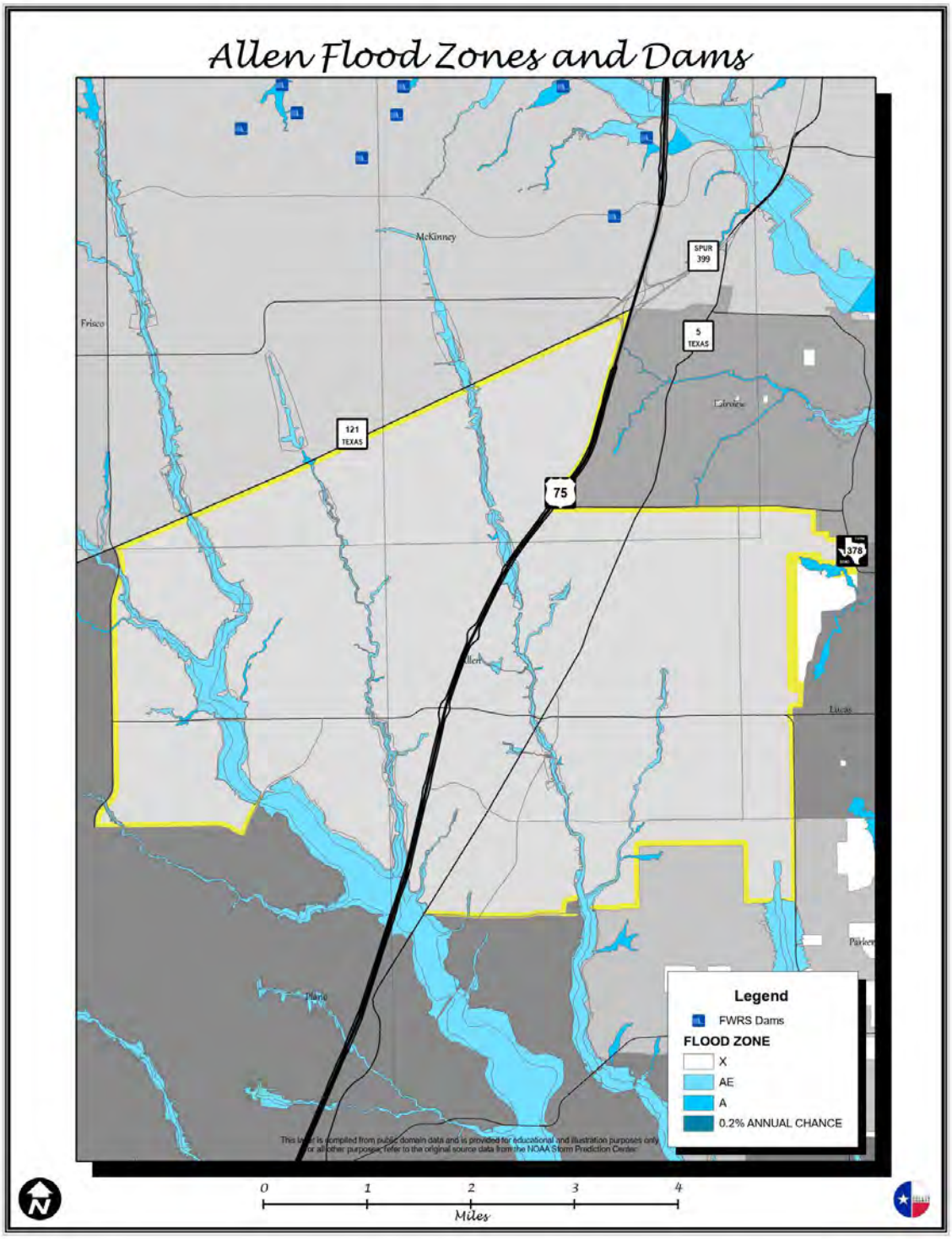
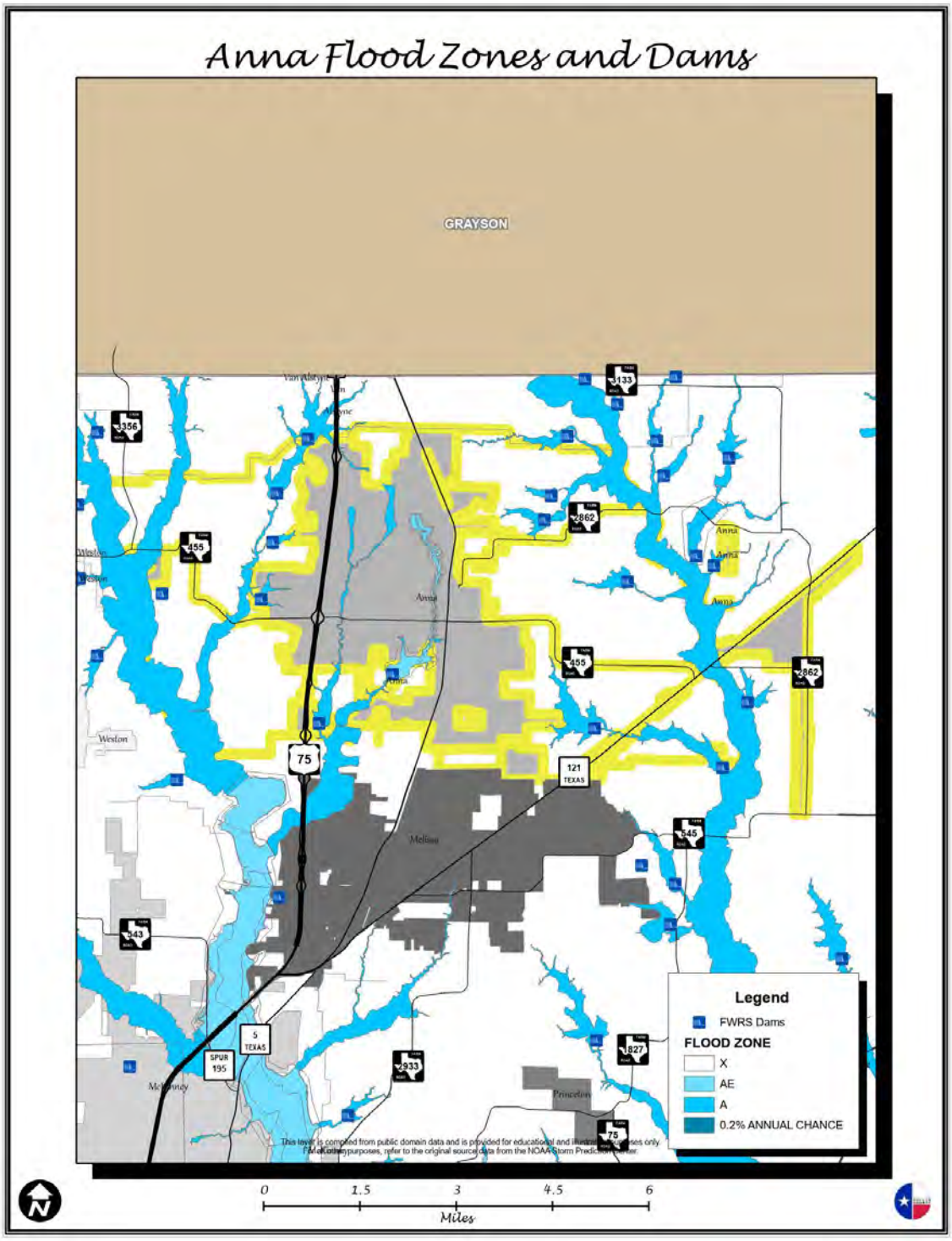
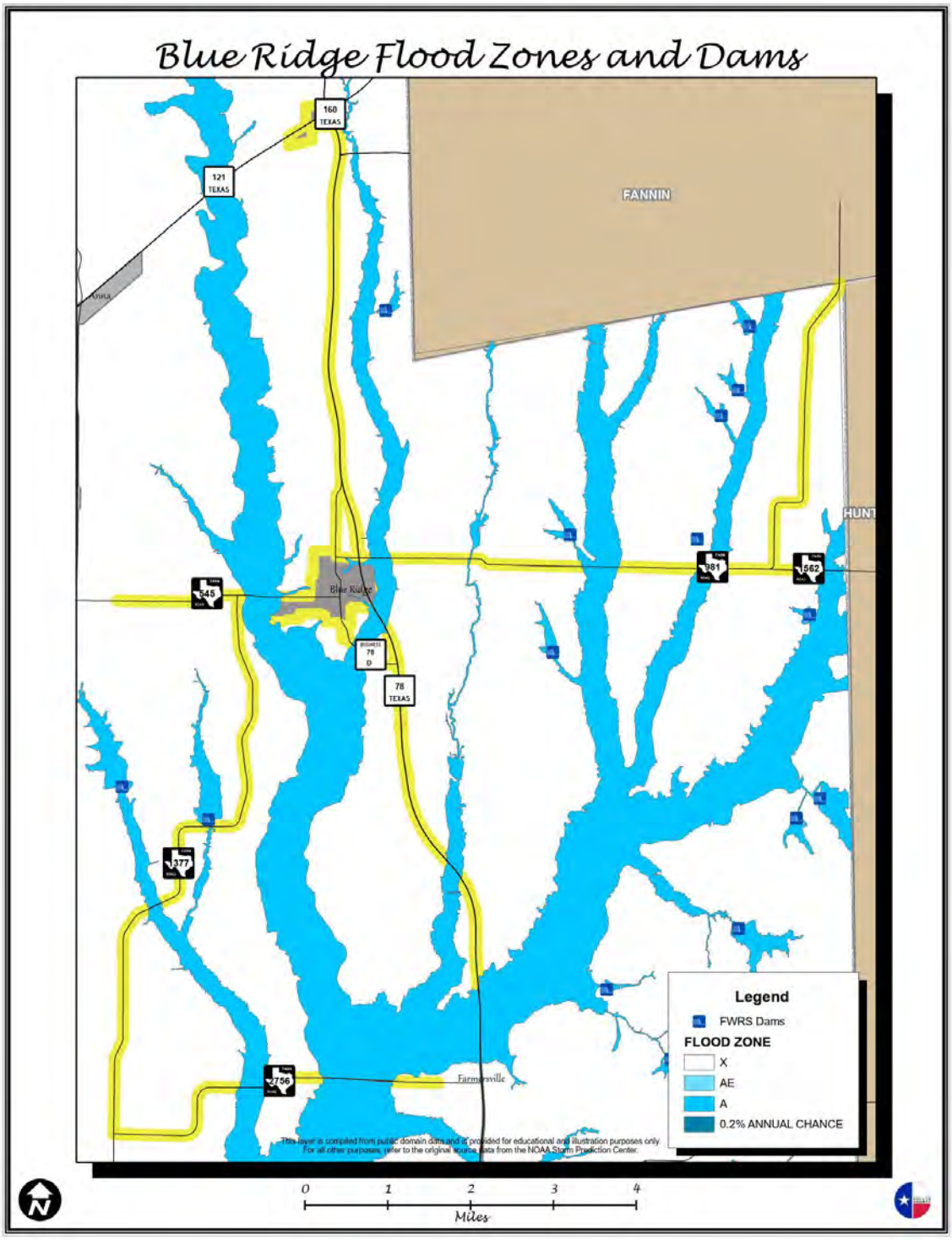
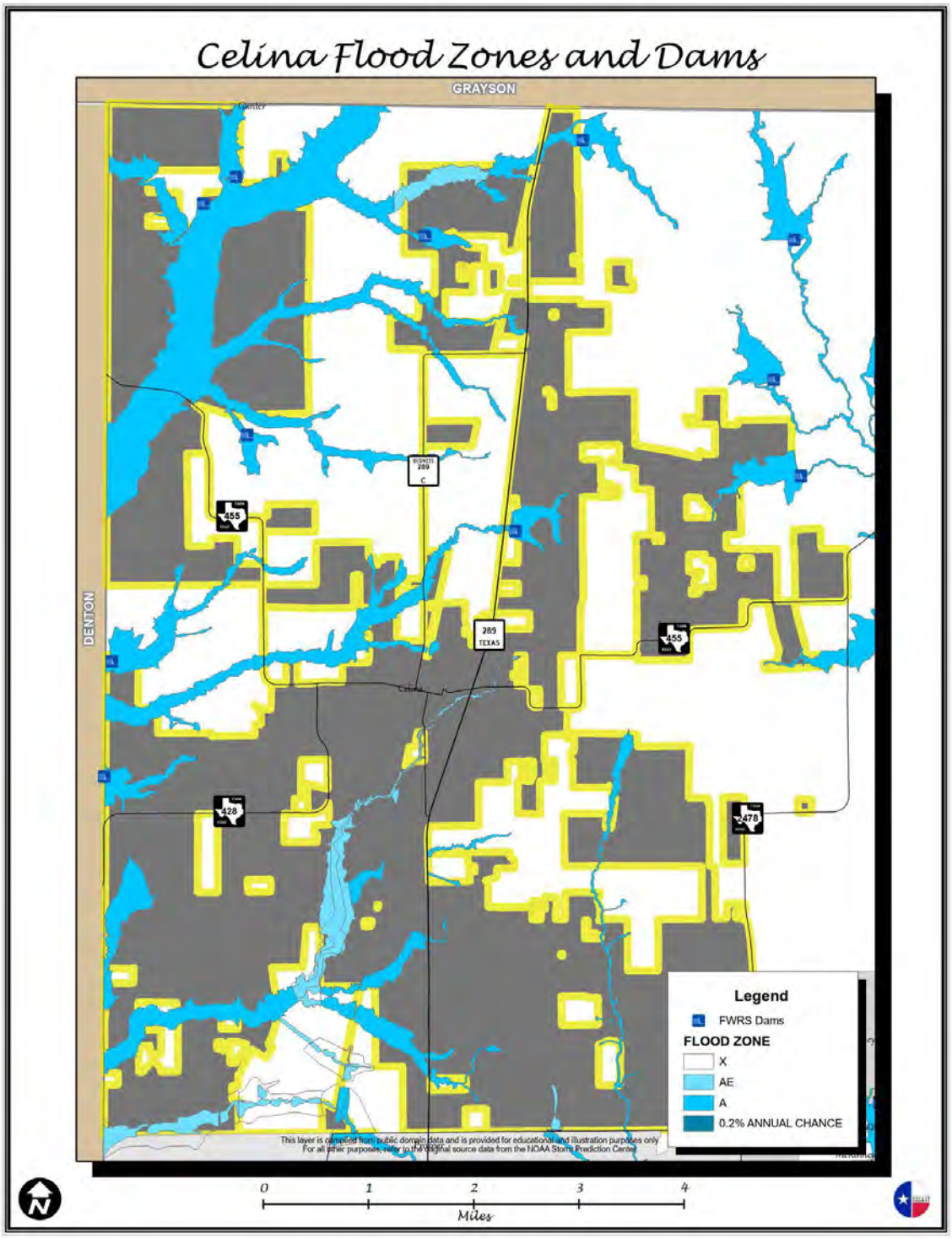

Collin County Flood Zones and Dams
GRAYSON
FANNIN
DENTON
HUNT
DALLAS
Legend
FWRS Dams
FLOOD ZONE
X
AE
A
0.2% ANNUAL CHANCE
This layer is compiled from public domain data and is provided for educational and illustration purposes only. For all other purposes, refer to the original source data from the NOAA Storm Prediction Center.
0
5
10
15
Miles

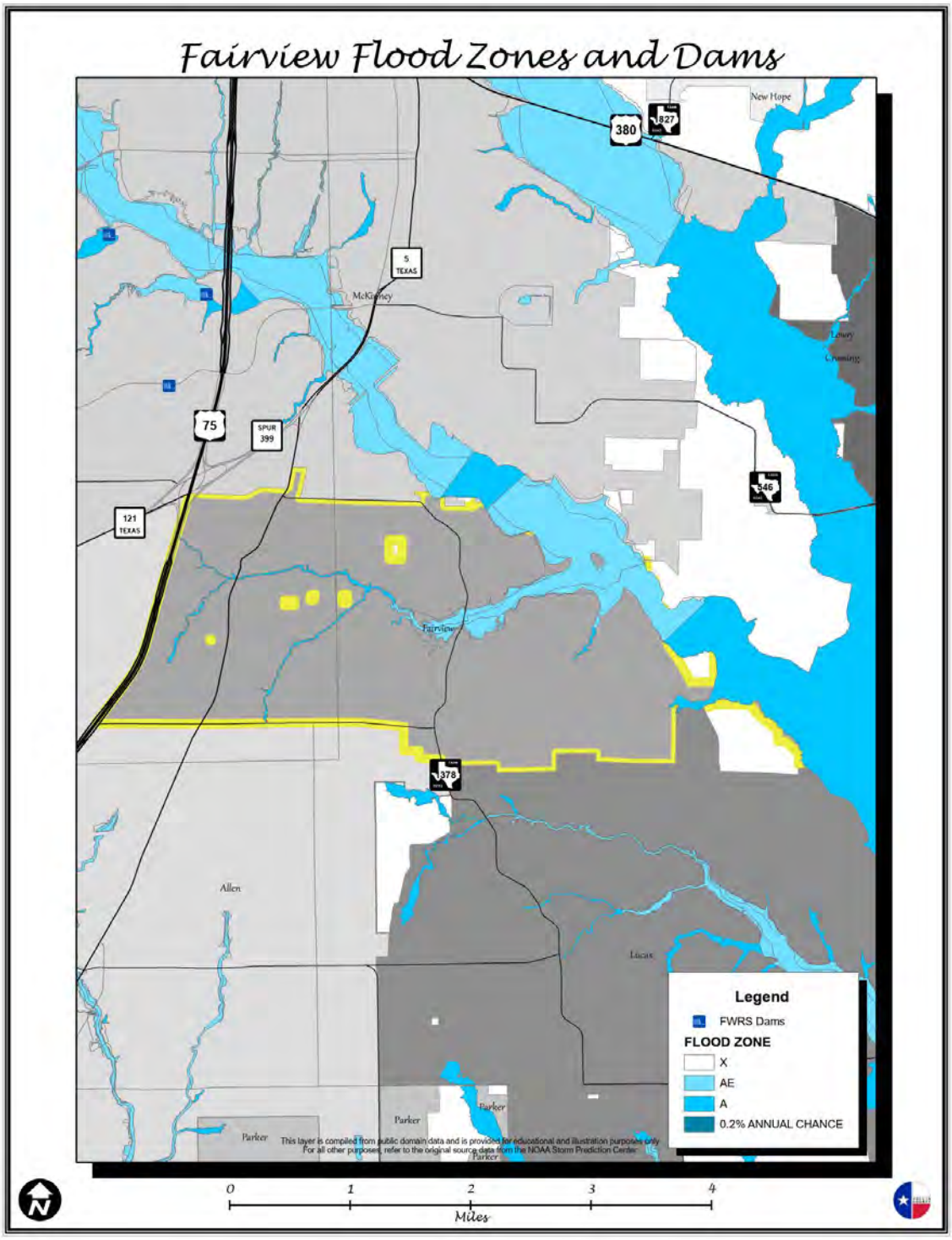

Allen Flood Zones and Dams
McKinney
Frisco
SPUR 399
5 TEXAS
121 TEXAS
75
378
Legend
FWRS Dams
FLOOD ZONE
X
AE
A
0.2% ANNUAL CHANCE
0
1
2
3
4
Miles

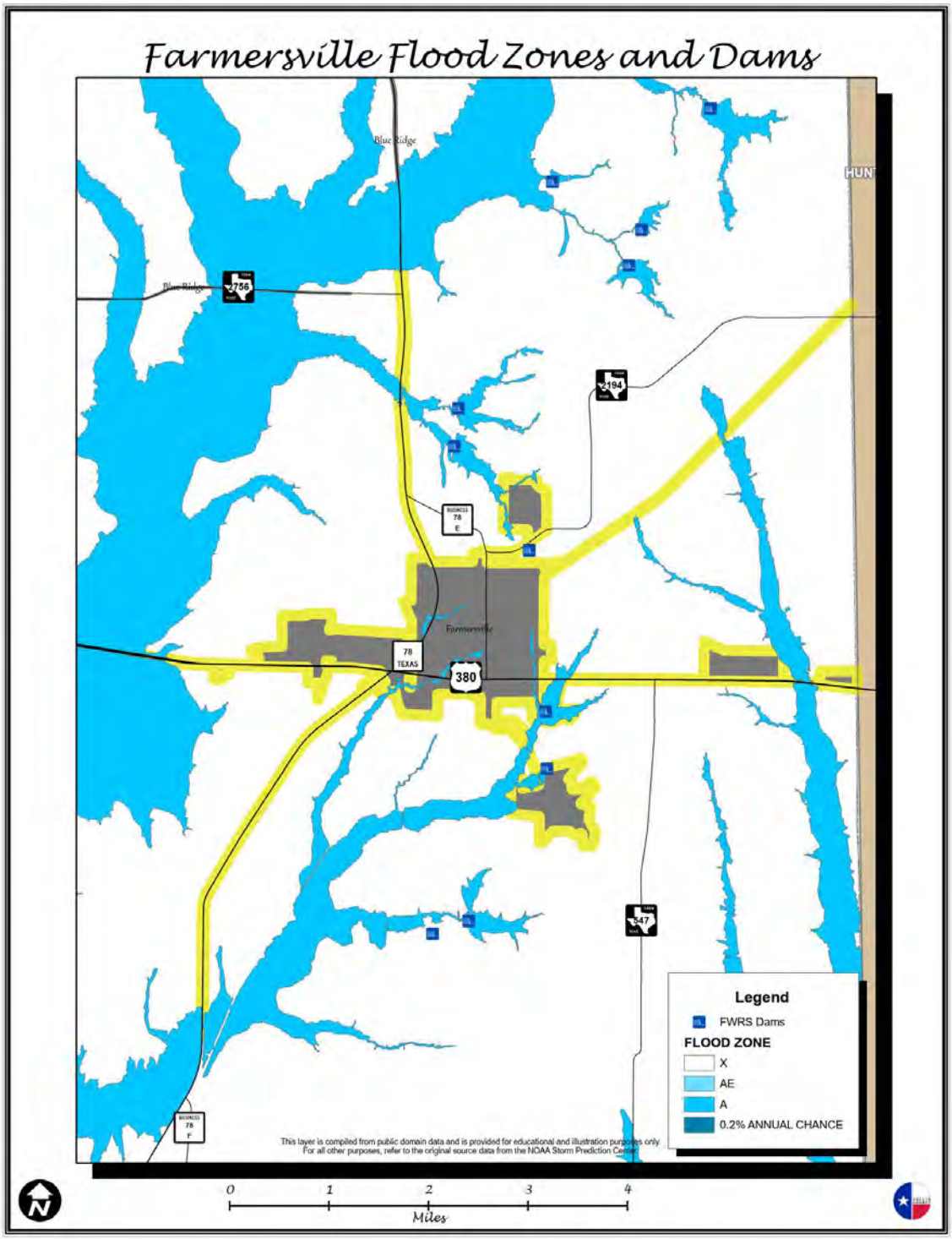

Anna Flood Zones and Dams
GRAYSON
Weston
Anna
Melissa
Princeton
75
121
TEXAS
5
TEXAS
SPUR
195
Legend
FWRS Dams
FLOOD ZONE
X
AE
A
0.2% ANNUAL CHANCE
0
1.5
3
4.5
6
Miles

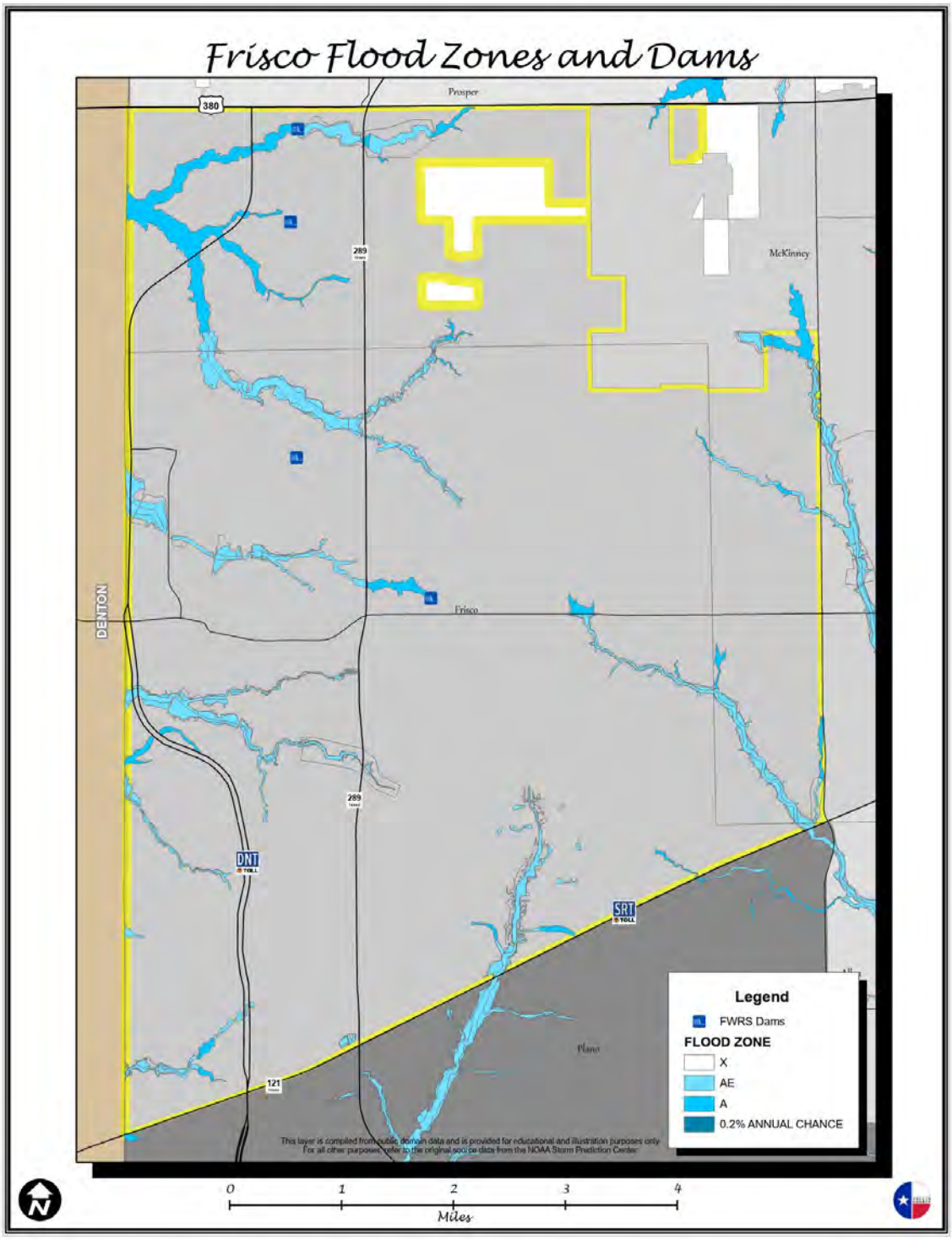
INSERT

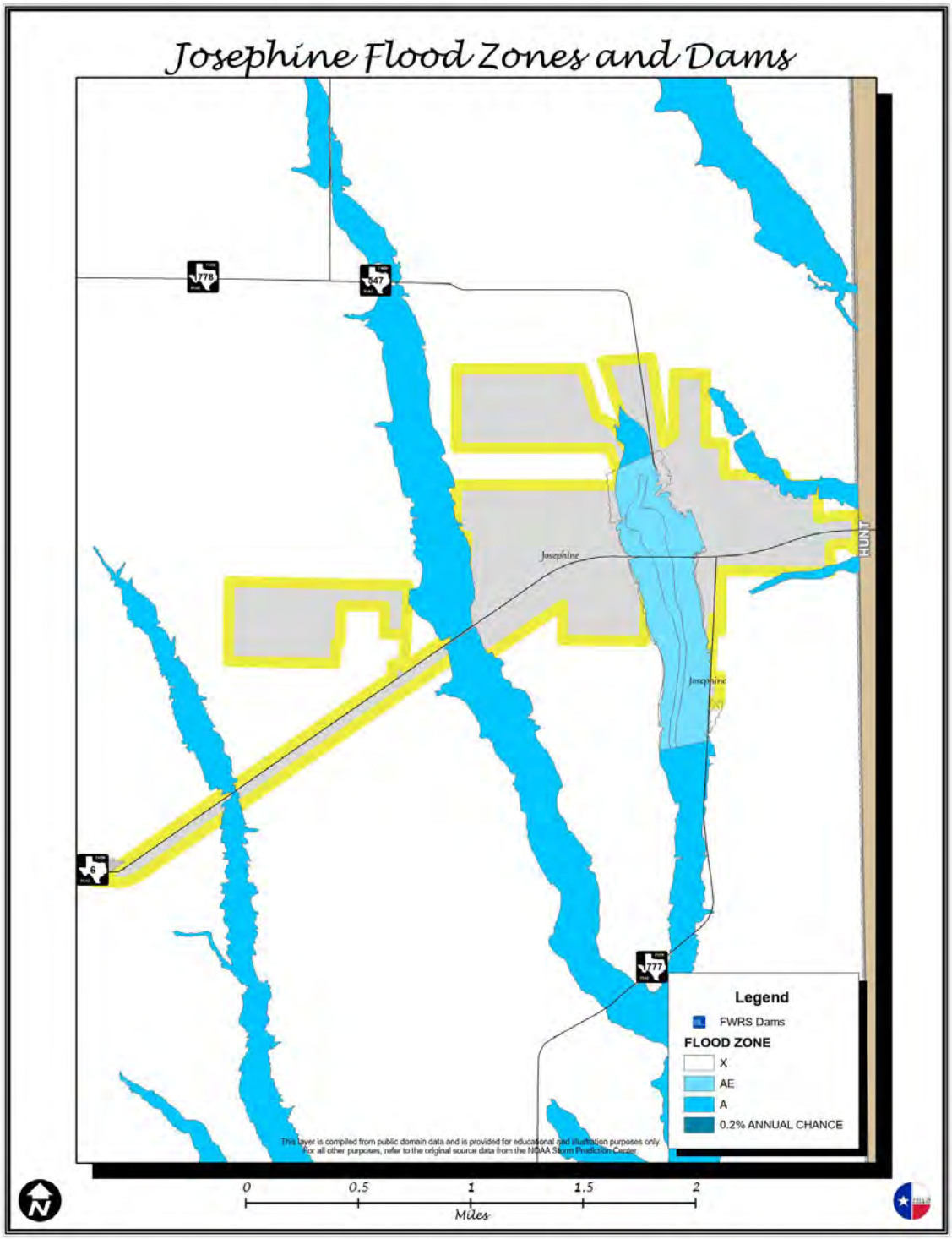

Blue Ridge Flood Zones and Dams
160 TEXAS
121 TEXAS
FANNIN
HUNT
545
981
562
78 D
78 TEXAS
377
2756
Farmersville
Legend
FWRS Dams
FLOOD ZONE
X
AE
A
0.2% ANNUAL CHANCE
This layer is compiled from public domain data and is provided for educational and illustration purposes only.
For all other purposes, refer to the original source data from the NOAA Storm Prediction Center.
0
1
2
3
4
Miles

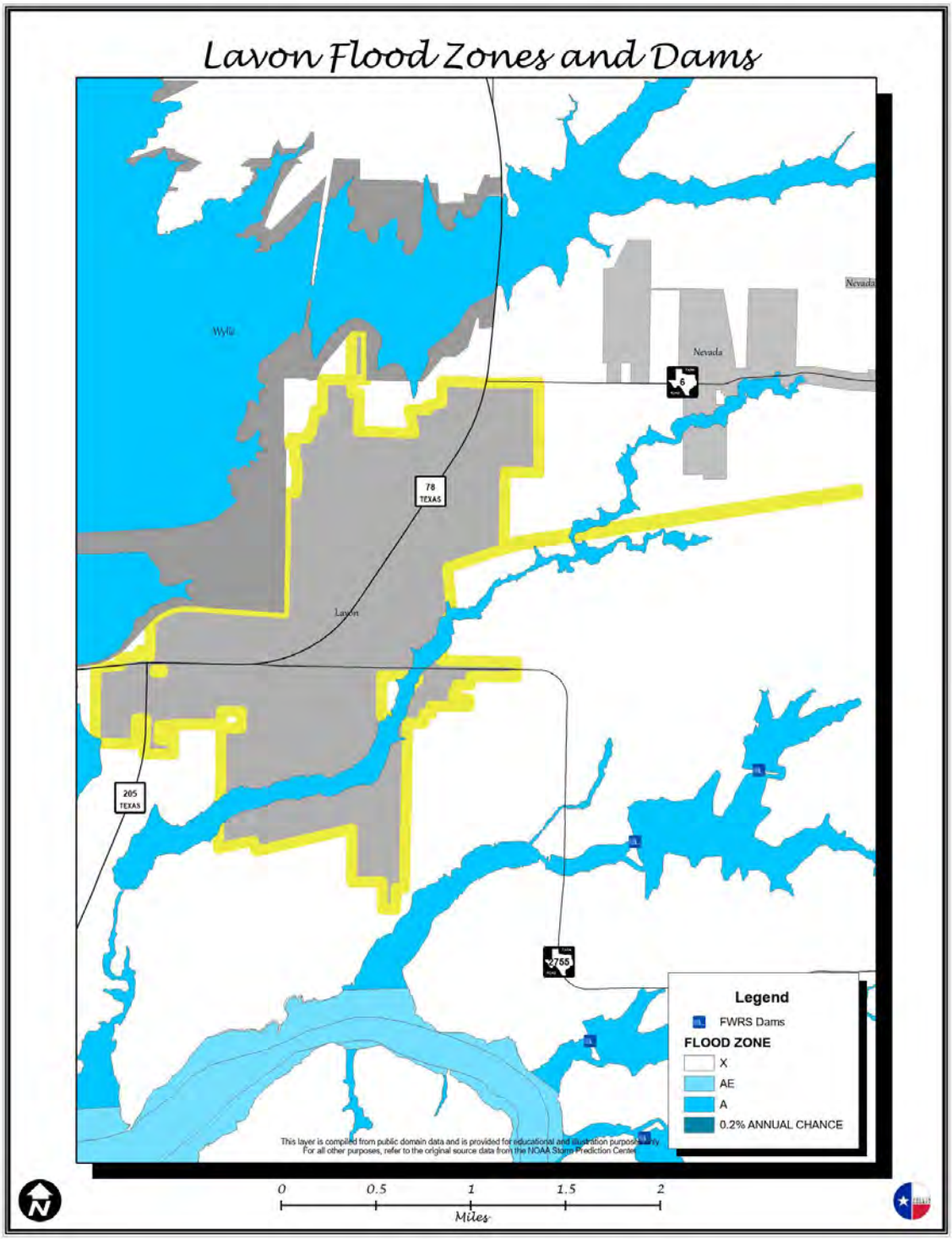

Celina Flood Zones and Dams
GRAYSON
DENTON
289
TEXAS
455
428
478
Legend
FWRS Dams
FLOOD ZONE
X
AE
A
0.2% ANNUAL CHANCE
0
1
2
3
4
Miles

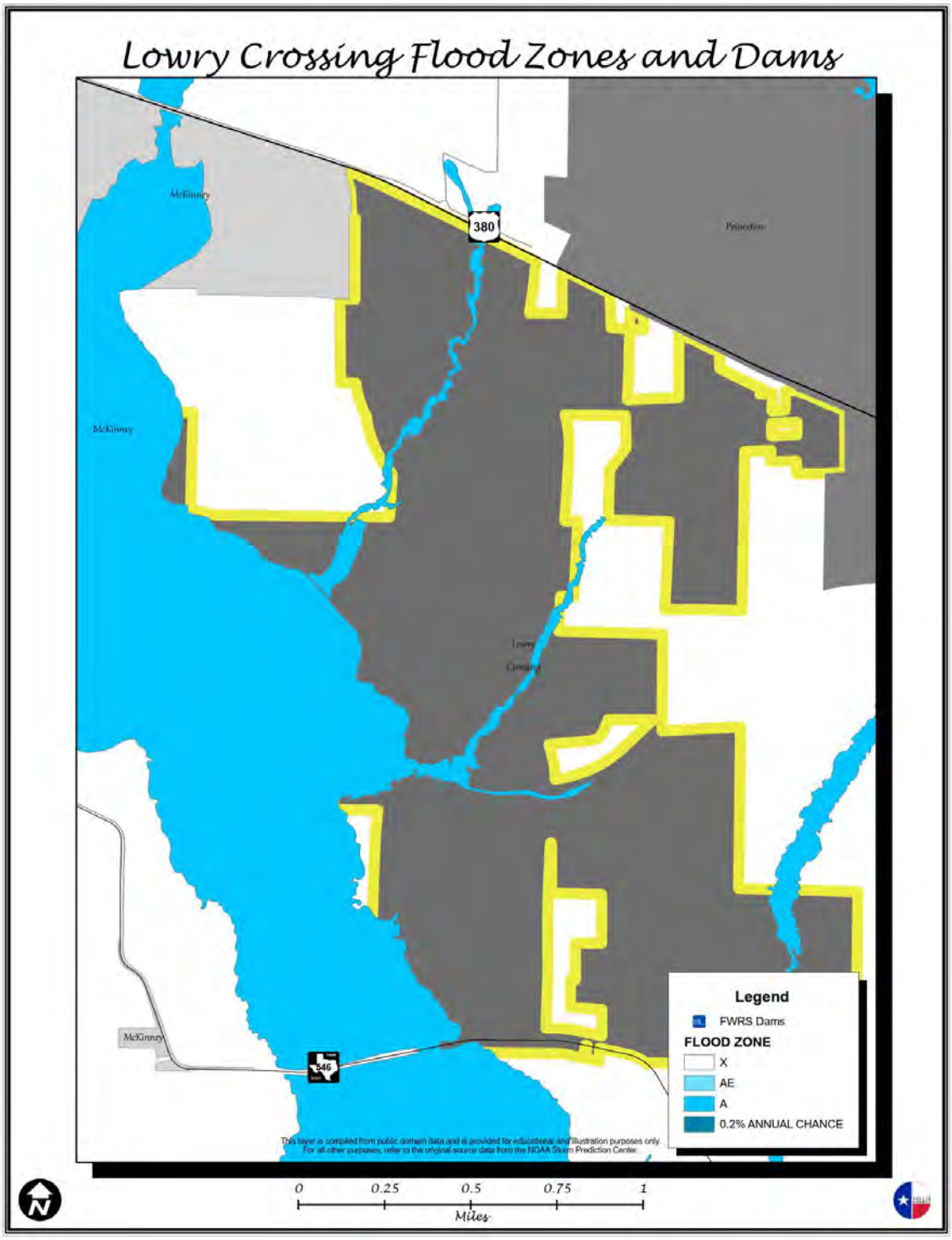

Fairview Flood Zones and Dams
New Hope
380
1827
5
TEXAS
McKinney
Lowry
Crossing
75
SPUR
399
121
TEXAS
546
Fairview
378
Allen
Lucas
Parker
Parker
Parker
Parker
This layer is compiled from public domain data and is provided for educational and illustration purposes only.
For all other purposes, refer to the original source data from the NOAA Storm Prediction Center.
Legend
FWRS Dams
FLOOD ZONE
X
AE
A
0.2% ANNUAL CHANCE
0
1
2
3
4
Miles

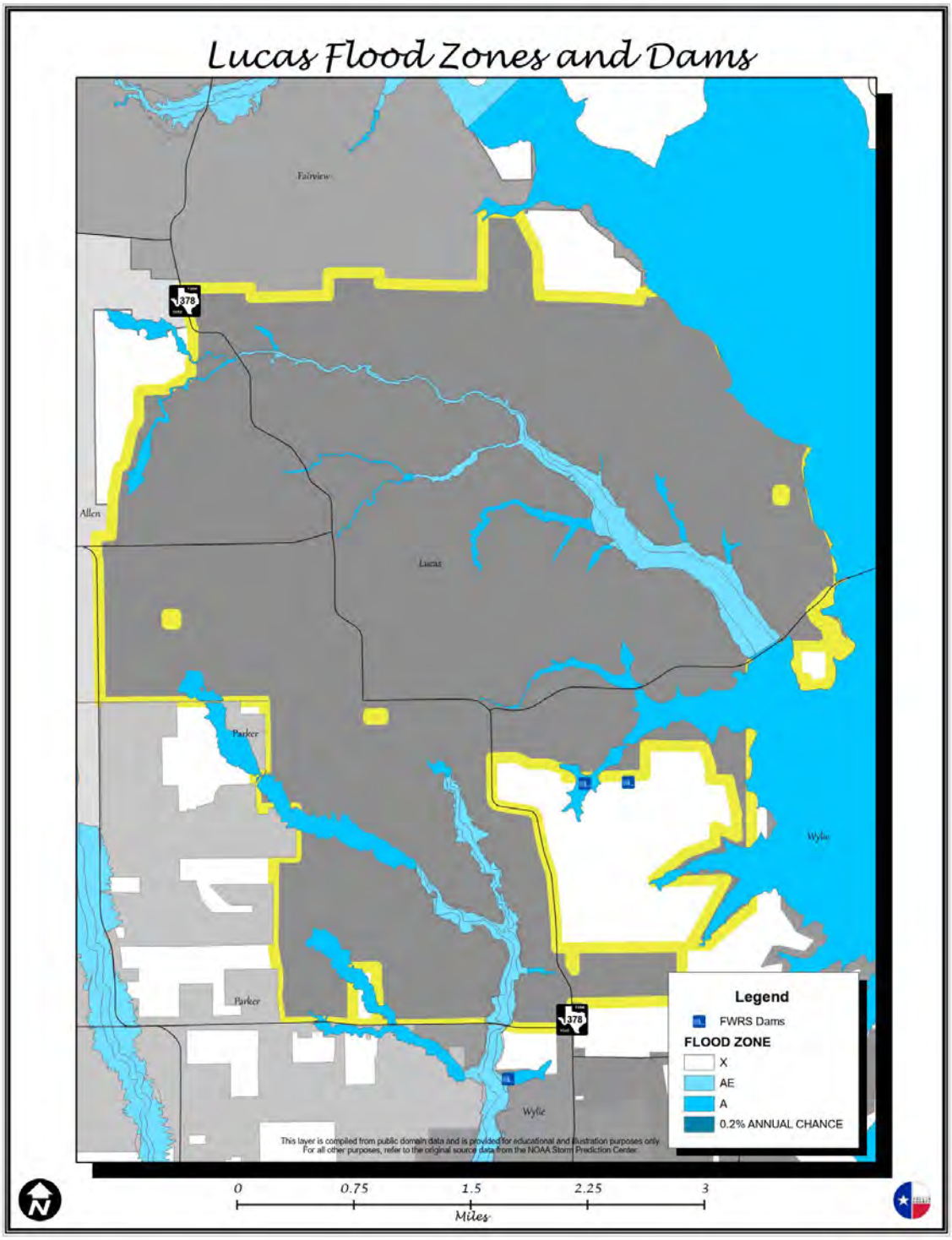

Farmersville Flood Zones and Dams
Blue Ridge
HUN
756
194
78
E
Farmersville
78
TEXAS
380
547
78
F
Legend
FWRS Dams
FLOOD ZONE
X
AE
A
0.2% ANNUAL CHANCE
This layer is compiled from public domain data and is provided for educational and illustration purposes only.
For all other purposes, refer to the original source data from the NOAA Storm Prediction Center.
0
1
2
3
4
Miles

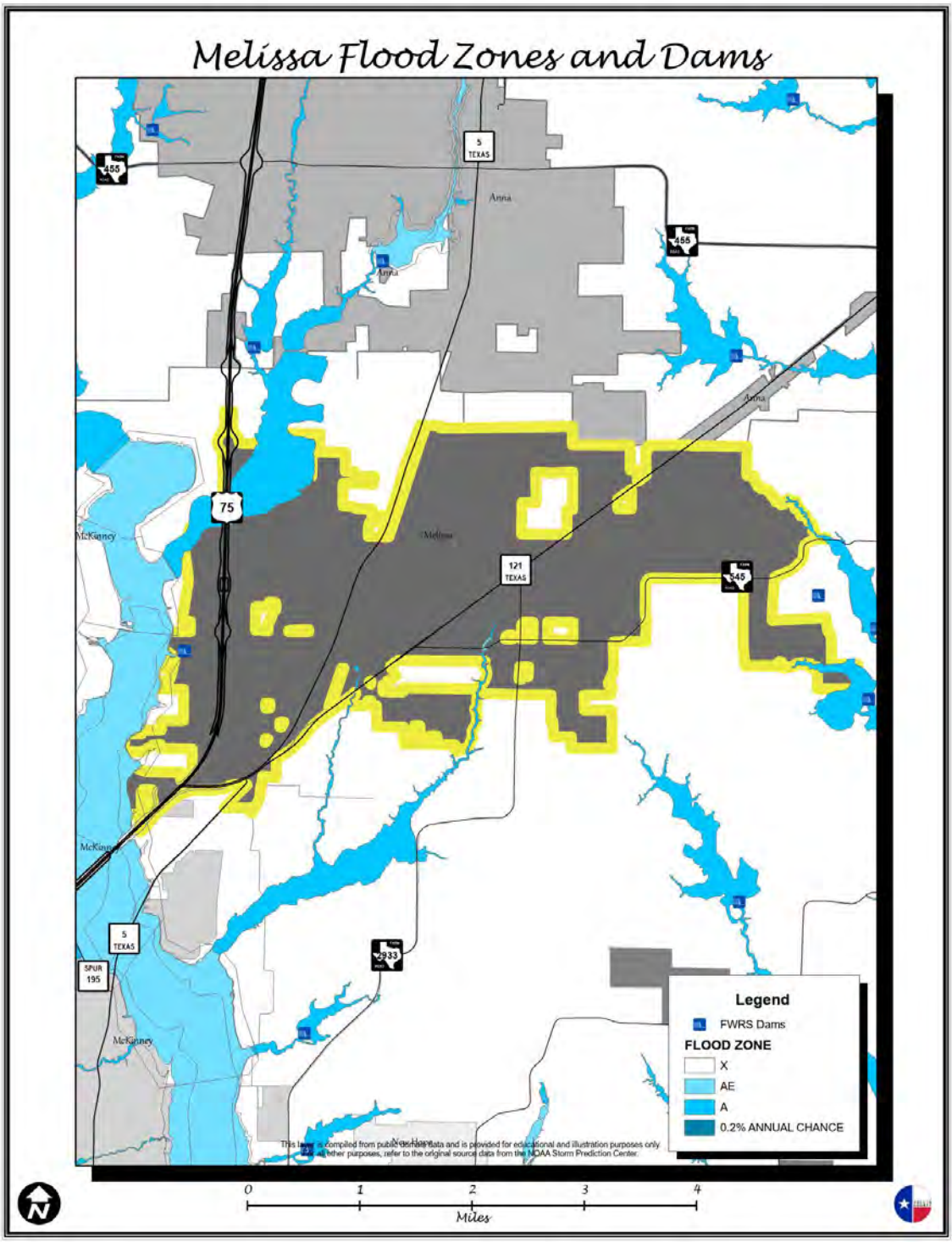

Frisco Flood Zones and Dams
Prosper
380
289
McKinney
DENTON
Frisco
DNT
SRT
Plano
121
Legend
FWRS Dams
FLOOD ZONE
X
AE
A
0.2% ANNUAL CHANCE
This layer is compiled from public domain data and is provided for educational and illustration purposes only.
For all other purposes, refer to the original source data from the NOAA Storm Prediction Center.
0
1
2
3
4
Miles

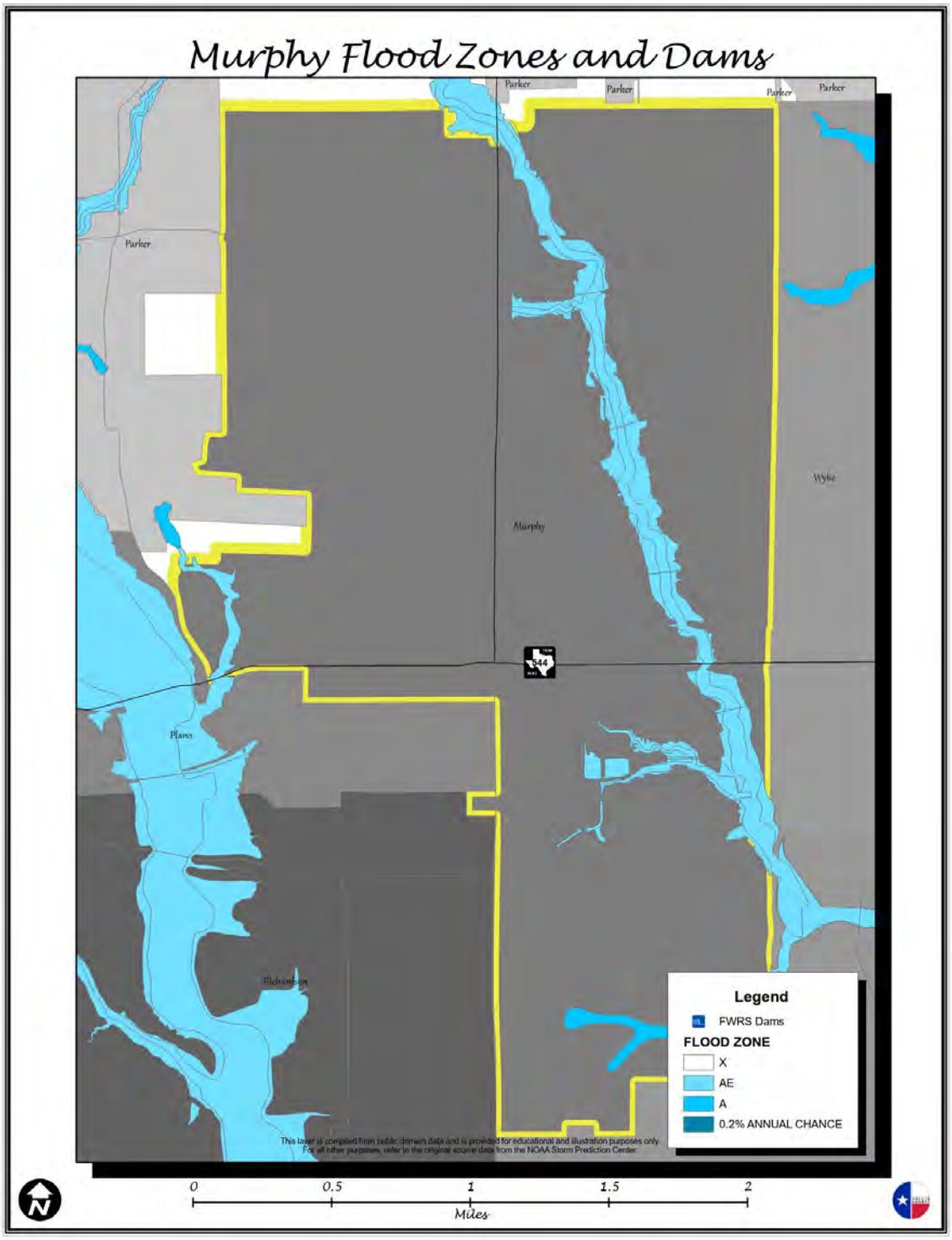

Josephine Flood Zones and Dams
778
547
6
777
Josephine
Josephine
HUNT
Legend
FWRS Dams
FLOOD ZONE
X
AE
A
0.2% ANNUAL CHANCE
This layer is compiled from public domain data and is provided for educational and illustration purposes only.
For all other purposes, refer to the original source data from the NOAA Storm Prediction Center
0
0.5
1
1.5
2
Miles

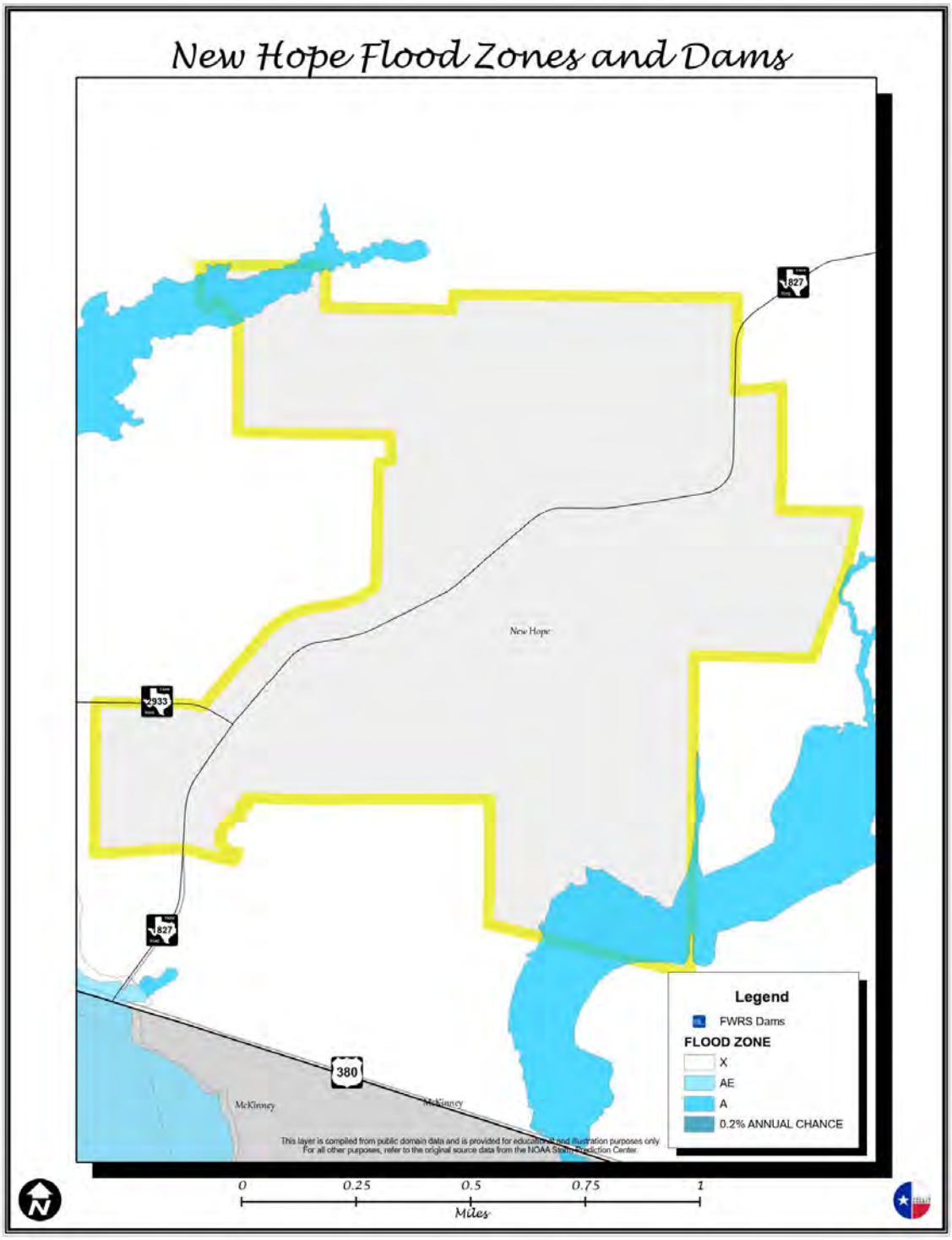

Lavon Flood Zones and Dams
Nevada
Nevada
Wylie
Lavon
6
78
TEXAS
205
TEXAS
2755
Legend
FWRS Dams
FLOOD ZONE
X
AE
A
0.2% ANNUAL CHANCE
This layer is compiled from public domain data and is provided for educational and illustration purposes only.
For all other purposes, refer to the original source data from the NOAA Storm Prediction Center
0
0.5
1
1.5
2
Miles

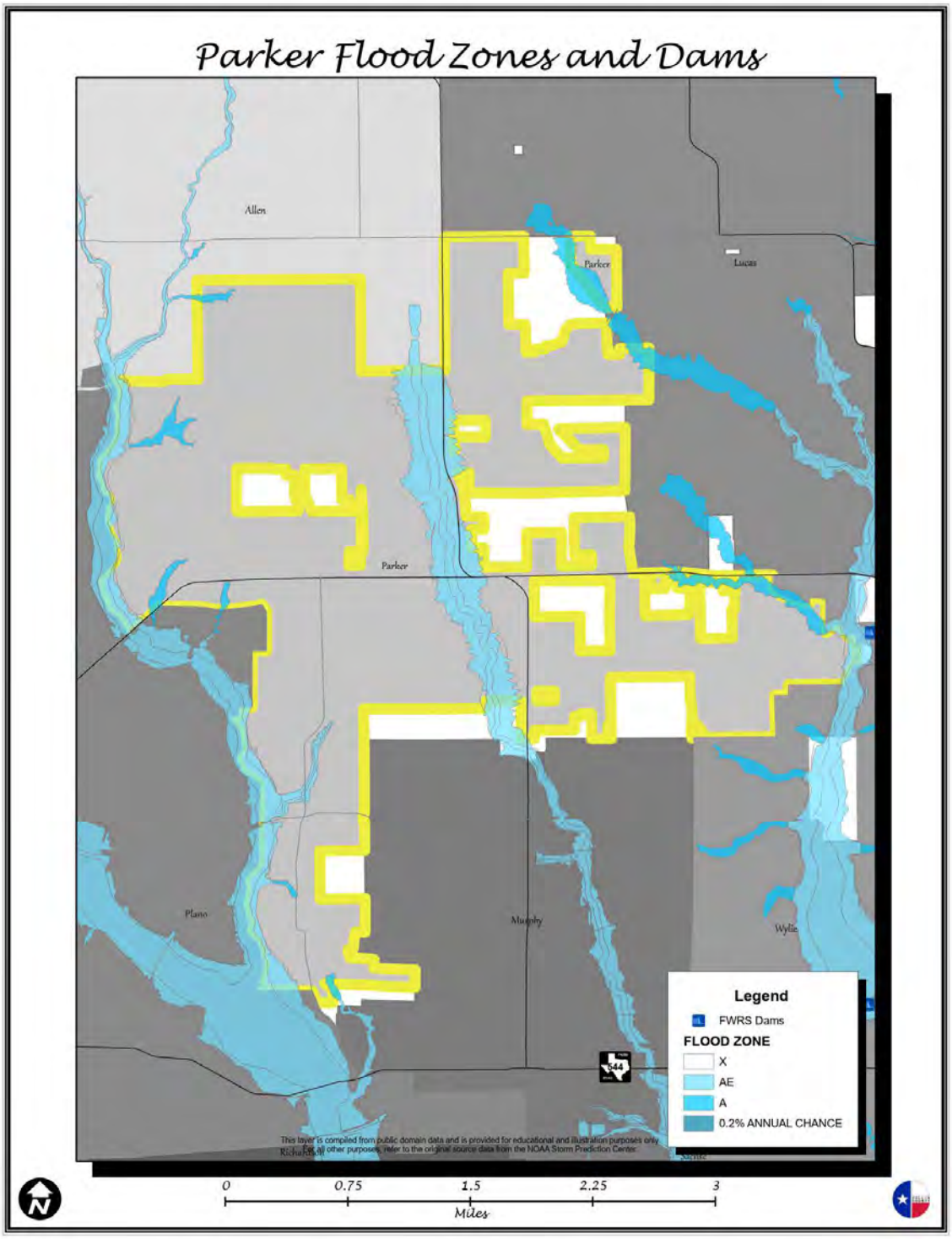

Lowry Crossing Flood Zones and Dams
McKinney
380
Princeton
McKinney
Lowry
Crossing
McKinney
546
Legend
FWRS Dams
FLOOD ZONE
X
AE
A
0.2% ANNUAL CHANCE
This layer is compiled from public domain data and is provided for educational and illustration purposes only.
For all other purposes, refer to the original source data from the NOAA Storm Prediction Center.
0
0.25
0.5
0.75
1
Miles

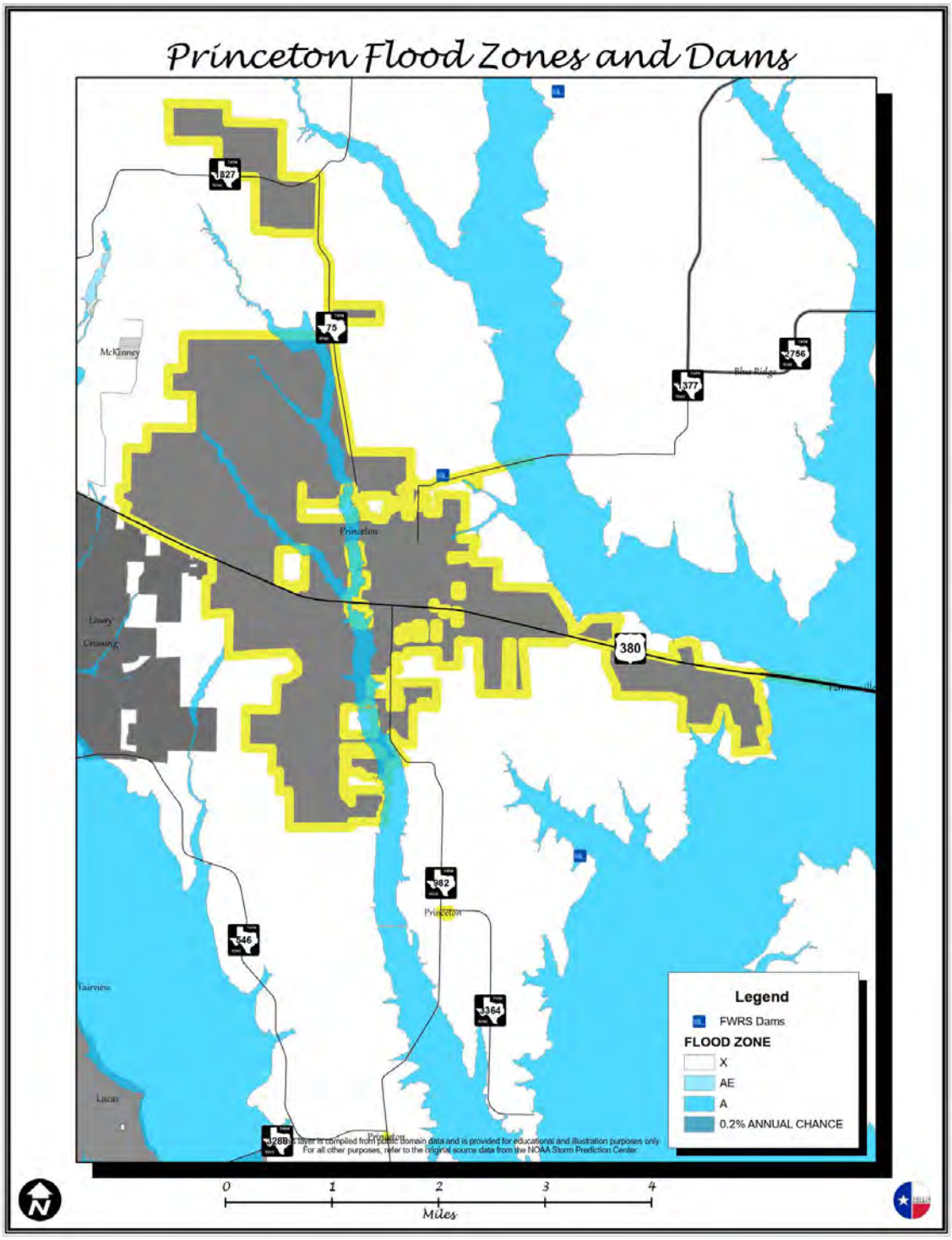

Lucas Flood Zones and Dams
Fairview
378
Allen
Lucas
Parker
Parker
Wylie
Wylie
Legend
FWRS Dams
FLOOD ZONE
X
AE
A
0.2% ANNUAL CHANCE
This layer is compiled from public domain data and is provided for educational and illustration purposes only.
For all other purposes, refer to the original source data from the NOAA Storm Prediction Center.
0
0.75
1.5
2.25
3
Miles

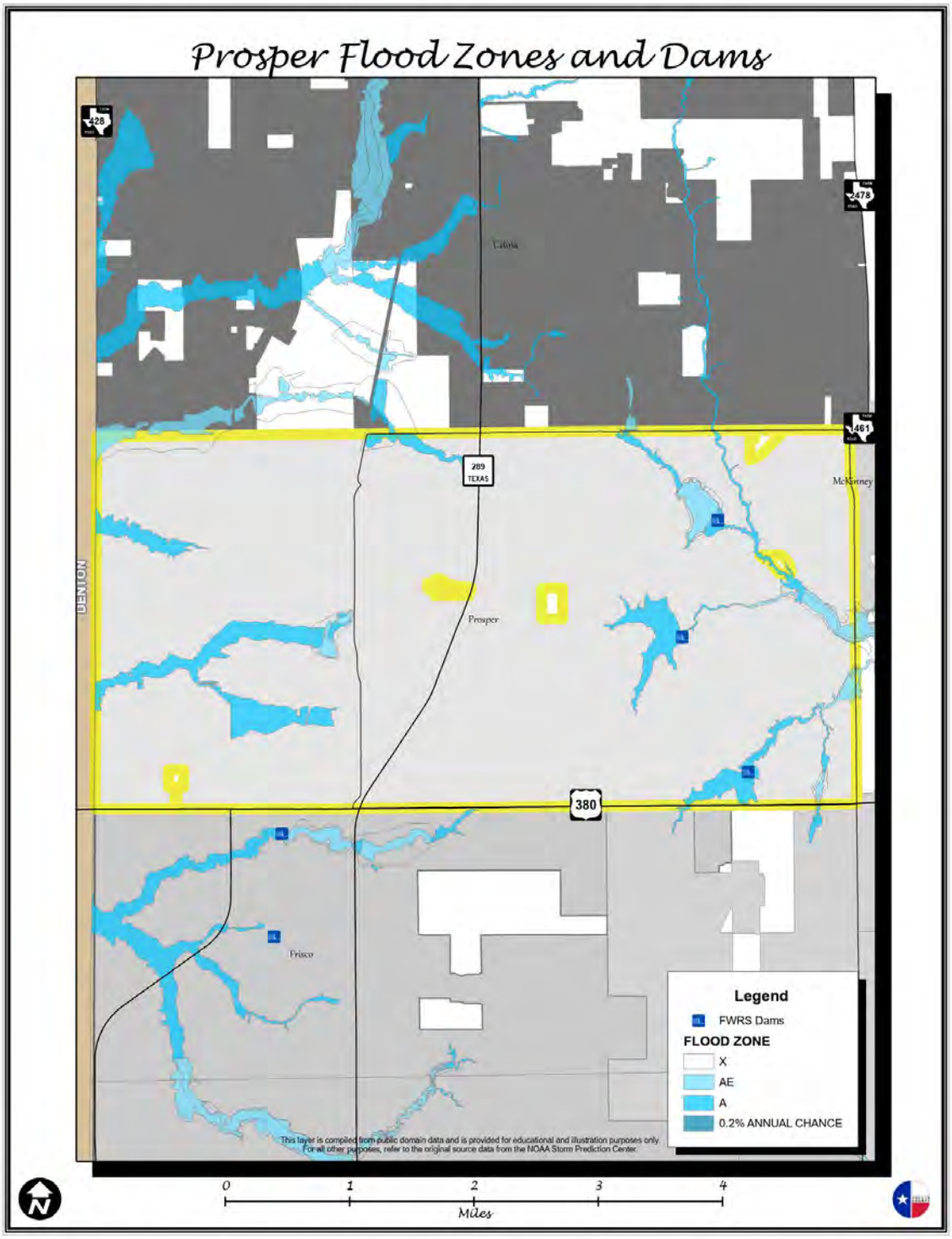

Melissa Flood Zones and Dams
455
5
TEXAS
Anna
455
Anna
Anna
75
McKinney
Melissa
121
TEXAS
545
McKinney
5
TEXAS
SPUR
195
2933
McKinney
Legend
FWRS Dams
FLOOD ZONE
X
AE
A
0.2% ANNUAL CHANCE
0
1
2
3
4
Miles

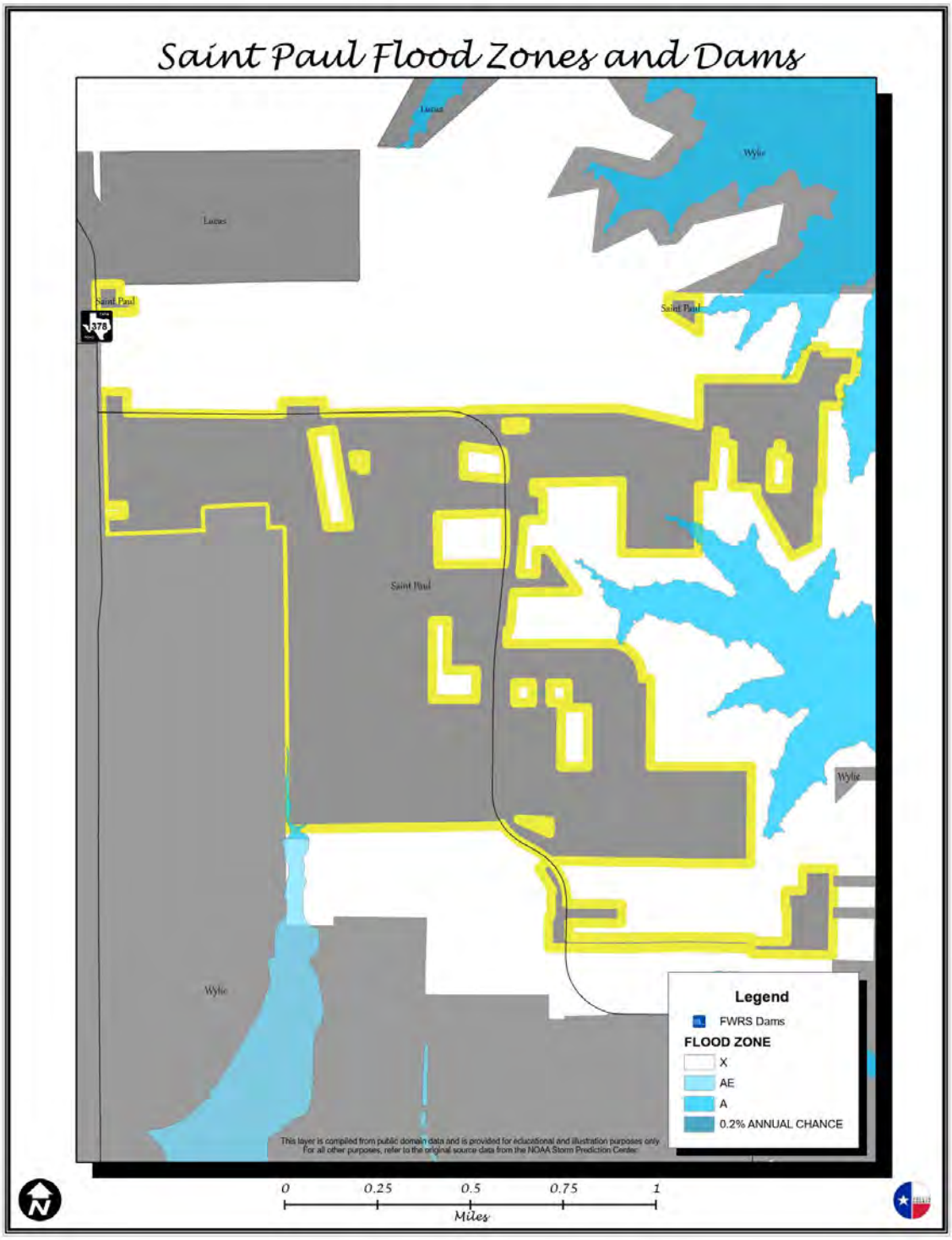

Murphy Flood Zones and Dams
Parker
Parker
Parker
Parker
Parker
Wylie
Murphy
544
Plano
Richardson
Legend
FWRS Dams
FLOOD ZONE
X
AE
A
0.2% ANNUAL CHANCE
This layer is compiled from public domain data and is provided for educational and illustration purposes only.
For all other purposes, refer to the original source data from the NOAA Storm Prediction Center.
0
0.5
1
1.5
2
Miles

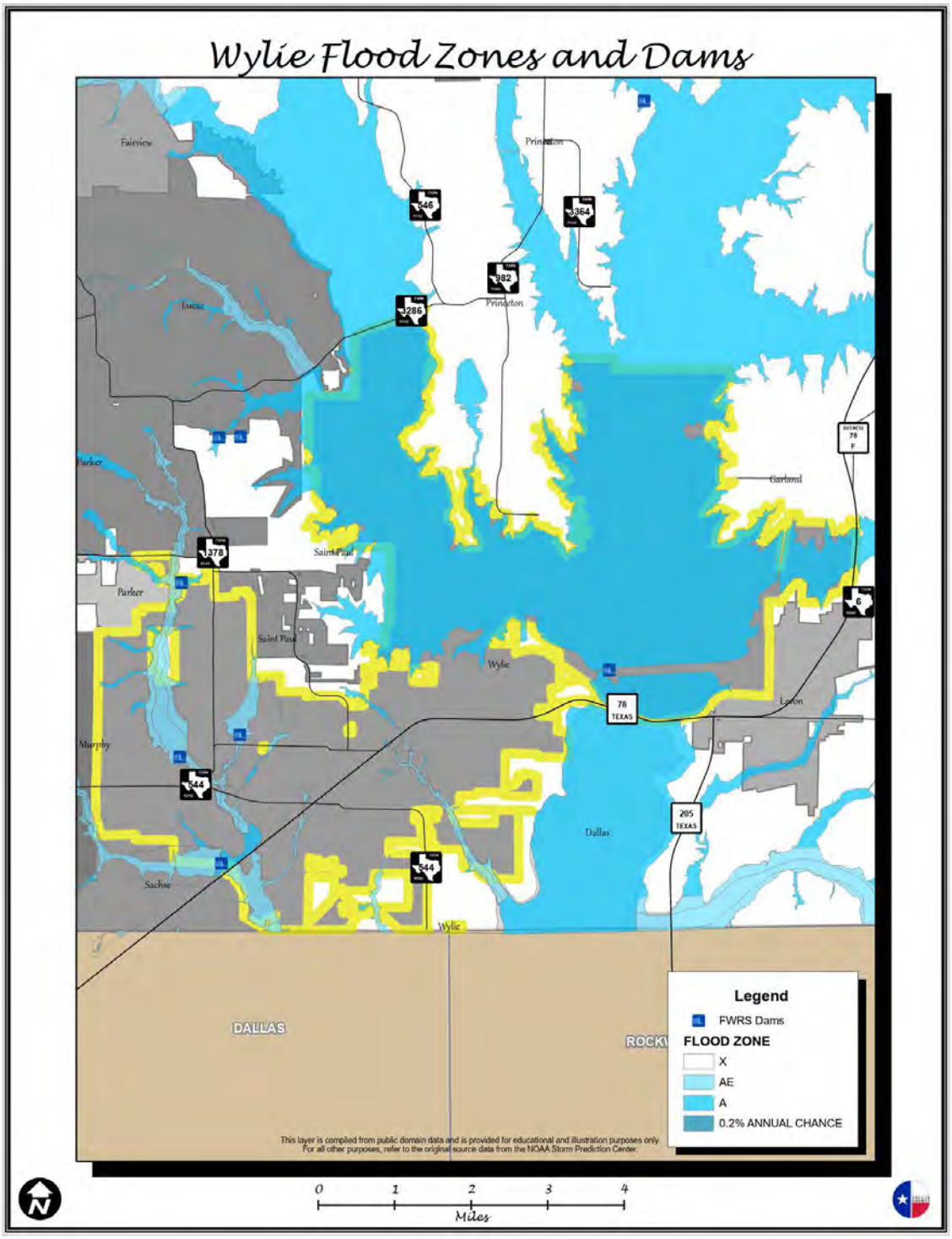

New Hope Flood Zones and Dams
New Hope
827
933
827
380
McKinney
McKinney
Legend
FWRS Dams
FLOOD ZONE
X
AE
A
0.2% ANNUAL CHANCE
This layer is compiled from public domain data and is provided for educational and illustration purposes only.
For all other purposes, refer to the original source data from the NOAA Storm Prediction Center.
0
0.25
0.5
0.75
1
Miles


Parker Flood Zones and Dams
Allen
Parker
Lucas
Parker
Plano
Murphy
Wylie
Legend
FWRS Dams
FLOOD ZONE
X
AE
A
0.2% ANNUAL CHANCE
This layer is compiled from public domain data and is provided for educational and illustration purposes only. For all other purposes, refer to the original source data from the NOAA Storm Prediction Center.
0
0.75
1.5
2.25
3
Miles

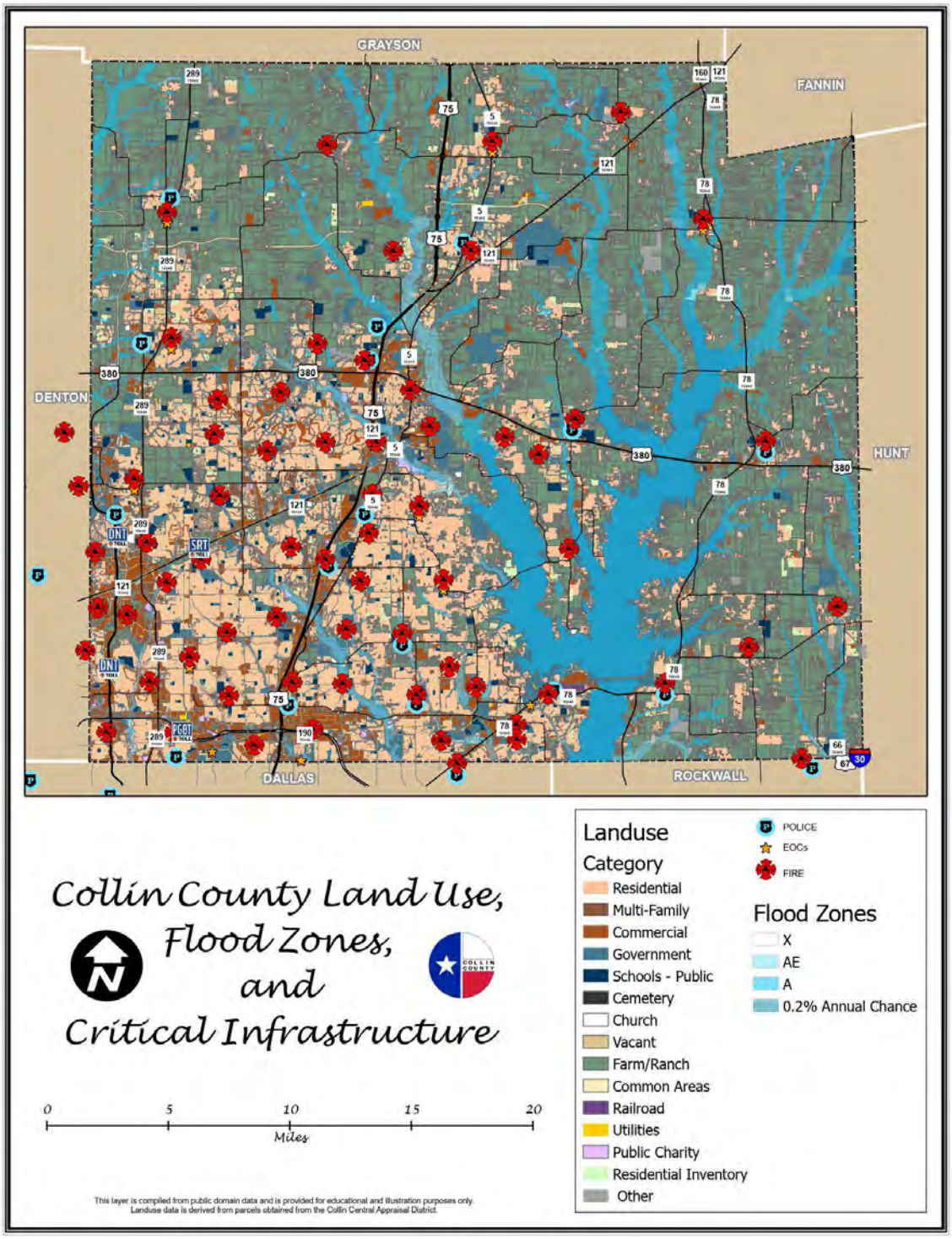

Princeton Flood Zones and Dams
827
75
McKinney
756
377
Blue Ridge
Princeton
Lowry
Crossing
380
Farmersville
982
Princeton
546
Fairview
364
Lucas
288
Legend
FWRS Dams
FLOOD ZONE
X
AE
A
0.2% ANNUAL CHANCE
0
1
2
3
4
Miles


Prosper Flood Zones and Dams
428
2478
461
289
TEXAS
380
DENTON
Celina
McKinney
Prosper
Frisco
Legend
FWRS Dams
FLOOD ZONE
X
AE
A
0.2% ANNUAL CHANCE
This layer is compiled from public domain data and is provided for educational and illustration purposes only. For all other purposes, refer to the original source data from the NOAA Storm Prediction Center.
0
1
2
3
4
Miles

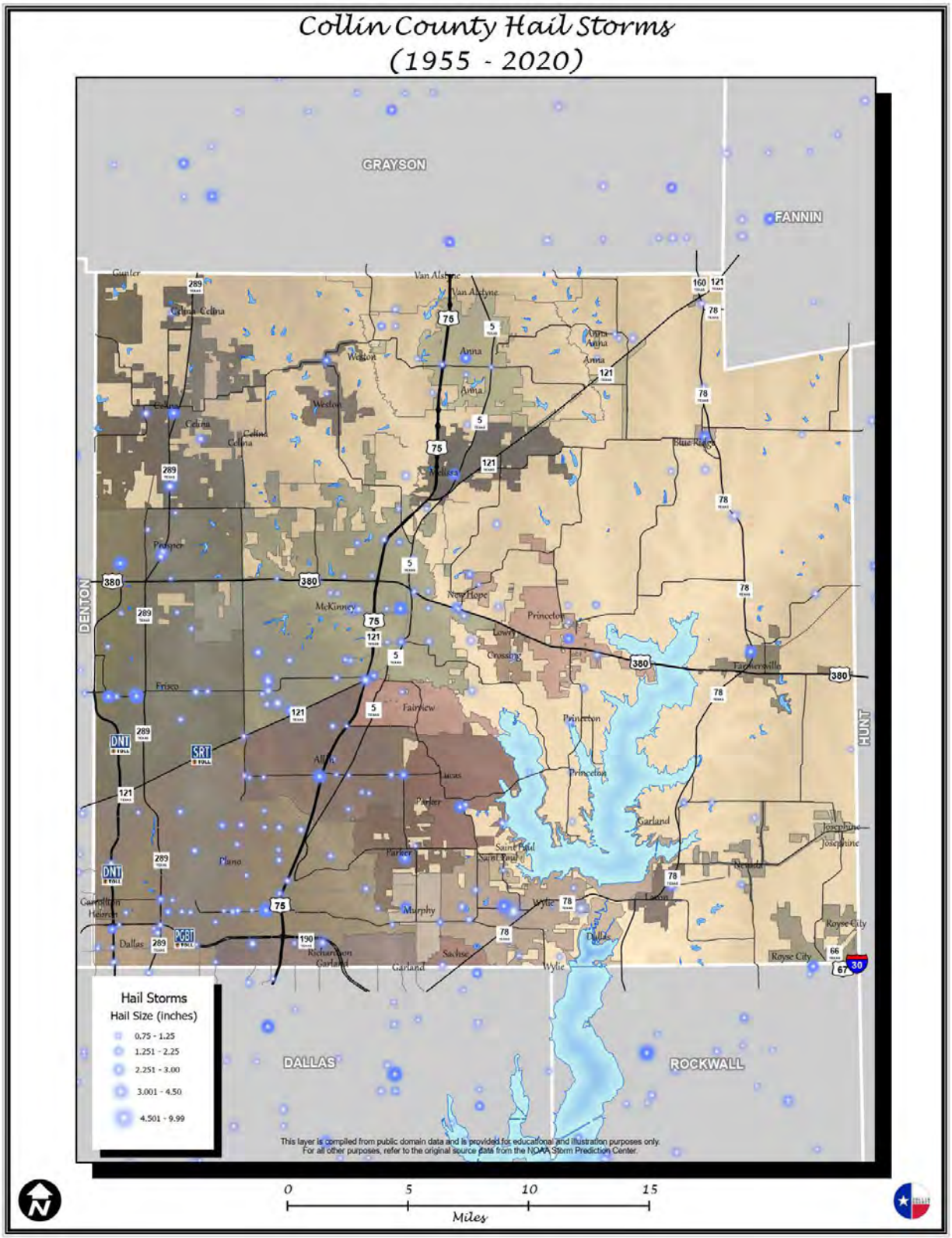

Saint Paul Flood Zones and Dams
Lucas
Wylie
Saint Paul
Legend
FWRS Dams
FLOOD ZONE
X
AE
A
0.2% ANNUAL CHANCE
This layer is compiled from public domain data and is provided for educational and illustration purposes only. For all other purposes, refer to the original source data from the NOAA Storm Prediction Center.
0
0.25
0.5
0.75
1
Miles


Wylie Flood Zones and Dams
Fairview
Princeton
546
364
982
286
Lucas
Parker
Garland
378
Saint Paul
Parker
6
Saint Paul
Wylie
78
TEXAS
Murphy
544
205
TEXAS
Dallas
544
Sachse
Wylie
DALLAS
Legend
FWRS Dams
FLOOD ZONE
X
AE
A
0.2% ANNUAL CHANCE
This layer is compiled from public domain data and is provided for educational and illustration purposes only.
For all other purposes, refer to the original source data from the NOAA Storm Prediction Center.
0
1
2
3
4
Miles

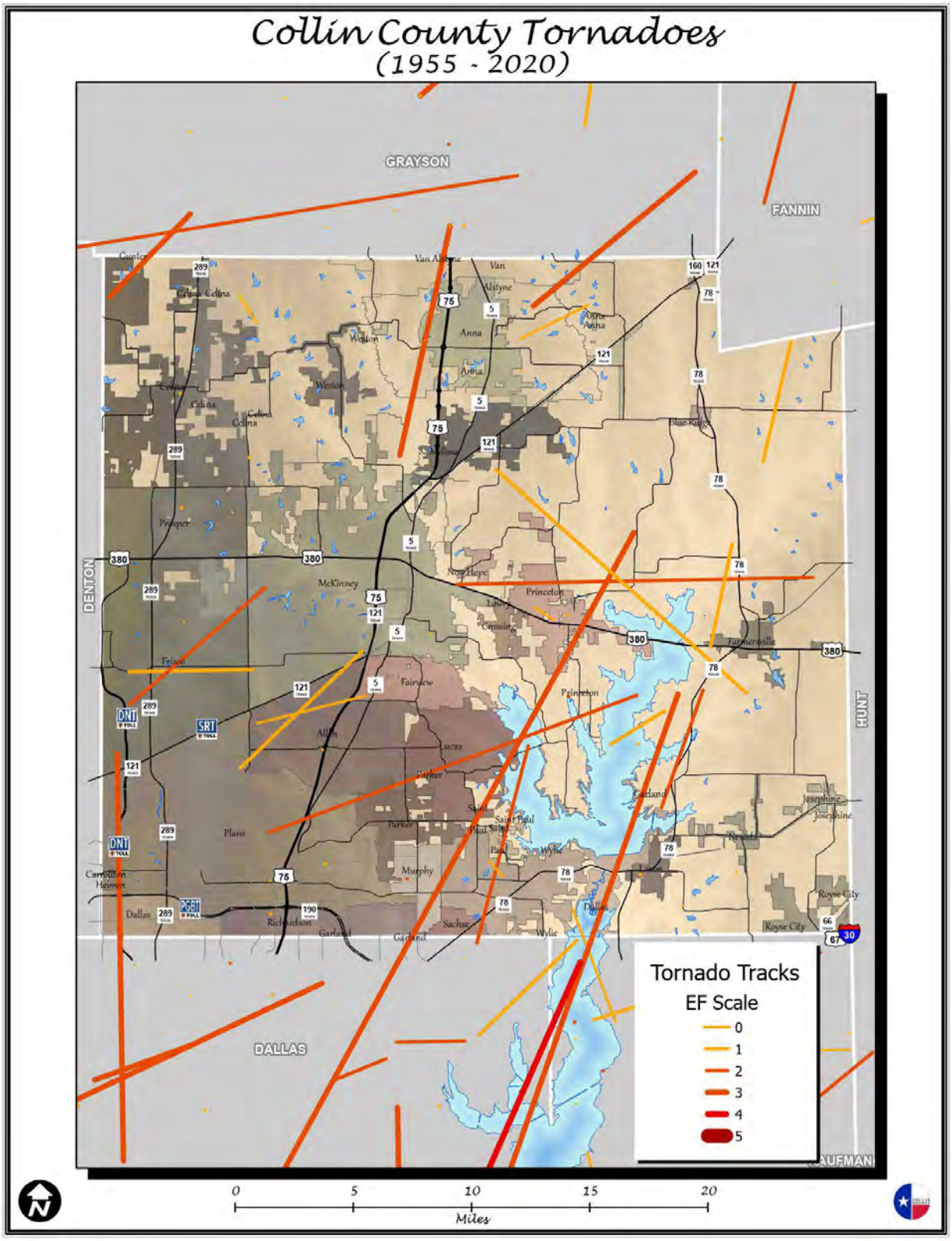
Map Series B – Land Use, Critical Infrastructure, and Flood Zones



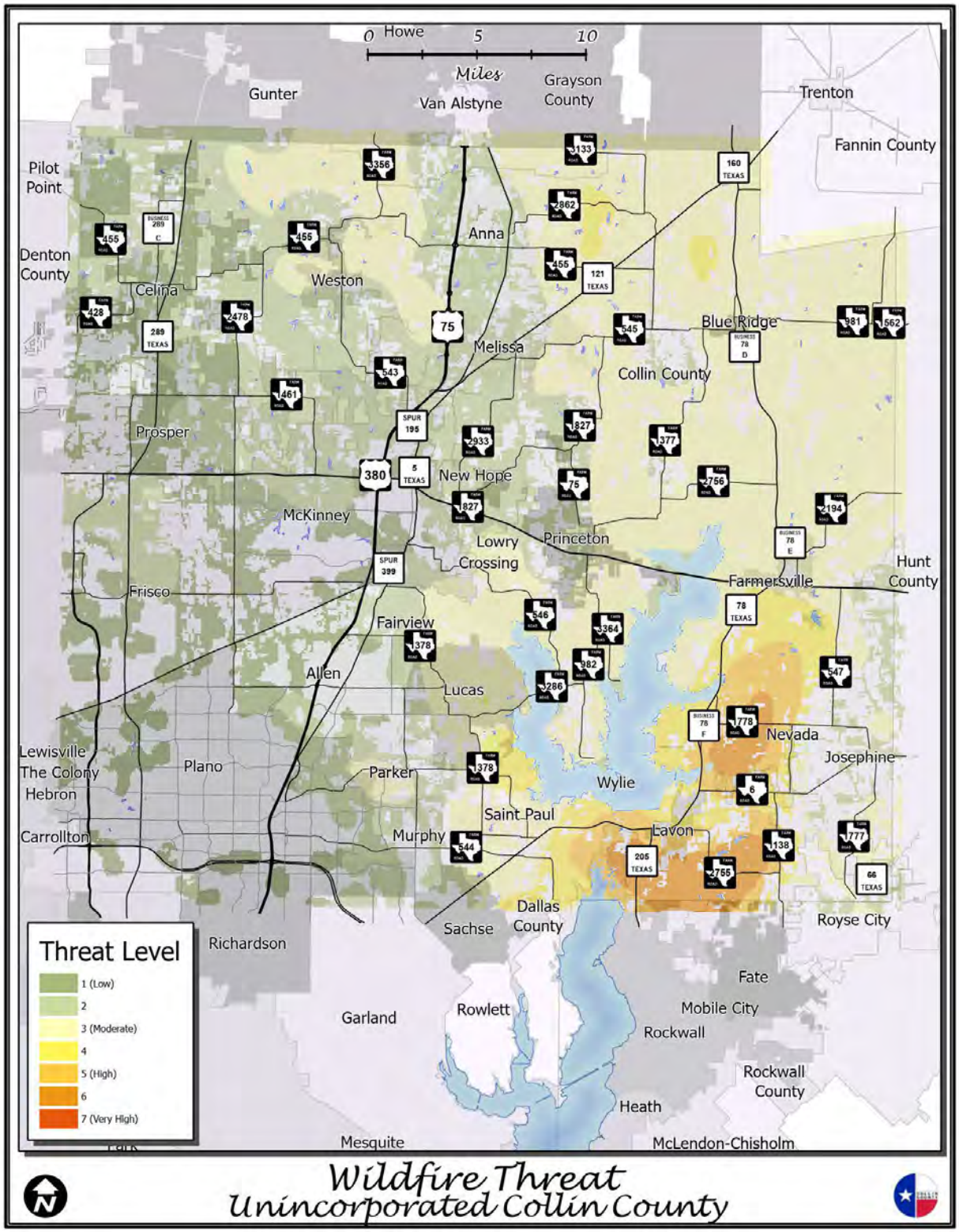
Map Series C – Hail Events

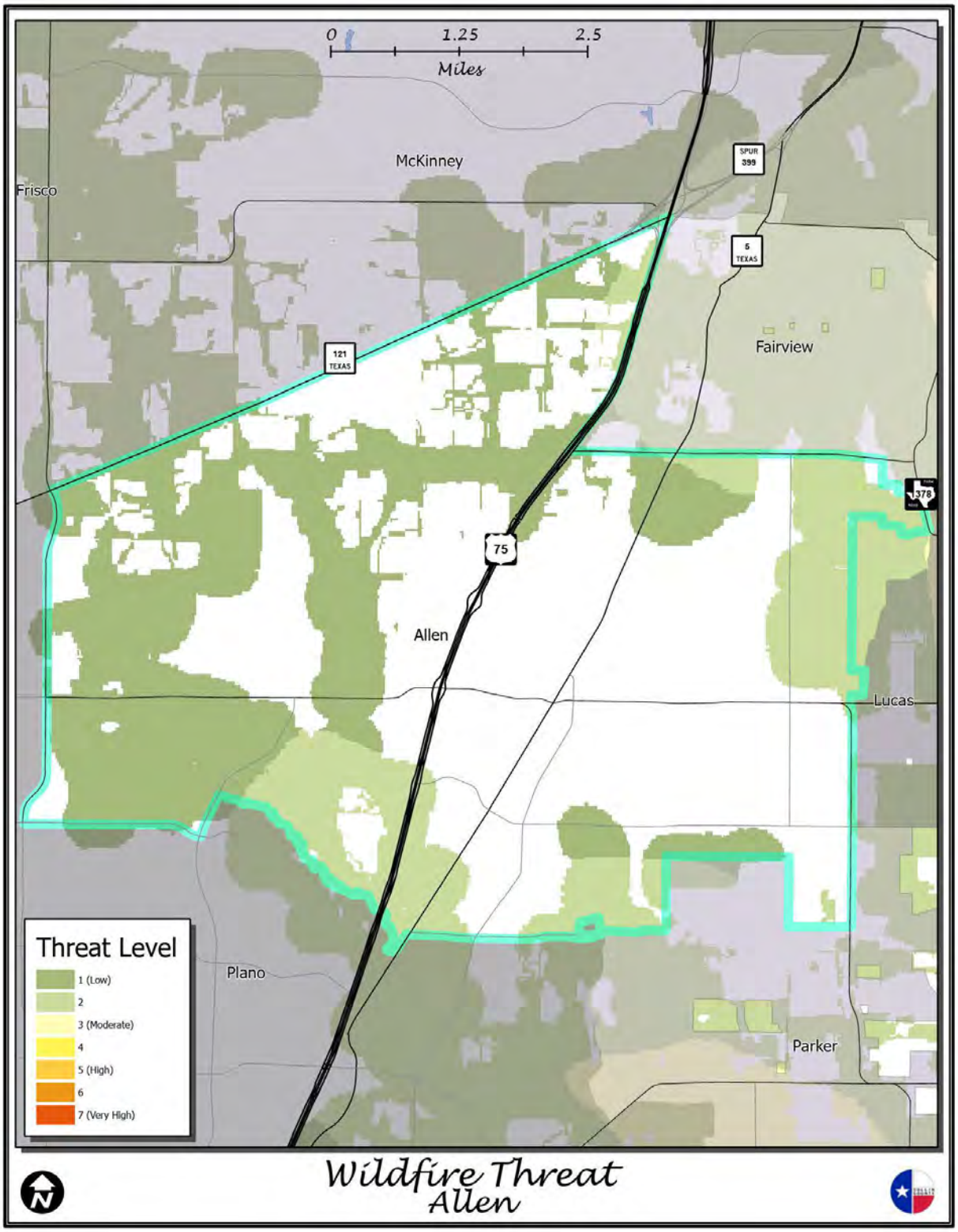


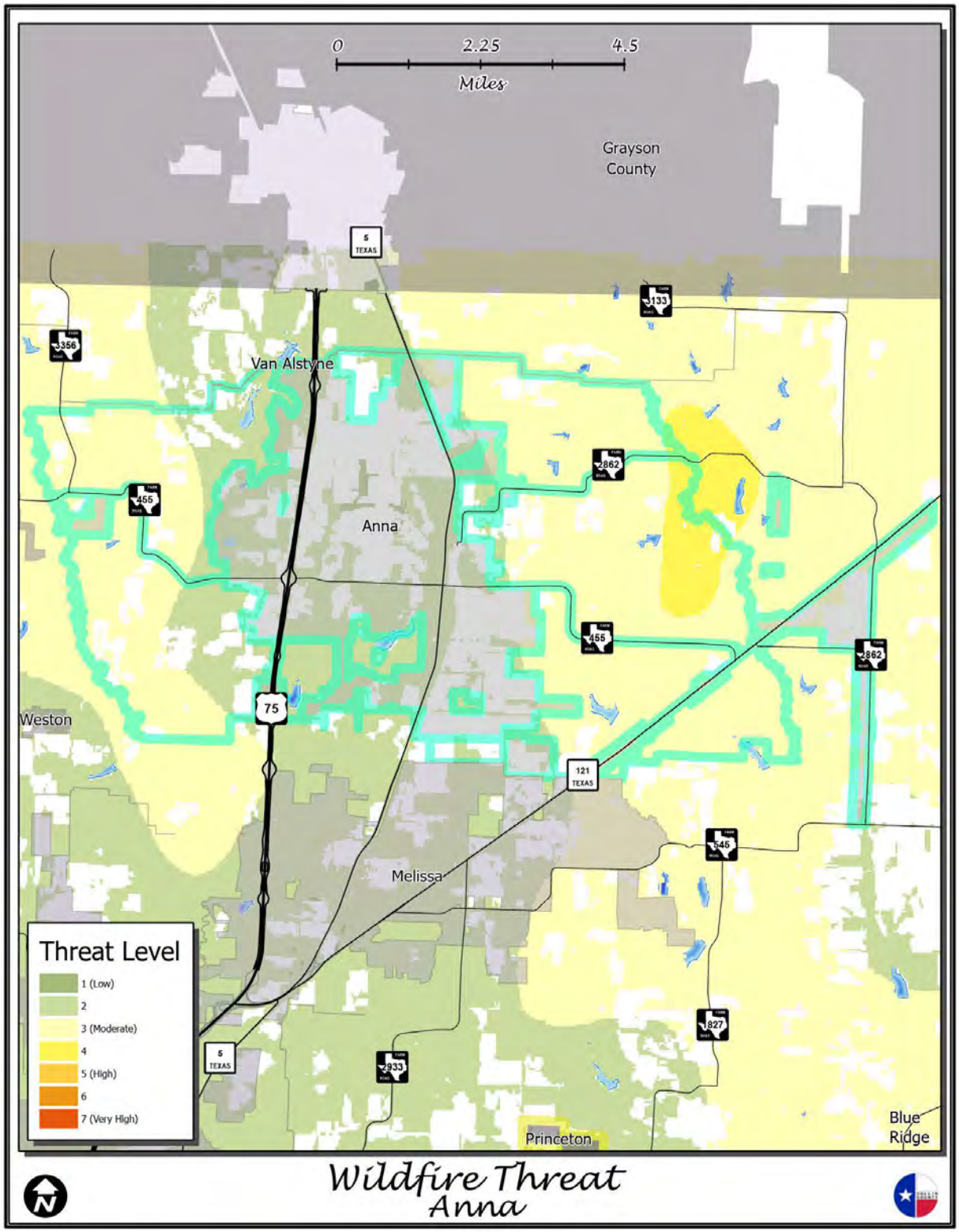
Map Series D – Tornado Events



Map Series E – Wildfire Threat




0
1.25
2.5
Miles
McKinney
Frisco
SPUR 399
5 TEXAS
121 TEXAS
Fairview
378
75
Allen
Lucas
Plano
Parker
Threat Level
1 (Low)
2
3 (Moderate)
4
5 (High)
6
7 (Very High)
Wildfire Threat
Allen


0
2.25
4.5
Miles
Grayson County
Van Alstyne
Anna
Weston
Melissa
Princeton
Blue Ridge
5 TEXAS
133
356
455
2862
75
121 TEXAS
545
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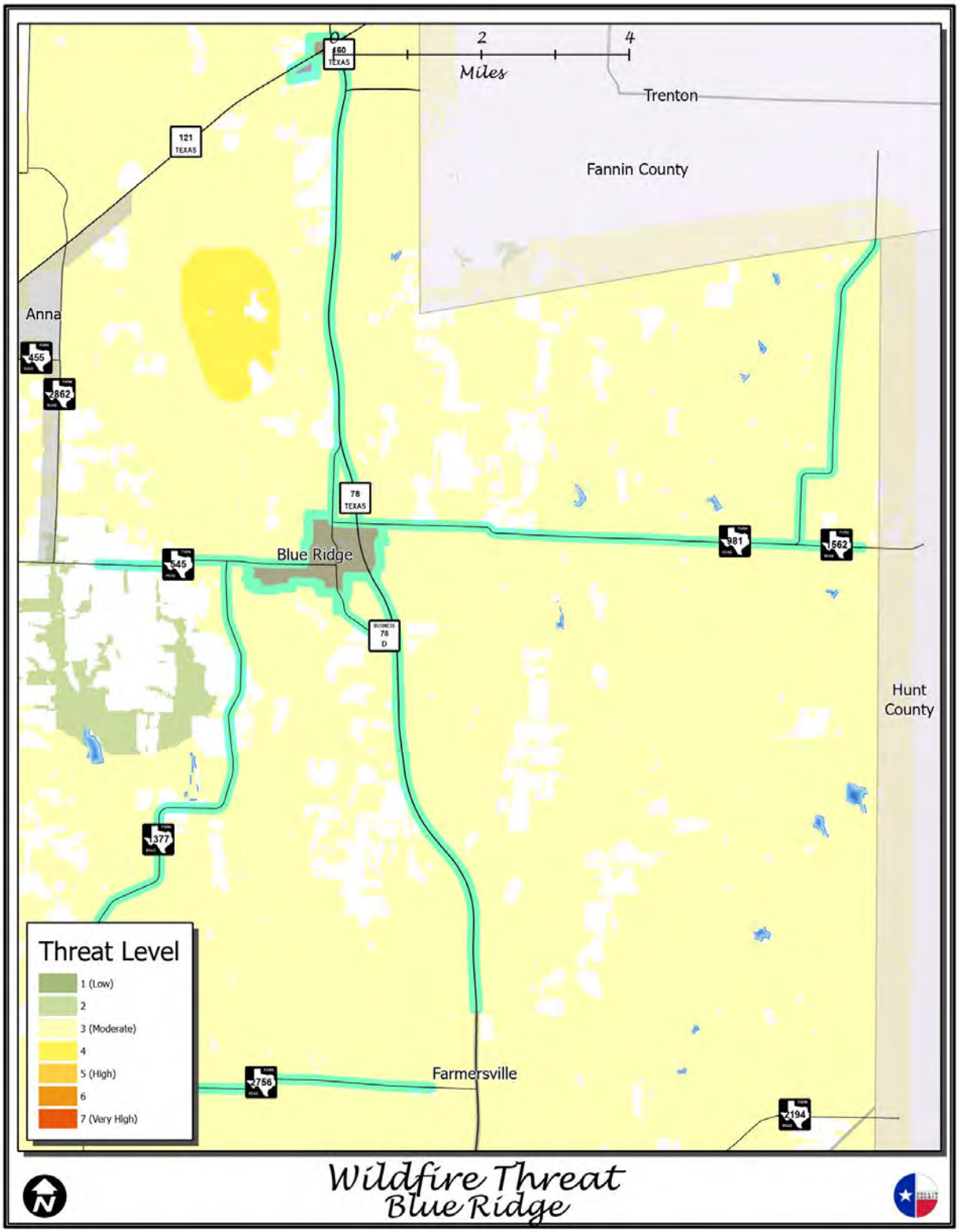
2933
Threat Level
1 (Low)
2
3 (Moderate)
4
5 (High)
6
7 (Very High)
Wildfire Threat
Anna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2
4
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Trenton
Fannin County
Anna
Blue Ridge
Hunt County
Farmersville
Threat Level
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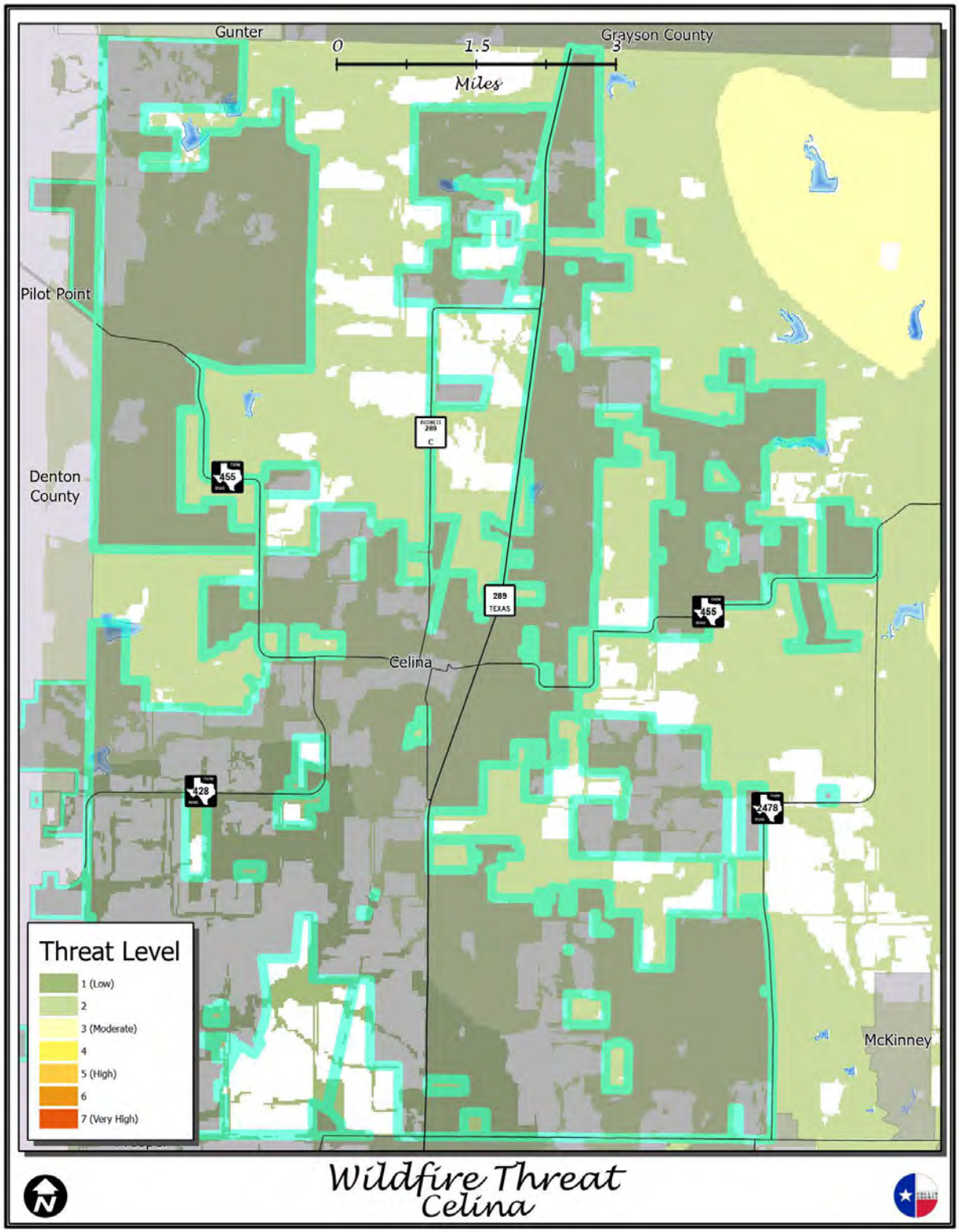
4
5 (High)
6
7 (Very High)
Wildfire Threat
Blue Ridge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Grayson County
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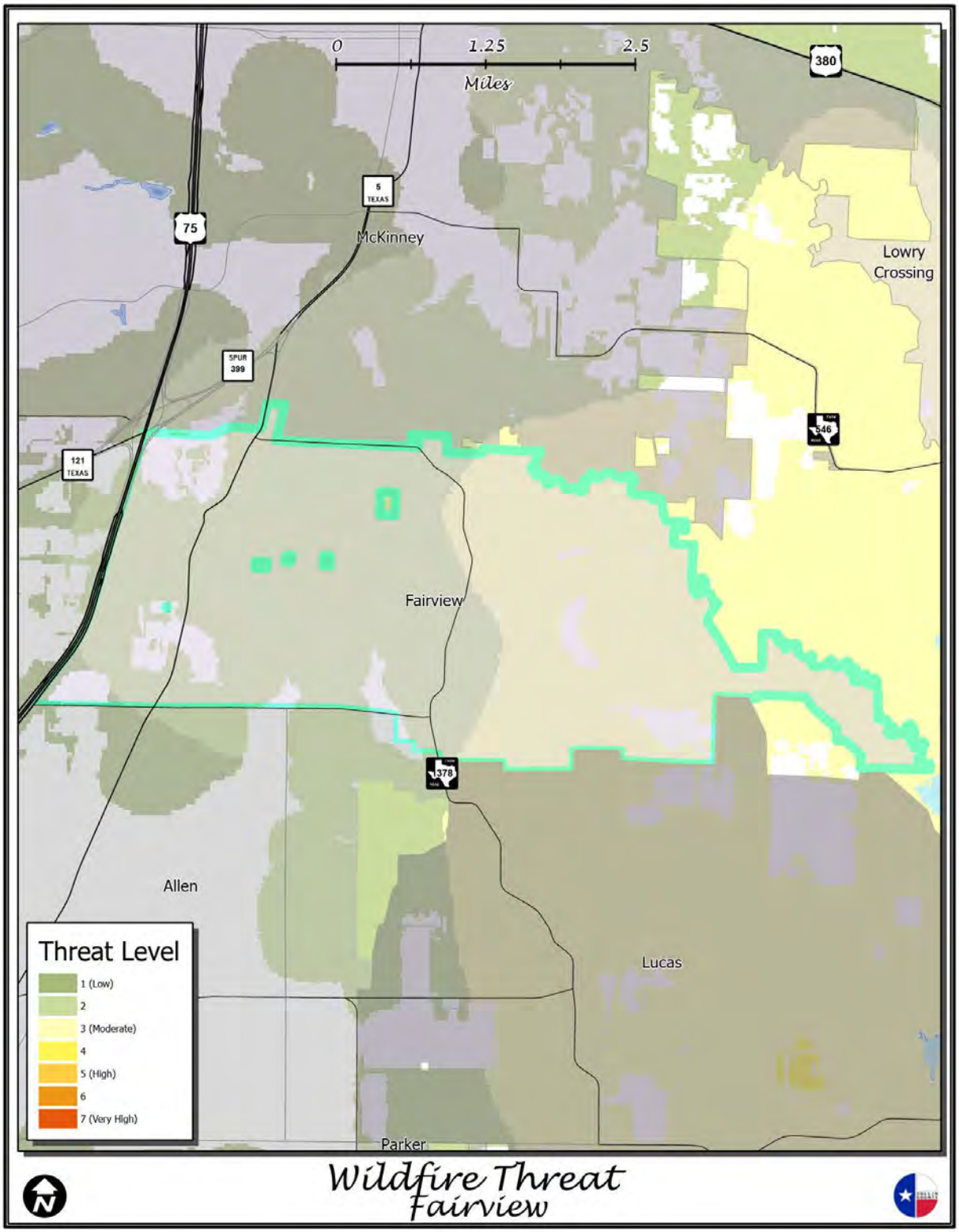
3
Miles
Pilot Point
Denton County
455
289
C
289
TEXAS
455
Celina
428
2478
McKinney
Threat Level
1 (Low)
2
3 (Moderate)
4
5 (High)
6
7 (Very High)
Wildfire Threat
Celina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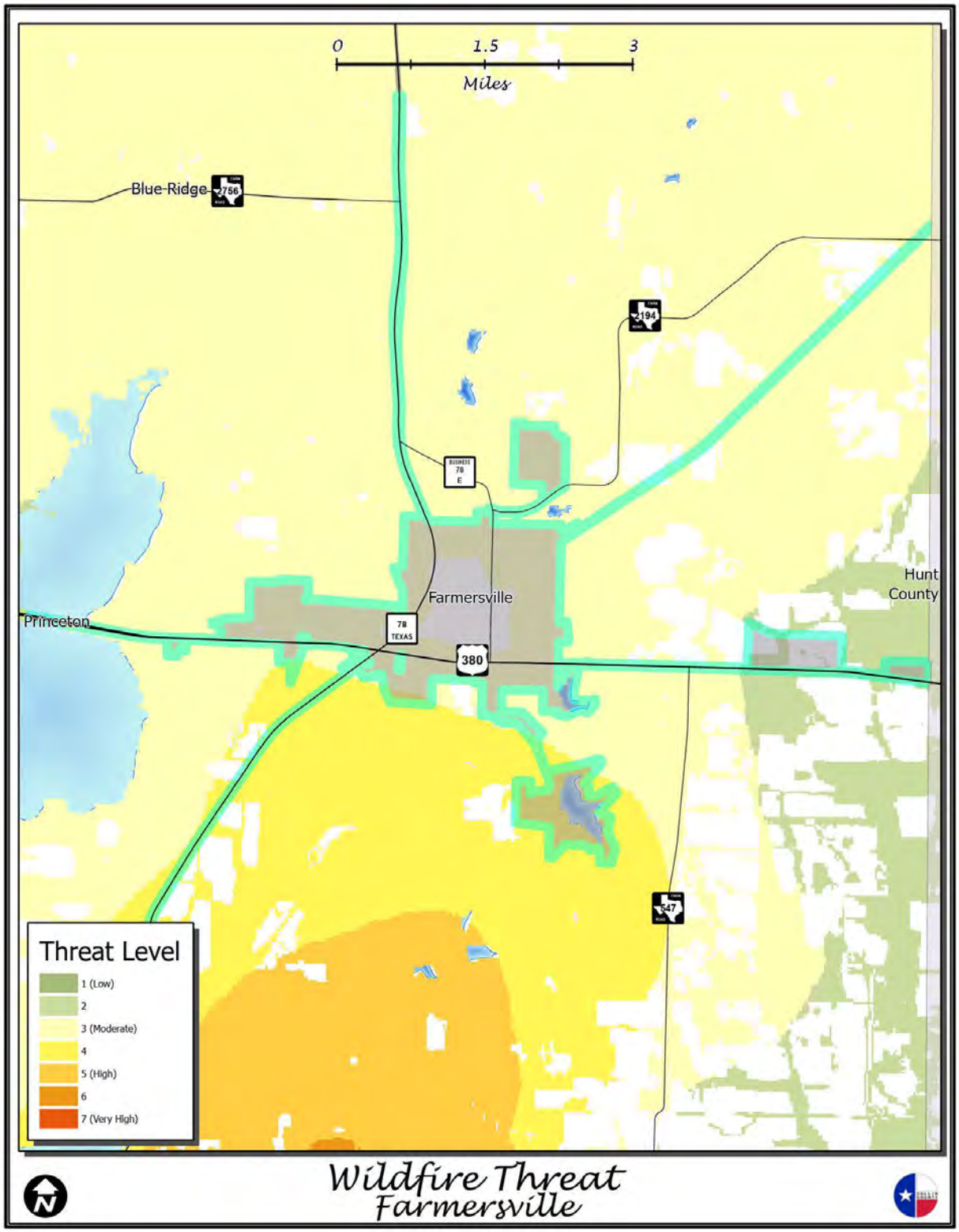
2.5
Miles
380
5
TEXAS
75
McKinney
Lowry
Crossing
SPUR
399
546
121
TEXAS
Fairview
378
Allen
Lucas
Parker
Threat Level
1 (Low)
2
3 (Moderate)
4
5 (High)
6
7 (Very High)
Wildfire Threat
Fairview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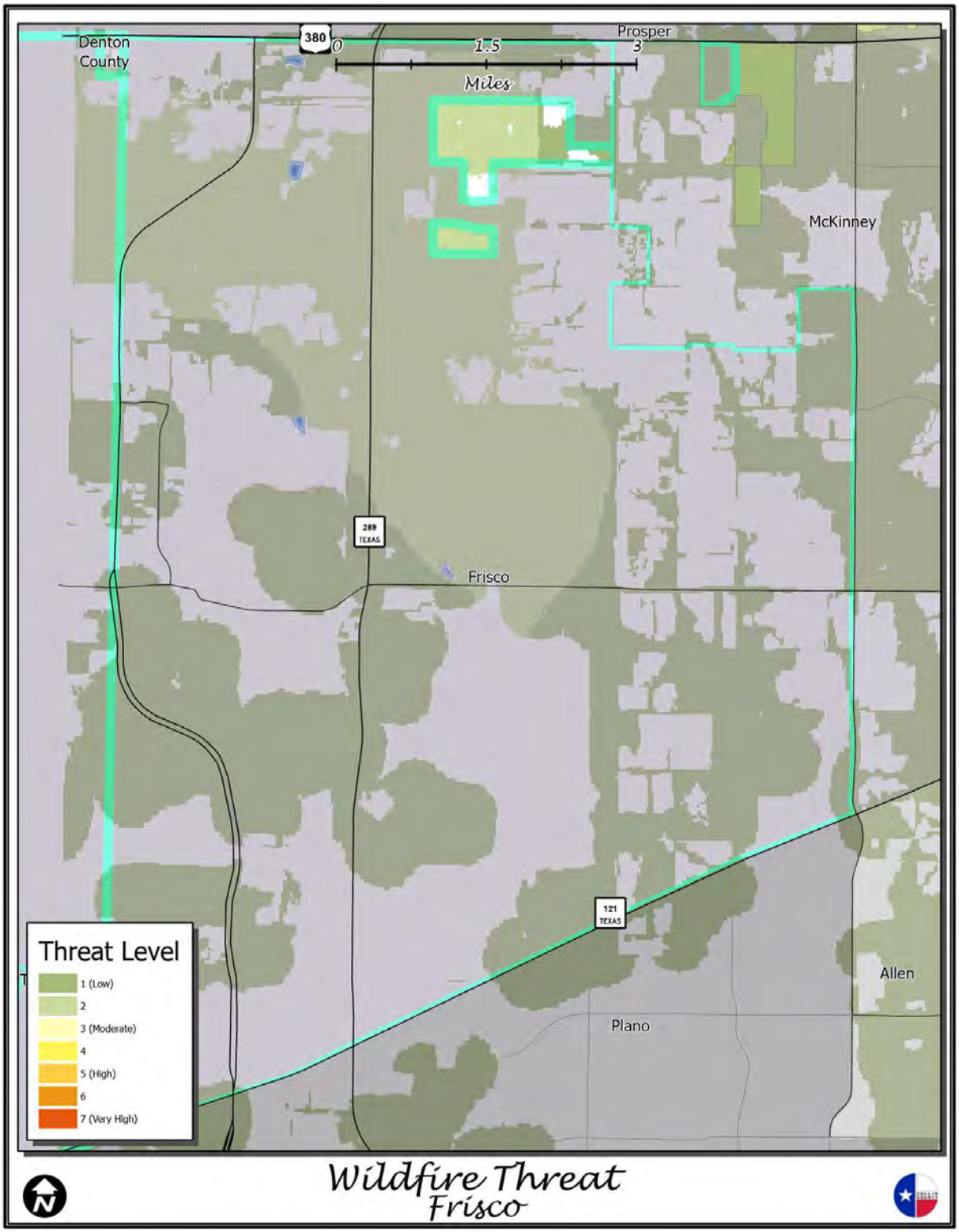
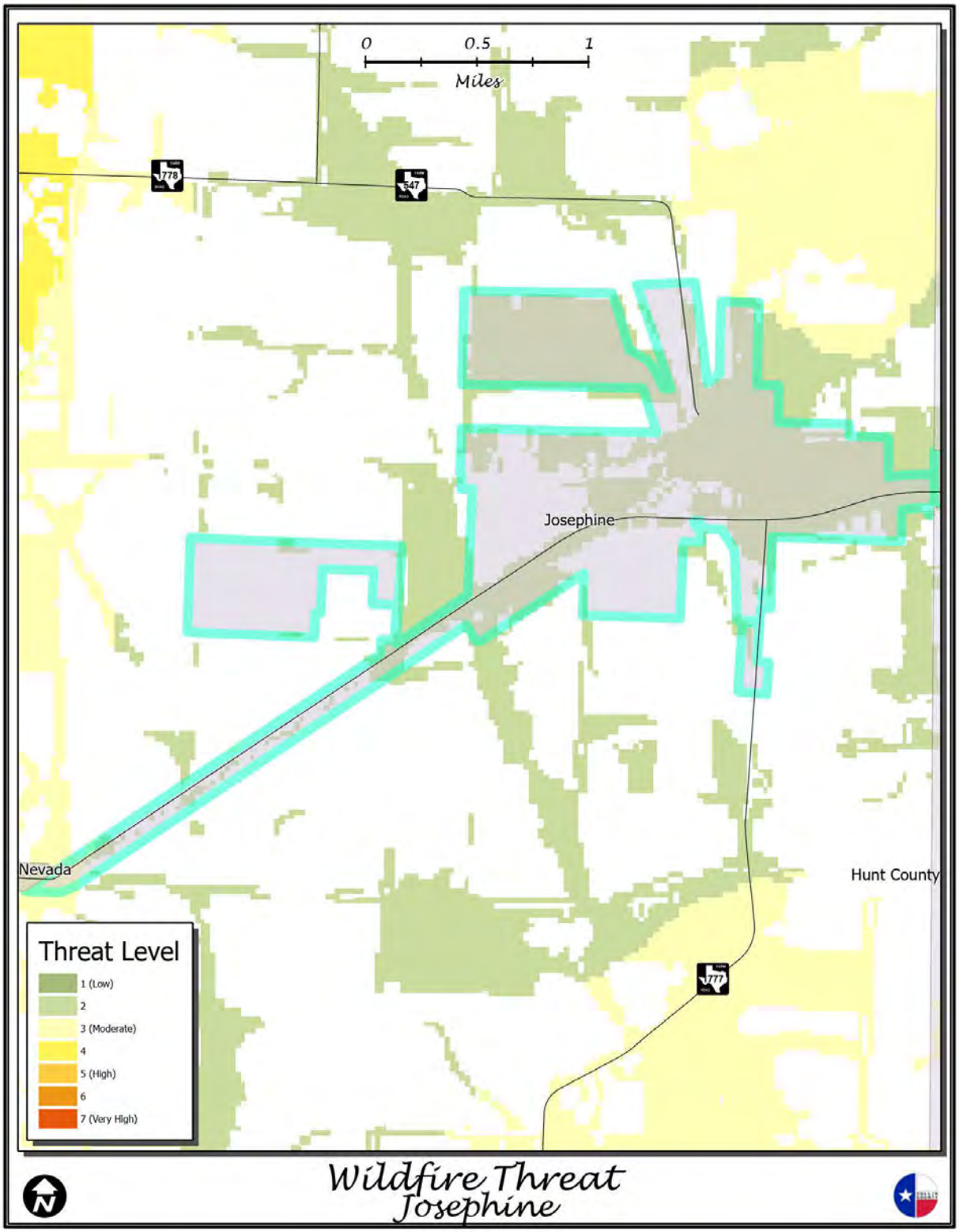
3
Miles
Blue Ridge
2756
2194
Farmersville
Princeton
78
TEXAS
380
Hunt
County
547
Threat Level
1 (Low)
2
3 (Moderate)
4
5 (High)
6
7 (Very High)
Wildfire Threat
Farmersville


Denton County
380
0
1.5
3
Miles
Prosper
McKinney
289 TEXAS
Frisco
121 TEXAS
Allen
Plano
Threat Level
1 (Low)
2
3 (Moderate)
4
5 (High)
6
7 (Very High)
Wildfire Threat
Frisco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1
Miles
Josephine
Nevada
Hunt County
Threat Level
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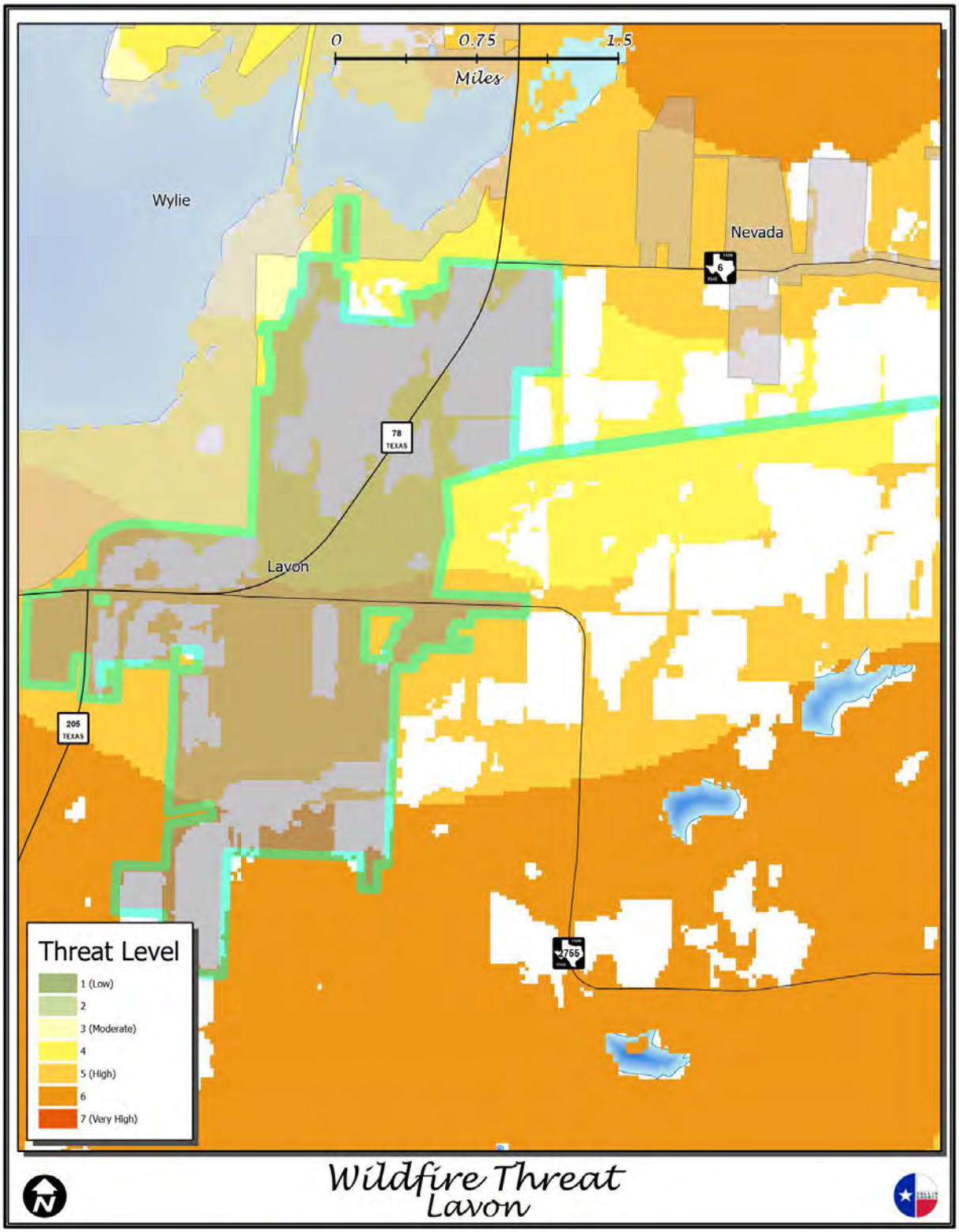
2
3 (Moderate)
4
5 (High)
6
7 (Very High)
Wildfire Threat
Josephine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1.5
Miles
Wylie
Nevada
6
78
TEXAS
Lavon
205
TEXAS
755
Threat Level
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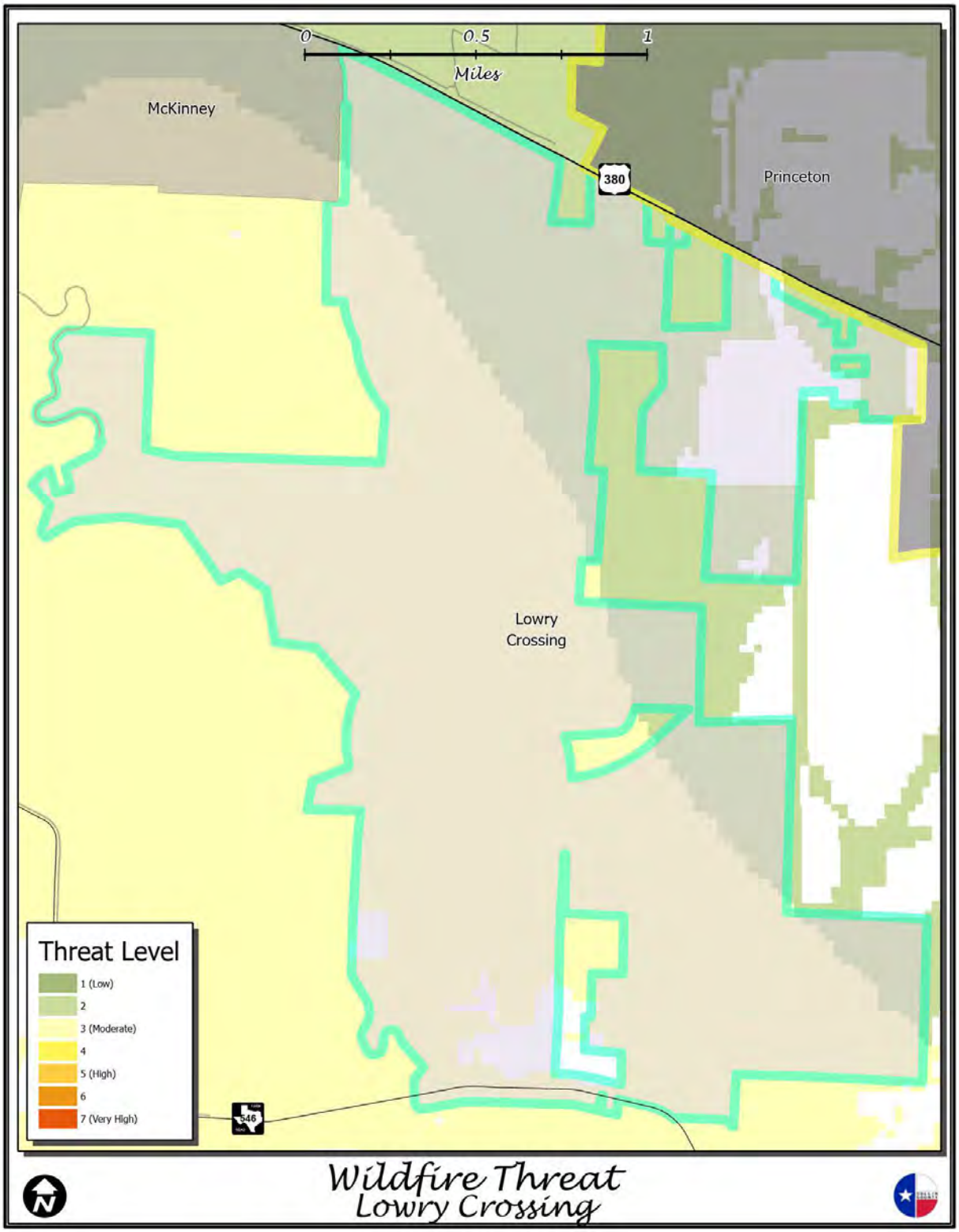
2
3 (Moderate)
4
5 (High)
6
7 (Very High)
Wildfire Threat
Lavon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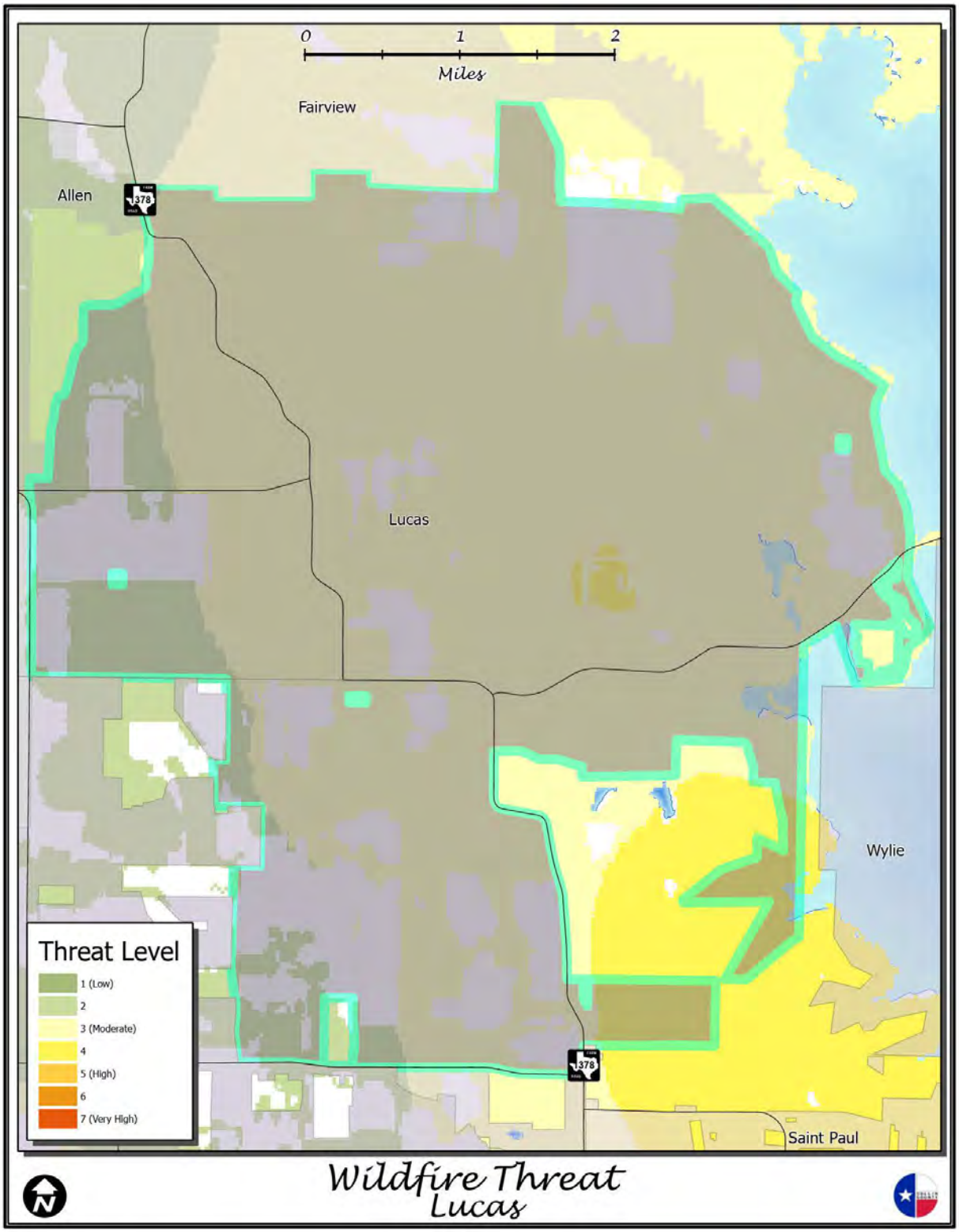
0.5
1
Miles
McKinney
380
Princeton
Lowry
Crossing
546
Threat Level
1 (Low)
2
3 (Moderate)
4
5 (High)
6
7 (Very High)
Wildfire Threat
Lowry Crossing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1
2
Miles
Fairview
Allen
378
Lucas
Wylie
Saint Paul
Threat Level
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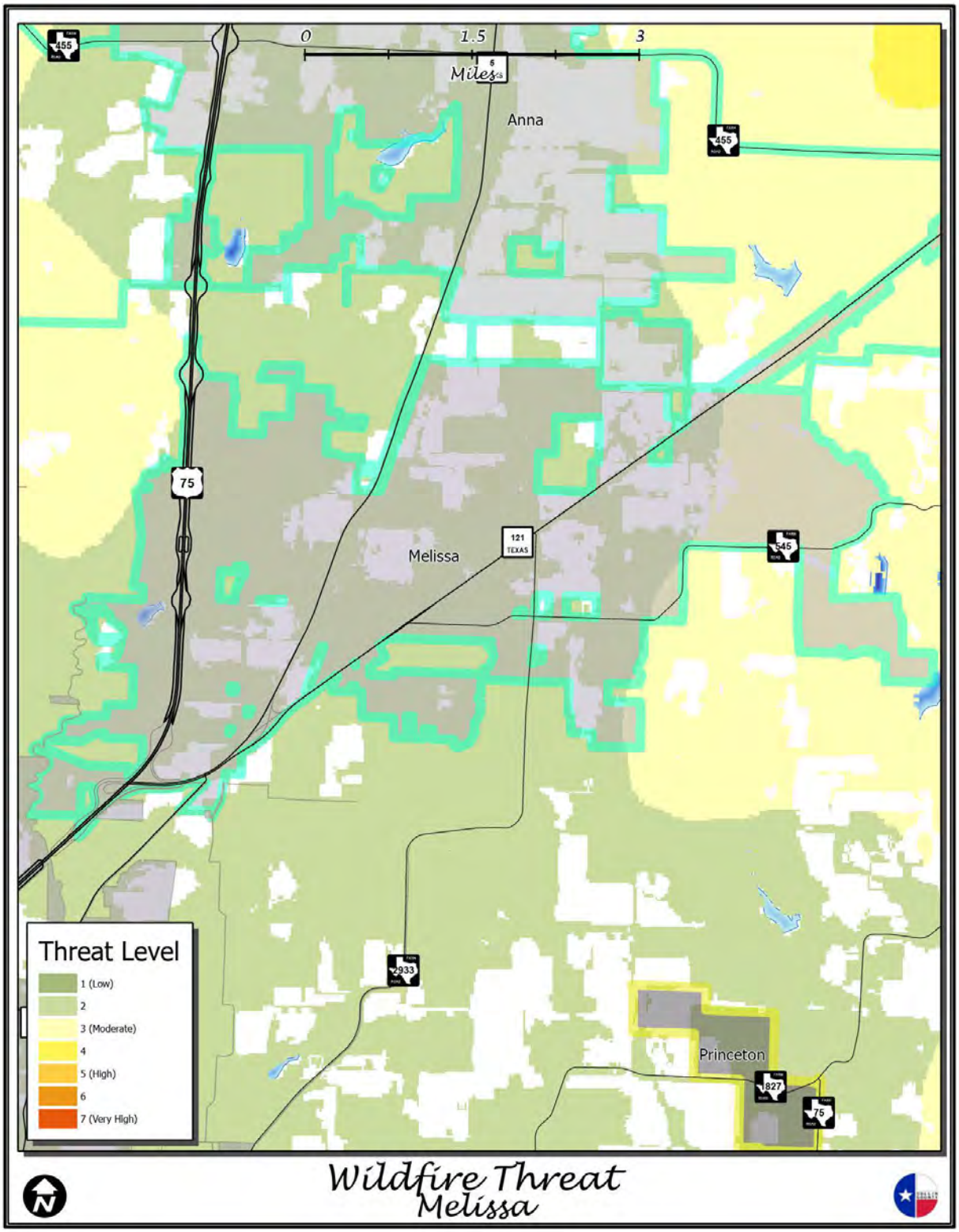
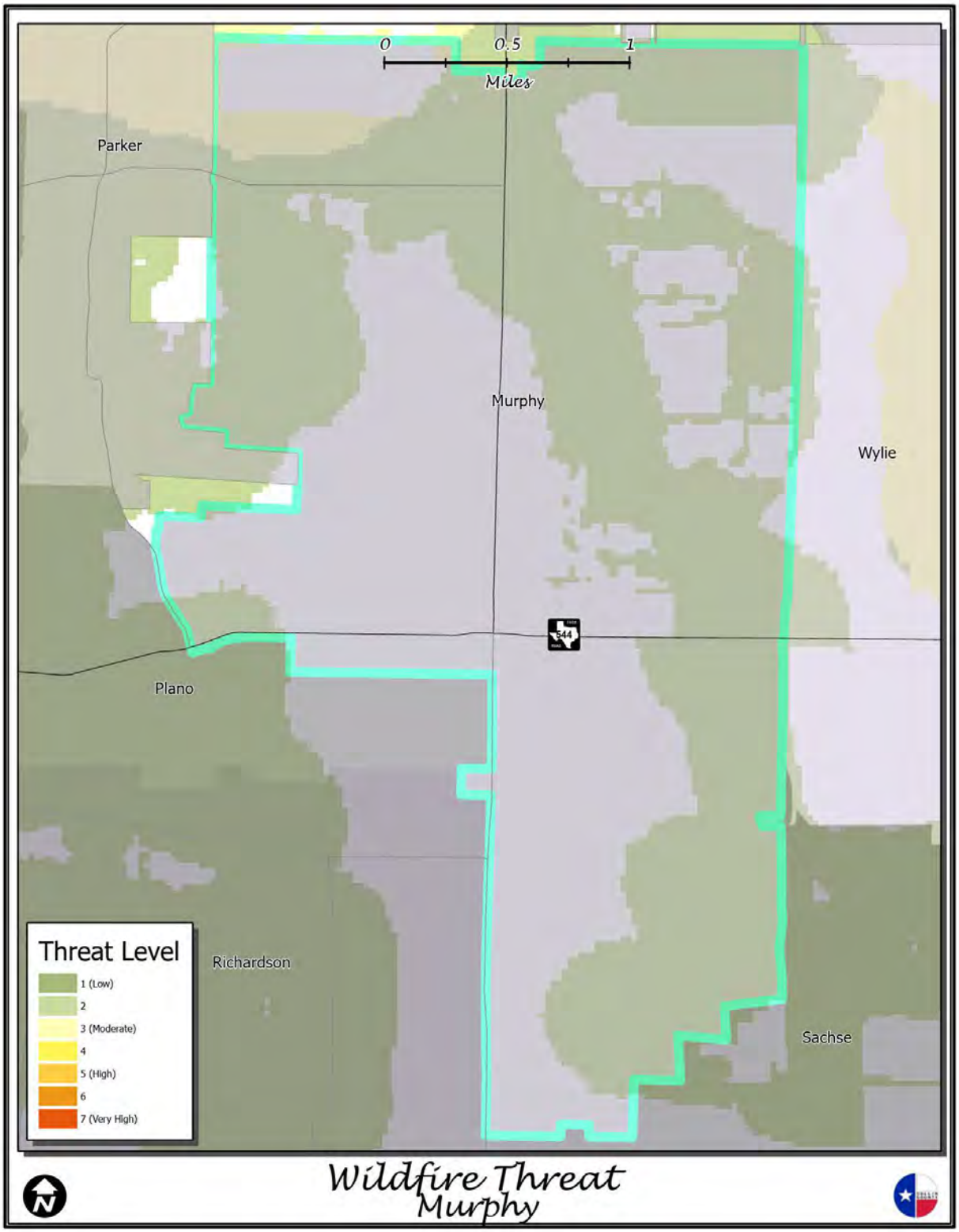
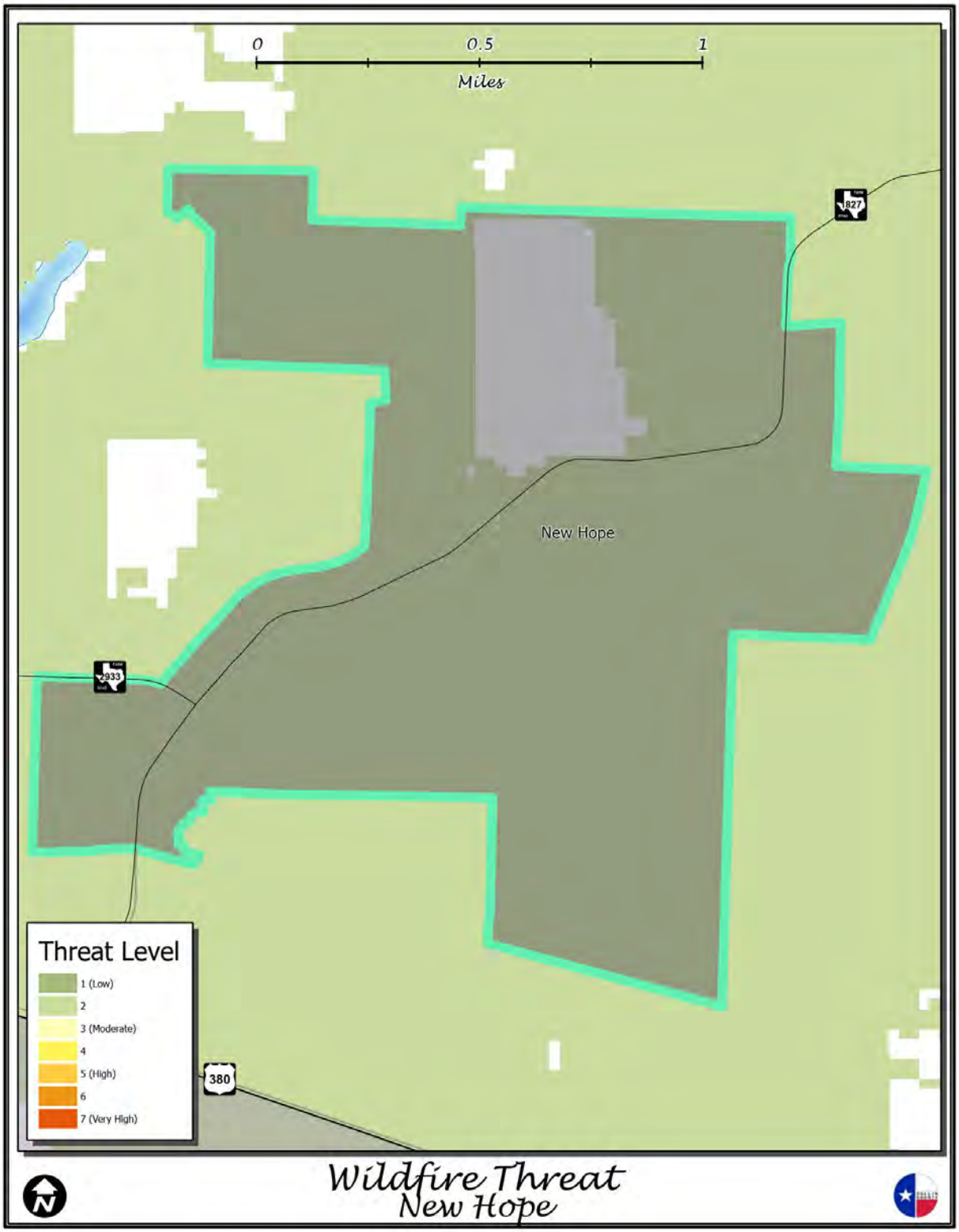
2
3 (Moderate)
4
5 (High)
6
7 (Very High)
Wildfire Threat
Lucas


0
1.5
3
Miles
Anna
Melissa
Princeton
75
121
TEXAS
455
545
933
1827
Threat Level
1 (Low)
2
3 (Moderate)
4
5 (High)
6
7 (Very High)
Wildfire Threat
Melissa


0
0.5
1
Miles
Parker
Murphy
Wylie
544
Plano
Richardson
Sachse
Threat Level
1 (Low)
2
3 (Moderate)
4
5 (High)
6
7 (Very High)
Wildfire Threat
Murphy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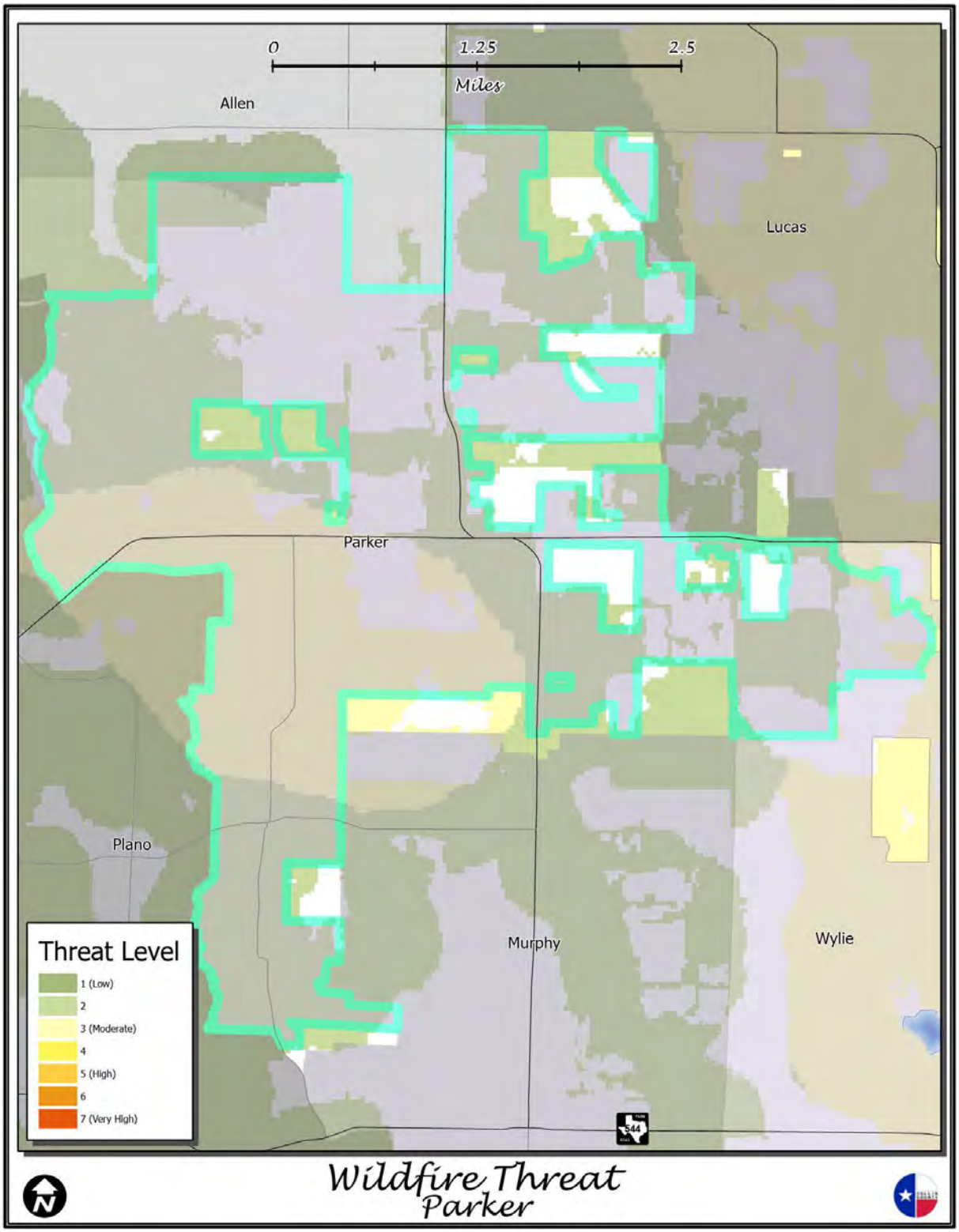
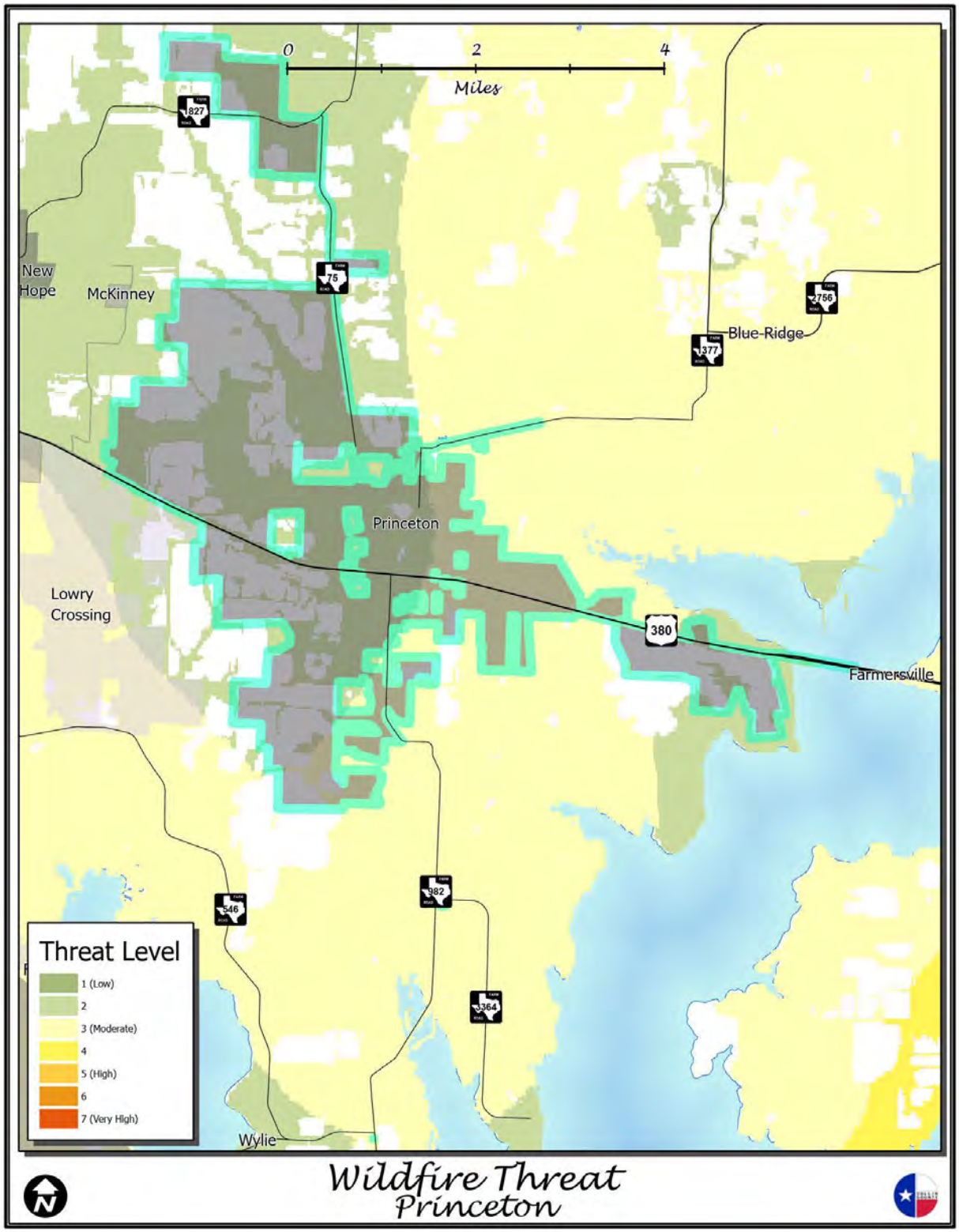
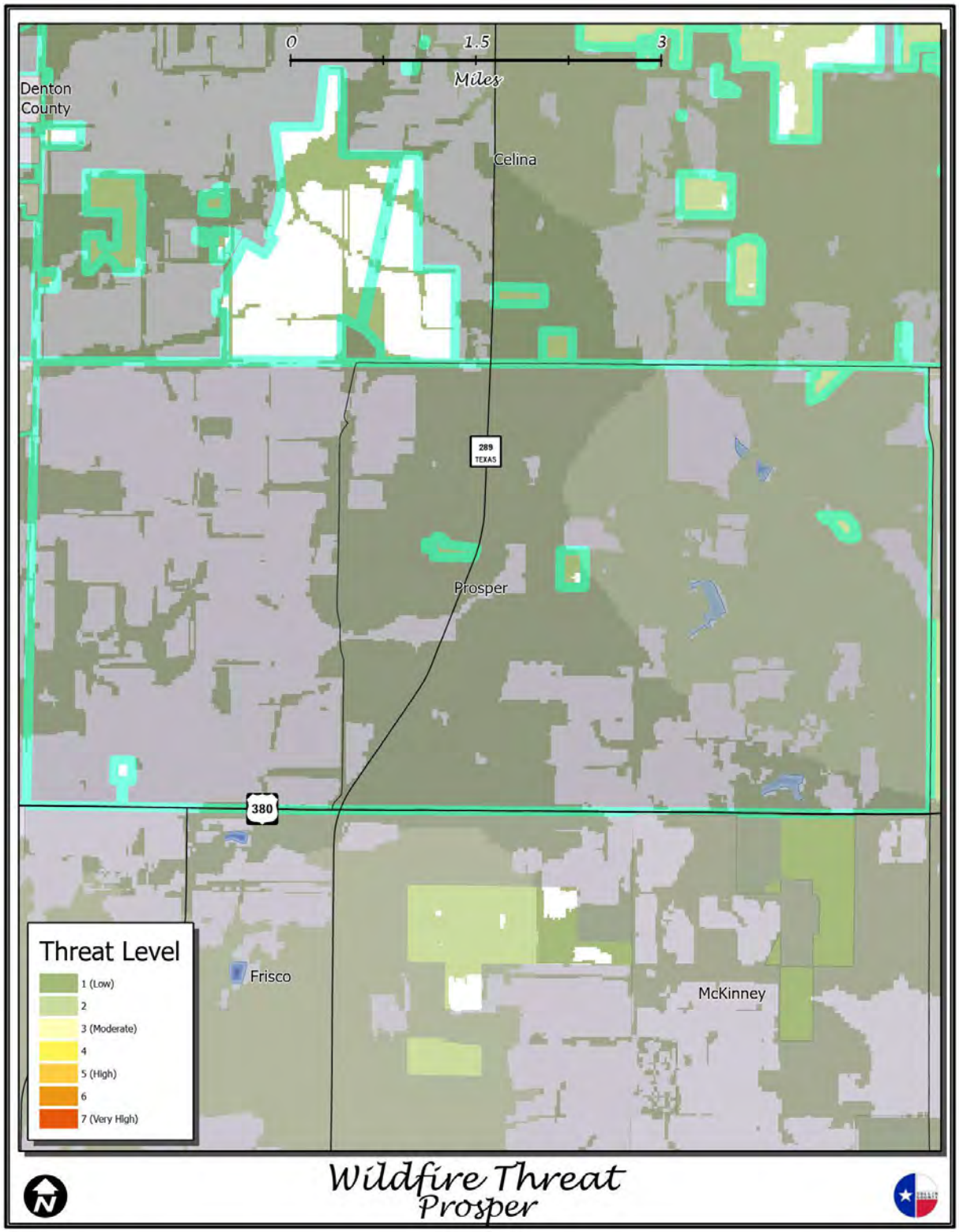
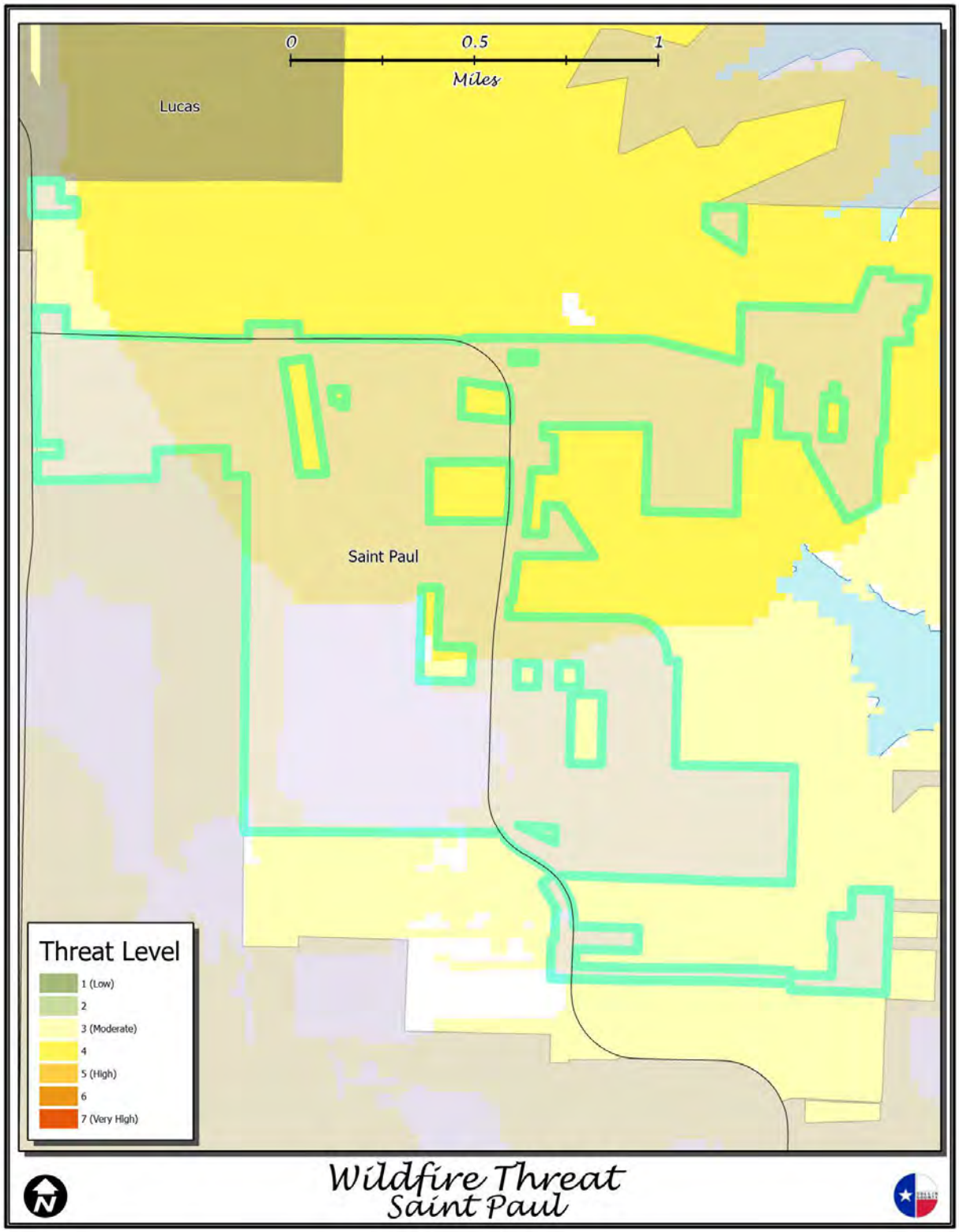
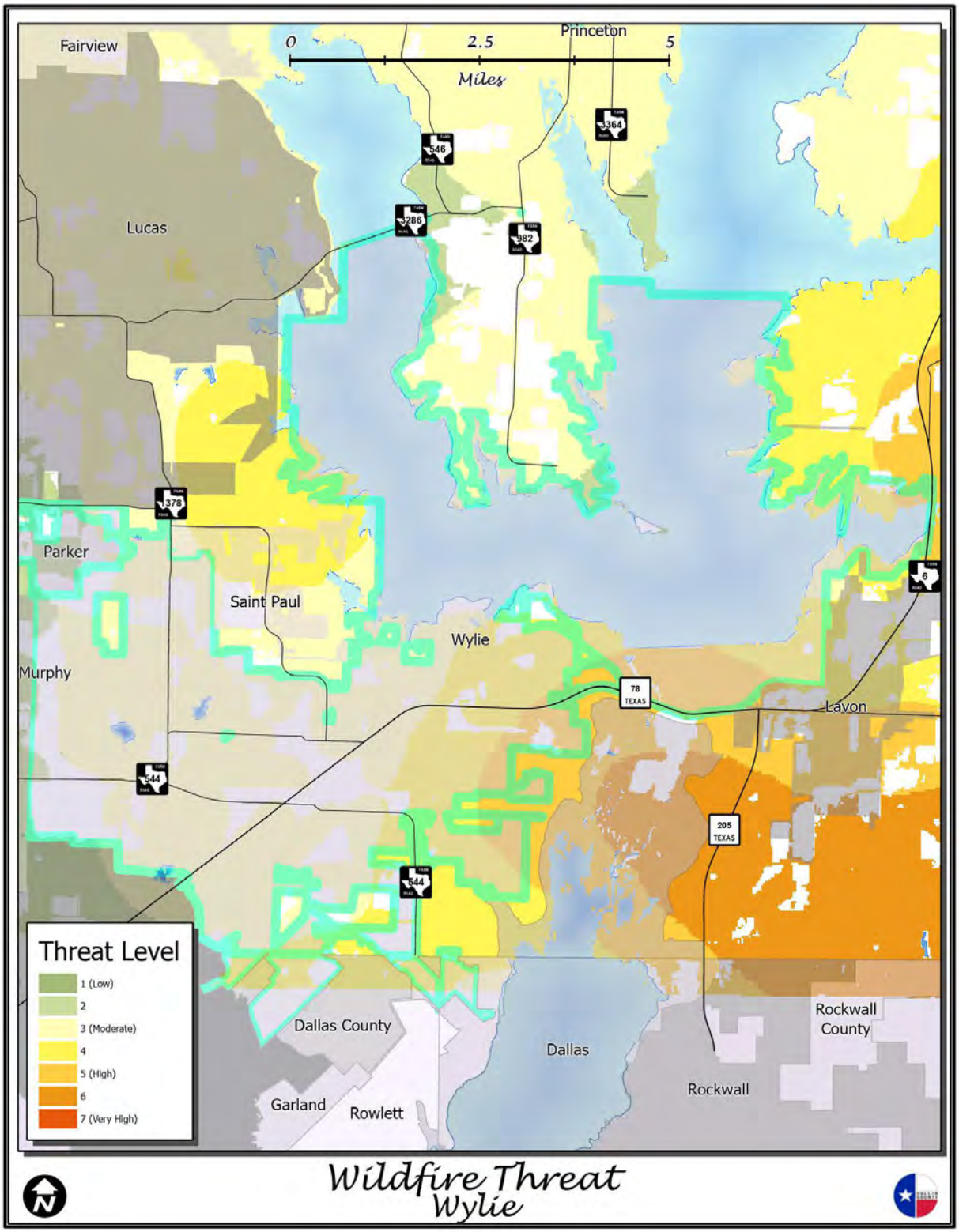
0.5
1
Miles
New Hope
827
933
380
Threat Level
1 (Low)
2
3 (Moderate)
4
5 (High)
6
7 (Very High)
Wildfire Threat
New Hope


0
1.25
2.5
Miles
Allen
Lucas
Parker
Plano
Murphy
Wylie
544
Threat Level
1 (Low)
2
3 (Moderate)
4
5 (High)
6
7 (Very High)
Wildfire Threat
Parker

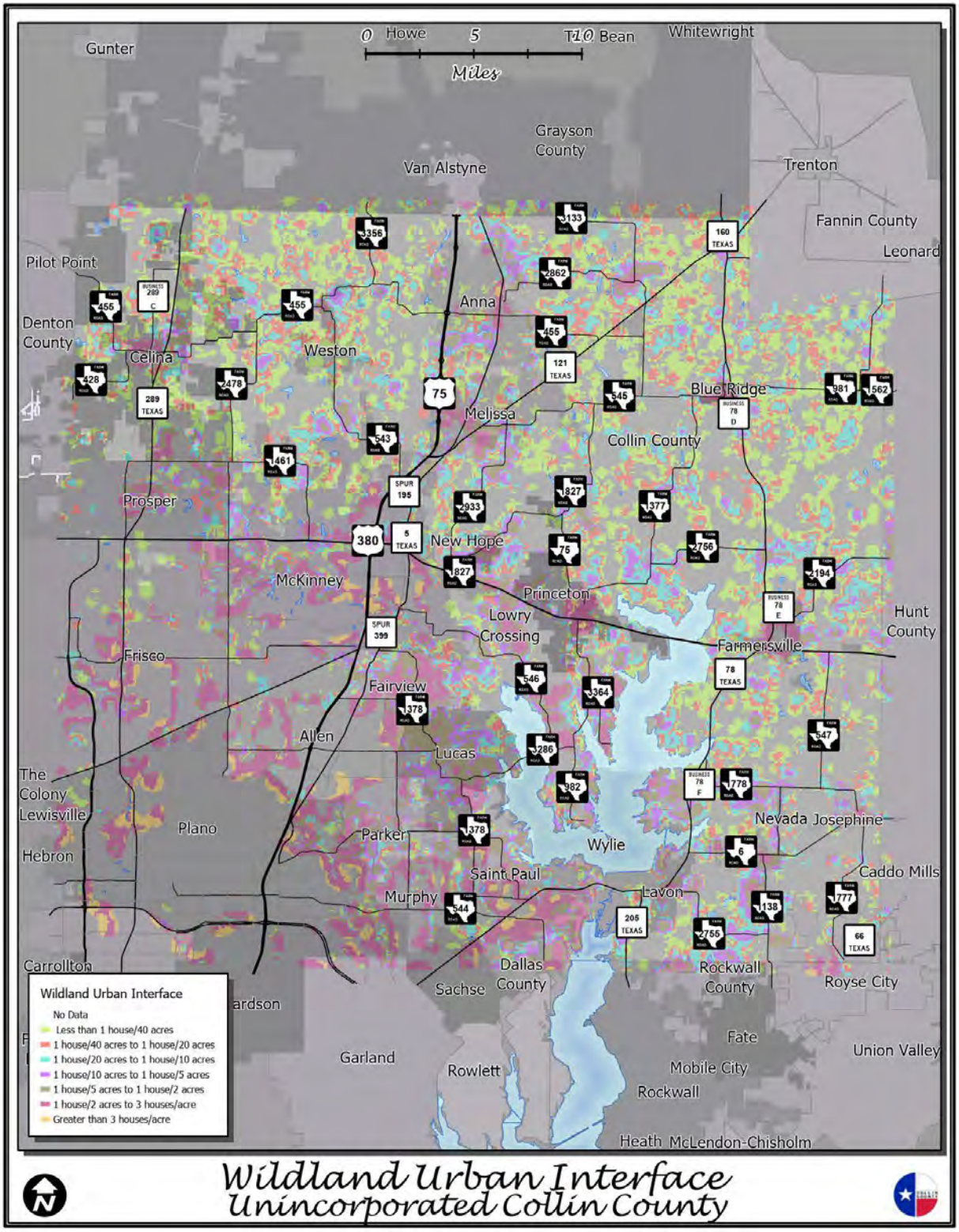

0
2
4
Miles
827
New Hope
McKinney
75
756
Blue-Ridge
377
Princeton
Lowry Crossing
380
Farmersville
982
546
964
Wylie
Threat Level
1 (Low)
2
3 (Moderate)
4
5 (High)
6
7 (Very High)
Wildfire Threat
Princeton

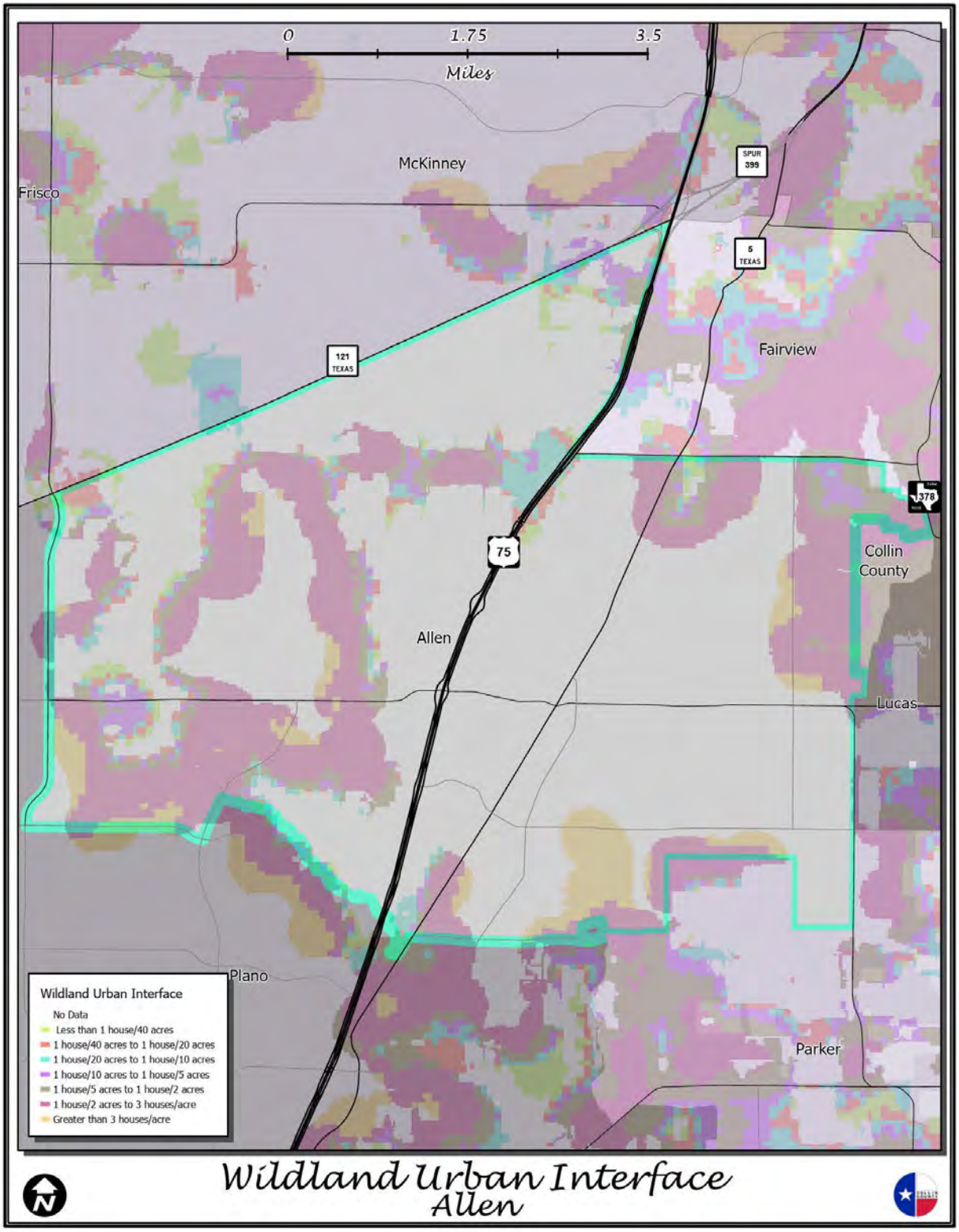

0
1.5
3
Miles
Denton County
Celina
289
TEXAS
Prosper
380
Frisco
McKinney
Threat Level
1 (Low)
2
3 (Moderate)
4
5 (High)
6
7 (Very High)
Wildfire Threat
Prosper

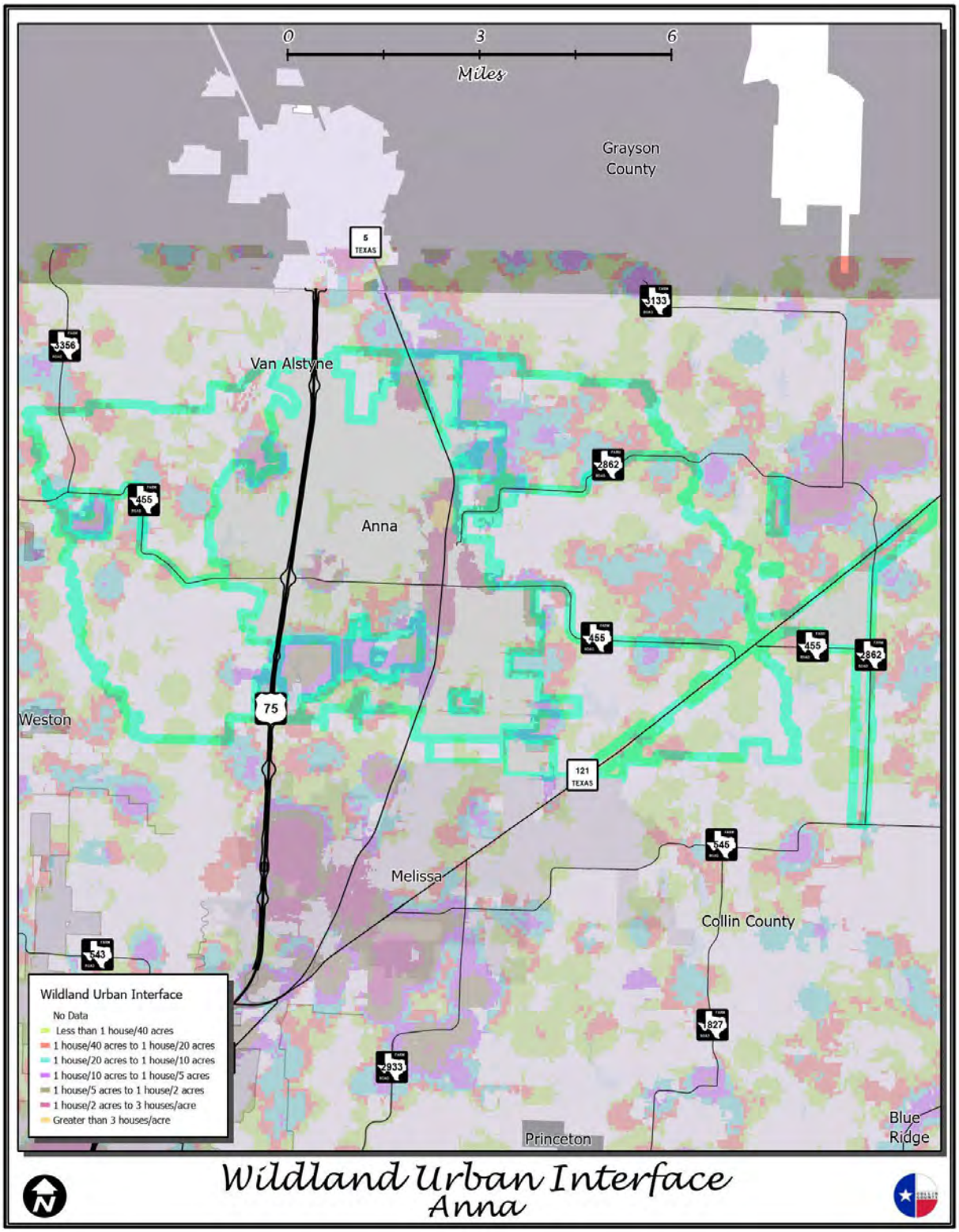

0
0.5
1
Miles
Lucas
Saint Paul
Threat Level
1 (Low)
2
3 (Moderate)
4
5 (High)
6
7 (Very High)
Wildfire Threat
Saint Paul

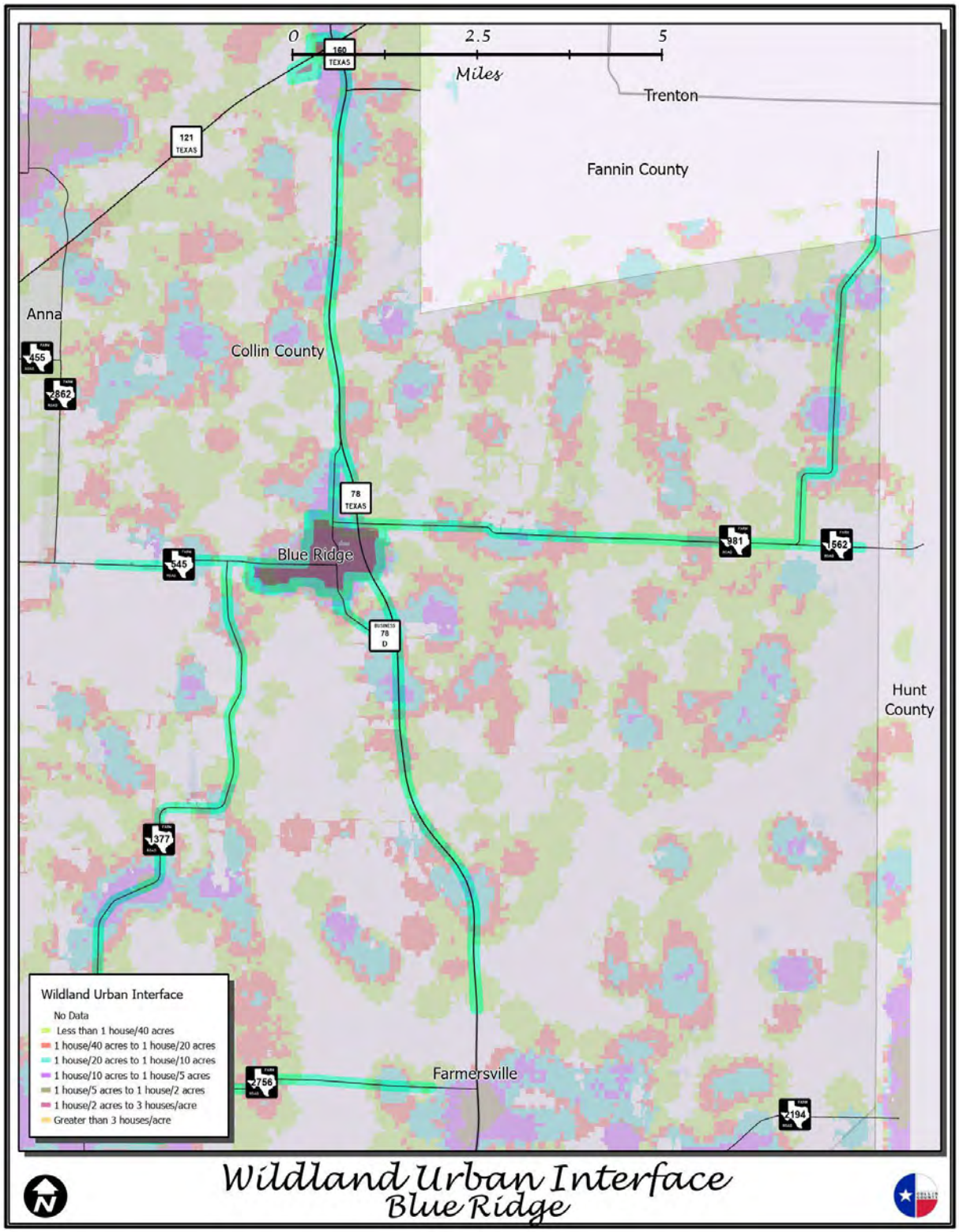

Fairview
0
2.5
5
Miles
Princeton
Lucas
Parker
Saint Paul
Wylie
Murphy
Lavon
Dallas County
Dallas
Rockwall County
Rockwall
Garland
Rowlett
Threat Level
1 (Low)
2
3 (Moderate)
4
5 (High)
6
7 (Very High)
Wildfire Threat
Wylie

Map Series F – Wildland Urban Interface




0
1.75
3.5
Miles
McKinney
Frisco
SPUR 399
5 TEXAS
121 TEXAS
Fairview
378
75
Collin County
Allen
Lucas
Plano
Parker
Wildland Urban Interface
No Data
Less than 1 house/40 acres
1 house/40 acres to 1 house/20 acres
1 house/20 acres to 1 house/10 acres
1 house/10 acres to 1 house/5 acres
1 house/5 acres to 1 house/2 acres
1 house/2 acres to 3 houses/acre
Greater than 3 houses/acre
Wildland Urban Interface
Allen


0
3
6
Miles
Grayson County
5 TEXAS
133
356
Van Alstyne
2862
455
Anna
455
455
2862
75
Weston
121 TEXAS
545
Melissa
Collin County
543
Wildland Urban Interface
No Data
Less than 1 house/40 acres
1 house/40 acres to 1 house/20 acres
1 house/20 acres to 1 house/10 acres
1 house/10 acres to 1 house/5 acres
1 house/5 acres to 1 house/2 acres
1 house/2 acres to 3 houses/acre
Greater than 3 houses/acre
827
2933
Princeton
Blue Ridge
Wildland Urban Interface
Anna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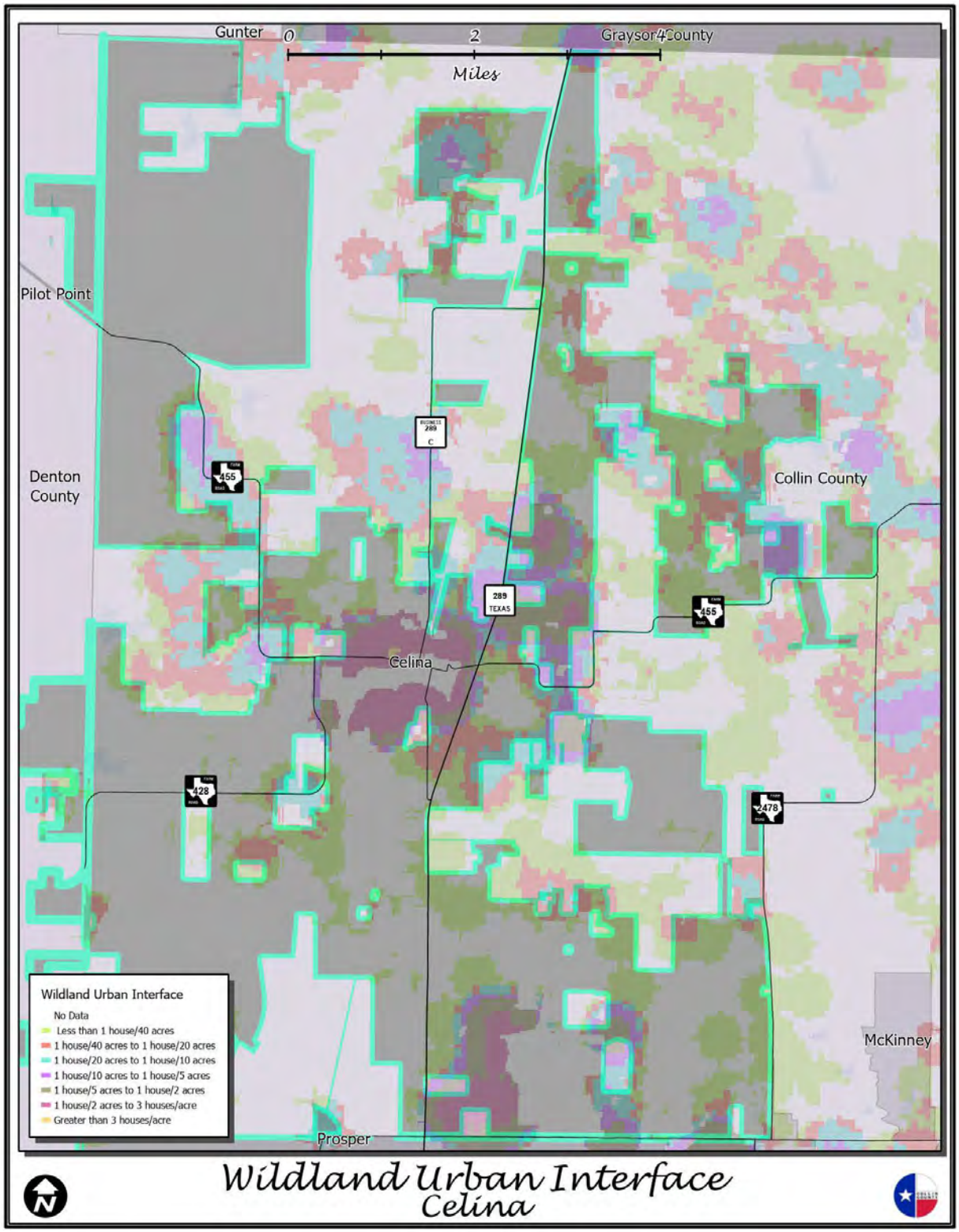
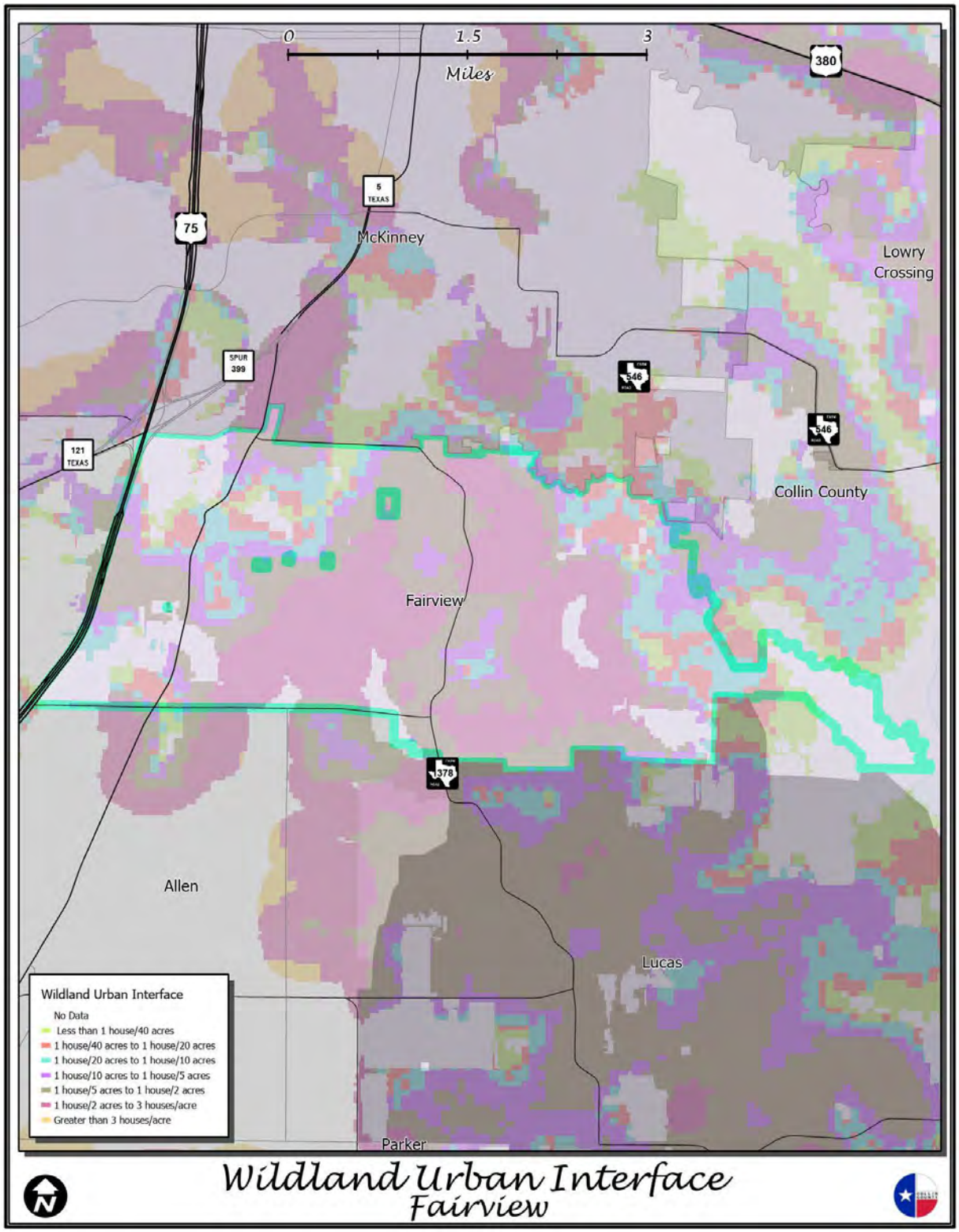
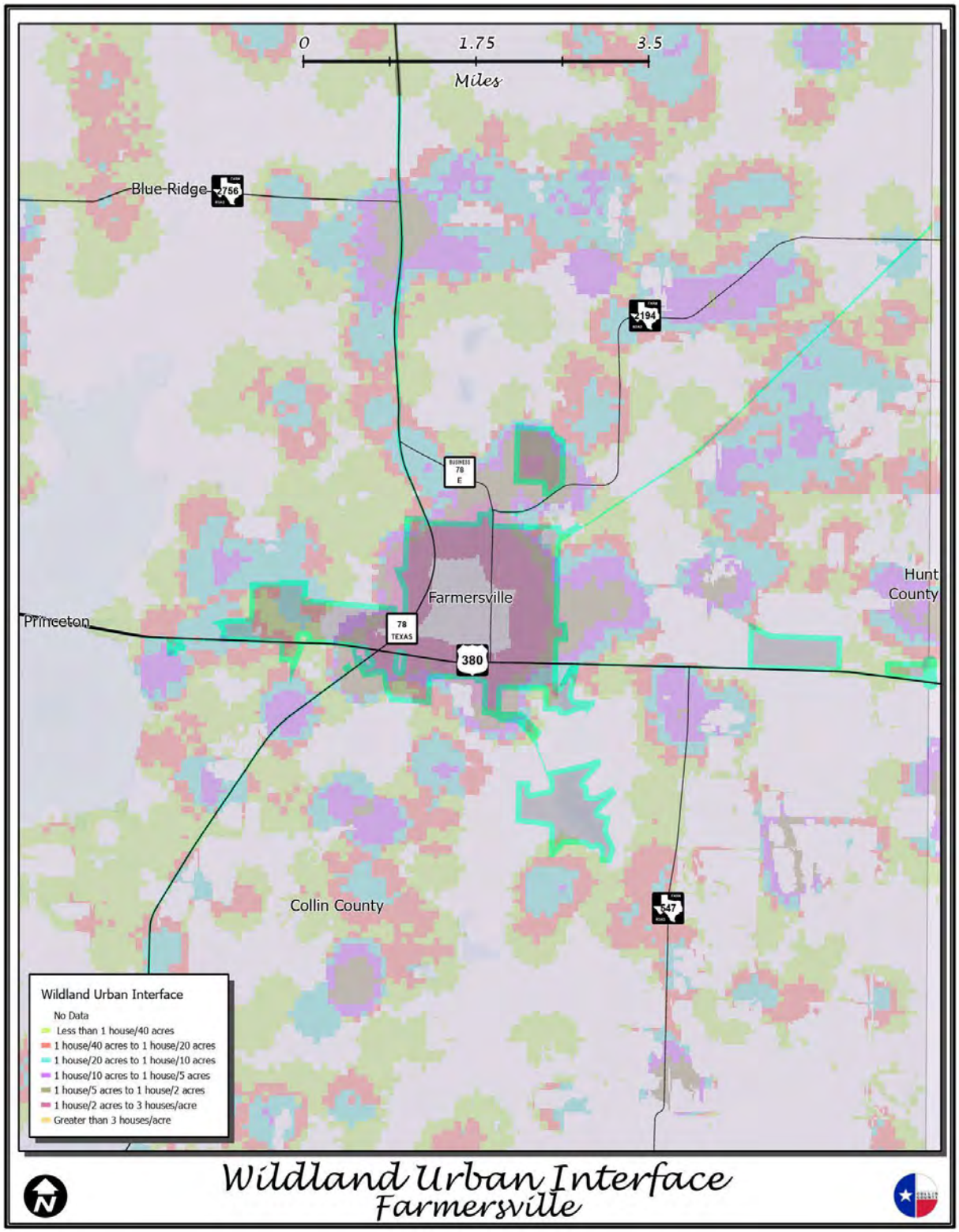
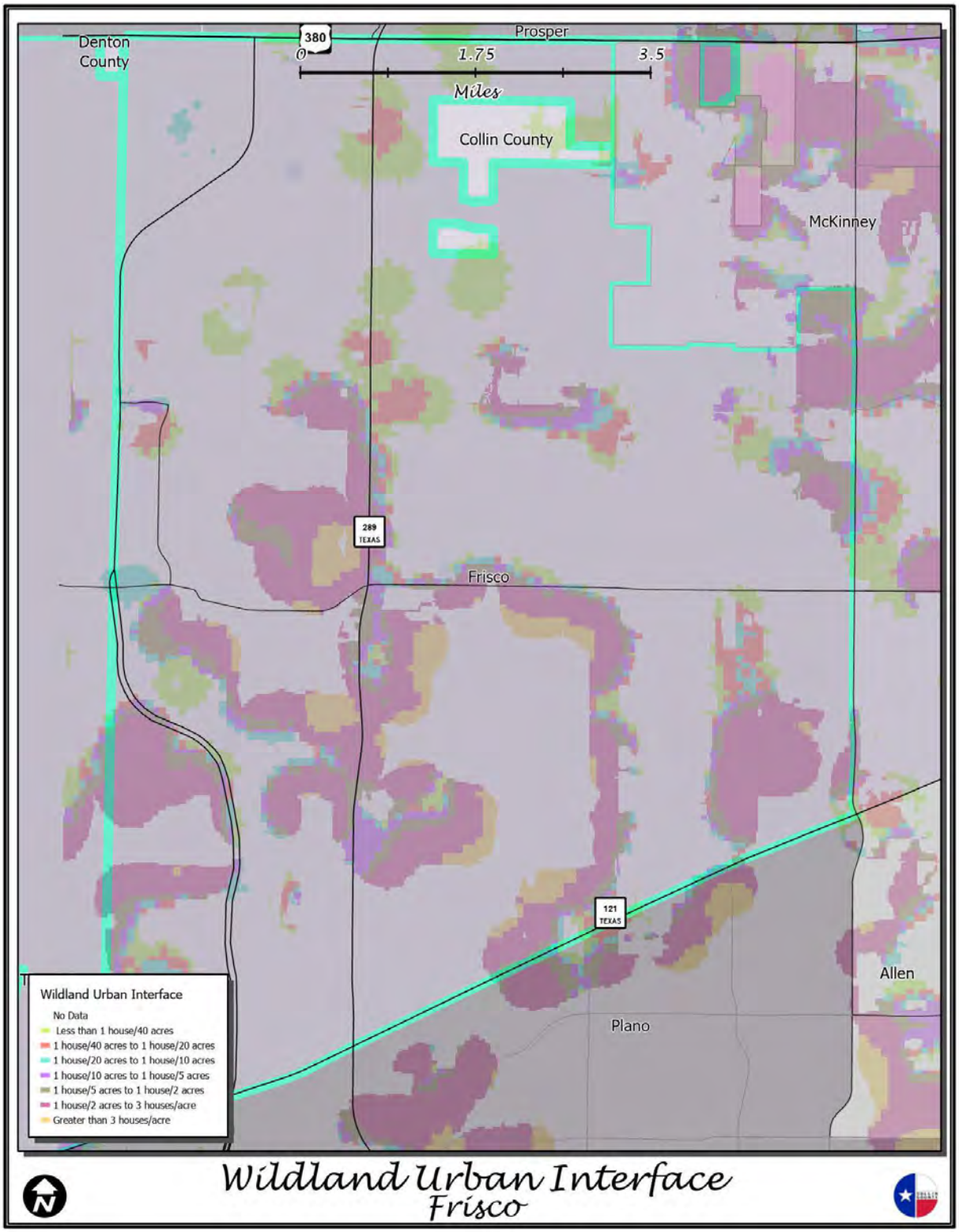
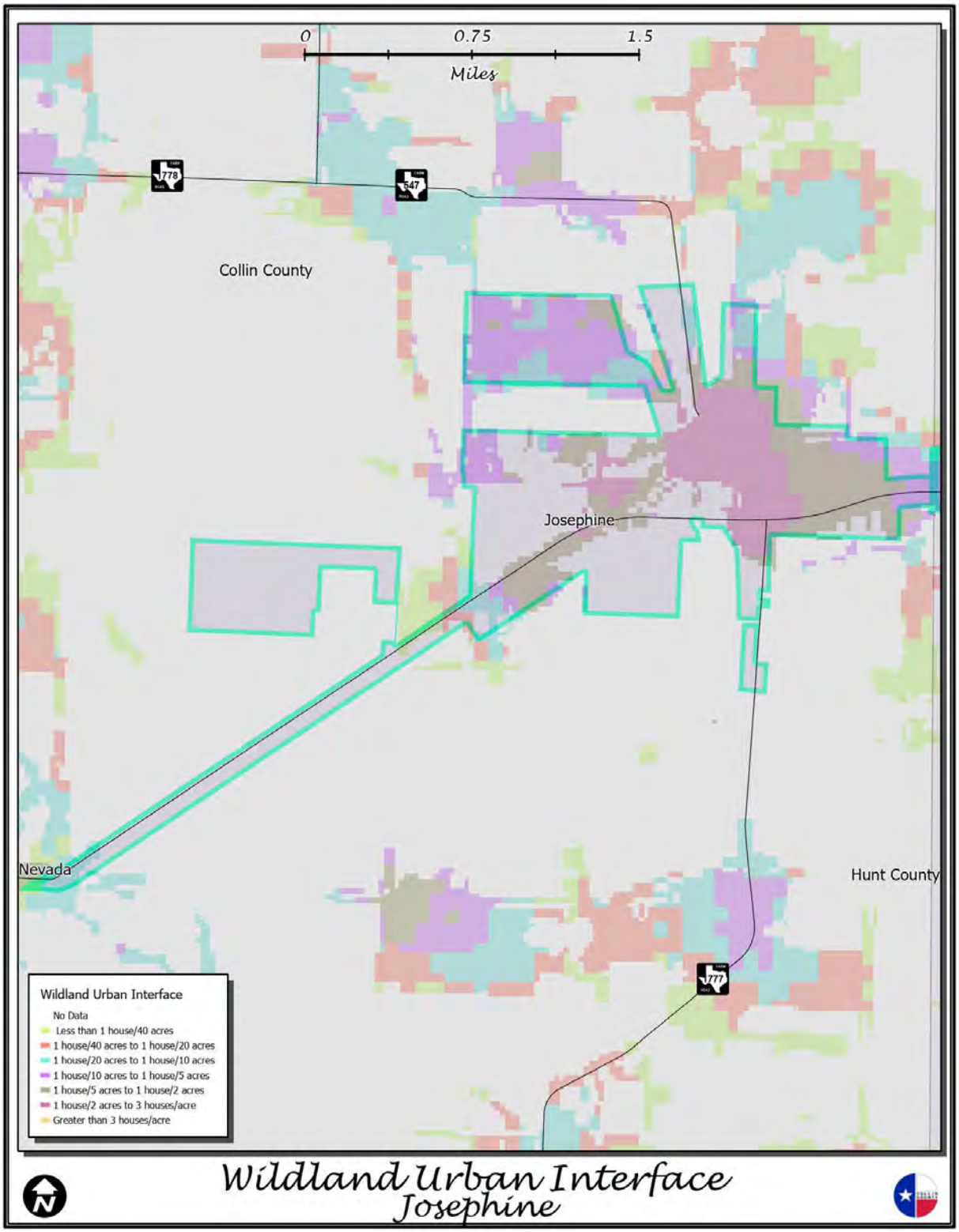
2.5
5
Miles
160
TEXAS
Trenton
121
TEXAS
Fannin County
Anna
Collin County
455
862
78
TEXAS
981
562
545
Blue Ridge
BUSINESS
78
D
Hunt
County
377
Wildland Urban Interface
No Data
Less than 1 house/40 acres
1 house/40 acres to 1 house/20 acres
1 house/20 acres to 1 house/10 acres
1 house/10 acres to 1 house/5 acres
1 house/5 acres to 1 house/2 acres
1 house/2 acres to 3 houses/acre
Greater than 3 houses/acre
756
Farmersville
194
Wildland Urban Interface
Blue Ridge

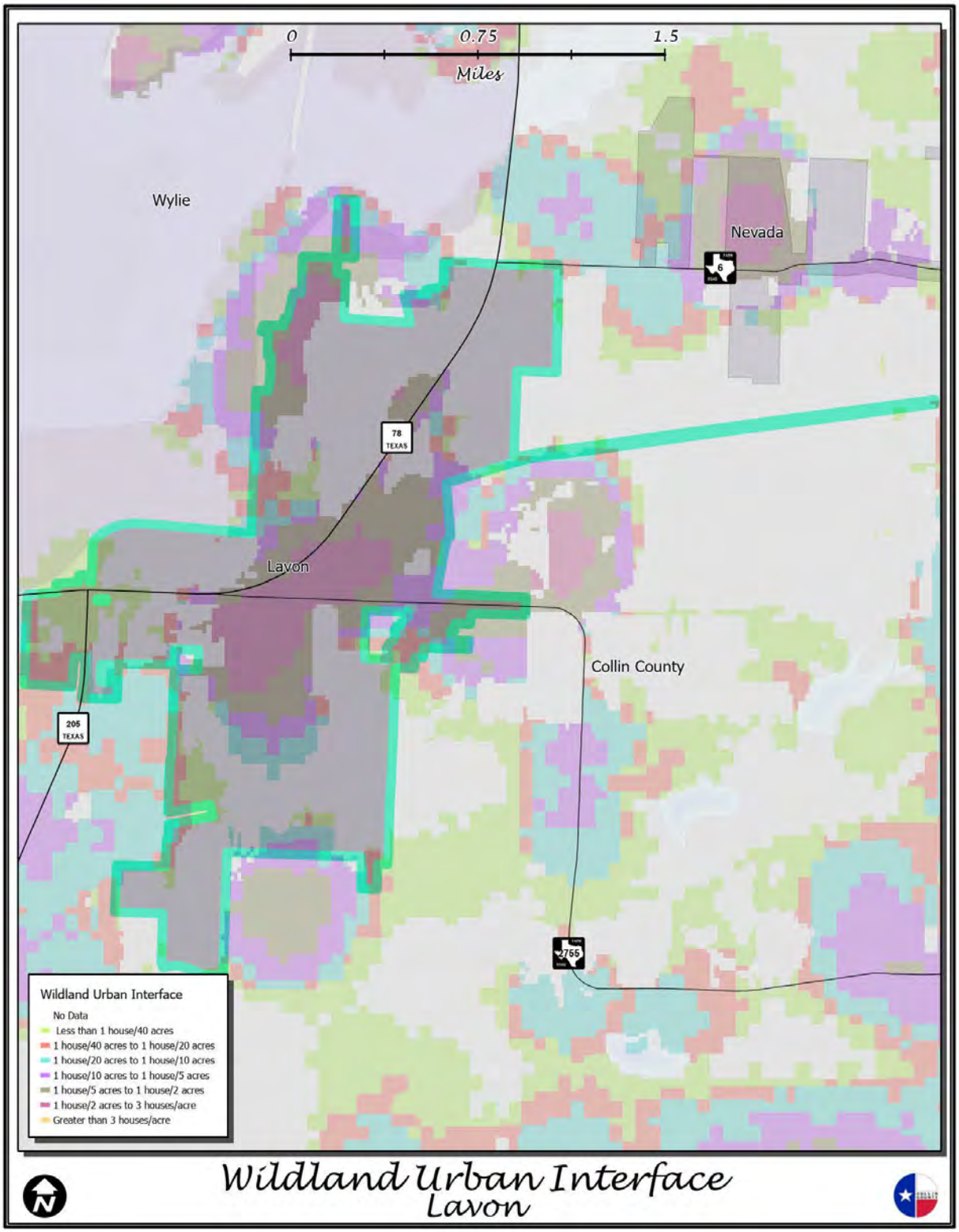

Gunter
0
2
Miles
Graysor4County
Pilot Point
Denton County
Collin County
Celina
Prosper
McKinney
455
289
TEXAS
428
478
Wildland Urban Interface
No Data
Less than 1 house/40 acres
1 house/40 acres to 1 house/20 acres
1 house/20 acres to 1 house/10 acres
1 house/10 acres to 1 house/5 acres
1 house/5 acres to 1 house/2 acres
1 house/2 acres to 3 houses/acre
Greater than 3 houses/acre
Wildland Urban Interface
Celina

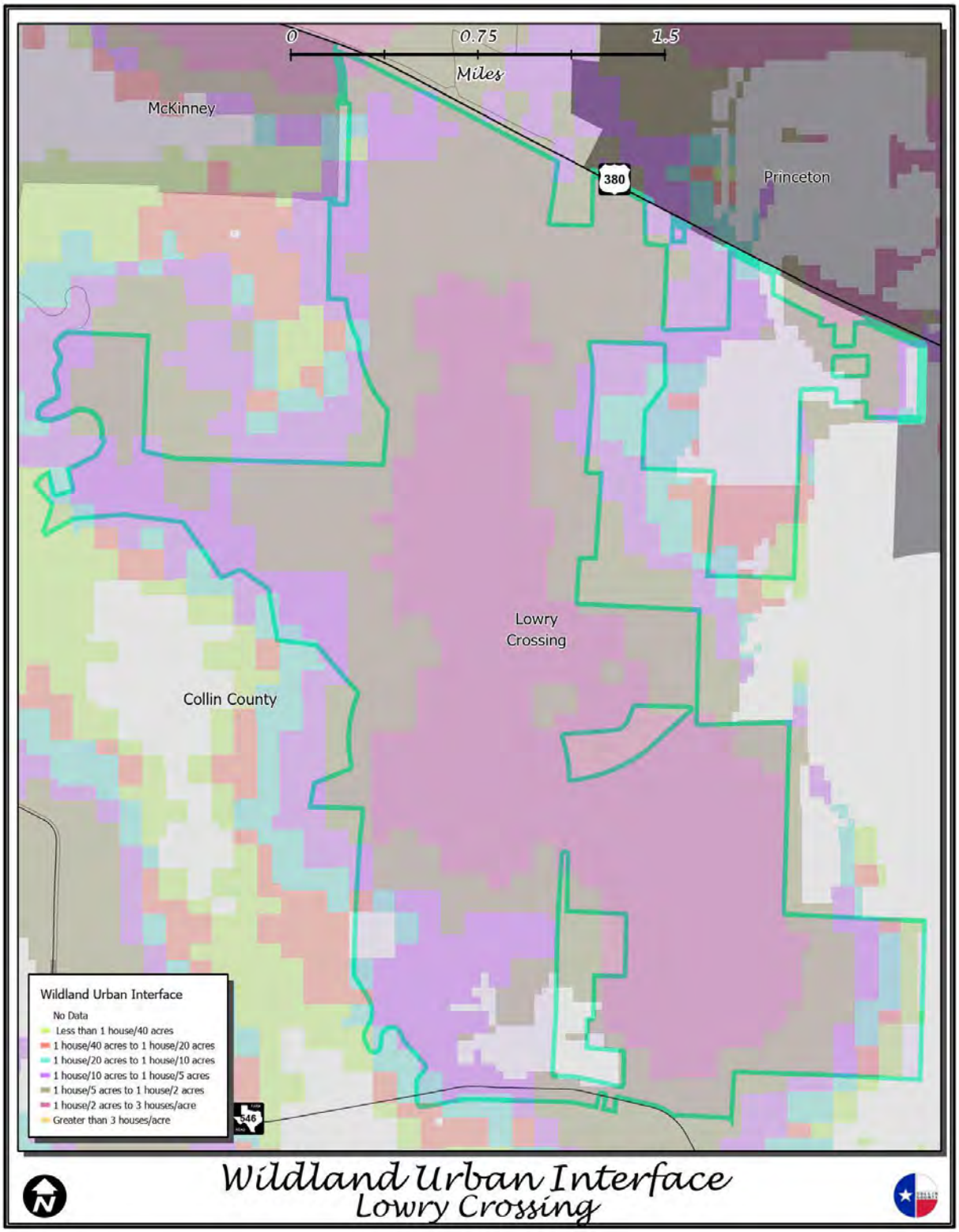

0
1.5
3
Miles
380
5
TEXAS
75
McKinney
Lowry
Crossing
SPUR
399
546
546
121
TEXAS
Collin County
Fairview
378
Allen
Lucas
Parker
Wildland Urban Interface
No Data
Less than 1 house/40 acres
1 house/40 acres to 1 house/20 acres
1 house/20 acres to 1 house/10 acres
1 house/10 acres to 1 house/5 acres
1 house/5 acres to 1 house/2 acres
1 house/2 acres to 3 houses/acre
Greater than 3 houses/acre
Wildland Urban Interface
Fairview

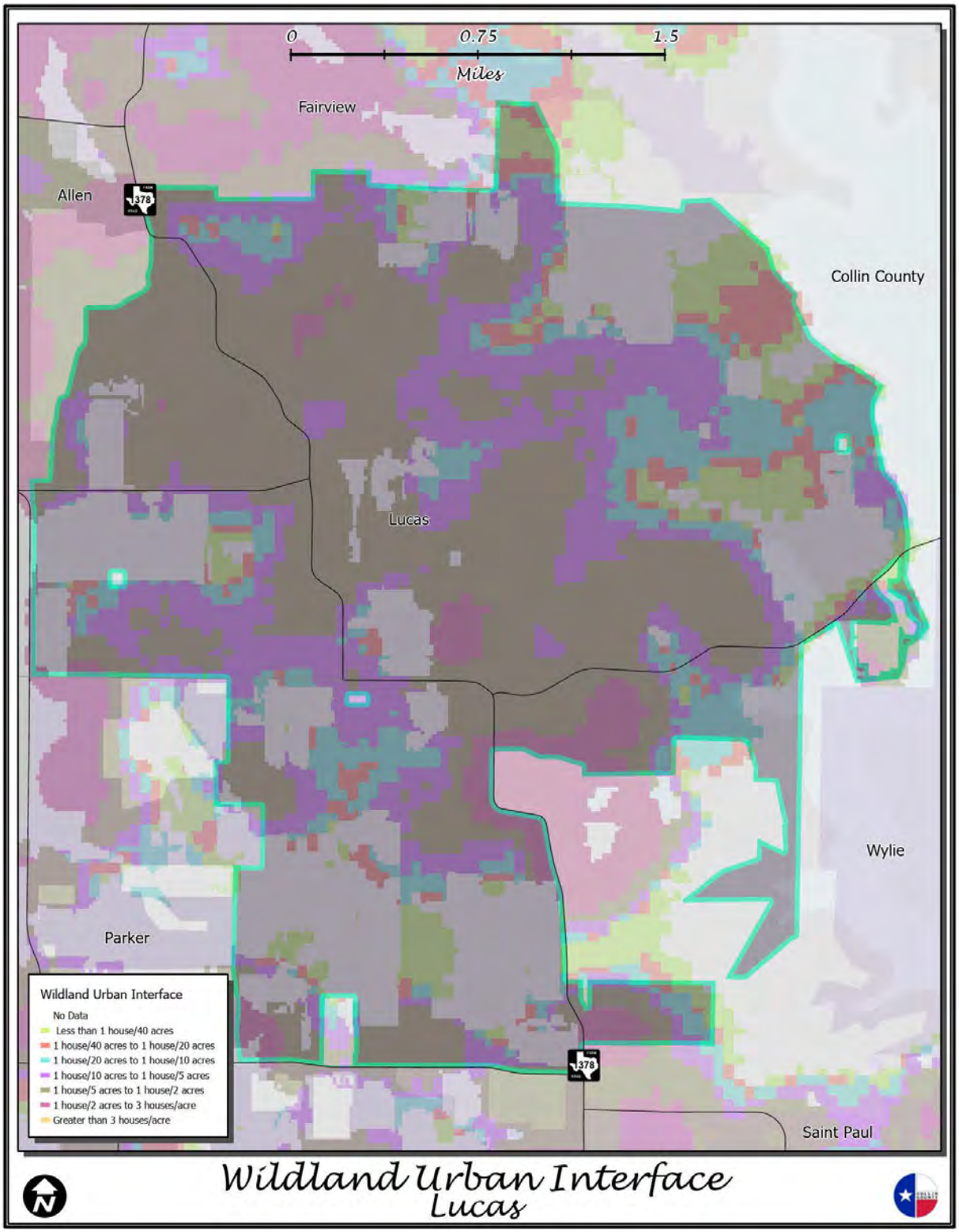

0
1.75
3.5
Miles
Blue Ridge
2756
2194
BUSINESS 78 E
Farmersville
Hunt County
Princeton
78 TEXAS
380
Collin County
547
Wildland Urban Interface
No Data
Less than 1 house/40 acres
1 house/40 acres to 1 house/20 acres
1 house/20 acres to 1 house/10 acres
1 house/10 acres to 1 house/5 acres
1 house/5 acres to 1 house/2 acres
1 house/2 acres to 3 houses/acre
Greater than 3 houses/acre
Wildland Urban Interface
Farmersville

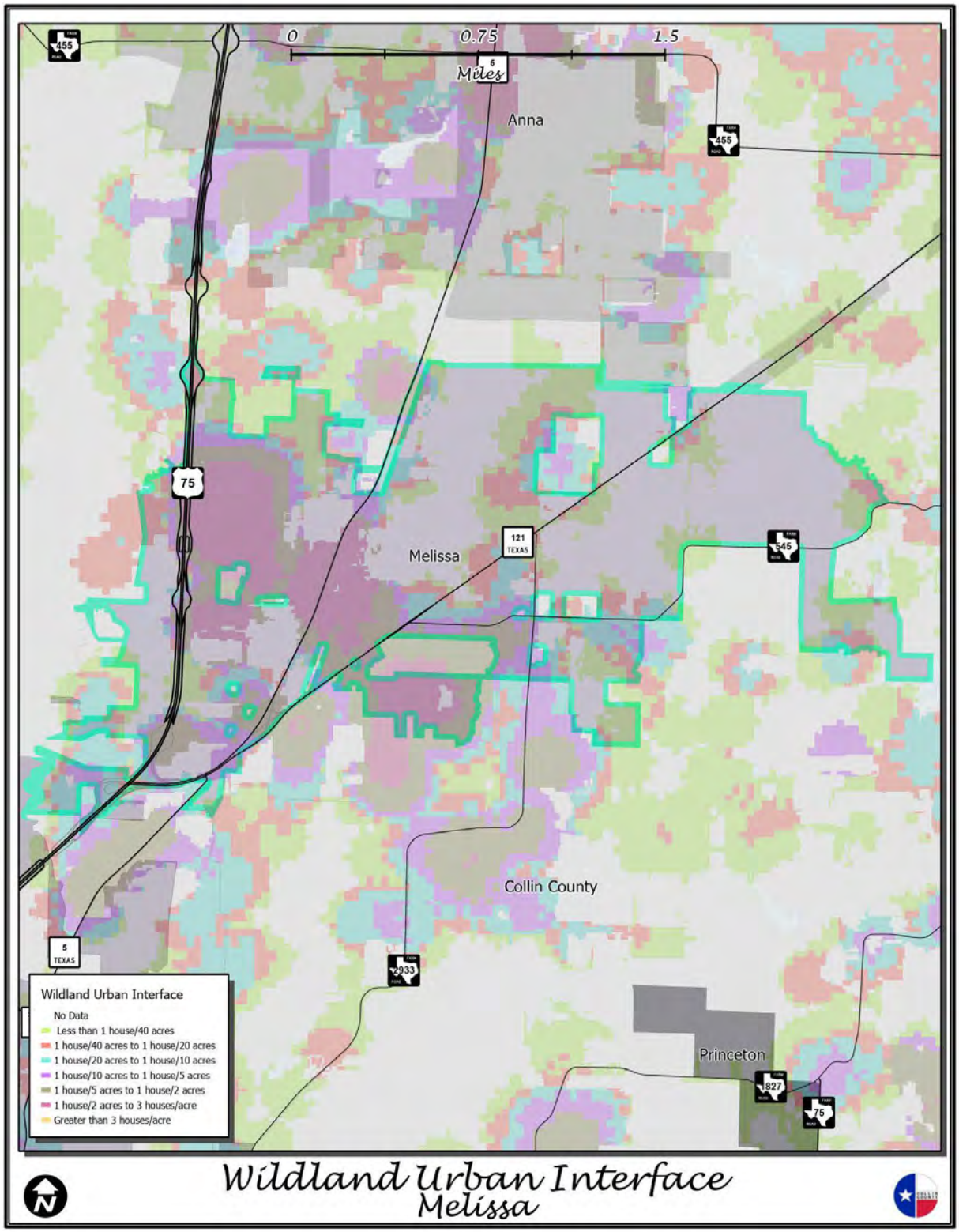

Denton County
380
Prosper
0
1.75
3.5
Miles
Collin County
McKinney
289 TEXAS
Frisco
121 TEXAS
Allen
Plano
Wildland Urban Interface
No Data
Less than 1 house/40 acres
1 house/40 acres to 1 house/20 acres
1 house/20 acres to 1 house/10 acres
1 house/10 acres to 1 house/5 acres
1 house/5 acres to 1 house/2 acres
1 house/2 acres to 3 houses/acre
Greater than 3 houses/acre
Wildland Urban Interface
Frisco

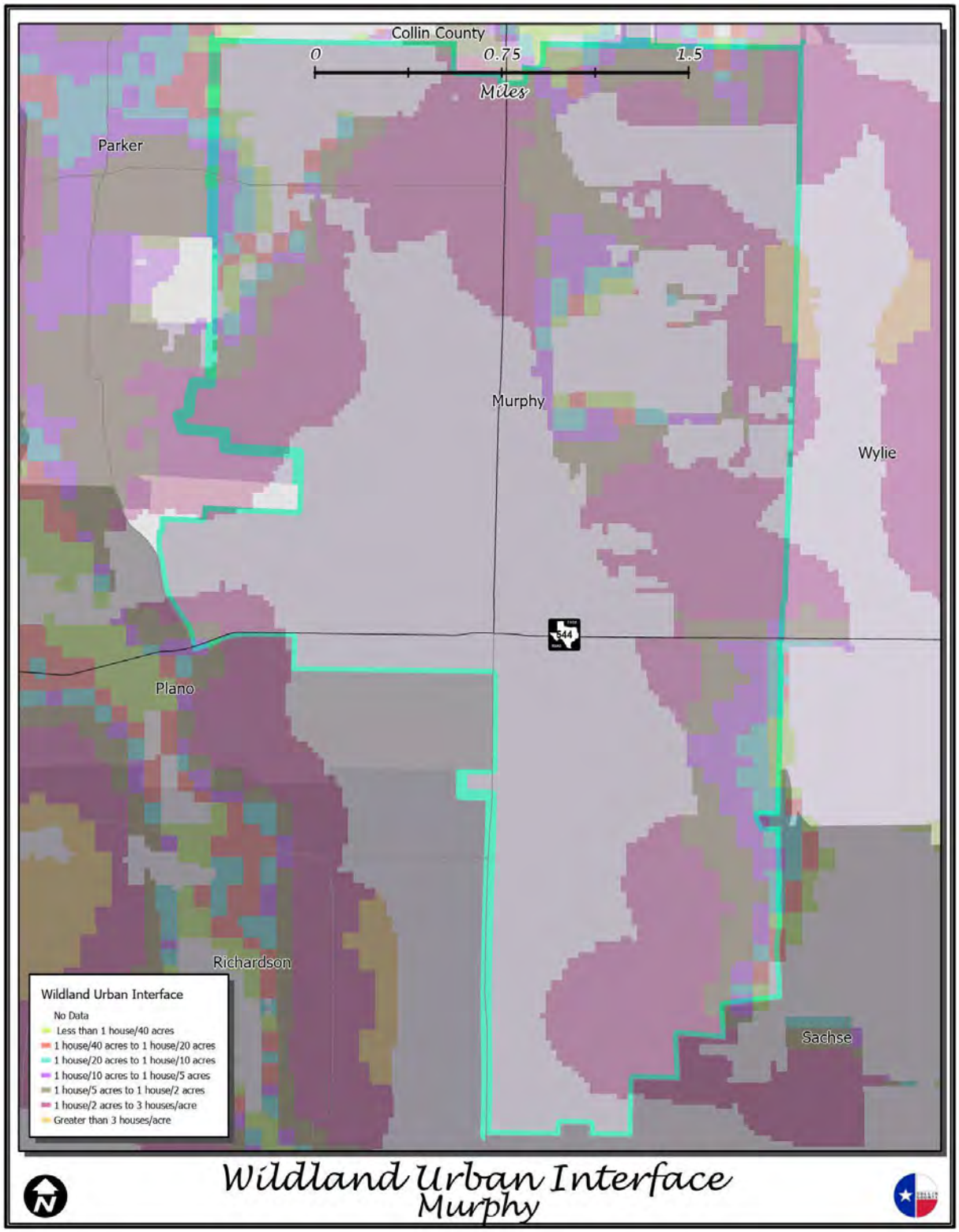

0
0.75
1.5
Miles
Collin County
Josephine
Nevada
Hunt County
Wildland Urban Interface
No Data
Less than 1 house/40 acres
1 house/40 acres to 1 house/20 acres
1 house/20 acres to 1 house/10 acres
1 house/10 acres to 1 house/5 acres
1 house/5 acres to 1 house/2 acres
1 house/2 acres to 3 houses/acre
Greater than 3 houses/acre
Wildland Urban Interface
Josephine

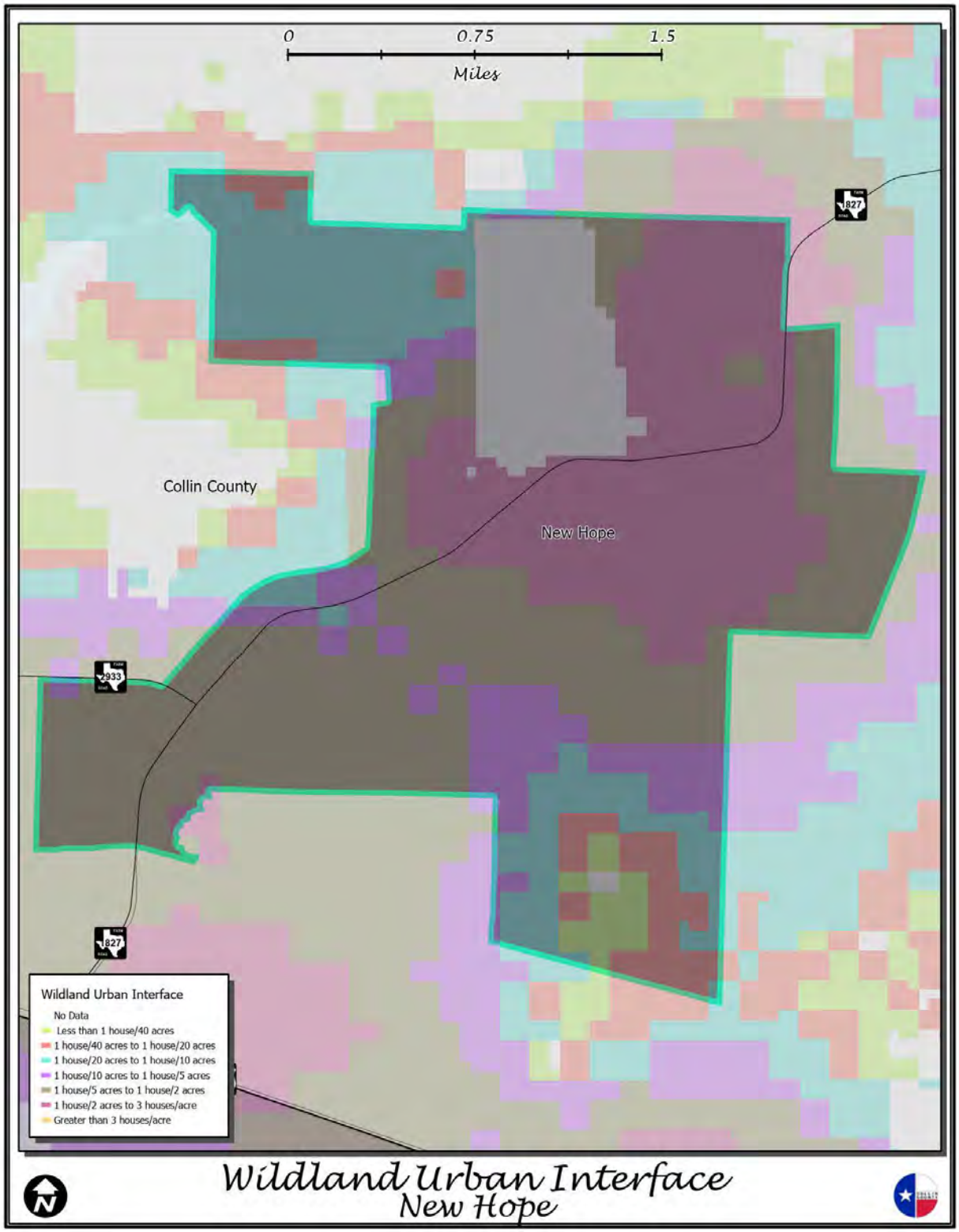

0
0.75
1.5
Miles
Wylie
Nevada
6
78
TEXAS
Lavon
Collin County
205
TEXAS
755
Wildland Urban Interface
No Data
Less than 1 house/40 acres
1 house/40 acres to 1 house/20 acres
1 house/20 acres to 1 house/10 acres
1 house/10 acres to 1 house/5 acres
1 house/5 acres to 1 house/2 acres
1 house/2 acres to 3 houses/acre
Greater than 3 houses/acre
Wildland Urban Interface
Lavon


0
0.75
1.5
Miles
McKinney
380
Princeton
Lowry
Crossing
Collin County
546
Wildland Urban Interface
No Data
Less than 1 house/40 acres
1 house/40 acres to 1 house/20 acres
1 house/20 acres to 1 house/10 acres
1 house/10 acres to 1 house/5 acres
1 house/5 acres to 1 house/2 acres
1 house/2 acres to 3 houses/acre
Greater than 3 houses/acre
Wildland Urban Interface
Lowry Crossing


0
0.75
1.5
Miles
Fairview
Allen
Collin County
Lucas
Wylie
Parker
Saint Paul
Wildland Urban Interface
No Data
Less than 1 house/40 acres
1 house/40 acres to 1 house/20 acres
1 house/20 acres to 1 house/10 acres
1 house/10 acres to 1 house/5 acres
1 house/5 acres to 1 house/2 acres
1 house/2 acres to 3 houses/acre
Greater than 3 houses/acre
Wildland Urban Interface
Lucas


0
0.75
1.5
Miles
Anna
Melissa
Collin County
Princeton
75
121
TEXAS
455
545
5
TEXAS
933
1827
Wildland Urban Interface
No Data
Less than 1 house/40 acres
1 house/40 acres to 1 house/20 acres
1 house/20 acres to 1 house/10 acres
1 house/10 acres to 1 house/5 acres
1 house/5 acres to 1 house/2 acres
1 house/2 acres to 3 houses/acre
Greater than 3 houses/acre
Wildland Urban Interface
Melissa


Collin County
0
0.75
1.5
Miles
Parker
Murphy
Wylie
544
Plano
Richardson
Sachse
Wildland Urban Interface
No Data
Less than 1 house/40 acres
1 house/40 acres to 1 house/20 acres
1 house/20 acres to 1 house/10 acres
1 house/10 acres to 1 house/5 acres
1 house/5 acres to 1 house/2 acres
1 house/2 acres to 3 houses/acre
Greater than 3 houses/acre
Wildland Urban Interface
Murphy


0
0.75
1.5
Miles
Collin County
New Hope
827
933
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Wildland Urban Interface
No Data
Less than 1 house/40 acres
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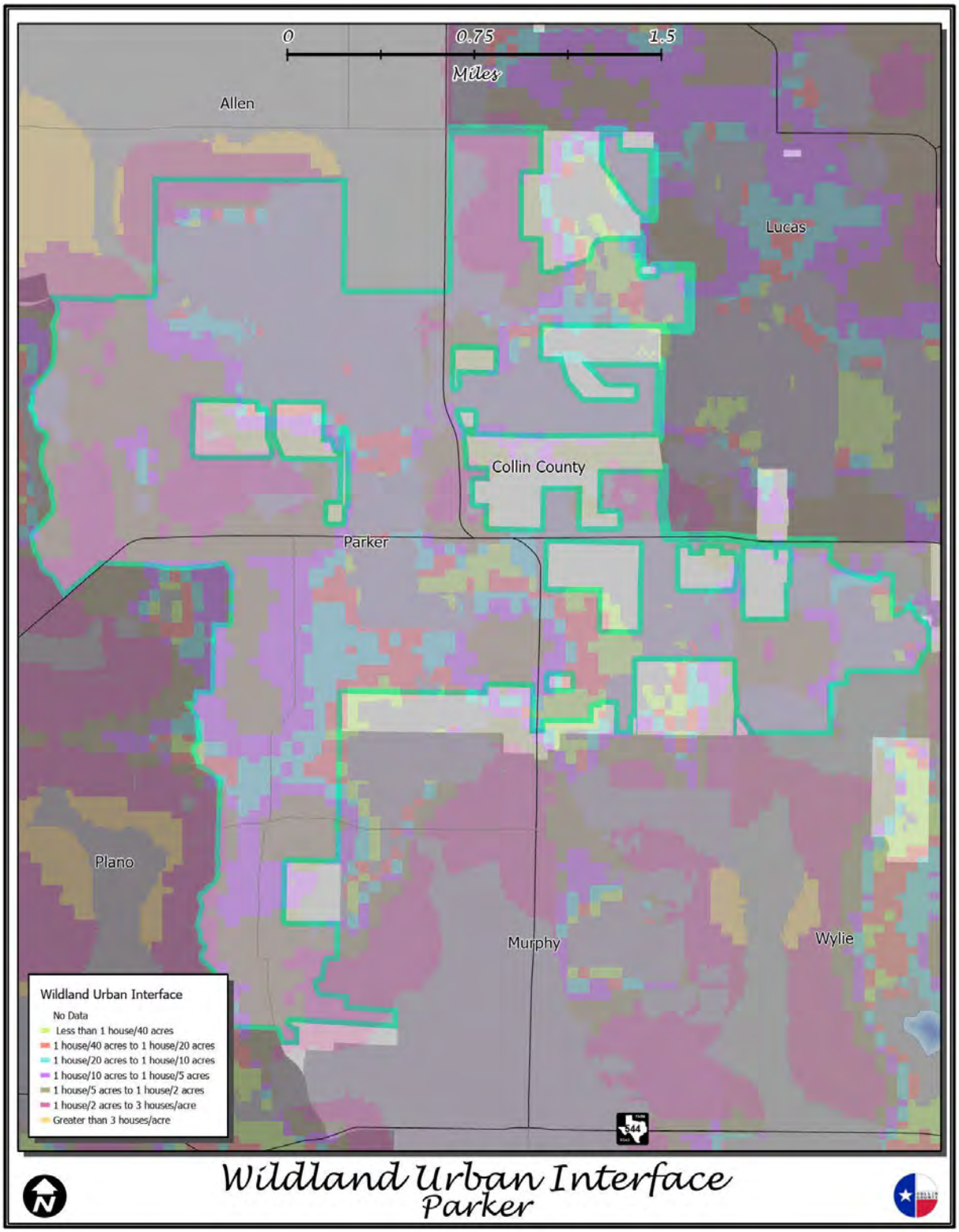
1 house/20 acres to 1 house/10 acres
1 house/10 acres to 1 house/5 acres
1 house/5 acres to 1 house/2 acres
1 house/2 acres to 3 houses/acre
Greater than 3 houses/acre
Wildland Urban Interface
New Hope


0
0.75
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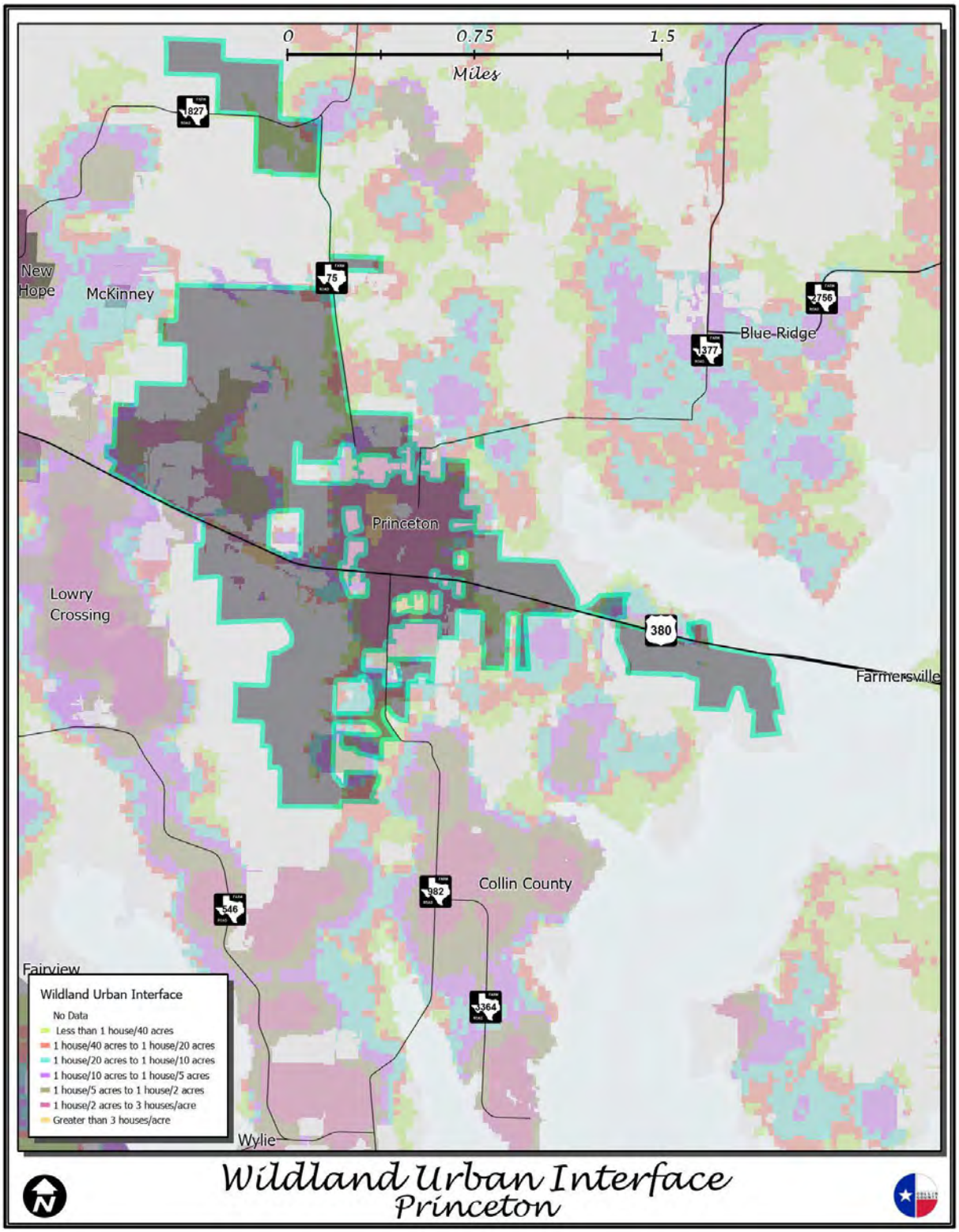
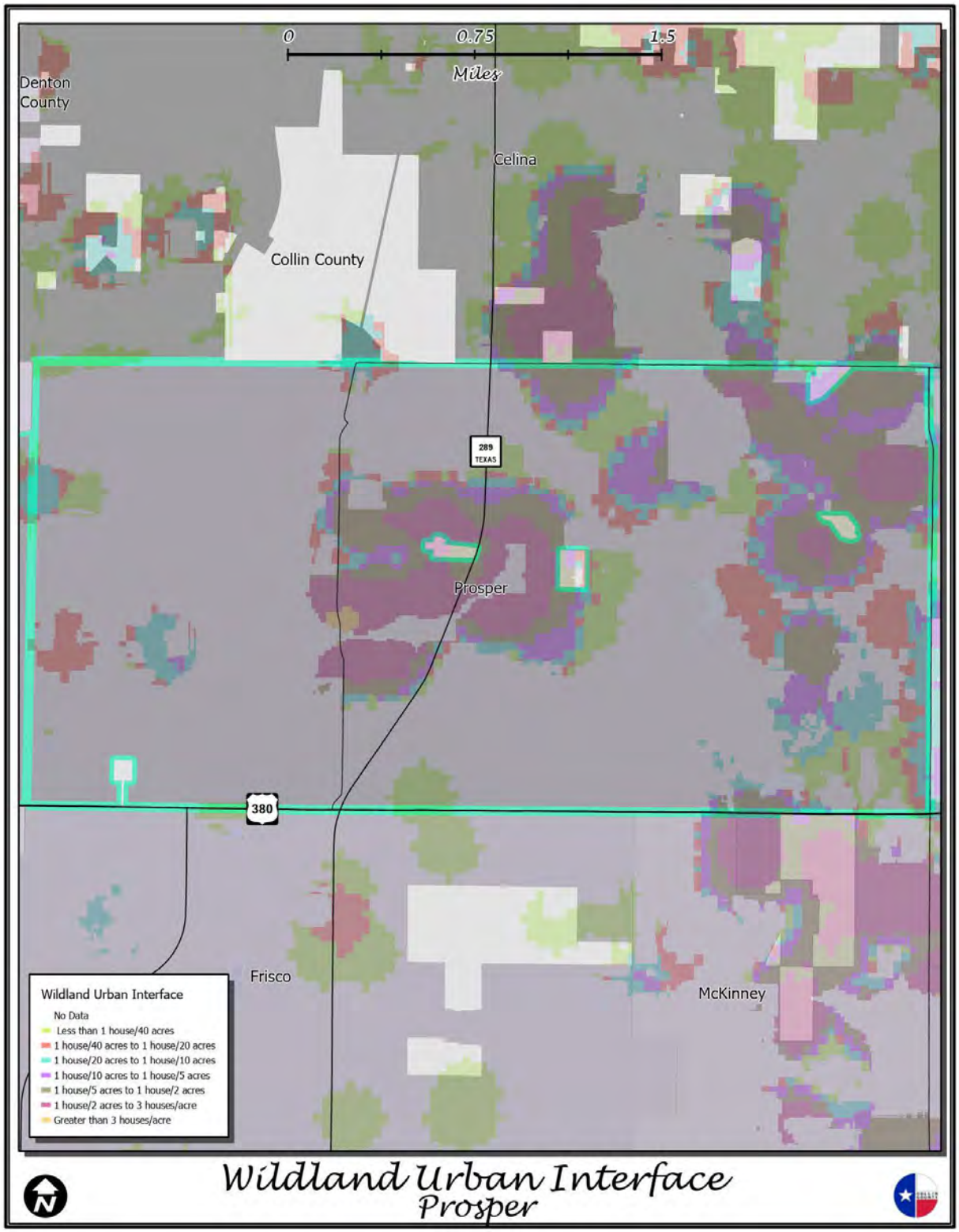
Miles
Allen
Lucas
Collin County
Parker
Plano
Murphy
Wylie
544
Wildland Urban Interface
No Data
Less than 1 house/40 acres
1 house/40 acres to 1 house/20 acres
1 house/20 acres to 1 house/10 acres
1 house/10 acres to 1 house/5 acres
1 house/5 acres to 1 house/2 acres
1 house/2 acres to 3 houses/acre
Greater than 3 houses/acre
Wildland Urban Interface
Parker


0
0.75
1.5
Miles
827
New Hope
McKinney
75
756
Blue Ridge
977
Princeton
Lowry Crossing
380
Farmersville
982
Collin County
546
Fairview
964
Wildland Urban Interface
No Data
Less than 1 house/40 acres
1 house/40 acres to 1 house/20 acres
1 house/20 acres to 1 house/10 acres
1 house/10 acres to 1 house/5 acres
1 house/5 acres to 1 house/2 acres
1 house/2 acres to 3 houses/acre
Greater than 3 houses/acre
Wylie
Wildland Urban Interface
Princeton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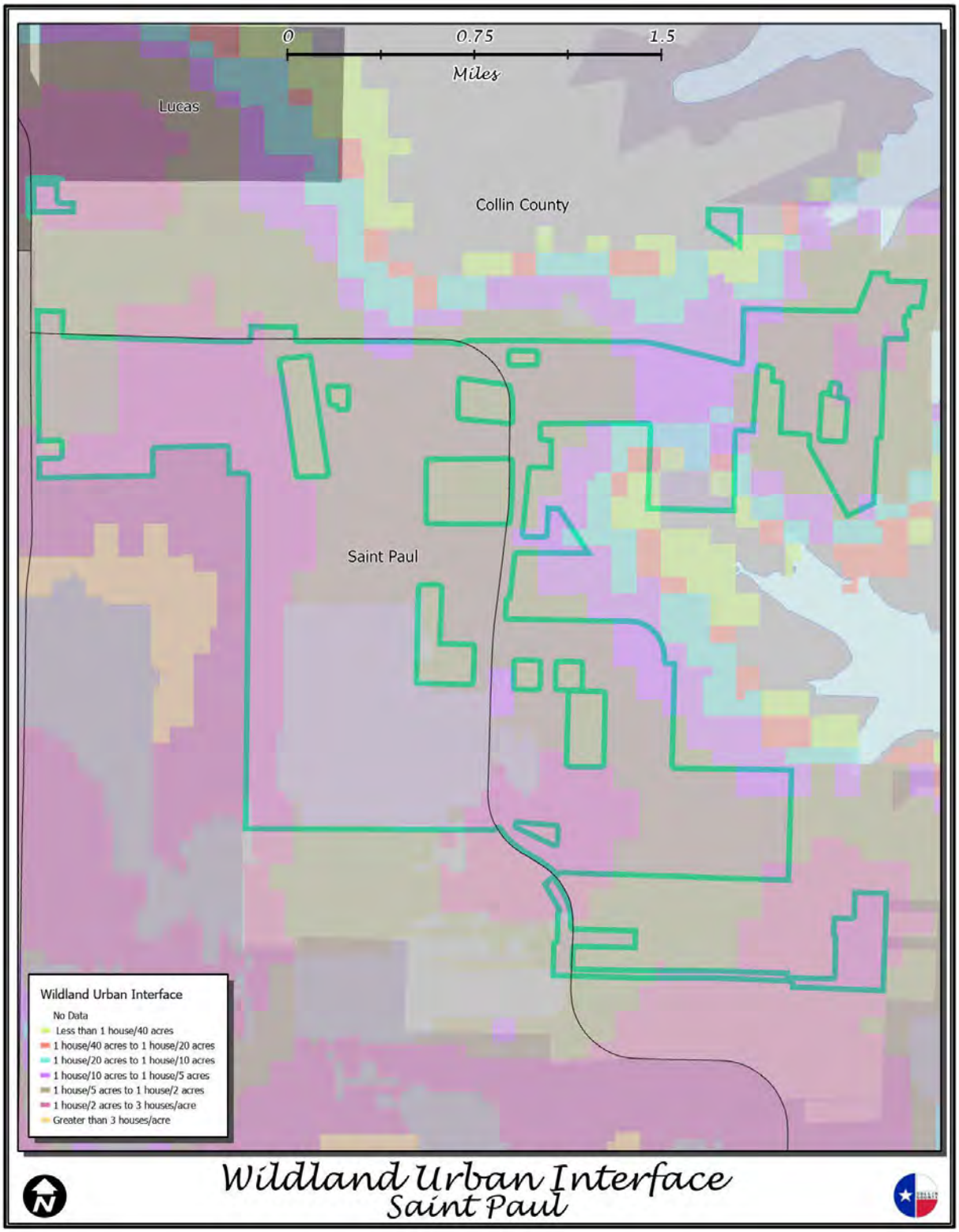
0.75
1.5
Miles
Denton County
Celina
Collin County
289
TEXAS
Prosper
380
Frisco
McKinney
Wildland Urban Interface
No Data
Less than 1 house/40 acres
1 house/40 acres to 1 house/20 acres
1 house/20 acres to 1 house/10 acres
1 house/10 acres to 1 house/5 acres
1 house/5 acres to 1 house/2 acres
1 house/2 acres to 3 houses/acre
Greater than 3 houses/acre
Wildland Urban Interface
Prosper


0
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Miles
Lucas
Collin County
Saint Paul
Wildland Urban Interface
No Data
Less than 1 house/40 acres
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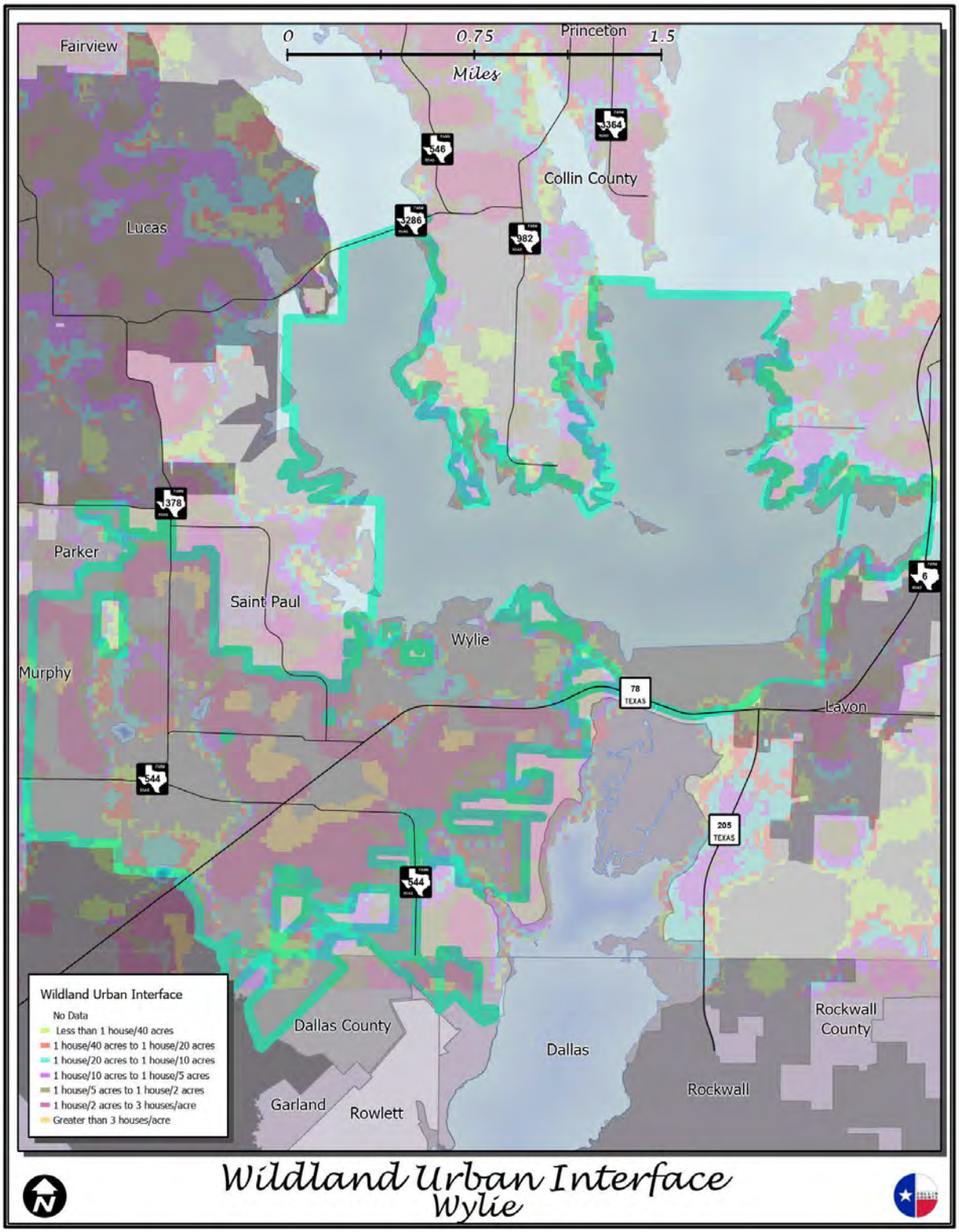
1 house/20 acres to 1 house/10 acres
1 house/10 acres to 1 house/5 acres
1 house/5 acres to 1 house/2 acres
1 house/2 acres to 3 houses/acre
Greater than 3 houses/acre
Wildland Urban Interface
Saint Paul


0
0.75
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Miles
Fairview
Princeton
Collin County
Lucas
Parker
Saint Paul
Wylie
Murphy
Lavon
Dallas County
Dallas
Rockwall County
Rockwall
Garland
Rowlett
546
364
286
982
378
6
78 TEXAS
544
205 TEXAS
544
Wildland Urban Interface
No Data
Less than 1 house/40 acres
1 house/40 acres to 1 house/20 acres
1 house/20 acres to 1 house/10 acres
1 house/10 acres to 1 house/5 acres
1 house/5 acres to 1 house/2 acres
1 house/2 acres to 3 houses/acre
Greater than 3 houses/acre
Wildland Urban Interface
Wylie

3.3 Extent

Natural Hazards are judged on specific extent scales. The following are the known extent scales for the natural hazards as addressed in the Collin County Hazard Mitigation Action Plan.

Drought

Drought Severity Classification

			Ranges				
Category	Description	Possible Impacts	Palmer Drought Index	CPC Soil Moisture Model (Percentiles)	USGS Weekly Streamflow (Percentiles)	Standardized Precipitation Index (SPI)	Objective Short and Long-term Drought Indicator Blends (Percentiles)
D0	Abnormally Dry	Going into drought: short-term dryness slowing planting, growth of crops or pastures. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered	-1.0 to -1.9	21-30	21-30	-0.5 to -0.7	21-30
D1	Moderate Drought	Some damage to crops, pastures; streams, reservoirs, or wells low, some water shortages developing or imminent; voluntary water-use restrictions requested	-2.0 to -2.9	11-20	11-20	-0.8 to -1.2	11-20
D2	Severe Drought	Crop or pasture losses likely; water shortages common; water restrictions imposed	-3.0 to -3.9	6-10	6-10	-1.3 to -1.5	6-10
D3	Extreme Drought	Major crop/pasture losses; widespread water shortages or restrictions	-4.0 to -4.9	3-5	3-5	-1.6 to -1.9	3-5
D4	Exceptional Drought	Exceptional and widespread crop/pasture losses; shortages of water in reservoirs, streams, and wells creating water emergencies	-5.0 or less	0-2	0-2	-2.0 or less	0-2

Short-term drought indicator blends focus on 1-3 month precipitation. Long-term blends focus on 6-60 months. Additional indices used, mainly during the growing season, include the USDA/NASS Topsoil Moisture, Keetch-Byram Drought Index (KBDI), and NOAA/NESDIS satellite Vegetation Health Indices. Indices used primarily during the snow season and in the West include snow water content, river basin precipitation, and the Surface Water Supply Index (SWSI). Other indicators include groundwater levels, reservoir storage, and pasture/range conditions.

PDSI Classifications for Dry and Wet Periods	
4.00 or more	Extremely wet
3.00 to 3.99	Very wet
2.00 to 2.99	Moderately wet
1.00 to 1.99	Slightly wet
0.50 to 0.99	Incipient wet spell
0.49 to -0.49	Near normal
-0.50 to -0.99	Incipient dry spell
-1.00 to -1.99	Mild drought
-2.00 to -2.99	Moderate drought
-3.00 to -3.99	Severe drought
-4.00 or less	Extreme drought

Source: http://drought.unl.edu/whatis/indices.htm

Drought conditions do occur in this community. The PDSI Classification allows community planners to anticipate the effects of drought and plan preparedness and mitigation activities for future events as they will likely occur. The last event of widespread drought in Collin County was in August 2018.

Collin County and participating jurisdictions have experienced 57 drought events, ranging from Abnormally Dry (D0) to Exceptional Drought (D4), during the time period analyzed for this plan (01/01/1996-09/22/2020). It can be expected that future drought events will be of similar magnitude.

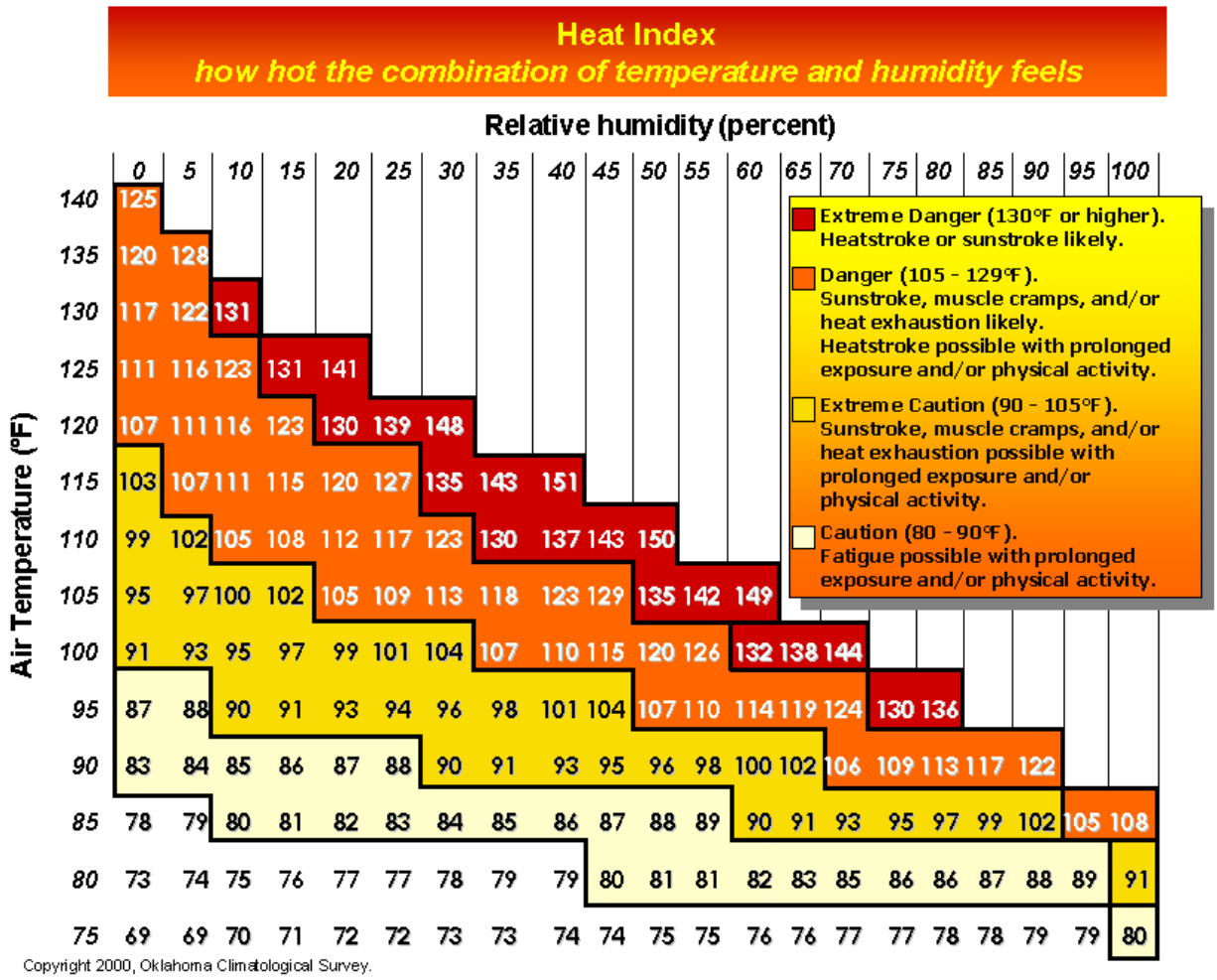
Earthquake: Mercalli & Richter Scales Comparison

Mercalli Scale	Richter Scale	
I.	0 – 1.9	Not felt. Marginal and long period effects of large earthquakes.
II.	2.0 -2.9	Felt by persons at rest, on upper floors, or favorably placed.
III.	3.0 – 3.9	Felt indoors. Hanging objects swing. Vibration like passing of light trucks. Duration estimated. May not be recognized as an earthquake.
IV.	4.0 - 4.3	Hanging objects swing. Vibration like passing of heavy trucks. Standing motor cars rock. Windows, dishes, doors rattle. Glasses clink the upper range of IV, wooden walls and frame creak.
V.	4.4 - 4.8	Felt outdoors; direction estimated. Sleepers wakened. Liquids disturbed, some spilled. Small unstable objects displaced or upset. Doors swing, close, open. Pendulum clocks stop, start.
VI.	4.9 - 5.4	Felt by all. Many frightened and run outdoors. Persons walk unsteadily. Windows, dishes, glassware broken. Books, etc., off shelves. Pictures off walls. Furniture moved. Weak plaster and masonry D cracked. Small bells ring. Trees, bushes shaken.
VII.	5.5 - 6.1	Difficult to stand. Noticed by drivers of motor cars. Hanging objects quiver. Furniture broken. Damage to masonry D, including cracks. Weak chimneys broken at roof line. Fall of plaster, loose bricks, stones, tiles, cornices. Some cracks in masonry C. Waves on ponds. Small slides and caving in along sand or gravel banks. Large bells ring. Concrete irrigation ditches damaged.
VIII.	6.2 - 6.5	Steering of motor cars affected. Damage to masonry C; partial collapse. Some damage to masonry B. Fall of stucco and some masonry walls. Twisting, fall of chimneys, factory stacks, monuments, towers, elevated tanks. Frame houses moved on foundations. Decayed piling broken off. Branches broken from trees. Changes in flow or temperature of springs and wells. Cracks in wet ground and on steep slopes.
IX.	6.6 - 6.9	General panic. Masonry D destroyed; masonry C heavily damaged, sometimes with complete collapse; masonry B seriously damaged. (General damage to foundations.) Serious damage to reservoirs. Underground pipes broken. Conspicuous cracks in ground. In alluvial areas sand and mud ejected, earthquake fountains, sand craters.
X.	7.0 - 7.3	Most masonry and frame structures destroyed with their foundations. Some well-built wooden structures and bridges destroyed. Serious damage to dams, dikes, embankments. Large landslides. Water thrown on banks of canals, rivers, lakes, etc. Sand and mud shifted horizontally on beaches and flat land. Rails bent slightly.
XI.	7.4 - 8.1	Rails bent greatly. Underground pipelines completely out of service.
XII.	> 8.1	Damage nearly total. Large rock masses displaced. Lines of sight and level distorted. Objects thrown into the air.

Masonry A: Good workmanship, mortar, and design; reinforced, especially laterally, and bound together by using steel, concrete, etc.; designed to resist lateral forces.
Masonry B: Good workmanship and mortar; reinforced, but not designed in detail to resist lateral forces.
Masonry C: Ordinary workmanship and mortar; no extreme weaknesses like failing to tie in at corners, but neither reinforced nor designed against horizontal forces.
Masonry D: Weak materials, such as adobe; poor mortar; low standards of workmanship; weak horizontally.
Source: http://www.abag.ca.gov/bayarea/eqmaps/doc/mmigif/m10.html

The Mercalli and Richter Scales allow planners to assess the impact earthquakes have. There have been no recorded earthquakes in Collin County. Collin County and participating jurisdictions did not experience any earthquakes during the time period analyzed for this plan (01/01/1996 – 09/22/2020). There is the potential for future earthquake events. At this time, due to Collin County not experiencing any earthquakes in recent history, there is no way to quantify the impacts on Collin County.

Extreme Heat / Heat Index

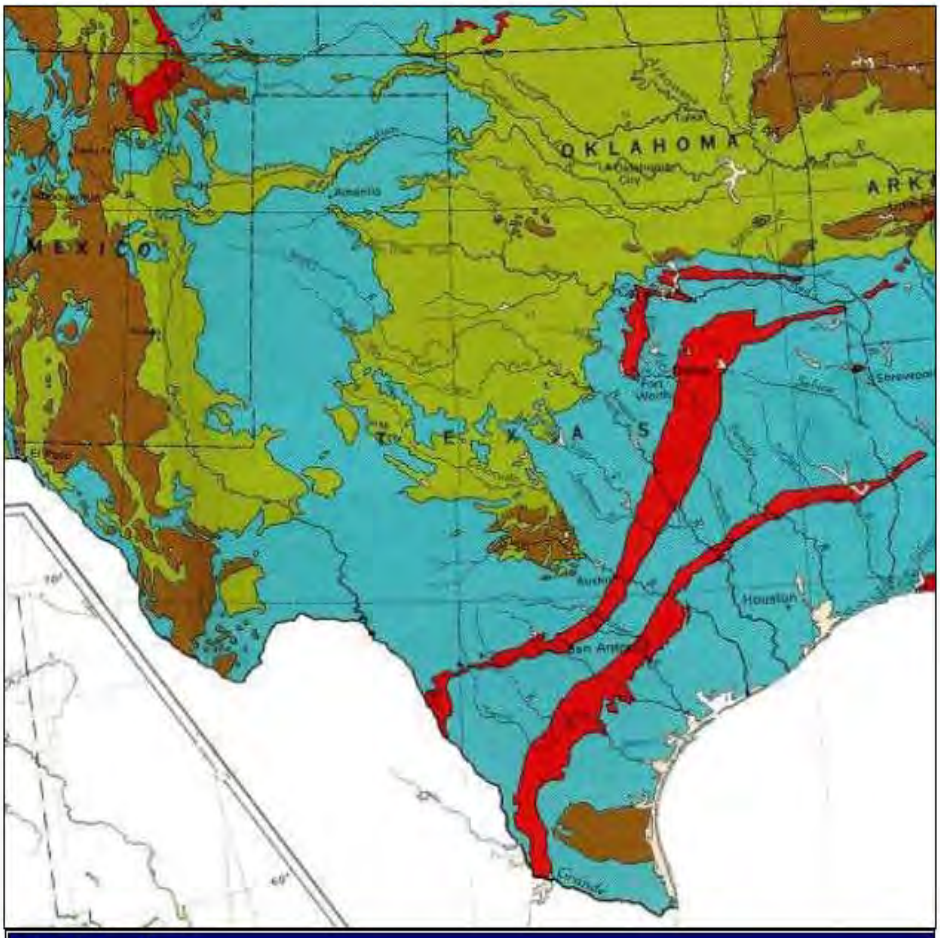


Source: http://www.ima.army.mil/southwest/sites/divisions/Safety/Heat%20Index.gif

The Heat Index chart displays the relative danger in regards to air temperature and relative humidity. Extreme heat is a hazard this community faces on an annual basis during the summer season. A combination of high temperatures and high humidity prompt heat advisories. This chart allows communities to assess the citizen's danger in regards to heat index. According to the National Centers for Environmental Information, there have been 8 extreme heat events recorded in Collin County since 1/1/1996.

Collin County and participating jurisdictions experienced 19 excessive heat events during the time period analyzed for this plan (01/01/1996 – 09/22/2020). The whole North Texas region experienced over a month of 100-degree plus temperatures during this time. It can be expected that any future heat or excessive heat incidents will be similar in magnitude.

Expansive Soils



Map Legend	
	Unit contains abundant clay having high swelling potential
	Part of unit (generally less than 50%) consists of clay having high swelling potential
	Unit contains abundant clay having slight to moderate swelling potential
	Part of unit (generally less than 50%) consists of clay having slight to moderate swelling potential
	Unit contains little or no swelling clay
	Data insufficient to indicate clay content of unit and/or swelling potential of clay (Shown in western most states only)

Swelling Clays Map

Source: U.S. Geological Survey; Swelling Clays Map of the Conterminous U.S.

The U.S. Geological Survey map above shows the varying types of expansive soils found in Texas. The type of soil predominate in Collin County is generally comprised of less than 50% of clay that has a high swelling potential.

Flooding

Flood Zones		
Zone A	The 100-year or Base Floodplain. There are six types of A zones:	
	A	The base floodplains mapped by approximate methods, i.e., BFEs are not determined. This is often called an unnumbered A zone or an approximate A zone.
	A1-30	These are known as numbered A zones (e.g., A7 or A14). This is the base floodplain where the firm shows a BFE (old format).
	AE	The base floodplain where base flood elevations are provided. AE zones are now used on new format FIRMs instead of A1-30 zones.
	AO	The base floodplain with sheet flow, ponding, or shallow flooding. Base flood depths (feet above ground) are provided.
	AH	Shallow flooding base floodplain. BFE's are provided.
	A99	Area to be protected from base flood by levees or Federal flood protection systems under construction. BFEs are not determined.
	AR	The base floodplain that results from the de-certification of a previously accredited flood protection system that is in the process of being restored to provide a 100-year or greater level of flood protection
Zone V and VE	V	The coastal area subject to velocity hazard (wave action) where BFEs are not determined on the FIRM.
	VE	The coastal area subject to velocity hazard (wave action) where BFEs are provided on the FIRM.
Zone B and Zone X (shaded)	Area of moderate flood hazard, usually the area between the limits of the 100-year and the 500-year floods. B zones are also used to designate base floodplains or lesser hazards, such as areas protected by levees from the 100-year flood, or shallow flooding areas with average depths of less than one foot or drainage areas less than 1 square mile.	
Zone C and Zone X (unshaded)	Area of minimal flood hazard, usually depiction FIRMs as exceeding the 500-year flood level. Zone C may have ponding and local drainage problems that do not warrant a detailed study or designation as base floodplain. Zone X is the area determined to be outside the 500-year flood.	
Zone D	Area of undetermined but possible flood hazards.	

Source: http://www.fema.gov/floodplain-management/flood-zones

Flood hazard areas are identified as a Special Flood Hazard Area (SFHA). SFHAs are defined as the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood or 100-year flood. SFHAs are labeled as Zone A, Zone V, and Zone VE. Moderate flood hazard areas, labeled Zone B or Zone X, are the areas between the limits of the base flood and the 0.2-percent-annual-chance (or 500-year) flood. The areas of minimal flood hazard, which are the areas outside the SFHA and higher than the elevation of the 0.2-percent-annual-chance flood, are defined as Zone C or Zone X. These flood zone identifications allow planners to determine appropriate land use in designated zones.

The planning communities are participants in the National Flood Insurance Program and actively take measures to plan land use. The communities are subject to flash flooding hazards such as the event in 6/26/2007 that occurred in the City of Celina. According to the National Centers for Environmental Information, the flash flood event resulted in $20,000 worth of property damage.

Collin County and participating jurisdictions experienced 86 flood and flash flood events during the time period analyzed for this plan (01/01/1996 - 09/22/2020). Most of the flood and flash flood events were a result of excessive rainfall over a short amount of time. These events resulted mainly in over-the-road

flooding and minor to moderate property damage. Floodwaters during these events ranged from 2-5 inches to feet. It can be expected that any future flood or flash flood events will be similar in magnitude.

Due to many variables, the full extent and impacts of flooding is not fully known at this time. Collin County typically sees more nuisance flooding and flash flooding. Some of this is temporary in nature to construction and can be difficult to know the impacts until an event occurs. An example of this, was in September of 2018. Highway 75 was under construction in Plano and the area received over 5 inches of rain. Typically the roadway does not flood, but due to temporary barriers installed, this area became a river. Once the construction was completed, and the barriers removed, the same area no longer floods. As stated previously, determine the exact impacts from flooding could use more data to help predict where flooding is more likely to occur, even out of flood zones, and then assist in the development of potential action items to mitigate those impacts.

Hail

Combined NOAA/TORRO Hailstorm Intensity Scales

Size Code	Intensity Category	Typical Hail Diameter (inches)	Approximate Size	Typical Damage Impacts
H0	Hard Hail	up to 0.33	Pea	No damage
H1	Potentially Damaging	0.33-0.60	Marble or Mothball	Slight damage to plants, crops
H2	Potentially Damaging	0.60-0.80	Dime or grape	Significant damage to fruit, crops, vegetation
H3	Severe	0.80-1.20	Nickel to Quarter	Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored
H4	Severe	1.2-1.6	Half Dollar to Ping Pong Ball	Widespread glass damage, vehicle bodywork damage
H5	Destructive	1.6-2.0	Silver dollar to Golf Ball	Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries
H6	Destructive	2.0-2.4	Lime or Egg	Aircraft bodywork dented, brick walls pitted
H7	Very destructive	2.4-3.0	Tennis ball	Severe roof damage, risk of serious injuries
H8	Very destructive	3.0-3.5	Baseball to Orange	Severe damage to aircraft bodywork
H9	Super Hailstorms	3.5-4.0	Grapefruit	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open
H10	Super Hailstorms	4+	Softball and up	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open

Source: http://www.torro.org.uk/site/hscale.php

The Hailstorm Intensity Scale is representative of the damage from hailstorms this community has experienced in the past and will likely experience in the future. The Hailstorm Intensity Scale allows planners to gauge past damage and mitigate for future expected damage. For example, according to the National Centers for Environmental Information, on 5/21/2011, 2.00in (H6/egg size) hail caused $25,000 of property damage in the City of Celina.

Collin County and participating jurisdictions experienced 459 hail events ranging from magnitude H2 (.75 inch diameters) to magnitude H10 (4+ inch diameters), during the time period analyzed for this plan (01/01/1985—09/22/2020). It can be expected that any future hail events will be similar in magnitude.

High Winds

Beaufort Wind Scale

Force	Wind (Knots)	WMO Classification	Appearance of Wind Effects On the Water	Appearance of Wind Effects On Land
0	Less than 1	Calm	Sea surface smooth and mirror-like	Calm, smoke rises vertically
1	1-3	Light Air	Scaly ripples, no foam crests	Smoke drift indicates wind direction, still wind vanes
2	4-6	Light Breeze	Small wavelets, crests glassy, no breaking	Wind felt on face, leaves rustle, vanes begin to move
3	7-10	Gentle Breeze	Large wavelets, crests begin to break, scattered whitecaps	Leaves and small twigs constantly moving, light flags extended
4	11-16	Moderate Breeze	Small waves 1-4 ft. becoming longer, numerous whitecaps	Dust, leaves, and loose paper lifted, small tree branches move
5	17-21	Fresh Breeze	Moderate waves 4-8 ft. taking longer form, many whitecaps, some spray	Small trees in leaf begin to sway
6	22-27	Strong Breeze	Larger waves 8-13 ft., whitecaps common, more spray	Larger tree branches moving, whistling in wires
7	28-33	Near Gale	Sea heaps up, waves 13-20 ft., white foam streaks off breakers	Whole trees moving, resistance felt walking against wind
8	34-40	Gale	Moderately high (13-20 ft.) waves of greater length, edges of crests begin to break into spindrift, foam blown in streaks	Whole trees in motion, resistance felt walking against wind
9	41-47	Strong Gale	High waves (20 ft.), sea begins to roll, dense streaks of foam, spray may reduce visibility	Slight structural damage occurs, slate blows off roofs
10	48-55	Storm	Very high waves (20-30 ft.) with overhanging crests, sea white with densely blown foam, heavy rolling, lowered visibility	Seldom experienced on land, trees broken or uprooted, "considerable structural damage"
11	56-63	Violent Storm	Exceptionally high (30-45 ft.) waves, foam patches cover sea, visibility more reduced	
12	64+	Hurricane	Air filled with foam, waves over 45 ft., sea completely white with driving spray, visibility greatly reduced	

Source: http://www.spc.noaa.gov/faq/tornado/beaufort.html.

The Beaufort Wind Scale is representative of the damage from high winds this community may endure. The Beaufort Wind Scale allows planners in the community to assess historical data and mitigate for future high windstorms. For example, according to the National Centers for Environmental Information , in 2010 the City of Wylie experienced Force 12 (64+ knots) winds that blew down trees and fences, which caused $50,000 worth of damage.

Collin County and participating jurisdictions experienced 369 high wind events ranging from Force 0 to Force 12 (0 knots to 64+ knots), during the time period analyzed for this plan (01/01/1950—09/22/2020). It can be expected that any future high wind events will be similar in magnitude.

Lightning Activity Level Grid

Lightning Activity Level (LAL) A scale which describes lightning activity. Values are labeled 1-6:	
LAL 1	No thunderstorms
LAL 2	Isolated thunderstorms. Light rain will occasionally reach the ground. Lightning is very infrequent, 1 to 5 cloud to ground strikes in a five minute period.
LAL 3	Widely scattered thunderstorms. Light to moderate rain will reach the ground. Lightning is infrequent, 6 to 10 cloud to ground strikes in a 5 minute period.
LAL 4	Scattered thunderstorms. Moderate rain is commonly produced Lightning is frequent, 11 to 15 cloud to ground strikes in a 5 minute period.
LAL 5	Numerous thunderstorms. Rainfall is moderate to heavy. Lightning is frequent and intense, greater than 15 cloud to ground strikes in a 5 minute period.
LAL 6	Dry lightning (same as LAL 3 but without rain). This type of lightning has the potential for extreme fire activity and is normally highlighted in fire weather forecasts with a Red Flag Warning.

Source: http://www.nws.noaa.gov/forecasts/wfo/definitions/defineLAL.html

The Lightning Activity Level grid provides a way to gauge the average number of strikes that may accompany a given type of storm. The average number of strikes is given since the density of lightning strikes varies from storm to storm.

Typically Collin County would see LAL 5 and lower. Dry lightning is not typically found in our area as we receive moisture from the Gulf of Mexico.

Collin County and participating jurisdictions experienced 56 lightning events during the time period analyzed for this plan (01/01/1996—09/22/2020). It can be expected that any future lightning events will be similar in magnitude.

Tornado

Fujita Scale

F-Scale Number	Intensity Phrase	Wind Speed	Type of Damage
F0	Gale tornado	40-72 mph	Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages sign boards.
F1	Moderate tornado	73-112 mph	The lower limit is the beginning of hurricane wind speed; peels surface off roofs; manufactured homes pushed off foundations or overturned; moving autos pushed off the roads; attached garages may be destroyed.
F2	Significant tornado	113-157 mph	Considerable damage. Roofs torn off frame houses; manufactured homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.
F3	Severe tornado	158-206 mph	Roof and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted
F4	Devastating tornado	207-260 mph	Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.
F5	Incredible tornado	261-318 mph	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles fly through the air in excess of 100 meters; trees debarked; steel reinforced concrete structures badly damaged.
F6	Inconceivable tornado	319-379 mph	These winds are very unlikely. The small area of damage they might produce would probably not be recognizable along with the mess produced by F4 and F5 wind that would surround the F6 winds. Missiles, such as cars and refrigerators would do serious secondary damage that could not be directly identified as F6 damage. If this level is ever achieved, evidence for it might only be found in some manner of ground swirl pattern, for it may never be identifiable through engineering studies

Source: http://tornadoproject.com/fscale/fscale.htm

On February 1, 2007, the Fujita scale was decommissioned in favor of the more accurate Enhanced Fujita Scale, which replaced it. None of the tornados recorded on or before January 31, 2007 will be re-categorized. Therefore maintaining the Fujita scale will be necessary when referring to previous events.

Enhanced Fujita Scale

Enhanced Fujita Category	Wind Speed (mph)	Potential Damage
EF0	65-85	Light damage. Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over.
EF1	86-110	Moderate damage. Roofs severely stripped; manufactured homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
EF2	111-135	Considerable damage. Roofs torn off well-constructed houses; foundations of frame homes shifted; manufactured homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
EF3	136-165	Severe damage. Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance.
EF4	166-200	Devastating damage. Well-constructed houses and whole frame houses completely leveled; cars thrown and small missiles generated.
EF5	>200	Incredible damage. Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 m (109 yd.); high-rise buildings have significant structural deformation;

Source: http://www.spc.noaa.gov/efscale/

The Enhanced Fujita Scale is representative of the damage from tornados this community has faced in the past and will no doubt face in the future. The Enhanced Fujita Scale allows planners to prepare and mitigate future potential damage by assessing the historical nature of tornados in the planning community. For example, according to the National Centers for Environmental Information in 2007, an F0 tornado occurred in the City of Wylie. The tornado caused $500,000 worth of property damage.

Collin County and participating jurisdictions experienced 48 tornado events ranging from EF0 to F3 (65mph to 206mph), during the time period analyzed for this plan (01/01/1950 — 09/22/2020). It can be expected that any future tornado events will be similar in magnitude.

Wildfire

Keetch-Byram Drought Index

KBDI	Fire Potential
0-200	Soil and fuel moisture are high. Most fuels will not readily ignite or burn. However, with sufficient sunlight and wind, cured grasses and some light surface fuels will burn in spots and patches.
200-400	Fires more readily burn and will carry across an area with no gaps. Heavier fuels will still not readily ignite and burn. Also, expect smoldering and the resulting smoke to carry into and possibly through the night.
400-600	Fire intensity begins to significantly increase. Fires will readily burn in all directions exposing mineral soils in some locations. Larger fuels may burn or smolder for several days creating possible smoke and control problems.
600-800	Fires will burn to mineral soil. Stumps will burn to the end of underground roots and spotting will be a major problem. Fires will burn through the night and heavier fuels will actively burn and contribute to fire intensity.

Source: http://www.tamu.edu/ticc/KBDI%20Fact%20Sheet.pdf

The index scale ranges from 0 to 800 and represents moisture deficiency in hundredths of an inch. By looking at indicators of moisture deficiency in the soil in this chart, communities are able to assess when they are at a heightened danger for a wildfire. According to the National Centers for Environmental Information, there have been four wildfire events in Collin County since 1/1/1996. In 9/5/2011, a wildfire caused $50,000 in property damage.

Collin County and participating jurisdictions experienced four wildfire events during the time period analyzed for this plan (01/01/1996 — 9/22/2020). These fires ranged from grassfires that destroyed 12 bales of hay, five homes, and caused one death, to a wildfire that burned 100 acres. It can be expected that any future wildland fire events will be similar in magnitude.

Fire Danger

Rating	Basic Description	Detailed Description
CLASS 1: Low Danger (L) COLOR CODE: Green	fires not easily started	Fuels do not ignite readily from small firebrands. Fires in open or cured grassland may burn freely a few hours after rain, but wood fires spread slowly by creeping or smoldering and burn in irregular fingers. There is little danger of spotting.
CLASS 2: Moderate Danger (M) COLOR CODE: Blue	fires start easily and spread at a moderate rate	Fires can start from most accidental causes. Fires in open cured grassland will burn briskly and spread rapidly on windy days. Woods fires spread slowly to moderately fast. The average fire is of moderate intensity, although heavy concentrations of fuel – especially draped fuel -- may burn hot. Short-distance spotting may occur, but is not persistent. Fires are not likely to become serious and control is relatively easy.
CLASS 3: High Danger (H) COLOR CODE: Yellow	fires start easily and spread at a rapid rate	All fine dead fuels ignite readily and fires start easily from most causes. Unattended brush and campfires are likely to escape. Fires spread rapidly and short-distance spotting is common. High intensity burning may develop on slopes or in concentrations of fine fuel. Fires may become serious and their control difficult, unless they are hit hard and fast while small.
CLASS 4: Very High Danger (VH) COLOR CODE: Orange	fires start very easily and spread at a very fast rate	Fires start easily from all causes and immediately after ignition, spread rapidly and increase quickly in intensity. Spot fires are a constant danger. Fires burning in light fuels may quickly develop high-intensity characteristics - such as long-distance spotting - and fire whirlwinds, when they burn into heavier fuels. Direct attack at the head of such fires is rarely possible after they have been burning more than a few minutes.
CLASS 5: Extreme (E) COLOR CODE: Red	fire situation is explosive and can result in extensive property damage	Fires under extreme conditions start quickly, spread furiously and burn intensely. All fires are potentially serious. Development into high-intensity burning will usually be faster and occur from smaller fires than in the Very High Danger class (4). Direct attack is rarely possible and may be dangerous, except immediately after ignition. Fires that develop headway in heavy slash or in conifer stands may be unmanageable while the extreme burning condition lasts. Under these conditions, the only effective and safe control action is on the flanks, until the weather changes or the fuel supply lessens.

Source: http://www.wfas.net/index.php/fire-danger-rating-fire-potential--danger-32/class-rating-fire-potential-danger-51?task=view

Wind Chill

Wind Chill is a measure of how cold the wind makes real air temperature feel to the human body. Since wind can dramatically accelerate heat loss from the body, a blustery 30° day would feel just as cold as a calm day with 0° temperatures. The index was created in 1870, and on November 1, 2001, the National Weather Service released a more scientifically accurate equation, which we use today. Here is a chart for calculating wind chill. (Please note that it is not applicable in calm winds or when the temperature is over 50°.)

Wind Chill Chart

Wind (mph)	Temperature (°F)																	
	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45	26	29	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Frostbite Times: 30 minutes, 10 minutes, 5 minutes

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T= Air Temperature (°F) V= Wind Speed (mph) *Effective 11/01/01*

Source: National Weather Service and NOAA

The Wind Chill Chart displays the frostbite times in regard to temperature and wind. This chart allows the communities to prepare for severe winter storm or an ice event. These events are infrequent but can cause damage. The primary areas of concern are on bridges and roadways. For example, according to the National Centers for Environmental Information , on 2/11/2010, a heavy snowstorm caused $1,000,000 in property damage across Collin County.

Collin County and participating jurisdictions experienced 56 winter storm events ranging from heavy snow to ice, during the time period analyzed for this plan (01/01/1996—09/22/2020). Accumulations during these events ranged from 1-3 inches of sleet, .25-1.5 inches of ice, and .5 to 12 inches of snow. It can be expected that any future events will be similar in magnitude.

Local Extent Having identified the extent scales by which hazards are ranked, the participating jurisdictions have utilized the following definitions to determine the expected extent/severity for their planning area.

	High	Medium	Low
Dam Failure	• Greater than 50% of city structures are in the inundation zone. Greater than 50% of the city's critical infrastructure in the identified inundation zone	• 20%-50% of city structures are in the inundation zone. • 20%-50% of the city's critical infrastructure in the inundation zone	• Less than 20% of city structures are in the inundation zone. • Less than 20% of the city's critical infrastructure in the inundation zone
Drought	• PDSI -3.00- -4.00 or less • Severe to extreme drought conditions	• PDSI -1.00- -2.99 • Mild to moderate drought conditions	• PDSI 4.00 or more - -0.99 • Extremely wet to incipient dry spells
Earthquake	• Mercalli Scale: VIII-XII • Richter Scale: 6.2->8.1 • Driving will be difficult, increase in damage to infrastructures and objects can be thrown	• Mercalli Scale: VI-VII • Richter Scale: 4.9-6.1 • All will feel the event, walking will be difficult, glassware will break, irrigation ditches damaged	• Mercalli Scale: I-V • Richter Scale: 0-4.8 • Range of feeling the event is cannot be felt to being felt outdoors. Doors may swing close and liquids may be disturbed.
Expansive Soils	• EI Expansion Potential: 91-130 (High) • EI Expansion Potential: >130 (Very High)	• EI Expansion Potential: 51-90 (Medium)	• EI Expansion Potential: 21-50 (Low) • EI Expansion Potential: 0-21 (Very Low)
Extreme Heat	• Heat Index >130F • Heatstroke or sunstroke likely	• Heat Index 105F-129F • Sunstroke, muscle cramps, and/or heat exhaustion likely. Heatstroke possible with prolonged exposure and/or physical activity.	• Heat Index 80F-105F • Fatigue possible with prolonged exposure and/or physical activity, Sunstroke, muscle cramps, and/or heat exhaustion possible with prolonged exposure and/or physical activity.
Flooding	• 100yr Flood Zone, Zone A • The extent of severity in the 100yr Flood Zone will be dependent on the structures and livestock located in the identified area.	• 500yr Flood Zone, Zone B • The extent of severity in the 500yr Flood Zone will be dependent on the structures and livestock located in the identified area.	• Outside of 100yr and 500yr Flood Zones, Zone C, F, X • Potential for flooding due to local drainage problem
Hail	• H7-H10, 2.4"->4" • There will be severe damage. Including roof and structural damage and risk of serious injuries to fatalities.	• H5-H6, 1.6"-2.4" • There will be a range of severe damage from well-constructed houses being destroyed to houses being swept away.	• H0-H4, 0"-1.6" • There will be a variance of destruction to vegetation and slight damage to glass.
High Winds	• Force: 8-12 • Knots: 28-64+ • Whole trees moving to considerable structure damage	• Force: 4-6 • Knots: 11-27 • Dust, leaves, and loose paper lifted. Small to Large branches moving.	• Force: 0-3 • Knots: <1-10 • Calm, leaves rustle, light flags extended

	High	Medium	Low
Tornado	• EF3-EF5 • There will be a range of severe damage from well-constructed houses being destroyed to houses being swept away	• EF1-EF2 • There will be a range of moderate to considerate damage. Roofs will be severely stripped, manufactured homes overturned, and cars lifted off of the ground	• EF0 • There will be light damage. Roofs will be peeled off, gutters damaged, and branches broken
Wildland Fire	• KBDI 600-800 • Associated with severe drought. Intense, deep-burning fires with significant downwind spotting.	• KBDI 200-400 • Ranges from lower litter and duff layers are drying and beginning to contribute to fire intensity to them causing the fire to burn actively.	• KBDI 0-200 • Soil moisture and large class fuel moistures are high and do not contribute much to fire intensity.
Winter Storms	• Temperatures 15F- :45F • Wind Chill 7F- :98F • At wind chill of :19 frostbite will occur in 30 minutes increasing in severity to occurrence in 5 minutes.	• Temperatures 30F- 20F • Wind Chill 25F- :4F • Bridges and roadways are at risk to ice	• Temperatures 40F- 35F • Wind Chill 36F-17F • Vulnerable populations and agriculture at risk to lower temperatures and wind chill.
Lightning	• Lightning is ranked based on LAL, see page 91. It is not typically ranked based on severity, but based on frequency; however, even one lightning strike can have the same, if not more, impacts than many lightning strikes depending on what it impacts/strikes. Unlike other hazards that are typically ranked/rated on severity. See Page 91 for LAL scale and information.		

The charts below depict the estimated average of extent as ranked by the jurisdictions.

	Collin County	Allen	Anna	Blue Ridge	Celina
Dam Failure	Low	None	Medium	None	Low
Drought	Medium	Low	Medium	Medium	Medium
Earthquake	Medium	None	None	Low	None
Expansive Soils	Medium	None	Low	Low	Low
Extreme Heat	Medium	Medium	Low	Medium	Medium
Flooding	Low	Low	Low	Medium	High
Hail	High	Medium	Low	Low	Low
High Winds	Medium	Medium	Medium	Medium	Low
Lightning	Low	Low	Low	Low	Medium
Tornado	Medium	Medium	Medium	High	High
Wildland Fire	Medium	No	Low	Medium	Medium
Winter Storms	Low	Medium	Medium	Medium	Medium

	Fairview	Farmersville	Frisco	Josephine	Lavon
Dam Failure	None	Medium	Low	None	Low
Drought	Medium	Medium	Low	Medium	Low
Earthquake	Low	Low	Medium	Low	Low
Expansive Soils	Low	Low	Medium	Low	Low
Extreme Heat	Low	Low	Low	Low	Medium
Flooding	Low	Low	Low	Low	Low
Hail	Low	Low	Medium	Low	Low
High Winds	Low	Medium	Medium	Low	Low
Lightning	Low	Low	Medium	Low	Low
Tornado	Medium	Medium	Medium	Medium	High
Wildland Fire	Low	Medium	Low	Medium	Medium
Winter Storms	Low	Medium	High	Medium	Medium

	Lowry Crossing	Lucas	Melissa	Murphy	New Hope
Dam Failure	None	None	Low	None	Low
Drought	Medium	Medium	Medium	Medium	Low
Earthquake	Low	Low	Low	Low	Low
Expansive Soils	Low	Low	Low	Low	Low
Extreme Heat	Low	Medium	Low	Medium	Medium
Flooding	Low	Medium	Low	Low	Low
Hail	Low	Low	Low	Low	Medium
High Winds	Low	Low	Low	Low	Low
Lightning	Low	Medium	Low	Medium	Low
Tornado	Medium	Medium	Medium	Low	Medium
Wildland Fire	Low	Medium	Medium	Low	Low
Winter Storms	Medium	Medium	Medium	Medium	Medium

	Parker	Princeton	Prosper	St. Paul	Wylie
Dam Failure	None	None	Low	None	Low
Drought	Medium	Medium	Medium	Medium	Low
Earthquake	None	Low	Low	Low	Low
Expansive Soils	Low	Low	Low	Low	Low
Extreme Heat	Low	Medium	Medium	Low	Low
Flooding	Low	Medium	Medium	Low	Low
Hail	Low	Low	Medium	Low	Medium
High Winds	Low	Medium	Medium	Low	Low
Lightning	Low	Low	High	Low	Low
Tornado	Low	Medium	High	Medium	High
Wildland Fire	Low	Low	Medium	Medium	Low
Winter Storms	Low	Medium	Medium	Medium	Medium

3.4 Geographic Information System Based Analysis

For the Geographic Information System-based assessment, digital data was collected from local, state, and national sources. ESRI® ArcMap™ 10.2 was used to assess risk utilizing digital data, which included local tax records for individual parcels and geo-referenced point locations for buildings and critical facilities.

The objective of the Geographic Information System-based analysis was to determine the estimated vulnerability of the five categories of assets to the identified hazards for Collin County using best available geospatial data. Local databases made available through Collin County, such as local tax assessor records, parcel boundaries, building footprints and critical and emergency facilities data, were used in combination with digital hazard data obtained from the National Centers for Environmental Information and the FEMA Resilience and Planning Tool. The results of the analysis provided an estimated number of people, as well as the numbers and values of buildings and critical facilities determined to be potentially at risk to hazards with delineable geographic hazard boundaries.

For some of the hazards, the Geographic Information System analysis was supplemented with a statistical analysis conducted on the historical data obtained from National Centers for Environmental Information and the Texas Forest Service for wildfires. The data included both casualty and property losses from hazard events that occurred in Collin County from 1/1/1950 or 1/1/1985 or 1/1/1996 to 9/22/2020. Annualized personal and property losses were calculated by dividing the total losses by the number of years for which data was available (i.e. 24 or 35 or 70 years).

Drought

Because drought impacts large areas that cross jurisdictional boundaries, all of the improved property and population in Collin County are considered to be exposed to this hazard. However, drought impacts are mostly experienced in water shortages and crop losses on agricultural lands, with little to no impact on buildings.

Since crop losses are expected to be the most vulnerable assets for this hazard, agricultural land acreage was acquired from the USGS land cover classification data to estimate the relative area of Collin County that would be affected by this event. *Table 3.1* below provides the distribution of agricultural land for each jurisdiction in Collin County. Collin County as a whole has a total of 263,746.98 acres of agricultural lands, which represents approximately 58.65% of Collin County territory, with the vast majority located in the unincorporated areas.

Table 3.1 Agricultural Land in Collin County

Jurisdiction	Total Acres	Agricultural Land Acres	Percentage (%) of Total Acres
Unincorporated County	288,727	215,882	74.77%
Allen	16,899.45	1,228.98	7.27%
Anna	10,273.53	7,240	70.47%
Blue Ridge	1,066.43	427.11	40.05%
Celina	21,575.35	14,727.29	68.26%
Fairview	5,672.38	1,036.25	18.27%
Farmersville	2,2724.78	635.73	23.33%
Frisco	27,747.7	6,425.11	23.16%
Josephine	1,132.93	643.3	56.77%
Lavon	2112	621.79	29.44%
Lowry Crossing	1,644.51	685.42	41.68%
Lucas	10,196.92	2530.5	24.82%
Melissa	7,583.93	1,785.22	23.54%
Murphy	3632.7	70.93	2.00%
New Hope	896.65	717.95	80.10%
Parker	5,431.27	1,900.84	35.00%
Princeton	6,792.03	2,005.08	29.52%
Prosper	11,677.37	4,103.97	35.14%
St. Paul	894.62	199.11	22.26%

Jurisdiction	Total Acres	Agricultural Land Acres	Percentage (%) of Total Acres
Wylie	23,170.14	880.4	3.80%
Total	449,690.42	263,746.98	58.65%

Sources: Texas Forest Service, U.S. Geological Survey, and local jurisdictions

Based on the available information, vulnerability to drought was assessed using two techniques: (1) to comply with *Requirement 201.6(c)(2)(ii)(B*), historical loss data obtained from the Texas Hazard Mitigation Package was used to predict expected monetary and human losses from the event; (2) in fulfillment of Element A of *Requirement 201.6(c)(2)(ii)(A*), geographical hazard areas identified for drought and the nature of the impacts expected from drought events were used to identify the assets, including existing structures, vulnerable to this hazard. The vulnerability to future structures was not conducted at this time due to unattainable data. Therefore, compliance with Element B of *Requirement 201.6(c)(2)(ii)(A),* describing vulnerability in terms of the types and numbers of future buildings, infrastructure, and critical facilities will be an objective in the five-year planning cycle.

Table 3.2 presents Collin County's recorded historical losses due to drought events as provided in the hazard events database obtained from the National Centers for Environmental Information . Property and personal losses in each expected in each jurisdiction are presented in *Table 3.2*.

Table 3.2 Historical Losses Due to Drought (1/1/1996-9/22/2020)

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Collin (Zone)	8/1/1996	0:00	Drought		0	0	$0	$0
Collin (Zone)	7/1/1998	0:00	Drought		0	0	$0	$0
Collin (Zone)	8/1/2000	0:00	Drought		0	0	$0	$0
Collin (Zone)	9/1/2000	0:00	Drought		0	0	$0	$0
Collin (Zone)	5/1/2005	0:00	Drought		0	0	$0	$0
Collin (Zone)	6/1/2005	0:00	Drought		0	0	$0	$0
Collin (Zone)	7/1/2005	0:00	Drought		0	0	$0	$0
Collin (Zone)	8/1/2005	0:00	Drought		0	0	$0	$0
Collin (Zone)	9/1/2005	0:00	Drought		0	0	$0	$0
Collin (Zone)	10/1/2005	0:00	Drought		0	0	$0	$0
Collin (Zone)	11/1/2005	0:00	Drought		0	0	$0	$0
Collin (Zone)	12/1/2005	0:00	Drought		0	0	$0	$0
Collin (Zone)	1/1/2006	0:00	Drought		0	0	$0	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Collin (Zone)	2/1/2006	0:00	Drought		0	0	$0	$0
Collin (Zone)	3/1/2006	0:00	Drought		0	0	$0	$0
Collin (Zone)	4/1/2006	0:00	Drought		0	0	$0	$0
Collin (Zone)	5/1/2006	0:00	Drought		0	0	$0	$0
Collin (Zone)	6/6/2006	0:00	Drought		0	0	$0	$0
Collin (Zone)	7/1/2006	0:00	Drought		0	0	$0	$0
Collin (Zone)	8/1/2006	0:00	Drought		0	0	$0	$0
Collin (Zone)	9/1/2006	0:00	Drought		0	0	$0	$0
Collin (Zone)	10/1/2006	0:00	Drought		0	0	$500,000	$500,000
Collin (Zone)	11/1/2006	0:00	Drought		0	0	$0	$800,000
Collin (Zone)	3/21/2011	0:00	Drought		0	0	$0	$8,000
Collin (Zone)	4/1/2011	0:00	Drought		0	0	$0	$10,000
Collin (Zone)	8/1/2011	0:00	Drought		0	0	$0	$10,000
Collin (Zone)	9/1/2011	0:00	Drought		0	0	$0	$25,000
Collin (Zone)	10/1/2011	0:00	Drought		0	0	$0	$5,000
Collin (Zone)	8/7/2012	0:00	Drought		0	0	$0	$0
Collin (Zone)	9/25/2012	0:00	Drought		0	0	$0	$2,000
Collin (Zone)	11/1/2012	0:00	Drought		0	0	$0	$3,000
Collin (Zone)	12/1/2012	0:00	Drought		0	0	$0	$2,000
Collin (Zone)	1/1/2013	0:00	Drought		0	0	$0	$3,000
Collin (Zone)	2/1/2013	0:00	Drought		0	0	$0	$2,000
Collin (Zone)	3/1/2013	0:00	Drought		0	0	$2,000	$0
Collin (Zone)	7/9/2013	0:00	Drought		0	0	$0	$1,000
Collin (Zone)	8/1/2013	0:00	Drought		0	0	$0	$3,000
Collin (Zone)	9/1/2013	0:00	Drought		0	0	$0	$3,000
Collin (Zone)	3/1/2014	0:00	Drought		0	0	$0	$4,000

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Collin (Zone)	4/1/2014	0:00	Drought		0	0	$0	$3,000
Collin (Zone)	5/1/2014	0:00	Drought		0	0	$	$3,000
Collin (Zone)	6/1/2014	0:00	Drought		0	0	$	$3,000
Collin (Zone)	7/1/2014	0:00	Drought		0	0	$	$3,000
Collin (Zone)	8/1/2014	0:00	Drought		0	0	$	$2,000
Collin (Zone)	9/1/2014	0:00	Drought		0	0	$5,000	$0
Collin (Zone)	10/1/2014	0:00	Drought		0	0	$0	$3,000
Collin (Zone)	11/1/2014	0:00	Drought		0	0	$0	$2,000
Collin (Zone)	12/1/2014	0:00	Drought		0	0	$0	$5,000
Collin (Zone)	1/1/2015	0:00	Drought		0	0	$0	$2,000
Collin (Zone)	2/1/2015	0:00	Drought		0	0	$0	$2,000
Collin (Zone)	3/1/2015	0:00	Drought		0	0	$0	$1,000
Collin (Zone)	4/1/2015	0:00	Drought		0	0	$0	$1,000
Collin (Zone)	9/1/2015	0:00	Drought		0	0	$0	$1,000
Collin (Zone)	10/1/2015	0:00	Drought		0	0	$2,000	$0
Collin (Zone)	11/21/2017	0:00	Drought		0	0	$0	$0
Collin (Zone)	12/1/2017	0:00	Drought		0	0	$0	$1,000
Collin (Zone)	8/1/2018	0:00	Drought		0	0	$0	$1,000
Totals:					0	0	$509,000	$1,414,000

Source: National Centers for Environmental Information (NCEI)

As observed in Table 3.2 Historical Losses Due to Drought, calculations of annualized losses were conducted using historical data obtained from the National Centers for Environmental Information. The annualized loss value can be interpreted as the impact expected from drought in terms of annualized human losses and human injuries, and annualized property losses. As observed in *table 3.2*, Collin County can expect approximately an annual $21,208.33 in property losses and $58,916.67 of crop losses each year as a result of drought, however values may be underestimated due to lack of accurate reporting. No injuries or deaths are expected from this event.

Since the geographical occurrence of drought is typically regional, the area of potential impacts corresponds to all of Collin County's territory. However, due to the nature of this event, property losses are more likely related to crop damage. Buildings and infrastructure are not expected to be directly impacted by drought events. Therefore, improved property, emergency and critical facilities, and critical structures are not exposed to this hazard.

In compliance to *Requirement 201.6(c)(2)(ii)*, vulnerability to drought and impacts to assets expected from drought events can be summarized as follows:

- **Population**: According to National Centers for Environmental Information(NCEI) no recorded injuries or fatalities have been recorded for drought events. There are no personal losses expected from drought events. All the population of Collin County is exposed to this hazard.
- **Improved Property**: According to National Centers for Environmental Information(NCEI), a loss of $21,208.33 per year can be expected in property loss due to damage from drought though values are underestimated due to lack of accurate reporting. Available historical data indicates that the expected losses from drought correspond to crop losses in the amount of $58,916.67 per year, mostly experienced in water shortages and crop losses on agricultural lands though values are underestimated due to lack of accurate reporting.
- **Emergency Facilities**: Because of the nature of this hazard, there are no losses or direct impacts expected on emergency facilities due to drought events.
- **Critical Facilities**: Because of the nature of this hazard, there are no losses or direct impacts expected on critical facilities due to drought events.
- **Critical Infrastructure**: Because of the nature of this hazard, there are no losses or direct impacts expected on critical infrastructure due to drought events.

Information needed to fulfill *Requirement 201.6(c)(2)(ii*)(C), which addresses land uses and development trends was unattainable during the preparation of this hazard mitigation plan. Compliance with this requirement will be an objective in the five-year planning cycle.

Flood

Floods impact large areas and cross jurisdictional boundaries. All five categories of assets are considered vulnerable and can be exposed to this hazard. Based on the available information, vulnerability to flooding was assessed using two techniques: (1) to comply with *Requirement 201.6(c)(2)(ii)(B*), historical loss data obtained from National Centers for Environmental Information was used to predict expected monetary and human losses from the event; (2) in fulfillment of Element A of *Requirement 201.6(c)(2)(ii)(A*), geographical data was used to identify the assets, including existing structures, vulnerable to flooding. The vulnerability to future structures was not assessed at this time due to unattainable data. Therefore, compliance with Element B of *Requirement 201.6(c)(2)(ii)(A),* describing vulnerability in terms of the types and numbers of future buildings, infrastructure, and critical facilities will be an objective in the five-year planning cycle.

Table 3.3 presents Collin County's recorded historical losses due to flooding as provided in the hazard events database obtained by National Centers for Environmental Information (NCEI). Although specific data is provided by jurisdiction, the figures presented may reflect the place where the event was more relevant or where it started. There were no recorded floods or flash flood events for the following jurisdictions: Josephine, Lowry Crossing, Lucas, New Hope, and St. Paul.

Table 3.3 Historical Losses Due to Flood Events (1/1/1996-9/22/2020)

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Frisco	10/27/1996	21:20	Flash Flood		0	0	$0	$0
Melissa	11/7/1996	0:30	Flash Flood		0	0	$10,000	$0
Plano	2/19/1997	16:30	Flash Flood		0	0	$0	$0
Mc Kinney	2/19/1997	16:51	Flash Flood		0	0	$0	$0
Lolaville	2/19/1997	18:00	Flash Flood		0	0	$0	$0
Farmersville	2/19/1997	18:25	Flash Flood		0	0	$0	$0
Mc Kinney	4/4/1997	22:25	Flash Flood		0	0	$0	$0
Plano	5/19/1997	18:15	Flash Flood		0	0	$0	$0
Plano	5/19/1997	19:02	Flash Flood		0	0	$10,000	$0
Plano	5/19/1997	19:30	Flash Flood		0	0	$0	$0
Plano	6/9/1997	20:48	Flash Flood		0	0	$0	$0
Allen	6/9/1997	21:00	Flash Flood		0	0	$0	$0
Plano	12/20/1997	20:00	Flash Flood		0	0	$0	$0
Mc Kinney	1/4/1998	16:40	Flash Flood		0	0	$0	$0
Mc Kinney	1/4/1998	16:45	Flash Flood		0	0	$0	$0
Blue Ridge	1/4/1998	16:50	Flash Flood		0	0	$0	$0
Princeton	1/4/1998	17:52	Flash Flood		0	0	$0	$0
Prosper	1/4/1998	21:09	Flash Flood		0	0	$0	$0
Nevada	12/4/1998	1:00	Flash Flood		0	0	$0	$0
Central Portion	12/4/1998	1:00	Flash Flood		0	0	$0	$0
Lavon	5/17/1999	15:33	Flash Flood		0	0	$0	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Plano	6/8/1999	19:00	Flash Flood		0	0	$0	$0
Farmersville	6/4/2000	2:15	Flash Flood		0	0	$0	$0
Murphy	6/11/2000	12:55	Flash Flood		0	0	$0	$0
Wylie	6/15/2000	2:00	Flash Flood		0	0	$0	$0
Countywide	2/16/2001	1:34	Flash Flood		0	0	$0	$0
Countywide	2/16/2001	3:51	Flash Flood		0	0	$0	$0
Mc Kinney	5/6/2001	1:28	Flash Flood		0	0	$0	$0
Melissa	10/19/2002	2:05	Flash Flood		0	0	$25,000	$0
Plano	12/30/2002	14:30	Flash Flood		0	0	$0	$0
Plano	8/15/2005	19:45	Flash Flood		0	0	$0	$0
Countywide	3/19/2006	15:00	Flash Flood		0	0	$0	$0
McKinney	1/12/2007	17:15	Flash Flood		0	0	$0	$0
McKinney	3/30/2007	20:00	Flash Flood		0	0	$0	$0
Plano	4/3/2007	18:52	Flash Flood		0	0	$0	$0
Celina	4/24/2007	20:09	Flash Flood		0	0	$0	$0
Frisco	5/2/2007	19:00	Flash Flood		0	0	$50,000	$0
Lavon	5/27/2007	9:06	Flash Flood		0	0	$0	$0
McKinney	5/30/2007	8:30	Flash Flood		0	0	$10,000	$0
Anna	6/18/2007	2:00	Flash Flood		0	0	$10,000	$0
Melissa	6/18/2007	8:00	Flash Flood		0	0	$0	$0
Celina	6/26/2007	15:01	Flash Flood		0	0	$20,000	$0
Farmersville	6/27/2007	17:43	Flash Flood		0	0	$0	$0
Wylie	7/5/2007	13:30	Flash Flood		0	0	$0	$0
Plano	7/11/2007	16:42	Flash Flood		0	0	$0	$0
Plano	10/15/2007	7:42	Flash Flood		0	0	$80,000	$0
Plano	3/18/2008	11:54	Flash Flood		0	0	$0	$0
Biggers	3/18/2008	14:38	Flash Flood		0	0	$0	$0
Wylie	3/18/2008	16:54	Flash Flood		0	0	$0	$0
McKinney	3/18/2008	17:00	Flash Flood		0	0	$4,000	$0
Melissa	4/23/2008	22:55	Flash Flood		0	0	$2,000	$0
Parker	8/20/2008	6:00	Flash Flood		0	0	$0	$0
McKinney	8/20/2008	6:00	Flash Flood		0	0	$20,000	$0
Wylie	8/20/2008	6:45	Flash Flood		0	0	$4,000	$0
Forest Grove	8/20/2008	15:00	Flash Flood		0	0	$0	$0
Plano	5/2/2009	18:25	Flash Flood		0	0	$20,000	$0
McKinney	5/2/2009	20:38	Flash Flood		0	0	$2,000	$0
Blue Ridge	5/3/2009	4:05	Flash Flood		0	0	$0	$0
Celina	10/25/2009	21:21	Flash Flood		0	0	$3,000	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
McKinney	10/25/2009	22:44	Flash Flood		0	0	$3,000	$0
Desert	11/20/2009	11:00	Flood		0	0	$20,000	$0
Celina	1/25/2012	5:00	Flood		0	0	$50,000	$0
Lolaville	3/20/2012	0:00	Flood		0	0	$0	$0
Anna	7/31/2014	7:15	Flash Flood		0	0	$0	$0
Weston	5/9/2015	10:19	Flash Flood		0	0	$0	$0
Shepton	5/9/2015	11:13	Flash Flood		0	0	$0	$0
Shepton	5/9/2015	15:30	Flood		0	0	$0	$0
Fairview	5/17/2015	7:45	Flood		0	0	$0	$0
Allen	5/29/2015	5:14	Flash Flood		0	0	$0	$0
Plano Shiloh	5/29/2015	5:15	Flash Flood		0	0	$0	$0
Prosper	5/292015	8:30	Flash Flood		0	0	$0	$0
Shepton	5/30/2015	6:05	Flash Flood		0	0	$0	$0
Lavon	6/21/2015	7:29	Flash Flood		0	0	$1,000	$0
Celina	11/27/2015	6:45	Flood		0	0	$0	$0
Parker	12/26/2015	19:53	Flash Flood		0	0	$0	$0
Frisco	6/12/2016	16:40	Flash Flood		0	0	$0	$0
Celina	7/5/2017	19:50	Flash Flood		0	0	$0	$0
Princeton	7/5/2017	19:50	Flash Flood		0	0	$0	$0
Melissa	7/5/2017	19:56	Flash Flood		0	0	$0	$0
Lavon	8/17/2017	5:30	Flood		0	0	$0	$0
Lake Lavon	8/17/2017	7:27	Flood		0	0	$0	$0
Plano	9/21/2018	19:00	Flash Flood		0	0	$10,000	$0
Renner	9/21/2018	19:30	Flash Flood		0	0	$0	$0
Prosper	10/192018	15:00	Flood		0	0	$0	$0
Wylie	4/23/2019	22:02	Flash Flood		0	0	$10,000	$0
Fayburg	3/18/2020	4:15	Flash Flood		0	0	$0	$0
Totals:					0	0	$364,000	$0

Source: National Centers for Environmental Information

NFIP repetitive losses due to flood events. Some events may duplicate NCEI reported events.

Table 3.4 NFIP Losses Due to Flood Events

Location	Date	Type	Total Payments for Damages
Collin County	05/12/1982	Flood	$137,421.75
Collin County	10/13/1981	Flood	$56,653.53
Collin County	03/18/2008	Flood	$30,538.62
Collin County	03/19/2006	Flood	$2,804.32
Collin County	12/20/1991	Flood	$15,420.52
Fairview	03/15/1997	Flood	$8,234.44

Location	Date	Type	Total Payments for Damages
Fairview	06/01/1994	Flood	$10,533.74
Fairview	04/11/1991	Flood	$15,263.41
Fairview	01/31/1990	Flood	$8,844.92
Fairview	05/16/1989	Flood	$6,033.50
Fairview	01/04/1998	Flood	$5,701.14
Fairview	05/16/1989	Flood	$6,532.68
Murphy	04/12/1991	Flood	$69,726.51
Murphy	05/02/1990	Flood	$10,137.18
Murphy	05/17/1989	Flood	$37,866.00
Murphy	05/12/1982	Flood	$9,283.31
Murphy	10/31/1981	Flood	$14.429.25
Parker	04/12/1991	Flood	$4,962.09
Parker	05/02/1990	Flood	$4,880.80
Parker	04/11/1991	Flood	$9,256.63
Parker	05/02/1990	Flood	$2,298.37
Parker	08/20/2008	Flood	$20,750.05
Parker	12/29/2006	Flood	$15,835.07
Parker	04/11/1991	Flood	$24,872.33
Parker	05/02/1990	Flood	$8,110.35
Parker	05/16/1989	Flood	$30,207.89
Parker	08/19/2008	Flood	$118,111.47
Parker	04/11/1991	Flood	$45,394.51
Parker	05/01/1990	Flood	$2,971.26
Parker	05/16/1989	Flood	$8,714.54

As observed in Table 3.3, Historical Losses Due to Flood Events, calculations of annualized losses were conducted using historical data obtained from National Centers for Environmental Information. The annualized loss value can be interpreted as the impact expected from flooding in terms of annualized human losses and human injuries, and annualized property losses. As observed in *Table 3.3*, Collin County can expect a total property loss of $15,166.67 each year as a result of flooding, with no injuries, no fatalities, and no crop losses. Property damage and crop damage values may be underestimated due to lack of accurate reporting.

In order to assess flood risk and vulnerability of the identified assets, a Geographic Information System-based analysis was conducted to estimate exposure to flood events using Federal Emergency Management Agency's digital 100-year floodplain in combination with Collin County Central Appraisal District property records and the geo-referenced assets provided by Regional Hazard Assessment Tool.

By overlaying the geo-referenced assets and the floodplain layers using Geographic Information System, the number of emergency facilities, critical facilities, and critical infrastructure located within the 100-year floodplain was calculated. Although, having a facility located within the floodplain does not necessarily imply that would be impacted by the 100-year storm event (e.g., the building could be flood-proofed, or

the buildings may be constructed above the 100-year elevation), it provides with a good approximation of potential impacts from flooding.

According to the analysis conducted, no emergency or critical facilities are located within the 100-year floodplain. Critical infrastructure located within the 100-year floodplain is presented in *Table 3.5.*

Table 3.5 Critical Infrastructure Located in 100-year FEMA Floodplain

Jurisdiction	Critical Infrastructure											
	Railway/ Highway Bridges		Dams		Water Treatment Facilities		Waste Water Treatment Facilities		Natural Gas		Airports	
	Total	Percentage (%)	Total	Percentage (%)	Total	Percentage (%)	Total	Percentage (%)	Total	Percentage (%)	Total	Percentage (%)
Collin County	142	34.4 %	67	48.6 %	0	0%	13	61.9%	0	0%	0	0%
Total	**142**	**34.4 %**	**67**	**48.6 %**	**0**	**0%**	**13**	**61.9%**	**0**	**0%**	**0**	**0%**

Source: Regional Hazard Assessment Tool and local jurisdictions

As noted in *Table 3.5*, the total and percentage of critical infrastructure located within the 100-year floodplain corresponds to approximately 48.6% of dams and 61.9% of wastewater treatment works. Additionally, treated wastewater is typically discharged towards streams, which makes portions of wastewater treatment facilities likely to be located within the floodplain. However, some of the critical facilities located within the 100-year floodplain may be subject to impacts from flooding.

Vulnerability to flooding can also be measured by assessing the number of people and buildings exposed to flood events. *Table 3.6* shows Residential Parcels and Improved Property at risk from flooding events.

The determination of residential parcel vulnerability was calculated by adding the total residential parcel counts from 2013 that had at least some portion located within the 100-year floodplain. The determination of commercial and utility property value at-risk (exposure) was calculated adding the total assessed building values for only those parcels that were confirmed to have at least one building located within the 100-year floodplain.

Table 3.6 Residential Parcels and Buildings potentially located within the 100-year FEMA Floodplain

Jurisdiction	Residential Parcels located in the 100-year Floodplain	Percentage of Total Residential Parcels located in the 100-year Floodplain	Commercial and Utility parcels in the 100-year Floodplain	Percentage of Commercial and Utility Parcels in the 100-year Floodplain
Collin County*	989	4.67%	72	9.41%

Jurisdiction	Residential Parcels located in the 100-year Floodplain	Percentage of Total Residential Parcels located in the 100-year Floodplain	Commercial and Utility parcels in the 100-year Floodplain	Percentage of Commercial and Utility Parcels in the 100-year Floodplain
Allen	350	1.13%	71	6.31%
Anna	139	1.82%	8	3.56%
Blue Ridge	18	3.65%	3	4.17%
Celina	332	4.16%	22	8.43%
Fairview	280	7.52%	2	2.02%
Farmersville	79	5.25%	21	7.00%
Frisco	410	1.22%	142	7.28%
Josephine	92	10.13%	23	60.53%
Lavon	14	0.66%	2	3.28%
Lowry Crossing	128	20.03%	2	9.52%
Lucas	335	12.84%	4	5.8%
Melissa	54	0.91%	8	4.02%
Murphy	185	3.10%	19	11.24%
New Hope	2	0.73%	1	11.11%
Parker	230	12.09%	10	38.46%
Princeton	101	1.31%	13	5.28%
Prosper	152	1.86%	36	10.34%
St. Paul	3	0.82%	1	2.56%
Wylie	427	2.7%	80	10.61%
Total	**4,320**	**2.71%**	**543**	**7.96%**

Source: Regional Hazard Assessment Tool, National Centers for Environmental Information , and local jurisdictions
**Collin County unincorporated areas*

As it can be observed in *Table 3.6*, approximately 2.71% of the residential parcels in Collin County, and 7.96% of its commercial and utility parcels are located within the 100-year floodplain.

Since Collin County is composed by large areas used for cropland, an analysis was conducted to determine the vulnerability of the land to flooding relative to the type of land cover (*Table 3.7*). The calculations were made using Geographic Information System. The USGS land cover shapefile was

clipped with the 100-year floodplain to calculate the area (acreage) of each land cover type potentially affected by flooding. Reservoirs, streams, and channels were excluded from the calculations.

Table 3.7 Land Cover Types and Acreage located within the 100-year FEMA Floodplain

Land Cover Type	Total Areas For Collin County (Acres)	Total Area Affected By 100-year Flood (Acres)	Percentage of Area Affected By 100-year Flood (%)
Commercial	53,547.25	17,666.73	32.99
Utilities	4674.94	1671.4	35.75%
Residential	114,382.69	13,086.41	11.44%
Farmland/Undeveloped	340,108.98	186,590.25	54.86%
Total	**512,713.86**	**219,014.79**	**42.72%**

Source: USGS

As observed, on average approximately 42.72% of the total area of Collin County is located within the 100-year floodplain. Note, that a higher percentage than the average of the total farm and undeveloped land (54.86%) located within the floodplain, while commercial (32.99%), utilities (35.75%), and residential (11.44%) are all below the total average area.

In compliance to *Requirement 201.6(c)(2)(ii)* Collin County vulnerability from flooding and impacts to assets expected from flooding can be summarized as follows:

- **Population**: Based on historical data, flooding produces an expected annualized zero injuries and fatalities per year. In total, portions of the Collin County population are vulnerable to the 100-year floodplain.
- **Improved Property**: Based on historical data, a loss of $15,166.67 per year can be expected in property loss due to flooding with no expected crop losses, however these values could be underestimated due to lack of accurate reporting. Based on geographic information and assuming that a facility within the 100-year floodplain is exposed to impact, 2.40% of the total assessed value of improvements in Collin County is at risk from the 100-year storm event.
- **Emergency Facilities**: Based on geographic information and assuming that a facility within the 100-year floodplain is exposed to impact, there are no emergency facilities at imminent risk from the 100-year storm event.
- **Critical Facilities**: Based on geographic information and assuming that a facility within the 100-year floodplain is exposed to impact, there are no critical facilities at imminent risk from the 100-year storm event.
- **Critical Infrastructure**: Based on geographic information and assuming that a critical infrastructure within the 100-year floodplain is exposed to impact, 13 wastewater treatment facilities and 142 railway and highway bridges are at risk from the 100-year storm event. Note that treated wastewater is typically discharged towards streams, which makes portions of wastewater treatment facilities likely to be located within the floodplain.

Information needed to fulfill *Requirement 201.6(c)(2)(ii)(C),* which addresses land uses and development trends was unattainable during the preparation of this hazard mitigation plan. Compliance with this requirement will be an objective in the five-year planning cycle.

Repetitive Loss

As per Requirement 201.6(c)(2)(ii) “The risk assessments in all plans approved after October 1, 2008 must also address National Flood Insurance Program (NFIP) insured structures that have been

repetitively damaged by floods." Repetitive Loss Property information provides local jurisdictions with the properties that had submitted insurance claims due to flooding damage to buildings and its contents. The information provided by Federal Emergency Management Agency included repetitive loss properties in Collin County as of 5/31/2014 (*Table 3.8*).

Address information available for repetitive loss properties recorded allowed those properties to be geo-referenced using ESRI® ArcMap™ 10.2. The probability of future repetitive losses on those properties was estimated using Geographic Information System by overlying the geo-referenced properties with the 100-year floodplain layer. *Table 3.8* summarizes with the number of properties located within the 100-year floodplain as obtained using this approach.

Table 3.8 Repetitive Loss Properties located within the 100-year FEMA Floodplain

Jurisdiction	Total Number of Repetitive Loss Properties	Properties within 100-year Floodplain			Total Number of Repetitive Loss Properties Within 100-year Floodplain	Percent of Repetitive Loss Properties Within 100-year Floodplain
		Single Family	Other Residential	Non Residential		
Collin County*	2	2	0	0	1	50%
Allen	0	0	0	0	0	0
Anna	0	0	0	0	0	0
Blue Ridge	0	0	0	0	0	0
Celina	0	0	0	0	0	0
Fairview	2	2	0	0	1	50%
Farmersville	0	0	0	0	0	0
Frisco	0	0	0	0	0	0
Josephine	0	0	0	0	0	0
Lavon	0	0	0	0	0	0
Lowry Crossing	0	0	0	0	0	0
Lucas	0	0	0	0	0	0
Melissa	0	0	0	0	0	0
Murphy	1	1	0	0	1	100%
New Hope	0	0	0	0	0	0
Parker	5	5	0	0	5	100%
Princeton	0	0	0	0	0	0
Prosper	0	0	0	0	0	0
St. Paul	0	0	0	0	0	0
Wylie	0	0	0	0	0	0
Total	**10**	**10**	**0**	**0**	**8**	**80%**

Source: Federal Emergency Management Agency

As noted in *Table 3.8* there are few repetitive loss properties located within the 100-year floodplain in Unincorporated Collin County and all participating jurisdictions. In compliance with *Requirement 201.6(c)(2)(ii)*, Table 3.7 provides the type (residential, commercial, institutional, etc.) and numbers of repetitive loss properties located in the identified flood hazard zones within Collin County.

Table 3.9 shows the repetitive loss property statistics for the zero properties recorded in the Collin County classified by jurisdiction. The numbers provided can be used to estimate the vulnerability to repetitive loss properties in terms of dollar losses.

Table 3.9 Repetitive Loss Property Statistics

Unincorporated Collin County	Years	Properties	Number of losses	Payments
Single Family	1981, 1982, 1991, 2006, 2008	2	5	$242,838.74
Other Residential	0	0	0	$0.00
Non Residential	0	0	0	$0.00
Total	1981, 1982, 1991, 2006, 2008	2	5	$242,838.74

Allen	Years	Properties	Number of losses	Payments
Single Family	0	0	0	$0.00
Other Residential	0	0	0	$0.00
Non Residential	0	0	0	$0.00
Total	0	0	0	$0.00

Anna	Years	Properties	Number of losses	Payments
Single Family	0	0	0	$0.00
Other Residential	0	0	0	$0.00
Non Residential	0	0	0	$0.00
Total	0	0	0	$0.00

Blue Ridge	Years	Properties	Number of losses	Payments
Single Family	0	0	0	$0.00
Other Residential	0	0	0	$0.00
Non Residential	0	0	0	$0.00
Total	0	0	0	$0.00

Celina	Years	Properties	Number of losses	Payments
Single Family	0	0	0	$0.00
Other Residential	0	0	0	$0.00

Non Residential	0	0	0	$0.00
Total	0	0	0	$0.00

Fairview	Years	Properties	Number of losses	Payments
Single Family	1989-1991, 1994, 1997, 1998	2	7	$61,143.83
Other Residential	0	0	0	$0.00
Non Residential	0	0	0	$0.00
Total	1989-1991, 1994, 1997, 1998	2	7	$61,143.83

Farmersville	Years	Properties	Number of losses	Payments
Single Family	0	0	0	$0.00
Other Residential	0	0	0	$0.00
Non Residential	0	0	0	$0.00
Total	0	0	0	$0.00

Frisco	Years	Properties	Number of losses	Payments
Single Family	0	0	0	$0.00
Other Residential	0	0	0	$0.00
Non Residential	0	0	0	$0.00
Total	0	0	0	$0.00

Josephine	Years	Properties	Number of losses	Payments
Single Family	0	0	0	$0.00
Other Residential	0	0	0	$0.00
Non Residential	0	0	0	$0.00
Total	0	0	0	$0.00

Lavon	Years	Properties	Number of losses	Payments
Single Family	0	0	0	$0.00

Other Residential	0	0	0	$0.00
Non Residential	0	0	0	$0.00
Total	0	0	0	$0.00

Lowry Crossing	Years	Properties	Number of losses	Payments
Single Family	0	0	0	$0.00
Other Residential	0	0	0	$0.00
Non Residential	0	0	0	$0.00
Total	0	0	0	$0.00

Lucas	Years	Properties	Number of losses	Payments
Single Family	0	0	0	$0.00
Other Residential	0	0	0	$0.00
Non Residential	0	0	0	$0.00
Total	0	0	0	$0.00

Melissa	Years	Properties	Number of losses	Payments
Single Family	0	0	0	$0.00
Other Residential	0	0	0	$0.00
Non Residential	0	0	0	$0.00
Total	0	0	0	$0.00

Murphy	Years	Properties	Number of losses	Payments
Single Family	1981, 1982, 1989, 1990	1	5	$141,442.25
Other Residential	0	0	0	$0.00
Non Residential	0	0	0	$0.00
Total	0	0	0	$0.00

New Hope	Years	Properties	Number of losses	Payments
Single Family	0	0	0	$0.00
Other Residential	0	0	0	$0.00

Non Residential	0	0	0	$0.00
Total	0	0	0	$0.00

Parker	Years	Properties	Number of losses	Payments
Single Family	1989, 1990, 1991, 2006, 2008	5	13	$296,365.36
Other Residential	0	0	0	$0.00
Non Residential	0	0	0	$0.00
Total	1989, 1990, 1991, 2006, 2008	5	13	$296,365.36

Princeton	Years	Properties	Number of losses	Payments
Single Family	0	0	0	$0.00
Other Residential	0	0	0	$0.00
Non Residential	0	0	0	$0.00
Total	0	0	0	$0.00

Prosper	Years	Properties	Number of losses	Payments
Single Family	0	0	0	$0.00
Other Residential	0	0	0	$0.00
Non Residential	0	0	0	$0.00
Total	0	0	0	$0.00

St. Paul	Years	Properties	Number of losses	Payments
Single Family	0	0	0	$0.00
Other Residential	0	0	0	$0.00
Non Residential	0	0	0	$0.00
Total	0	0	0	$0.00

Wylie	Years	Properties	Number of losses	Payments
Single Family	0	0	0	$0.00
Other Residential	0	0	0	$0.00

Non Residential	0	0	0	$0.00
Total	0	0	0	$0.00

Source: Federal Emergency Management Agency

The dollar amounts in the tables represent the payments made for insurance claims due to flood damage to buildings and contents.

Although both repetitive loss information (*Tables 3.8 and 3.9*) and the historical annualized losses expected from flooding (*Table 3.3*) represent actual historical information, the data cannot be compared or correlated to each other. The repetitive loss information presents insurance claims on properties and buildings, whereas the historical annualized losses represent property losses in the community due to flood events.

Hail

As described in section 3.3, damage from hail events is determined by the intensity of the storm, which, based on the hail diameter, ranges from hard hail to super hailstorm. These events are unpredictable, and all areas Collin County can be affected. All five categories of assets are exposed to this hazard and could potentially be impacted. However, the most vulnerable assets are those related to property and infrastructure, particularly roofs and structures. Damages from hail can potentially translate into significant insurance claims and expenses.

Based on the available information, vulnerability to hail was assessed using two techniques: (1) to comply with *Requirement 201.6(c)(2)(ii)(B*), historical loss data obtained from the National Centers for Environmental Information was used to predict expected monetary and human losses from the event; (2) in fulfillment of Element A of *Requirement 201.6(c)(2)(ii)(A*), geographical hazard areas identified for hail and the nature of the impacts expected from hail were used to identify the assets, including existing structures, vulnerable to this hazard event. The vulnerability to future structures was not conducted at this time due to unattainable data. Therefore, compliance with Element B of *Requirement 201.6(c)(2)(ii)(A,* describing vulnerability in terms of the types and numbers of future buildings, infrastructure, and critical facilities will be an objective in the five-year planning cycle.

Table 3.10 presents Collin County's recorded historical losses due to hailstorm events as provided in the hazard events database obtained from the National Centers for Environmental Information. Based on the starting location of the hailstorm event, these events were geo-referenced using ESRI® ArcMap™ 10.2. The resulting layer was overlaid with the jurisdiction boundary layer to determine the property and personal losses in each jurisdiction.

Table 3.10 Historical Losses Due to Hail Events (1/1/1985-9/22/2020)

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Collin Co.	4/29/1985	20:58	Hail	0.75 in.	0	0	$0	$0
Collin Co.	7/2/1985	15:35	Hail	0.75 in.	0	0	$0	$0
Collin Co.	3/11/1986	18:58	Hail	1.75 in.	0	0	$0	$0
Collin Co.	4/12/1986	0:15	Hail	1.75 in.	0	0	$0	$0
Collin Co.	4/12/1986	0:50	Hail	1.00 in.	0	0	$0	$0
Collin Co.	5/24/1986	10:00	Hail	0.75 in.	0	0	$0	$0
Collin Co.	5/24/1986	10:34	Hail	1.00 in.	0	0	$0	$0
Collin Co.	5/3/1987	21:03	Hail	0.75 in.	0	0	$0	$0
Collin Co.	5/14/1987	15:10	Hail	0.75 in.	0	0	$0	$0
Collin Co.	7/2/1987	23:30	Hail	1.50 in.	0	0	$0	$0
Collin Co.	4/1/1988	14:02	Hail	1.00 in.	0	0	$0	$0
Collin Co.	4/5/1988	16:35	Hail	0.75 in.	0	0	$0	$0
Collin Co.	5/8/1988	6:50	Hail	0.75 in.	0	0	$0	$0
Collin Co.	11/15/1988	15:00	Hail	1.00 in.	0	0	$0	$0
Collin Co.	11/15/1988	15:29	Hail	1.75 in.	0	0	$0	$0
Collin Co.	4/28/1989	19:25	Hail	0.75 in.	0	0	$0	$0
Collin Co.	4/28/1989	20:10	Hail	0.75 in.	0	0	$0	$0
Collin Co.	4/28/1989	20:30	Hail	1.00 in.	0	0	$0	$0
Collin Co.	4/28/1989	21:50	Hail	1.00 in.	0	0	$0	$0
Collin Co.	7/2/1989	15:43	Hail	1.00 in.	0	0	$0	$0
Collin Co.	7/2/1989	16:06	Hail	4.50 in.	0	0	$0	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Collin Co.	7/2/1989	16:21	Hail	1.75 in.	0	0	$0	$0
Collin Co.	4/15/1990	20:52	Hail	1.00 in.	0	0	$0	$0
Collin Co.	4/27/1990	15:00	Hail	0.75 in.	0	0	$0	$0
Collin Co.	4/27/1990	15:30	Hail	1.75 in.	0	0	$0	$0
Collin Co.	3/22/1991	6:12	Hail	0.75 in.	0	0	$0	$0
Collin Co.	4/18/1991	18:12	Hail	1.00 in.	0	0	$0	$0
Collin Co.	4/27/1991	2:30	Hail	0.75 in.	0	0	$0	$0
Collin Co.	6/22/1991	19:10	Hail	1.75 in.	0	0	$0	$0
Collin Co.	6/22/1991	19:20	Hail	2.00 in.	0	0	$0	$0
Collin Co.	10/28/1991	16:45	Hail	0.75 in.	0	0	$0	$0
Collin Co.	3/24/1992	14:05	Hail	1.74 in.	0	0	$0	$0
Collin Co.	5/11/1992	20:16	Hail	0.75 in.	0	0	$0	$0
Collin Co.	5/11/1992	20:28	Hail	1.75 in.	0	0	$0	$0
Collin Co.	5/11/1992	21:15	Hail	1.75 in.	0	0	$0	$0
Collin Co.	5/11/1992	21:30	Hail	1.75 in.	0	0	$0	$0
Collin Co.	5/11/1992	21:45	Hail	1.75 in.	0	0	$0	$0
Collin Co.	5/11/1992	22:00	Hail	0.75 in.	0	0	$0	$0
Collin Co.	5/14/1992	9:15	Hail	1.75 in.	0	0	$0	$0
Collin Co.	6/10/1992	21:55	Hail	0.75 in.	0	0	$0	$0
Collin Co.	6/25/1992	4:30	Hail	1.75 in.	0	0	$0	$0
Collin Co.	8/2/1992	15:12	Hail	0.75 in.	0	0	$0	$0
Collin Co.	8/2/1992	15:47	Hail	0.88 in.	0	0	$0	$0
Collin Co.	9/2/1992	23:15	Hail	0.75 in.	0	0	$0	$0
Collin Co.	9/2/1992	23:20	Hail	0.75 in.	0	0	$0	$0
Collin Co.	9/3/1992	0:15	Hail	0.75 in.	0	0	$0	$0
Collin Co.	10/7/1992	16:12	Hail	1.75 in.	0	0	$0	$0
Wylie	4/19/1993	17:15	Hail	0.88 in.	0	0	$0	$0
Garland	4/19/1993	18:00	Hail	1.00 in.	0	0	$0	$0
Airport	4/19/1993	18:30	Hail	1.75 in.	0	0	$0	$0
Love Field	4/19/1993	18:30	Hail	1.75 in.	0	0	$0	$0
Plano	9/20/1993	17:50	Hail	1.00 in.	0	0	$0	$0
Melissa	10/19/1993	4:00	Hail	0.75 in.	0	0	$0	$0
Frisco	4/25/1994	18:25	Hail	0.88 in.	0	0	$0	$0
McKinney	4/29/1994	1:45	Hail	1.00 in.	0	0	$0	$0
Wylie	5/2/1994	13:56	Hail	0.75 in.	0	0	$0	$0
Frisco	5/2/1994	14:20	Hail	0.75 in.	0	0	$0	$0
Lake Lavon	5/14/1994	17:40	Hail	0.75 in.	0	0	$0	$0
Farmersville	5/14/1994	18:01	Hail	0.75 in.	0	0	$0	$0
Nevada	5/14/1994	19:23	Hail	0.75 in.	0	0	$0	$0
Allen	7/12/1994	19:50	Hail	0.75 in.	0	0	$0	$0
Plano	7/15/1994	17:39	Hail	0.75 in.	0	0	$0	$0
Plano	8/7/1994	13:25	Hail	0.75 in.	0	0	$0	$0
Plano	10/21/1994	12:45	Hail	0.75 in.	0	0	$0	$0
Plano	10/21/1994	13:33	Hail	0.75 in.	0	0	$0	$0
Meridian	4/22/1995	15:39	Hail	0.75 in.	0	0	$0	$0
Plano	4/22/1995	15:40	Hail	1.75 in.	0	0	$0	$0
Westminster	5/1/1995	1:08	Hail	0.75 in.	0	0	$0	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
McKinney	5/7/1995	22:40	Hail	0.75 in.	0	0	$0	$0
Plano	5/24/1995	16:37	Hail	1.75 in.	0	0	$0	$0
Anna	5/24/1995	17:05	Hail	0.75 in.	0	0	$0	$0
Princeton	5/25/1995	17:05	Hail	1.00 in.	0	0	$0	$0
Farmersville	2/27/1996	9:15	Hail	0.75 in.	0	0	$0	$0
Copeville	2/27/1996	10:15	Hail	0.75 in.	0	0	$0	$0
Allen	3/18/1996	0:10	Hail	0.75 in.	0	0	$0	$0
Plano	3/24/1996	15:10	Hail	0.75 in.	0	0	$0	$0
Plano	3/24/1996	15:20	Hail	1.00 in.	0	0	$0	$0
Plano	3/24/1996	15:27	Hail	1.25 in.	0	0	$0	$0
Mc Kinney	3/24/1996	15:40	Hail	0.75 in.	0	0	$0	$0
Princeton	4/4/1996	1:40	Hail	0.88 in.	0	0	$0	$0
Mc Kinney	4/12/1996	12:38	Hail	0.88 in.	0	0	$0	$0
Anna	4/12/1996	12:38	Hail	0.88 in.	0	0	$0	$0
Frisco	4/12/1996	16:45	Hail	0.75 in.	0	0	$0	$0
Anna	4/12/1996	16:48	Hail	0.75 in.	0	0	$0	$0
Wylie	4/12/1996	17:26	Hail	0.75 in.	0	0	$0	$0
Mc Kinney	4/13/1996	21:39	Hail	0.88 in.	0	0	$0	$0
Weston	4/13/1996	21:48	Hail	1.00 in.	0	0	$0	$0
Murphy	4/13/1996	22:08	Hail	0.75 in.	0	0	$0	$0
Lucas	5/27/1996	4:14	Hail	1.00 in.	0	0	$0	$0
Murphy	5/28/1996	17:42	Hail	1.50 in.	0	0	$0	$0
Culleoka	5/28/1996	18:10	Hail	1.00 in.	0	0	$0	$0
Plano	6/12/1996	17:10	Hail	1.00 in.	0	0	$0	$0
Mc Kinney	6/17/1996	16:50	Hail	0.75 in.	0	0	$0	$0
Mc Kinney	6/17/1996	16:55	Hail	0.88 in.	0	0	$0	$0
Mc Kinney	7/23/1996	12:30	Hail	0.75 in.	0	0	$0	$0
Princeton	7/30/1996	19:08	Hail	1.75 in.	0	0	$0	$0
Plano	10/21/1996	10:50	Hail	0.75 in.	0	0	$0	$0
Plano	10/21/1996	14:35	Hail	2.00 in.	0	0	$0	$0
Plano	10/21/1996	14:50	Hail	2.00 in.	0	0	$0	$0
Prosper	4/22/1997	3:30	Hail	1.00 in.	0	0	$0	$0
Celina	5/25/1997	22:04	Hail	1.00 in.	0	0	$0	$0
Plano	6/9/1997	20:14	Hail	1.00 in.	0	0	$0	$0
Plano	6/9/1997	20:19	Hail	0.75 in.	0	0	$0	$0
Allen	6/9/1997	20:19	Hail	0.75 in.	0	0	$0	$0
Plano	6/9/1997	20:45	Hail	1.00 in.	0	0	$0	$0
Plano	6/16/1997	19:03	Hail	0.75 in.	0	0	$0	$0
Plano	6/16/1997	19:10	Hail	0.88 in.	0	0	$0	$0
Anna	8/13/1997	16:10	Hail	0.88 in.	0	0	$0	$0
Mc Kinney	1/4/1998	16:22	Hail	0.75 in.	0	0	$0	$0
Allen	1/4/1998	16:25	Hail	1.00 in.	0	0	$0	$0
Branch	1/4/1998	16:30	Hail	1.00 in.	0	0	$0	$0
Murphy	1/21/1998	16:25	Hail	1.00 in.	0	0	$0	$0
Anna	2/25/1998	19:39	Hail	0.75 in.	0	0	$0	$0
Prosper	2/25/1998	19:40	Hail	0.75 in.	0	0	$0	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Celina	4/16/1998	0:30	Hail	1.75 in.	0	0	$0	$0
Desert	5/2/1998	21:28	Hail	1.00 in.	0	0	$0	$0
Anna	5/2/1998	21:35	Hail	0.75 in.	0	0	$0	$0
Mc Kinney	5/8/1998	20:25	Hail	1.00 in.	0	0	$0	$0
Frisco	5/8/1998	20:35	Hail	1.75 in.	0	0	$0	$0
Mc Kinney	5/8/1998	20:53	Hail	0.75 in.	0	0	$0	$0
Melissa	5/8/1998	20:54	Hail	1.75 in.	0	0	$0	$0
Frisco	5/8/1998	21:26	Hail	0.75 in.	0	0	$0	$0
Mc Kinney	5/8/1998	21:54	Hail	1.75 in.	0	0	$0	$0
Mc Kinney	5/8/1998	21:55	Hail	1.75 in.	0	0	$0	$0
Blue Ridge	10/2/1998	18:20	Hail	1.00 in.	0	0	$0	$0
Frisco	2/6/1999	19:54	Hail	1.75 in.	0	0	$0	$0
Farmersville	2/6/1999	20:50	Hail	0.75 in.	0	0	$0	$0
Celina	4/3/1999	5:11	Hail	1.00 in.	0	0	$0	$0
Weston	5/4/1999	12:10	Hail	1.00 in.	0	0	$0	$0
Wylie	5/25/1999	18:18	Hail	1.00 in.	0	0	$0	$0
Lavon	2/25/2000	23:17	Hail	0.75 in.	0	0	$0	$0
Prosper	3/2/2000	18:10	Hail	1.75 in.	0	0	$0	$0
Plano	3/2/2000	18:15	Hail	1.00 in.	0	0	$0	$0
Plano	3/2/2000	18:24	Hail	1.75 in.	0	0	$0	$0
Mc Kinney	3/2/2000	18:29	Hail	1.00 in.	0	0	$0	$0
Farmersville	3/2/2000	18:50	Hail	1.00 in.	0	0	$0	$0
Plano	3/10/2000	10:45	Hail	0.75 in.	0	0	$0	$0
Wylie	3/16/2000	21:28	Hail	0.75 in.	0	0	$0	$0
Parker	5/12/2000	16:40	Hail	0.75 in.	0	0	$0	$0
Wylie	5/27/2000	16:50	Hail	0.75 in.	0	0	$0	$0
Plano	3/11/2001	14:40	Hail	0.88 in.	0	0	$0	$0
Plano	5/6/2001	18:22	Hail	1.00 in.	0	0	$0	$0
Plano	5/6/2001	18:43	Hail	3.00 in.	0	0	$0	$0
Allen	5/6/2001	19:00	Hail	1.00 in.	0	0	$0	$0
Blue Ridge	4/16/2002	23:15	Hail	0.75 in.	0	0	$0	$0
Mc Kinney	5/9/2002	23:10	Hail	0.75 in.	0	0	$0	$0
Frisco	12/30/2002	13:30	Hail	1.75 in.	0	0	$0	$0
Plano	12/30/2002	14:30	Hail	1.00 in.	0	0	$0	$0
Plano	4/5/2003	22:16	Hail	2.00 in.	0	0	$0	$0
Plano	4/5/2003	22:32	Hail	3.00 in.	0	0	$0	$0
Plano	4/6/2003	12:55	Hail	1.00 in.	0	0	$0	$0
Plano	4/6/2003	13:00	Hail	1.00 in.	0	0	$0	$0
Blue Ridge	5/13/2003	5:22	Hail	1.00 in.	0	0	$0	$0
Nevada	5/24/2003	21:30	Hail	0.75 in.	0	0	$0	$0
Mc Kinney	5/24/2003	22:47	Hail	1.00 in.	0	0	$0	$0
Allen	6/14/2003	16:23	Hail	1.50 in.	0	0	$0	$0
Plano	6/14/2003	16:40	Hail	1.00 in.	0	0	$0	$0
Celina	7/2/2003	16:15	Hail	0.75 in.	0	0	$0	$0
Anna	7/22/2003	15:46	Hail	0.75 in.	0	0	$0	$0
Mc Kinney	7/22/2003	16:22	Hail	1.00 in.	0	0	$0	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Plano	7/22/2003	16:45	Hail	0.75 in.	0	0	$0	$0
Mc Kinney	6/5/2004	16:35	Hail	1.75 in.	0	0	$0	$0
Frisco	6/19/2004	13:22	Hail	0.88 in.	0	0	$0	$0
Plano	1/12/2005	17:15	Hail	1.25 in.	0	0	$0	$0
Wylie	2/22/2005	23:21	Hail	1.00 in.	0	0	$0	$0
Blue Ridge	2/23/2005	0:15	Hail	0.75 in.	0	0	$0	$0
Westminster	2/23/2005	0:25	Hail	1.75 in.	0	0	$0	$0
Plano	4/5/2005	15:50	Hail	1.00 in.	0	0	$0	$0
Frisco	4/5/2005	16:00	Hail	0.88 in.	0	0	$0	$0
Frisco	4/5/2005	16:12	Hail	0.75 in.	0	0	$0	$0
Frisco	4/5/2005	16:14	Hail	1.00 in.	0	0	$0	$0
Anna	4/5/2005	16:58	Hail	1.75 in.	0	0	$0	$0
Blue Ridge	4/5/2005	17:50	Hail	1.00 in.	0	0	$0	$0
Plano	5/25/2005	12:30	Hail	0.75 in.	0	0	$0	$0
Farmersville	6/13/2005	22:52	Hail	0.88 in.	0	0	$0	$0
Melissa	5/9/2006	21:04	Hail	1.75 in.	0	0	$5,000	$0
Plano	4/3/2007	18:05	Hail	1.25 in.	0	0	$0	$0
Plano	4/3/2007	18:23	Hail	1.00 in.	0	0	$0	$0
Melissa	4/24/2007	14:26	Hail	1.00 in.	0	0	$0	$0
Blue Ridge	4/24/2007	14:52	Hail	1.75 in.	0	0	$5,000	$0
McKinney	5/30/2007	8:45	Hail	0.75 in.	0	0	$0	$0
Murphy	5/30/2007	9:05	Hail	0.75 in.	0	0	$0	$0
Wylie	6/4/2007	14:50	Hail	0.88 in.	0	0	$0	$0
Melissa	6/9/2007	13:44	Hail	0.88 in.	0	0	$0	$0
Westminster	6/20/2007	5:05	Hail	1.00 in.	0	0	$0	$0
Anna	2/5/2008	2:20	Hail	1.75 in.	0	0	$5,000	$0
Wylie	2/5/2008	14:00	Hail	0.75 in.	0	0	$0	$0
Allen	2/16/2008	6:40	Hail	1.00 in.	0	0	$0	$0
McKinney	2/16/2008	6:40	Hail	1.75 in.	0	0	$25,000	$0
Foot	2/16/2008	6:45	Hail	1.00 in.	0	0	$0	$0
Melissa	2/16/2008	6:47	Hail	1.00 in.	0	0	$0	$0
Anna	2/16/2008	6:54	Hail	1.75 in.	0	0	$5,000	$0
McKinney	4/4/2008	1:15	Hail	1.75 in.	0	0	$10,000	$0
Plano	4/4/2008	2:40	Hail	1.00 in.	0	0	$0	$0
Allen	4/4/2008	2:50	Hail	1.00 in.	0	0	$0	$0
Plano	4/8/2008	22:20	Hail	1.00 in.	0	0	$0	$0
Allen	4/8/2008	22:33	Hail	0.75 in.	0	0	$0	$0
Lucas	4/8/2008	22:48	Hail	0.88 in.	0	0	$0	$0
Copeville	4/8/2008	23:19	Hail	1.00 in.	0	0	$0	$0
Shepton	4/8/2008	23:44	Hail	0.75 in.	0	0	$0	$0
Princeton	4/17/2008	21:01	Hail	0.88 in.	0	0	$0	$0
Anna	5/7/2008	16:19	Hail	0.88 in.	0	0	$0	$0
Melissa	5/7/2008	16:30	Hail	1.75 in.	0	0	$5,000	$0
Celina	6/28/2008	16:50	Hail	0.75 in.	0	0	$0	$0
Melissa	2/10/2009	22:03	Hail	1.00 in.	0	0	$0	$0
Celina	4/12/2009	22:09	Hail	1.00 in.	0	0	$0	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Melissa	4/12/2009	22:32	Hail	1.00 in.	0	0	$2,000	$0
McKinney	5/2/2009	13:47	Hail	1.00 in.	0	0	$0	$0
Melissa	5/2/2009	19:10	Hail	1.25 in.	0	0	$0	$0
Parker	7/19/2009	13:15	Hail	0.75 in.	0	0	$0	$0
Farmersville	10/24/2010	15:41	Hail	2.00 in.	0	0	$500	$0
Allen	3/15/2011	15:10	Hail	0.88 in.	0	0	$0	$0
Plano	4/4/2011	4:04	Hail	0.75 in.	0	0	$0	$0
Rockhill	4/10/2011	23:29	Hail	1.50 in.	0	0	$10,000	$0
Prosper	4/10/2011	23:34	Hail	2.75 in.	0	0	$200,000	$0
Plano	4/14/2011	21:39	Hail	1.00 in.	0	0	$0	$0
Shepton	4/14/2011	21:40	Hail	1.25 in.	0	0	$20,000	$0
Shepton	4/14/2011	21:45	Hail	1.75 in.	0	0	$25,000	$0
Plano	4/14/2011	21:48	Hail	1.00 in.	0	0	$0	$0
Allen	4/14/2011	21:49	Hail	1.00 in.	0	0	$0	$0
Melissa	4/14/2011	22:32	Hail	0.88 in.	0	0	$0	$0
Plano	4/19/2011	16:25	Hail	1.25 in.	0	0	$0	$0
Prosper	4/24/2011	18:53	Hail	1.75 in.	0	0	$15,000	$0
Wylie	4/24/2011	21:35	Hail	1.00 in.	0	0	$0	$0
Wylie	4/25/2011	9:48	Hail	1.00 in.	0	0	$0	$0
Melissa	4/25/2011	15:04	Hail	0.75 in.	0	0	$0	$0
Wylie	4/26/2011	16:28	Hail	1.00 in.	0	0	$0	$0
Plano	5/1/2011	22:03	Hail	0.88 in.	0	0	$0	$0
Plano	5/1/2011	22:05	Hail	0.75 in.	0	0	$0	$0
Wylie	5/2/2011	0:18	Hail	1.25 in.	0	0	$0	$0
Frisco	5/2/2011	1:20	Hail	0.75 in.	0	0	$0	$0
Shepton	5/20/2011	13:25	Hail	0.88 in.	0	0	$0	$0
Shepton	5/20/2011	13:25	Hail	1.25 in.	0	0	$0	$0
Plano	5/20/2011	14:19	Hail	1.00 in.	0	0	$0	$0
Lucas	5/20/2011	15:58	Hail	1.50 in.	0	0	$0	$0
Renner	5/23/2011	11:39	Hail	0.88 in.	0	0	$0	$0
Celina	5/24/2011	20:48	Hail	2.00 in.	0	0	$25,000	$0
Frisco	5/24/2011	21:10	Hail	0.88 in.	0	0	$0	$0
Prosper	9/18/2011	18:05	Hail	1.00 in.	0	0	$0	$0
McKinney	9/18/2011	18:25	Hail	1.00 in.	0	0	$0	$0
McKinney	9/18/2011	18:38	Hail	1.25 in.	0	0	$0	$0
Plano	9/18/2011	19:01	Hail	1.00 in.	0	0	$0	$0
Shepton	10/17/2011	20:25	Hail	0.75 in.	0	0	$0	$0
McKinney	10/23/2011	0:20	Hail	0.75 in.	0	0	$0	$0
Frisco	4/3/2012	13:50	Hail	1.75 in.	0	0	$800,000	$0
Frisco	4/3/2012	13:50	Hail	2.00 in.	0	0	$1,000,000	$0
Allen	4/3/2012	16:10	Hail	1.00 in.	0	0	$0	$0
Allen	5/14/2012	17:53	Hail	0.88 in.	0	0	$0	$0
Plano	5/30/2012	22:30	Hail	0.75 in.	0	0	$0	$0
Murphy	5/30/2012	22:45	Hail	0.75 in.	0	0	$0	$0
Plano	6/6/2012	14:50	Hail	0.75 in.	0	0	$0	$0
Frisco	6/6/2012	15:12	Hail	1.50 in.	0	0	$0	$0
Frisco	6/6/2012	15:15	Hail	0.75 in.	0	0	$0	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Wylie	6/6/2012	15:50	Hail	1.00 in.	0	0	$0	$0
Shepton	6/13/2012	16:45	Hail	1.75 in.	0	0	$80,000	$0
Shepton	6/13/2012	16:52	Hail	2.00 in.	0	0	$75,000	$0
McKinney	6/13/2012	19:03	Hail	1.00 in.	0	0	$60,000	$0
Parker	6/13/2012	19:34	Hail	3.25 in.	0	0	$800,000	$0
Shepton	8/17/2012	20:52	Hail	1.00 in.	0	0	$0	$0
Shepton	8/17/2012	20:53	Hail	1.00 in.	0	0	$0	$0
Shepton	8/17/2012	20:54	Hail	0.88 in.	0	0	$0	$0
Shepton	8/17/2012	21:00	Hail	1.25 in.	0	0	$0	$0
Shepton	8/17/2012	21:13	Hail	1.50 in.	0	0	$2,000	$0
Plano	8/17/2012	21:15	Hail	0.88 in.	0	0	$0	$0
Foot	3/23/2013	14:09	Hail	0.88 in.	0	0	$0	$0
Valdasta	3/31/2013	6:34	Hail	0.88 in.	0	0	$0	$0
Prosper	3/31/2013	6:43	Hail	1.00 in.	0	0	$0	$0
Blue Ridge	3/31/2013	6:50	Hail	1.00 in.	0	0	$0	$0
Farmersville	3/31/2013	7:20	Hail	0.88 in.	0	0	$0	$0
McKinney	3/27/2014	19:18	Hail	1.50 in.	0	0	$5,000	$0
Princeton	3/27/2014	19:24	Hail	1.00 in.	0	0	$0	$0
Farmersville	3/27/2014	19:43	Hail	0.75 in.	0	0	$0	$0
Blue Ridge	3/28/2014	14:23	Hail	1.50 in.	0	0	$3,000	$0
Anna	4/3/3014	15:53	Hail	1.00 in.	0	0	$0	$0
Anna	4/3/3014	16:02	Hail	.75 in.	0	0	$0	$0
Prosper	4/3/3014	17:48	Hail	1.00 in.	0	0	$5,000	$0
Celina	4/3/3014	17:49	Hail	1.50 in.	0	0	$0	$0
Roland	4/3/3014	18:15	Hail	1.75 in.	0	0	$0	$0
Mc Kinney	4/3/3014	18:37	Hail	1.00 in.	0	0	$0	$0
Frisco	4/3/3014	18:40	Hail	1.50 in.	0	0	$60,000	$0
Allen	4/3/3014	18:50	Hail	1.75 in.	0	0	$70,000	$0
Allen	4/3/3014	19:00	Hail	1.25 in.	0	0	$0	$0
McKinney	4/3/3014	19:00	Hail	2.00 in.	0	0	$100,000	$0
Allen	4/3/3014	19:07	Hail	2.00 in.	0	0	$80,000	$0
Melissa	4/3/3014	19:18	Hail	0.75 in.	0	0	$0	$0
Lucas	4/3/3014	19:20	Hail	1.50 in.	0	0	$70,000	$0
Allen	4/3/3014	19:35	Hail	1.75 in.	0	0	$175,000	$0
Allen	4/27/2014	8:00	Hail	0.75 in.	0	0	$0	$0
Murphy	4/27/2014	8:15	Hail	1.25 in.	0	0	$1,000	$0
Wylie	4/27/2014	8:17	Hail	1.25 in.	0	0	$1,000	$0
Wylie	4/27/2014	8:19	Hail	1.00 in.	0	0	$0	$0
Frisco	4/24/2015	17:18	Hail	0.88 in.	0	0	$0	$0
Farmersville	5/28/2015	17:21	Hail	1.00 in.	0	0	$0	$0
Farmersville	5/28/2015	17:26	Hail	1.75 in.	0	0	$30,000	$0
Farmersville	5/28/2015	17:30	Hail	1.00 in.	0	0	$0	$0
Farmersville	5/28/2015	17:30	Hail	1.00 in.	0	0	$0	$0
Parker	8/24/2015	15:40	Hail	0.88 in.	0	0	$0	$0
Princeton	3/17/2016	9:30	Hail	1.50 in.	0	0	$8,000	$0
Blue Ridge	3/17/2016	10:45	Hail	0.88 in.	0	0	$0	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Plano	3/23/2016	21:15	Hail	1.75 in.	0	0	$150,000,000	$0
Shepton	3/23/2016	21:15	Hail	1.25 in.	0	0	$0	$0
Shepton	3/23/2016	21:20	Hail	1.75 in.	0	0	$150,000,000	$0
Plano	3/23/2016	21:25	Hail	0.75 in.	0	0	$0	$0
Plano	3/23/2016	21:25	Hail	1.75 in.	0	0	$100,000,000	$0
Plano	3/23/2016	21:25	Hail	1.25 in.	0	0	$5,000	$0
Renner	3/23/2016	21:31	Hail	1.25 in.	0	0	$0	$0
Plano	3/23/2016	21:34	Hail	1.25 in.	0	0	$0	$0
Allen	3/23/2016	21:35	Hail	1.00 in.	0	0	$0	$0
Murphy	3/23/2016	21:35	Hail	1.50 in.	0	0	$50,000	$0
Sachse	3/23/2016	21:37	Hail	2.00 in.	0	0	$100,000,000	$0
Parker	3/23/2016	21:37	Hail	1.75 in.	0	0	$100,000,000	$0
Murphy	3/23/2016	21:40	Hail	1.50 in.	0	0	$20,000	$0
Wylie	3/23/2016	21:42	Hail	0.75 in.	0	0	$0	$0
Wylie	3/23/2016	21:45	Hail	1.75 in.	0	0	$50,000,000	$0
Farmersville	4/11/2016	14:51	Hail	0.75 in.	0	0	$0	$0
Frisco	4/11/2016	16:30	Hail	1.50 in.	0	0	$100,000	$0
Frisco	4/11/2016	16:42	Hail	1.00 in.	0	0	$0	$0
Plano	4/11/2016	16:45	Hail	1.75 in.	0	0	$100,000	$0
Frisco	4/11/2016	16:48	Hail	2.00 in.	0	0	$1,000,000	$0
Plano	4/11/2016	16:50	Hail	2.50 in.	0	0	$1,000,000	$0
Allen	4/11/2016	16:50	Hail	2.00 in.	0	0	$500,000	$0
Allen	4/11/2016	16:54	Hail	1.50 in.	0	0	$500,000	$0
McKinney	4/11/2016	16:55	Hail	1.25 in.	0	0	$50,000	$0
Forest Grove	4/11/2016	16:56	Hail	2.00 in.	0	0	$5,000,000	$0
Plano	4/11/2016	17:57	Hail	2.00 in.	0	0	$1,000,000	$0
Lucas	4/11/2016	17:03	Hail	1.75 in.	0	0	$250,000	$0
Parker	4/11/2016	17:03	Hail	2.00 in.	0	0	$250,000	$0
Allen	4/11/2016	17:03	Hail	2.00 in.	0	0	$1,000,000	$0
Wylie	4/11/2016	17:07	Hail	1.50 in.	0	0	$50,000	$0
Plano	4/11/2016	17:07	Hail	1.50 in.	0	0	$100,000	$0
Wylie	4/11/2016	17:12	Hail	2.75 in.	0	0	$5,000,000	$0
Wylie	4/11/2016	17:15	Hail	3.50 in.	0	0	$50,000,000	$0
Wylie	4/11/2016	17:17	Hail	4.25 in.	0	0	$100,000,000	$0
Lavon	4/11/2016	17:18	Hail	2.50 in.	0	0	$250,000	$0
Wylie	4/11/2016	17:19	Hail	5.25 in.	0	0	$60,000,000	$0
Shepton	5/10/2016	19:25	Hail	0.88 in.	0	0	$0	$0
Lolaville	5/10/2016	19:34	Hail	0.88 in.	0	0	$0	$0
Allen	5/29/2016	17:45	Hail	0.75 in.	0	0	$0	$0
Murphy	5/29/2016	18:25	Hail	0.88 in.	0	0	$0	$0
Anna	5/29/2016	18:30	Hail	1.00 in.	0	0	$0	$0
Anna	5/29/2016	18:43	Hail	1.00 in.	0	0	$0	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Frisco	2/27/2017	12:37	Hail	0.88 in.	0	0	$0	$0
Frisco	2/27/2017	12:44	Hail	1.00 in.	0	0	$0	$0
McKinney	3/26/2017	1930	Hail	2.00 in.	0	0	$100,000	$0
Frisco	3/26/2017	19:31	Hail	1.75 in.	0	0	$10,000	$0
Frisco	3/26/2017	19:35	Hail	2.00 in.	0	0	$10,000	$0
Frisco	3/26/2017	19:36	Hail	2.00 in.	0	0	$10,000	$0
Fairview	3/26/2017	19:45	Hail	0.88 in.	0	0	$0	$0
Frisco	3/26/2017	19:46	Hail	2.00 in.	0	0	$10,000	$0
Frisco	3/26/2017	19:50	Hail	1.75 in.	0	0	$5,000	$0
Fairview	3/26/2017	19:57	Hail	1.00 in.	0	0	$0	$0
McKinney	3/26/2017	20:00	Hail	2.00 in.	0	0	$5,000	$0
Melissa	3/26/2017	20:07	Hail	1.50 in.	0	0	$0	$0
Murphy	3/29/2017	2:08	Hail	1.00 in.	0	0	$0	$0
Climax	4/4/2017	18:30	Hail	1.00 in.	0	0	$0	$0
Culleoka	4/4/2017	18:32	Hail	1.00 in.	0	0	$0	$0
Princeton	4/4/2017	18:38	Hail	1.00 in.	0	0	$0	$0
Frisco	4/10/2017	13:54	Hail	1.00 in.	0	0	$2,000	$0
Allen	4/10/2017	14:04	Hail	1.00 in.	0	0	$0	$0
McKinney	4/10/2017	21:30	Hail	1.00 in.	0	0	$0	$0
Frisco	4/10/2017	23:22	Hail	1.75 in.	0	0	$10,000	$0
Frisco	4/10/2017	23:24	Hail	2.00 in.	0	0	$	$0
Frisco	4/10/2017	23:40	Hail	1.75 in.	0	0	$0	$0
Prosper	4/10/2017	23:41	Hail	1.00 in.	0	0	$0	$0
Celina	4/21/2017	19:29	Hail	1.50 in.	0	0	$5,000	$0
Celina	4/21/2017	19:35	Hail	2.50 in.	0	0	$120,000	$0
Celina	4/21/2017	19:35	Hail	2.00 in.	0	0	$10,000	$0
Prosper	4/21/2017	19:40	Hail	2.75 in.	0	0	$60,000	$0
Celina	4/21/2017	19:41	Hail	1.75 in.	0	0	$10,000	$0
Prosper	4/21/2017	19:43	Hail	1.75 in.	0	0	$10,000	$0
McKinney	4/21/2017	19:47	Hail	1.75 in.	0	0	$10,000	$0
McKinney	4/21/2017	19:52	Hail	2.75 in.	0	0	$20,000	$0
Fairview	4/21/2017	19:56	Hail	1.25 in.	0	0	$5,000	$0
Allen	4/21/2017	20:00	Hail	1.00 in.	0	0	$5,000	$0
Fairview	4/21/2017	20:03	Hail	2.50 in.	0	0	$200,000	$0
Shepton	4/21/2017	21:54	Hail	1.25 in.	0	0	$2,000	$0
Addison Arpt Da	4/21/2017	22:00	Hail	1.50 in.	0	0	$100,000	$0
Plano	4/21/2017	22:06	Hail	1.75 in.	0	0	$120,000	$0
Allen	1/21/2018	17:36	Hail	0.75 in.	0	0	$0	$0
Prosper	4/6/2018	16:30	Hail	1.75 in.	0	0	$10,000	$0
Prosper	4/6/2018	16:31	Hail	1.00 in.	0	0	$0	$0
Rhea Mills	4/6/2018	16:34	Hail	1.00 in.	0	0	$0	$0
Celina	4/6/2018	16:35	Hail	1.50 in.	0	0	$0	$0
Prosper	4/6/2018	16:35	Hail	2.50 in.	0	0	$25,000	$0
Celina	4/6/2018	16:38	Hail	3.00 in.	0	0	$100,000	$0
Prosper	4/6/2018	16:41	Hail	1.50 in.	0	0	$0	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Foot	4/6/2018	16:44	Hail	1.75 in.	0	0	$10,000	$0
Foot	4/6/2018	16:44	Hail	1.75 in.	0	0	$10,000	$0
McKinney	4/6/2018	16:52	Hail	1.25 in.	0	0	$0	$0
McKinney	4/6/2018	16:54	Hail	2.00 in.	0	0	$10,000	$0
Allen	4/6/2018	16:55	Hail	1.00 in.	0	0	$0	$0
Allen	4/6/2018	17:00	Hail	1.00 in.	0	0	$0	$0
Lebanon	4/6/2018	17:25	Hail	1.00 in.	0	0	$0	$0
Allen	4/6/2018	17:34	Hail	1.50 in.	0	0	$0	$0
Plano	4/6/2018	17:35	Hail	2.00 in.	0	0	$10,000	$0
Plano	4/6/2018	17:35	Hail	2.00 in.	0	0	$10,000	$0
Plano	4/6/2018	17:48	Hail	2.00 in.	0	0	$10,000	$0
Wylie	4/6/2018	17:49	Hail	2.00 in.	0	0	$10,000	$0
Prosper	4/13/2018	16:30	Hail	1.00 in.	0	0	$	$0
Foot	4/13/2018	16:35	Hail	0.75 in.	0	0	$0	$0
Foot	4/13/2018	16:35	Hail	0.75 in.	0	0	$0	$0
Frisco	4/13/2018	16:37	Hail	1.00 in.	0	0	$0	$0
Frisco	4/13/2018	16:46	Hail	0.88 in.	0	0	$0	$0
McKinney	4/13/2018	16:50	Hail	1.00 in.	0	0	$0	$0
McKinney	4/13/2018	16:51	Hail	1.00 in.	0	0	$0	$0
Blue Ridge	4/13/2018	17:03	Hail	1.00 in.	0	0	$0	$0
McKinney	4/13/2018	17:09	Hail	1.00 in.	0	0	$0	$0
McKinney	4/13/2018	17:14	Hail	1.25 in.	0	0	$0	$0
McKinney	4/13/2018	17:16	Hail	1.75 in.	0	0	$0	$0
Roland	4/13/2018	17:16	Hail	1.00 in.	0	0	$0	$0
McKinney	4/13/2018	17:17	Hail	1.00 in.	0	0	$0	$0
McKinney	6/5/2018	6:54	Hail	1.00 in.	0	0	$0	$0
Plano	6/6/2018	00:18	Hail	1.00 in.	0	0	$0	$0
Biggers	6/6/2018	00:29	Hail	1.50 in.	0	0	$0	$0
Prosper	11/30/2018	21:34	Hail	1.25 in.	0	0	$0	$0
Prosper	3/9/2019	5:14	Hail	1.00 in.	0	0	$0	$0
Allen	3/9/2019	5:34	Hail	1.00 in.	0	0	$0	$0
Prosper	3/24/2019	17:17	Hail	1.75 in.	0	0	$10,000	$0
Fairview	3/24/2019	17:28	Hail	1.75 in.	0	0	$10,000	$0
Frisco	3/24/2019	17:33	Hail	1.75 in.	0	0	$10,000	$0
Frisco	3/24/2019	17:35	Hail	2.75 in.	0	0	$100,000	$0
Fairview	3/24/2019	17:35	Hail	2.00 in.	0	0	$10,000	$0
Allen	3/24/2019	17:40	Hail	2.50 in.	0	0	$50,000	$0
Allen	3/24/2019	17:40	Hail	3.00 in.	0	0	$100,000	$0
Allen	3/24/2019	17:43	Hail	4.50 in.	0	0	$500,000	$0
McKinney	3/24/2019	17:47	Hail	2.00 in.	0	0	$10,000	$0
Allen	3/24/2019	17:48	Hail	2.00 in.	0	0	$10,000	$0
Allen	3/24/2019	17:48	Hail	2.25 in.	0	0	$50,000	$0
Frisco	3/24/2019	17:54	Hail	2.00 in.	0	0	$10,000	$0
Lucas	3/24/2019	17:55	Hail	1.75 in.	0	0	$10,000	$0
Allen	3/24/2019	17:57	Hail	3.00 in.	0	0	$100,000	$0
Allen	3/24/2019	18:00	Hail	2.00 in.	0	0	$10,000	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Allen	3/24/2019	18:06	Hail	2.50 in.	0	0	$50,000	$0
McKinney	3/24/2019	18:12	Hail	2.50 in.	0	0	$50,000	$0
Renner	3/24/2019	21:36	Hail	1.00 in.	0	0	$0	$0
Plano	3/24/2019	21:39	Hail	1.75 in.	0	0	$10,000	$0
Murphy	3/24/2019	21:47	Hail	1.25 in.	0	0	$0	$0
Wylie	3/24/2019	21:50	Hail	1.00 in.	0	0	$0	$0
Farmersville	5/1/2019	19:55	Hail	0.75 in.	0	0	$0	$0
Shepton	5/18/2019	12:29	Hail	1.00 in.	0	0	$0	$0
Anna	6/19/2019	15:31	Hail	1.25 in.	0	0	$0	$0
Anna	6/19/2019	15:31	Hail	0.75 in.	0	0	$0	$0
Desert	6/19/2019	15:44	Hail	1.00 in.	0	0	$0	$0
Fayburg	6/19/2019	16:02	Hail	2.50 in.	0	0	$10,000	$0
McKinney	6/19/2019	20:04	Hail	0.88 in.	0	0	$0	$0
McKinney	6/19/2019	20:08	Hail	1.25 in.	0	0	$0	$0
McKinney	6/19/2019	20:10	Hail	1.00 in.	0	0	$0	$0
Farmersville	6/19/2019	20:40	Hail	0.88 in.	0	0	$0	$0
Farmersville	6/19/2019	20:48	Hail	1.00 in.	0	0	$0	$0
Melissa	10/20/2019	23:38	Hail	1.00 in.	0	0	$0	$0
Totals:					0	0	$882,172,000	$0

Source: National Centers for Environmental Information

As observed in Table 3.10, Historical Losses Due to Hail Events, calculations of annualized losses were conducted using historical data obtained from the National Centers for Environmental Information. The annualized loss value can be interpreted as the impact expected from hail in terms of annualized human losses and human injuries, and annualized property losses. As observed in *Table 3.10*, Collin County can expect a total property loss of $25,204,914.29 each year as a result of hail, with no injuries, deaths, or crop losses expected from this event.

The geographical occurrence of hailstorm events cannot be predicted; therefore, the area of potential impacts corresponds to all of Collin County's territory. Therefore, all improved property, emergency and critical facilities, and critical structures are exposed to this hazard, including 37 fire stations, 14 police stations, 46 hospitals, 212 schools, and 135 historical properties. As described above, roofs and structures are more vulnerable to this hazard. Therefore, it is expected that building improvements would be most affected.

In compliance to *Requirement 201.6(c)(2)(ii)*, vulnerability to hail and impacts to assets expected from hail events can be summarized as follows:

- **Population**: According to National Centers for Environmental Information (NCEI), no injuries or fatalities have been recorded for hailstorm events. All the population of Collin County is exposed to this hazard, but there are no personal losses expected from hailstorm events.
- **Improved Property**: Based on historical data, a loss of $25,204,914.29 per year can be expected in property loss due to hailstorm damage though values could be underestimated due to lack of accurate reporting. Because of the unpredictability of the geographical location of hailstorms, all improved property in Collin County is exposed to this hazard. Although some crops are susceptible to hail hazards, available historical data for Collin County indicates that there are no expected crop losses from this event.

- **Emergency Facilities**: Because of the unpredictability of the geographical location of hailstorms, all emergency facilities in Collin County are exposed to this hazard.
- **Critical Facilities**: Because of the unpredictability of the geographical location of hailstorms, all critical facilities in Collin County are exposed to this hazard.
- **Critical Infrastructure**: Because of the unpredictability of the geographical location of hailstorms, all critical infrastructure in Collin County is exposed to this hazard.

Information needed to fulfill *Requirement 201.6(c)(2)(ii)*(C), which addresses land uses and development trends was unattainable during the preparation of this hazard mitigation plan. Compliance with this requirement will be an objective in the five-year planning cycle.

Wildfires

By definition, wildfires are fires occurring in a wildland area (e.g., grassland, forest, brush land) except for fire under prescription. Therefore, impacts from this hazard are related to wildland areas and what is known as Wildland Urban Interface (WUI), which are defined as the area where structures and other human development meet or intermingle with undeveloped wildland. The WUI creates an environment in which fire can move readily between structural and vegetation fuels. The expansion of these areas has increased the likelihood that wildfires will threaten structures and people.

Wildfires can cause significant damage to property and threatens the lives of people who are unable to evacuate WUI areas. All five categories of assets located in these wildfire-prone areas are considered vulnerable and can be exposed to this hazard.

WUI data was obtained from the Texas Forest Service wildfire database. The data provides GIS data for wildfires and households affected. Data from the National Centers for Environmental Information provided the property and crop damage totals for Collin County wildfires. According to the NCEI, there were no specific recorded instances of wildfire during the period studied for Anna, Celina, Fairview, Farmersville, Josephine, Lavon, Lowry Crossing, Lucas, Melissa, Murphy, New Hope, Parker, Prosper, St. Paul, and Wylie.

Table 3.11 provides the magnitude, number of fatalities, property and crop damage caused by fires in the county.

Table 3.11 Historical Losses due to Wildfires (1/1/1996-9/22/2020)

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Princeton	2/15/1996	10:00	Wildfire		0	0	$0	$0
Collin (Zone)	6/25/2006	11:00	Wildfire		0	0	$17,000	$2,400
Collin (Zone)	9/5/2011	13:00	Wildfire		0	0	$50,000	$0
Collin (Zone)	5/23/2012	10:10	Wildfire		1	0	$0	$0
Totals:					1	0	$67,000	$2,400

Source: National Centers for Environmental Information

In order to assess wildfire risk and vulnerability of the identified assets, a Geographic Information System-based analysis was conducted to estimate exposure to this event using GIS data in combination with Collin Central Appraisal District property records, and the Regional Hazard Assessment Tool.

Wildland fires in Collin County are highly likely to occur in the next year and will impact the county as a whole. Based on previous occurrences, the extent of wildland fires will be very high. Fires will start easily and spread at a rapid rate, which can result in extensive county wide property damage. According to the Texas Forest Service Wildfire Summary Report, 52% of Collin County's population is located in the Wildland Urban Interface.

Table 3.12 Distribution of WUI Interface Communities in Collin County

Jurisdiction	Area (Sq. Mile)	WUI-Interface Community				
		Low Density (Sq. Mile)	Medium Density (Sq. Mile)	High Density (Sq. Mile)	Total (Sq. Mile)	Percentage of Total Area (%)
Unincorporated	451.14	150.16	94.71	7.39	252.26	55.92%
Allen	26.41	0.75	2.41	6.01	9.17	34.72%
Anna	16.05	2.98	2.52	0.89	6.39	39.81%
Blue Ridge	1.67	0.42	0.55	0.52	1.49	89.22%
Celina	33.71	9.02	3.89	1.17	14.08	41.77%
Fairview	8.86	0.91	4.04	2.53	7.48	84.42%
Farmersville	4.26	0.61	1.00	1.22	2.83	66.43%
Frisco	43.36	3.75	3.85	6.6	14.2	32.75%
Josephine	1.77	0.02	0.68	0.21	0.91	51.41%
Lavon	3.05	0.43	0.85	0.32	1.6	52.46%
Lowry Crossing	2.57	0.09	1.41	0.90	2.4	93.39%
Lucas	15.93	1.59	9.75	0.65	11.99	75.27%
Melissa	11.85	2.76	3.05	1.33	7.14	60.25%
Murphy	5.68	0.16	0.92	1.62	2.7	47.54%
New Hope	1.40	0.09	0.84	0.35	1.28	91.43%
Parker	8.49	0.75	3.60	1.14	5.49	64.66%
Princeton	10.61	1.24	1.81	1.57	4.62	43.54%
Prosper	18.25	2.16	3.61	1.20	6.97	38.19%
St. Paul	1.40	0.01	0.80	0.35	1.16	82.86%
Wylie	36.20	2.36	5.19	6.23	13.78	38.07%

Source: Texas Forest Service

The determination of property vulnerability to wildfires was calculated by overlaying the County's parcel data and the Texas Fire Service data. The determination of assessed value at-risk (exposure) to wildfires was calculated by overlaying the improved property shapefile to the WUI polygons, and adding the total assessed building values within each of the low/medium/high density WUI Interface communities (*Table 3.12*).

Table 3.13 Parcels and Assessed Value of Improvements

Jurisdiction	Residential Parcels	Commercial Parcels	Total Assessed Value of Improvements (Buildings & Contents) at Risk	Percentage (%) of Assessed Value of Improvements (Buildings & Contents) at Risk
Collin County	104,743	7,983	$41,609,034,512	32.19%

Source: Texas Forest Service

As observed in *Table 3.13* approximately 32.19% of Collin County's improved property is vulnerable to wildfires. Based on geographical location, a total of $41,609,034,512 worth of property value composed of buildings and its contents are vulnerable to this hazard.

In compliance to *Requirement 201.6(c)(2)(ii)* Collin County's vulnerability to wildfire and impacts to assets expected from this event can be summarized as follows:

- **Population**: According to National Centers for Environmental Information (NCEI), no injuries or fatalities have been recorded for hailstorm events, Based on geographical data, approximately 104,743 residential parcels in Collin County are vulnerable to wildfires.
- **Improved Property**: Based on historical data, a loss of $2,791.67 per year can be expected in property loss and $100 per year in crop losses due to hailstorm damage though values could be underestimated due to lack of accurate reporting. Based on geographical data, a loss of $41,609,034,512 worth of buildings and its contents is exposed to wildfires. This corresponds to a 32.19% overall property improvement values across Collin County.
- **Emergency Facilities**: Based on geographic information and assuming that the facilities located within the WUI, there are emergency facilities exposed to the wildfire hazard.
- **Critical Facilities**: Based on geographic information and assuming that the facilities located within the WUI, there are critical facilities exposed to the wildfire hazard.
- **Critical Infrastructure**: Based on geographic information and assuming that the infrastructure located within the WUI, there are critical infrastructure exposed to the wildfire hazard.

Information needed to fulfill *Requirement 201.6(c)(2)(ii)(C),* which addresses land uses and development trends was unattainable during the preparation of this hazard mitigation plan. Compliance with this requirement will be an objective in the five-year planning cycle.

3.5 Statistical Risk Assessment

A statistical risk assessment uses statistical and mathematical tools to predict hazard frequency and hazard estimated impacts. Data collected from National Centers for Environmental Information storm events database (recorded historic hazard events), census block data from the U.S. Census 2010 block data provided by the Texas Forest Service and Regional Hazard Assessment Tool were used to assess vulnerability of the five vulnerable categories of assets: population, improved property, critical facilities, critical infrastructure, and emergency facilities.

The statistical analysis was conducted using the historical data obtained from National Centers for Environmental Information. The data included both casualty and property losses from hazard events that occurred in Collin County from 1/1/1950 or 1/1/1996 to 9/22/2020. Annualized personal and property losses were calculated by dividing the total losses by the number of years for which data was available (i.e. 24 or 70 years).

Extreme Heat

Extreme heat impacts large areas and cross jurisdictional boundaries; therefore, all Collin County and all of the jurisdictions participating on this plan are exposed to this hazard. Improved property, emergency facilities, critical infrastructure, and critical facilities are not considered vulnerable to extreme heat or cold events; therefore, estimated vulnerability to these assets is anticipated to be minimal. However, population is significantly vulnerable to extreme heat.

Based on the available information, vulnerability to extreme heat was assessed using two techniques: 1) to comply with *Requirement 201.6(c)(2)(ii)(B*), historical loss data obtained from the National Centers for Environmental information was used to predict expected monetary and human losses from the event; 2) in fulfillment of *Requirement 201.6(c)(2)(ii)(A*), geographical hazard areas identified for extreme heat and the nature of the impacts expected from this hazard event were used to identify the vulnerable assets.

Table 3.14 presents Collin County's recorded historical losses due to extreme heat events as provided in the hazard events database obtained from the National Centers for Environmental Information. The annualized losses due to extreme events were calculated using the methodology described in section 3.3

Table 3.14 Extreme Heat Historical Occurrences Between (1/1/1996-9/22/2020)

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Collin (Zone)	7/19/1997	18:00	Heat		0	0	$0	$0
Collin (Zone)	7/1/1998	0:00	Heat		0	0	$0	$0
Collin (Zone)	8/1/1999	0:00	Heat		0	0	$0	$0
Collin (Zone)	7/1/2000	0:00	Heat		0	0	$0	$0
Collin (Zone)	8/1/2000	0:00	Heat		0	0	$0	$0
Collin (Zone)	9/1/2000	0:00	Heat		0	0	$0	$0
Collin (Zone)	8/1/2011	6:00	Excessive Heat		1	0	$0	$0
Collin (Zone)	8/6/2011	2:21	Heat		1	0	$0	$0
Collin (Zone)	7/19/2015	16:00	Excessive Heat		1	0	$0	$0
Collin (Zone)	6/14/2016	10:30	Heat		0	0	$0	$0
Collin (Zone)	7/19/2016	16:00	Heat		1	0	$0	$0
Collin (Zone)	6/20/2019	15:00	Excessive Heat		0	0	$0	$0
Collin (Zone)	7/8/2019	12:00	Heat		0	0	$0	$0
Collin (Zone)	7/16/2019	12:00	Heat		0	0	$0	$0
Collin (Zone)	8/7/2019	11:00	Heat		0	0	$0	$0
Collin (Zone)	8/17/2019	11:00	Heat		0	0	$0	$0
Collin (Zone)	8/26/2019	13:00	Heat		0	0	$0	$0
Totals:					4	0	$0	$0

Source: National Centers for Environmental Information

The annualized loss value can be interpreted as the impact expected from extreme heat in terms of annualized human losses and human injuries, and annualized property losses. As observed in *Table 3.14*, Collin County can expect 0.17 fatalities and no injuries per year, and no property or crop losses expected from extreme heat.

The occurrence of extreme heat is regional; therefore the area of potential impacts corresponds to all Collin County's territory. However, according to the recorded historical information, extreme heat does not have a significant impact on property value.

In compliance to *Requirement 201.6(c)(2)(ii)*, vulnerability to extreme heat and impacts to assets expected from these events can be summarized as follows:

- **Population**: Based on historical data, extreme heat can be expected to produce an average of 0.17 fatalities and no injuries per year. All the population of Collin County is exposed to this hazard.
- **Improved Property**: Based on historical data and the negligible impact of extreme heat to developed areas, the improved property in Collin County is not exposed to this hazard.
- **Emergency Facilities**: Based on historical data and the negligible impact of extreme heat to buildings, the existing and future emergency facilities in Collin County are not exposed to this hazard.
- **Critical Facilities**: Based on historical data and the negligible impact of extreme heat to buildings, the existing and future critical facilities in Collin County are not exposed to this hazard.
- **Critical Infrastructure**: Based on historical data and the negligible impact of extreme heat to existing and future critical infrastructure, exposure to this hazard is considered minimal in Collin County.

Information needed to fulfill *Requirement 201.6(c)(2)(ii)(C)*, which addresses land uses and development trends was unattainable during the preparation of this hazard mitigation plan. Compliance with this requirement will be an objective in the five-year planning cycle.

High Wind

High wind events impact large areas and cross jurisdictional boundaries; therefore, all of Collin County is exposed to this hazard. Improved property, emergency facilities, critical infrastructure, and critical facilities, and population are considered vulnerable to this hazard.

Based on the available information, vulnerability to high winds was assessed using two techniques: (1) to comply with *Requirement 201.6(c)(2)(ii)(B*), historical loss data obtained from the National Centers for Environmental Information was used to predict expected monetary and human losses from the event; (2) in fulfillment of *Requirement 201.6(c)(2)(ii)(A*), geographical hazard areas identified for high winds and the nature of the impacts expected from this hazard event were used to identify the vulnerable assets.

Table 3.15 presents Collin County's recorded historical losses due to high wind events as provided in the hazard events database obtained from the National Centers for Environmental Information. According to the NCEI, there were no recorded high winds events for New Hope, Princeton, and St. Paul.

Table 3.15 High Wind Historical Occurrences Between (1/1/1950-9/22/2020)

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Collin Co.	11/17/1958	9:50	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	3/5/1959	21:30	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	3/31/1959	23:00	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	5/8/1961	3:27	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	5/27/1963	19:40	Thunder storm Wind	62 Kts.	0	0	$0	$0
Collin Co.	3/3/1970	4:30	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	4/25/1970	5:30	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	4/25/1970	5:35	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	5/23/1971	16:55	Thunder storm Wind	0 Kts.	0	0	$0	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Collin Co.	4/15/1972	5:30	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	9/29/1972	18:00	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	5/6/1975	17:30	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	3/27/1977	7:35	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	3/23/1978	19:15	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	3/23/1978	19:25	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	5/2/1978	22:15	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	5/28/1978	15:48	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	5/28/1978	17:00	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	7/10/1979	2:00	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	8/22/1979	1:00	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	4/24/1980	21:10	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	6/20/1980	3:15	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	10/17/1980	5:30	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	3/17/1981	20:00	Thunder storm Wind	0 Kts.	0	0	$0	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Collin Co.	4/3/1981	18:30	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	4/28/1981	19:00	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	5/23/1981	20:45	Thunder storm Wind	56 Kts.	0	0	$0	$0
Collin Co.	8/26/1981	15:42	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	5/17/1982	1:25	Thunder storm Wind	52 Kts.	0	0	$0	$0
Collin Co.	5/31/1982	4:00	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	5/22/1983	22:00	Thunder storm Wind	52 Kts.	0	0	$0	$0
Collin Co.	7/5/1983	3:55	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	8/12/1983	0:10	Thunder storm Wind	52 Kts.	0	0	$0	$0
Collin Co.	3/18/1984	18:20	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	3/27/1984	0:20	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	5/27/1984	21:40	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	8/30/1984	15:00	Thunder storm Wind	0 Kts.	0	1	$0	$0
Collin Co.	12/13/1984	10:45	Thunder storm Wind	0 Kts.	0	5	$0	$0
Collin Co.	2/23/1985	2:00	Thunder storm Wind	0 Kts.	0	0	$0	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Collin Co.	3/26/1985	22:45	Thunder storm Wind	61 Kts.	0	0	$0	$0
Collin Co.	7/22/1985	15:35	Thunder storm Wind	56 Kts.	0	0	$0	$0
Collin Co.	3/11/1986	18:58	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	3/11/1986	19:00	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	4/19/1986	13:15	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	4/19/1986	13:30	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	4/19/1986	13:49	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	5/9/1986	20:30	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	7/21/1986	13:45	Thunder storm Wind	52 Kts.	0	0	$0	$0
Collin Co.	9/28/1986	17:00	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	9/28/1986	17:30	Thunder storm Wind	52 Kts.	0	0	$0	$0
Collin Co.	2/14/1987	21:35	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	5/3/1987	19:47	Thunder storm Wind	51 Kts.	0	0	$0	$0
Collin Co.	5/14/1987	16:29	Thunder storm Wind	55 Kts.	0	0	$0	$0
Collin Co.	5/28/1987	17:52	Thunder storm Wind	61 Kts.	0	0	$0	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Collin Co.	5/28/1987	18:10	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	6/19/1987	19:08	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	6/23/1987	19:00	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	7/2/1987	10:00	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	8/23/1988	19:30	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	9/17/1988	16:40	Thunder storm Wind	0 Kts.	0	2	$0	$0
Collin Co.	11/12/1988	6:10	Thunder storm Wind	52 Kts.	0	0	$0	$0
Collin Co.	11/15/1988	15:45	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	6/2/1989	20:10	Thunder storm Wind	56 Kts.	0	0	$0	$0
Collin Co.	6/4/1989	0:35	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	6/4/1989	2:00	Thunder storm Wind	52 Kts.	0	0	$0	$0
Collin Co.	6/4/1989	2:30	Thunder storm Wind	52 Kts.	0	0	$0	$0
Collin Co.	6/12/1989	5:00	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	6/13/1989	4:30	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	7/2/1989	18:50	Thunder storm Wind	61 Kts.	0	0	$0	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Collin Co.	8/6/1989	14:25	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	1/17/1990	7:30	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	1/17/1990	7:30	Thunder storm Wind	60 Kts.	0	0	$0	$0
Collin Co.	1/19/1990	7:30	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	3/14/1990	9:45	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	4/15/1990	20:45	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	5/2/1990	22:00	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	5/11/1990	21:00	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	8/21/1990	17:30	Thunder storm Wind	62 Kts.	0	0	$0	$0
Collin Co.	10/17/1990	16:20	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	4/11/1991	22:30	Thunder storm Wind	0 Kts.	0	4	$0	$0
Collin Co.	4/17/1991	17:11	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	4/28/1991	13:10	Thunder storm Wind	52 Kts.	0	0	$0	$0
Collin Co.	4/28/1991	13:25	Thunder storm Wind	50 Kts.	0	0	$0	$0
Collin Co.	5/4/1991	16:20	Thunder storm Wind	0 Kts.	0	0	$0	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Collin Co.	6/5/1991	14:15	Thunder storm Wind	61 Kts.	0	0	$0	$0
Collin Co.	7/15/1991	16:55	Thunder storm Wind	65 Kts.	0	0	$0	$0
Collin Co.	9/24/1991	12:00	Thunder storm Wind	52 Kts.	0	0	$0	$0
Collin Co.	5/11/1992	20:05	Thunder storm Wind	51 Kts.	0	0	$0	$0
Collin Co.	5/11/1992	20:55	Thunder storm Wind	51 Kts.	0	0	$0	$0
Collin Co.	6/6/1992	2:00	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	6/8/1992	15:35	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	6/28/1992	5:12	Thunder storm Wind	65 Kts.	0	0	$0	$0
Collin Co.	7/28/1992	16:30	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	8/2/1992	17:30	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	9/2/1992	22:21	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	9/2/1992	22:40	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	9/2/1992	22:45	Thunder storm Wind	61 Kts.	0	0	$0	$0
Collin Co.	9/2/1992	23:05	Thunder storm Wind	0 Kts.	0	0	$0	$0
Collin Co.	9/2/1992	23:50	Thunder storm Wind	0 Kts.	0	0	$0	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Collin Co.	11/1/1992	1:00	Thunder storm Wind	0 Kts.	0	0	$0	$0
McKinney	10/19/1993	4:00	Thunder storm Wind	70 Kts.	0	0	$50,000	$0
Frisco	4/2/1994	20:15	Thunder storm Wind	0 Kts.	0	0	$5,000	$0
Allen	4/26/1994	23:05	Thunder storm Wind	4 Kts.	0	0	$0	$0
Allen	5/13/1994	4:40	Thunder storm Wind	0 Kts.	0	0	$50,000	$0
Melissa	5/29/1994	9:15	Thunder storm Wind	0 Kts.	0	0	$50,000	$0
Wylie	5/29/1994	9:45	Thunder storm Wind	57 Kts.	0	0	$0	$0
Farmersville	6/19/1994	15:00	Thunder storm Wind	0 Kts.	0	0	$5,000	$0
Frisco	7/12/1994	19:39	Thunder storm Wind	0 Kts.	0	0	$5,000	$0
Wylie	7/12/1994	20:10	Thunder storm Wind	0 Kts.	0	0	$5,000	$0
Anna	8/7/1994	12:10	Thunder storm Wind	0 Kts.	0	0	$500	$0
McKinney	8/7/1994	12:30	Thunder storm Wind	0 Kts.	0	0	$500	$0
Royse City	11/4/1994	22:50	Thunder storm Wind	0 Kts.	0	0	$5,000	$0
Celina	4/17/1995	21:05	Thunder storm Wind	0 Kts.	0	0	$30,000	$0
Frisco	4/17/1995	21:05	Thunder storm Wind	0 Kts.	0	0	$40,000	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Plano	4/17/1995	21:30	Thunder storm Wind	0 Kts.	0	0	$2,000	$0
Parker	5/7/1995	22:10	Thunder storm Wind	0 Kts.	0	0	$0	$0
Culleoka	5/7/1995	22:39	Thunder storm Wind	0 Kts.	0	0	$15,000	$0
Farmersville	5/7/1995	22:50	Thunder storm Wind	0 Kts.	0	0	$200,000	$0
Melissa	5/24/1995	17:00	Thunder storm Wind	0 Kts.	0	0	$100,000	$0
McKinney	5/24/1995	17:10	Thunder storm Wind	0 Kts.	0	0	$0	$0
Countywide	5/24/1995	17:30	Thunder storm Wind	0 Kts.	0	0	$0	$0
Arthur City	5/24/1995	18:45	Thunder storm Wind	0 Kts.	0	0	$0	$0
Celina	7/4/1995	23:15	Thunder storm Wind	0 Kts.	0	0	$2,000	$0
Plano	7/5/1995	2:45	Thunder storm Wind	0 Kts.	0	0	$2,000	$0
Melissa	8/20/1995	17:45	Thunder storm Wind	0 Kts.	0	0	$75,000	$0
McKinney	8/20/1995	18:00	Thunder storm Wind	0 Kts.	0	0	$100,000	$0
Lucas	5/27/1996	4:15	Thunder storm Wind	68 Kts.	0	0	$1,000	$0
Prosper	6/6/1996	21:20	Thunder storm Wind	52 Kts.	0	0	$0	$0
Plano	3/29/1997	21:52	Thunder storm Wind	52 Kts.	0	0	$0	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Allen	3/29/1997	22:16	Thunder storm Wind	52 Kts.	0	0	$20,000	$0
Plano	5/19/1997	17:58	Thunder storm Wind	57 Kts.	0	0	$0	$0
Plano	6/16/1997	19:10	Thunder storm Wind	58 Kts.	0	0	$0	$0
McKinney	5/8/1998	20:25	Thunder storm Wind	53 Kts.	0	0	$0	$0
Frisco	5/8/1998	20:35	Thunder storm Wind	61 Kts.	0	0	$100,000	$0
McKinney	5/8/1998	20:50	Thunder storm Wind	61 Kts.	0	0	$100,000	$0
McKinney	5/8/1998	20:57	Thunder storm Wind	52 Kts.	0	0	$0	$0
Plano	11/9/1998	23:10	Thunder storm Wind	50 Kts.	0	0	$0	$0
Wylie	2/25/2000	22:35	Thunder storm Wind	61 Kts. E	0	0	$0	$0
Lavon	2/25/2000	23:17	Thunder storm Wind	52 Kts. E	0	0	$0	$0
Plano	2/25/2000	23:40	Thunder storm Wind	61 Kts. E	0	0	$0	$0
Frisco	5/27/2000	16:20	Thunder storm Wind	57 Kts. M	0	0	$0	$0
Wylie	5/27/2000	16:50	Thunder storm Wind	61 Kts. E	0	0	$0	$0
McKinney	5/28/2001	0:08	Thunder storm Wind	57 Kts. E	0	0	$0	$0
Countywide	6/14/2001	18:45	Thunder storm Wind	58 Kts. E	0	0	$0	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
McKinney	6/14/2001	19:00	Thunder storm Wind	61 Kts. E	0	0	$0	$0
Melissa	9/18/2001	18:05	Thunder storm Wind	73 Kts. E	0	0	$0	$0
Celina	10/10/2001	22:51	Thunder storm Wind	52 Kts. E	0	0	$0	$0
McKinney	10/12/2001	20:20	Thunder storm Wind	52 Kts. E	0	0	$0	$0
Celina	8/25/2002	14:26	Thunder storm Wind	52 Kts. E	0	0	$10,000	$0
McKinney	8/27/2002	5:50	Thunder storm Wind	52 Kts. E	0	0	$5,000	$0
Farmersville	5/24/2003	21:20	Thunder storm Wind	52 Kts. ES	0	0	$20,000	$0
McKinney	5/24/2003	22:47	Thunder storm Wind	52 Kts. ES	0	0	$0	$0
Frisco	6/11/2003	21:55	Thunder storm Wind	52 Kts. ES	0	0	$5,000	$0
Plano	8/22/2003	16:10	Thunder storm Wind	61 Kts. ES	0	0	$0	$0
Plano	8/22/2003	16:30	Thunder storm Wind	61 Kts. ES	0	0	$2,000	$0
McKinney	8/26/2003	14:38	Thunder storm Wind	52 Kts. ES	1	4	$15,000	$0
Frisco	8/26/2003	14:58	Thunder storm Wind	61 Kts. ES	0	0	$5,000	$0
Nevada	3/4/2004	15:20	Thunder storm Wind	60 Kts. ES	0	0	$75,000	$0
Farmersville	3/4/2004	15:41	Thunder storm Wind	61 Kts. ES	0	0	$250,000	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
McKinney	6/2/2004	18:32	Thunder storm Wind	50 Kts. ES	0	0	$2,000	$0
McKinney	4/5/2005	16:50	Thunder storm Wind	58 Kts. MS	0	0	$0	$0
Allen	5/25/2005	12:38	Thunder storm Wind	50 Kts. ES	0	0	$0	$0
Princeton	7/15/2005	15:53	Thunder storm Wind	55 Kts. MS	0	0	$0	$0
Wylie	8/4/2005	16:37	Thunder storm Wind	52 Kts. ES	0	0	$1,000	$0
Princeton	9/28/2005	18:35	Thunder storm Wind	50 Kts. ES	0	0	$15,000	$0
Frisco	3/13/2006	1:11	Thunder storm Wind	61 Kts. ES	0	0	$0	$0
Collin (Zone)	4/7/2006	16:35	Strong Wind	45 Kts. ES	0	0	$20,000	$0
Collin (Zone)	6/16/2006	15:20	Strong Wind	48 Kts. ES	0	0	$2,000	$0
McKinney	8/12/2006	16:10	Thunder storm Wind	50 Kts. ES	0	0	$0	$0
Plano	8/22/2006	16:45	Thunder storm Wind	40 Kts. MS	0	0	$15,000	$0
McKinney	8/22/2006	17:10	Thunder storm Wind	50 Kts. ES	0	0	$0	$0
McKinney	8/23/2006	17:00	Thunder storm Wind	50 Kts. ES	0	0	$0	$0
Plano	8/27/2006	15:30	Thunder storm Wind	50 Kts. ES	0	0	$5,000	$0
Frisco	9/17/2006	4:30	Thunder storm Wind	50 Kts. ES	0	0	$5,000	$0
Collin (Zone)	10/31/2006	10:00	Strong Wind	32 Kts. EG	0	0	$2,000	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Collin (Zone)	11/15/2006	6:00	Strong Wind	40 Kts. MG	0	0	$20,000	$0
Collin (Zone)	2/24/2007	12:00	High Wind	50 Kts. EG	0	0	$200,000	$0
Murphy	3/30/2007	20:10	Thunder storm Wind	52 Kts. EG	0	0	$25,000	$0
Plano	4/3/2007	18:10	Thunder storm Wind	52 Kts. EG	0	0	$0	$0
Allen	4/13/2007	18:15	Thunder storm Wind	50 Kts. EG	0	0	$0	$0
Allen	4/24/2007	14:23	Thunder storm Wind	50 Kts. EG	0	0	$5,000	$0
McKinney	4/24/2007	19:35	Thunder storm Wind	50 Kts. EG	0	0	$40,000	$0
Blue Ridge	4/24/2007	20:55	Thunder storm Wind	55 Kts. MG	0	0	$0	$0
Plano	5/2/2007	18:20	Thunder storm Wind	52 Kts. EG	0	0	$0	$0
Plano	5/2/2007	18:30	Thunder storm Wind	65 Kts. EG	0	0	$0	$0
Plano	5/2/2007	18:31	Thunder storm Wind	59 Kts. MG	0	0	$5,000	$0
Allen	5/2/2007	18:34	Thunder storm Wind	50 Kts. EG	0	0	$0	$0
McKinney	5/2/2007	18:55	Thunder storm Wind	50 Kts. EG	0	0	$40,000	$0
Frisco	5/2/2007	19:00	Thunder storm Wind	50 Kts. EG	0	0	$0	$0
McKinney	5/2/2007	19:03	Thunder storm Wind	62 Kts. MG	0	0	$0	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Plano	5/30/2007	8:47	Thunder storm Wind	50 Kts. EG	0	0	$15,000	$0
Plano	8/29/2007	14:54	Thunder storm Wind	50 Kts. EG	0	0	$0	$0
Collin (Zone)	1/29/2008	10:50	High Wind	51 Kts. MG	0	0	$0	$0
Collin (Zone)	1/29/2008	7:00	Strong Wind	30 Kts. MS	0	0	$65,000	$0
McKinney	4/10/2008	3:03	Thunder storm Wind	56 Kts. MG	0	0	$0	$0
McKinney	4/10/2008	3:17	Thunder storm Wind	76 Kts. MG	0	0	$0	$0
Celina	6/17/2008	10:20	Thunder storm Wind	50 Kts. EG	0	0	$1,000	$0
Plano	6/17/2008	10:38	Thunder storm Wind	52 Kts. EG	0	0	$0	$0
McKinney	6/17/2008	10:38	Thunder storm Wind	55 Kts. MG	0	0	$0	$0
Plano	6/17/2008	10:45	Thunder storm Wind	50 Kts. EG	0	0	$0	$0
Celina	6/28/2008	17:07	Thund erstor m Wind	50 Kts. EG	0	0	$1,000	$0
Prosper	2/9/2009	4:05	Thunder storm Wind	58 Kts. EG	0	0	$15,000	$0
Wylie	2/10/2009	22:00	Thunder storm Wind	65 Kts. EG	0	0	$50,000	$0
Frisco	4/30/2009	2:05	Thunder storm Wind	50 Kts. EG	0	0	$0	$0
Frisco	5/2/2009	20:50	Thunder storm Wind	55 Kts. EG	0	0	$5,000	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Celina	5/6/2009	5:07	Thunder storm Wind	50 Kts. EG	0	0	$2,000	$0
Wylie	5/6/2009	5:23	Thunder storm Wind	52 Kts. EG	0	0	$3,000	$0
Frisco	6/10/2009	18:14	Thunder storm Wind	63 Kts. MG	0	0	$4,000	$0
Frisco	6/10/2009	18:15	Thunder storm Wind	65 Kts. EG	0	0	$10,000	$0
Frisco	6/10/2009	18:15	Thunder storm Wind	65 Kts. EG	0	0	$6,000	$0
Plano	6/10/2009	18:19	Thunder storm Wind	68 Kts. MG	0	0	$5,000	$0
Plano	6/10/2009	18:20	Thunder storm Wind	65 Kts. EG	0	0	$3,000	$0
Allen	6/10/2009	18:30	Thunder storm Wind	61 Kts. EG	0	0	$5,000	$0
Foot	6/10/2009	18:30	Thunder storm Wind	61 Kts. EG	0	0	$5,000	$0
McKinney	6/10/2009	18:35	Thunder storm Wind	65 Kts. EG	0	0	$5,000	$0
Celina	6/10/2009	18:35	Thunder storm Wind	61 Kts. EG	0	0	$5,000	$0
Celina	6/10/2009	18:35	Thunder storm Wind	61 Kts. EG	0	0	$3,000	$0
Anna	6/10/2009	18:50	Thunder storm Wind	61 Kts. EG	0	0	$12,000	$0
Shepton	7/8/2009	16:10	Thunder storm Wind	52 Kts. EG	0	0	$6,000	$0
Plano	7/19/2009	13:13	Thunder storm Wind	50 Kts. EG	0	0	$8,000	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Melissa	8/5/2009	16:16	Thunder storm Wind	61 Kts. EG	0	0	$5,000	$0
Shepton	5/14/2010	12:23	Thunder storm Wind	50 Kts. EG	0	0	$5,000	$0
McKinney	8/17/2010	17:10	Thunder storm Wind	52 Kts. EG	0	0	$100	$0
Prosper	4/10/2011	23:34	Thunder storm Wind	70 Kts. EG	0	0	$5,000	$0
Melissa	4/14/2011	22:32	Thunder storm Wind	56 Kts. EG	0	0	$0	$0
Shepton	4/23/2011	22:37	Thunder storm Wind	52 Kts. EG	0	0	$2,000	$0
Melissa	4/25/2011	14:58	Thunder storm Wind	50 Kts. EG	0	0	$0	$0
Celina	5/24/2011	20:48	Thunder storm Wind	56 Kts. EG	0	0	$5,000	$0
Plano	5/24/2011	21:25	Thunder storm Wind	61 Kts. EG	0	0	$8,000	$0
Copeville	5/24/2011	21:37	Thunder storm Wind	54 Kts. MG	0	0	$5,000	$0
Collin Co.	6/21/2011	2:09	Thunder storm Wind	58 Kts. EG	0	0	$8,000	$0
Farmersville	7/2/2011	17:00	Thunder storm Wind	56 Kts. EG	0	0	$10,000	$0
Westminster	9/18/2011	18:45	Thunder storm Wind	52 Kts. EG	0	0	$15,000	$0
Murphy	9/18/2011	19:10	Thunder storm Wind	61 Kts. EG	0	0	$15,000	$0
Frisco	10/23/2011	0:15	Thunder storm Wind	52 Kts. EG	0	0	$2,000	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Plano	10/23/2011	0:21	Thunder storm Wind	61 Kts. MG	0	0	$0	$0
Celina	5/4/2012	20:25	Thunder storm Wind	52 Kts. EG	0	0	$20,000	$0
Prosper	5/4/2012	20:35	Thunder storm Wind	52 Kts. EG	0	0	$5,000	$0
Lolaville	5/30/2012	2:25	Thunder storm Wind	62 Kts. MG	0	0	$15,000	$0
Forest Grove	6/6/2012	15:30	Thunder storm Wind	43 Kts. EG	0	0	$3,000	$0
Foot	6/6/2012	15:35	Thunder storm Wind	52 Kts. EG	0	0	$5,000	$0
Princeton	7/20/2012	15:10	Thunder storm Wind	52 Kts. EG	0	0	$160,000	$0
McKinney	7/20/2012	15:20	Thunder storm Wind	52 Kts. EG	0	0	$2,000	$0
Prosper	8/6/2012	14:30	Thunder storm Wind	52 Kts. EG	0	0	$2,000	$0
Rhea Mills	8/6/2012	14:36	Thunder storm Wind	55 Kts. EG	0	0	$8,000	$0
Copeville	12/19/2012	21:30	Thunder storm Wind	65 Kts. EG	0	0	$150,000	$0
Collin (Zone)	12/20/2012	0:00	Strong Wind	43 Kts. EG	0	0	$13,000	$0
Shepton	2/10/2013	3:05	Thunder storm Wind	50 Kts. EG	0	0	$1,000	$0
Fairview	5/21/2013	13:33	Thunder storm Wind	56 Kts. EG	0	0	$50,000	$0
Biggers	5/21/2013	13:33	Thunder storm Wind	59 Kts. MG	0	0	$50,000	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
McKinney	5/21/2013	13:33	Thunder storm Wind	56 Kts. EG	0	0	$50,000	$0
McKinney	5/21/2013	13:33	Thunder storm Wind	56 Kts. EG	0	0	$50,000	$0
Princeton	5/21/2013	13:49	Thunder storm Wind	56 Kts. EG	0	0	$50,000	$0
Farmersville	5/21/2013	14:00	Thunder storm Wind	54 Kts. EG	0	0	$40,000	$0
Allen	6/17/2013	6:45	Thunder storm Wind	35 Kts. EG	0	0	$2,000	$0
Anna	8/23/2013	16:05	Thunder storm Wind	43 Kts. EG	2	0	$10,000	$0
Farmersville	4/3/2014	18:50	Thunder storm Wind	59 kts. MG	0	0	$90,000	$0
McKinney	4/7/2014	18:38	Thunder storm Wind	50 kts. MG	0	0	$8,000	$0
Plano	5/12/2014	14:40	Thunder storm Wind	56 kts. EG	0	0	$17,000	$0
Lolaville	5/12/2014	14:53	Thunder storm Wind	52 kts. EG	0	0	$7,000	$0
Melissa	5/12/2014	15:05	Thunder storm Wind	52 kts. EG	0	0	$7,000	$0
Forest Grove	7/14/2014	14:00	Thunder storm Wind	50 kts. EG	0	0	$0	$0
Farmersville	10/2/2014	16:10	Thunder storm Wind	50 kts. EG	0	0	$10,000	$0
Anna	10/10/2014	22:02	Thunder storm Wind	54 kts. MG	0	0	$0	$0
Princeton	10/10/2014	22:05	Thunder storm Wind	61 kts. EG	0	0	$0	$5,000

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Allen	10/13/2014	1:18	Thunder storm Wind	50 kts. EG	0	0	$1,000	$0
Allen	4/18/2015	19:43	Thunder storm Wind	60 kts. MG	0	0	$10,000	$0
Anna	4/18/2015	19:58	Thunder storm Wind	52 kts. MG	0	0	$5,000	$0
Anna	4/18/2015	20:03	Thunder storm Wind	52 kts. MG	0	0	$5,000	$0
Anna	11/17/2015	4:35	Thunder storm Wind	56 kts. MG	0	0	$0	$0
Fairview	12/26/2015	19:30	Thunder storm Wind	48 kts. EG	0	0	$5,000	$0
Frisco	3/8/2016	9:00	Thunder storm Wind	56 kts. EG	0	0	$5,000	$0
Murphy	3/23/2016	21:37	Thunder storm Wind	60 kts. EG	0	0	$5,000	$0
Frisco	4/11/2016	16:45	Thunder storm Wind	61 kts. EG	0	0	$30,000	$0
Wylie	4/11/2016	17:15	Thunder storm Wind	50 kts. EG	0	0	$2,000	$0
Celina	4/29/2016	15:50	Thunder storm Wind	50 kts. EG	0	0	$5,000	$0
Anna	5/29/2016	18:30	Thunder storm Wind	56 kts. EG	0	0	$5,000	$0
Shepton	7/15/2016	8:22	Thunder storm Wind	52 kts. EG	0	0	$1,000	$0
Allen	1/15/2017	21:30	Thunder storm Wind	56 kts. EG	0	0	$0	$0
Frisco	1/15/2017	21:40	Thunder storm Wind	52 kts. EG	0	0	$2,000	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Murphy	1/15/2017	22:00	Thunder storm Wind	56 kts. EG	0	0	$0	$0
Frisco	3/29/2017	1:49	Thunder storm Wind	60 kts. EG	0	0	$5,000	$0
Frisco	3/29/2017	1:50	Thunder storm Wind	65 kts. EG	0	0	$0	$0
McKinney	3/29/2017	1:50	Thunder storm Wind	60 kts. EG	0	0	$5,000	$0
Lolaville	3/29/2017	1:51	Thunder storm Wind	55 kts. MG	0	0	$0	$0
Allen	3/29/2017	1:55	Thunder storm Wind	65 kts. EG	0	0	$5,000	$0
Allen	3/29/2017	1:58	Thunder storm Wind	52 kts. EG	0	0	$0	$0
Lolaville	3/29/2017	2:00	Thunder storm Wind	55 kts. EG	0	0	$0	$0
Lolaville	3/29/2017	2:04	Thunder storm Wind	65 kts. EG	0	0	$0	$0
McKinney	7/8/2017	14:10	Thunder storm Wind	54 kts. MG	0	0	$0	$0
Allen	7/8/2017	14:40	Thunder storm Wind	60 kts. EG	0	0	$10,000	$0
Princeton	7/23/2017	20:40	Thunder storm Wind	55 kts. EG	0	0	$0	$0
Blue Ridge	8/12/2017	16:00	Thunder storm Wind	50 kts. EG	0	0	$1,000	$0
McKinney	5/25/2018	12:20	Thunder storm Wind	48 kts. EG	0	0	$1,000	$0
McKinney	6/7/2018	18:21	Thunder storm Wind	43 kts. EG	1	0	$40,000	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Plano	8/18/2018	19:00	Thunder storm Wind	50 kts. EG	0	0	$2,000	$0
Weston	8/18/2018	19:05	Thunder storm Wind	50 kts. EG	0	0	$0	$0
Altoga	8/18/2018	19:17	Thunder storm Wind	50 kts. EG	0	0	$5,000	$0
Plano Shiloh Arpk Ar	8/18/2018	19:25	Thunder storm Wind	50 kts. EG	0	0	$5,000	$0
Renner	3/13/2019	4:12	Thunder storm Wind	67 kts. MG	0	0	$	$0
Renner	3/13/2019	4:21	Thunder storm Wind	63 kts. MG	0	0	$	$0
McKinney	3/13/2019	4:25	Thunder storm Wind	50 kts. MG	0	0	$	$0
Allen	5/18/2019	12:14	Thunder storm Wind	50 kts. EG	0	0	$	$0
Chambersvil le	5/21/2019	5:40	Thunder storm Wind	50 kts. EG	0	0	$	$0
McKinney	6/9/2019	12:32	Thunder storm Wind	52 kts. MG	0	0	$	$0
Lolaville	6/9/2019	12:57	Thunder storm Wind	50 kts. EG	0	0	$	$0
Foot	6/29/2019	17:30	Thunder storm Wind	50 kts. EG	0	0	$	$0
Culleoka	10/20/2019	23:39	Thunder storm Wind	74 kts. EG	0	0	$	$0
Farmersville	10/20/2019	23:46	Thunder storm Wind	74 kts. EG	0	3	$	$0
Nevada	10/21/2019	00:05	Thunder storm Wind	50 kts. EG	0	0	$	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Lebanon	10/21/2019	23:15	Thunder storm Wind	48 kts. EG	0	0	$	$0
Lolaville	4/28/2020	22:04	Thunder storm Wind	48 kts. EG	0	0	$	$0
Total:					4	20	$4,293,000	$5,000

Source: National Centers for Environmental Information

The annualized losses due to high wind events were calculated using the methodology described previously. The annualized loss value can be interpreted as the impact expected from high wind in terms of annualized human losses and human injuries, and annualized property losses. As observed in *Table 3.15*, Collin County can expect a per year average of $61,328.57 in property losses, 0.06 fatalities, 0.29 injuries, and $71.43 in crop losses from high wind events.

The occurrence of high winds is regional; therefore, the area of potential impacts corresponds to all Collin County's territory. According to the recorded historical information, high winds impact property. Currently, there is no information available that specifically identifies to the type structures that have been historically damaged by high wind events. However, fatalities, injuries, and crop and property damage has occurred. Because of the regional character of this hazard event, all improved property, emergency and critical facilities, and critical structures are exposed to this hazard.

In compliance to *Requirement 201.6(c)(2)(ii)*, vulnerability to high wind and impacts to assets expected from this event can be summarized as follows:

- **Population**: Based on historical data, high wind events can be expected to produce an average of .29 injuries and 0.06 fatalities per year. All the population of Collin County is exposed to this hazard.
- **Improved Property**: Based on historical data, an average loss of $61,328.57 per year in property losses and $71.43 in crop losses are expected from this hazard in Collin County.
- **Emergency Facilities**: Because of the expected geographical widespread nature of high winds, all existing and future emergency facilities in Collin County are exposed to this hazard.
- **Critical Facilities**: Because of the expected geographical widespread nature of high winds, all existing and future emergency facilities in Collin County are exposed to this hazard.
- **Critical Infrastructure**: Because of the expected geographical widespread nature of high winds, all existing and future critical infrastructures in Collin County are exposed to this hazard.

Information needed to fulfill *Requirement 201.6(c)(2)(ii)(C),* which addresses land uses and development trends was unattainable during the preparation of this hazard mitigation plan. Compliance with this requirement will be an objective in the five-year planning cycle.

Lightning

Because the location at which a lightning event cannot be predicted, all existing and future buildings, critical facilities, critical infrastructure, emergency facilities, improved property, and population are considered to be exposed to this hazard.

Based on the available information, vulnerability to lightning was assessed using two techniques: (1) to comply with *Requirement 201.6(c)(2)(ii)(B*), historical loss data obtained from the National Centers for Environmental Information was used to predict expected monetary and human losses from the event; (2) in fulfillment of *Requirement 201.6(c)(2)(ii)(A*), geographical hazard areas identified for lightning and the nature of the impacts expected from this hazard event were used to identify the vulnerable assets.

Table 3.16 presents Collin County's recorded historical losses due to lightning events as provided in the hazard events database obtained from the National Centers for Environmental Information. According to the NCEI, there were no recorded lightning events for the Fairview, Farmersville, Josephine, Lowry Crossing, Melissa, New Hope, Parker, Princeton, St. Paul, and Wylie.

Table 3.16 Historical Lightning Occurrences between (1/1/1996-9/22/2020)

Location	Date	Time	Event	Magnitude	Fatalities	Injuries	Property Damage	Crop Damage
Weston	7/8/1996	16:30	Lightning		0	0	$100,000	$0
Plano	7/23/1996	12:45	Lightning		0	0	$80,000	$0
Plano	5/19/1997	17:45	Lightning		0	0	$50,000	$0
Blue Ridge	1/4/1998	22:00	Lightning		0	0	$20,000	$0
Allen	10/9/1999	6:00	Lightning		0	0	$5,000	$0
Plano	12/12/1999	8:00	Lightning		0	0	$30,000	$0
Plano	3/10/2000	12:30	Lightning		0	0	$25,000	$0
Plano	2/16/2001	0:24	Lightning		0	0	$750,000	$0
Mc Kinney	4/29/2002	15:00	Lightning		0	1	$0	$0
Mc Kinney	8/26/2003	15:30	Lightning		0	0	$300,000	$0
McKinney	4/24/2007	15:30	Lightning		0	0	$20,000	$0
Plano	5/3/2007	18:10	Lightning		0	0	$250,000	$0
Anna	5/30/2007	9:20	Lightning		0	0	$50,000	$0
McKinney	7/31/2007	14:45	Lightning		0	0	$7,300	$0
Lebanon	2/15/2008	1:45	Lightning		0	0	$500,000	$0
McKinney	5/27/2008	10:30	Lightning		0	0	$70,000	$0
Lucas	7/19/2009	13:15	Lightning		0	0	$405,000	$0
Murphy	7/19/2009	13:20	Lightning		0	0	$200,000	$0
Lolaville	8/21/2009	4:21	Lightning		0	0	$750,000	$0

Location	Date	Time	Event	Magnitude	Fatalities	Injuries	Property Damage	Crop Damage
Murphy	9/11/2009	17:00	Lightning		0	0	$150,000	$0
Murphy	9/11/2009	17:00	Lightning		0	0	$5,000	$0
Celina	9/1/2010	13:30	Lightning		0	0	$25,000	$0
Collin Co.	6/21/2011	23:18	Lightning		0	0	$30,000	$0
Foot	5/30/2012	10:15	Lightning		0	0	$275,000	$0
Lebanon	5/30/2012	10:22	Lightning		0	0	$450,000	$0
Foot	5/30/2012	10:30	Lightning		0	0	$275,000	$0
Foot	5/30/2012	10:59	Lightning		0	0	$250,000	$0
Frisco	10/2/2014	15:00	Lightning		0	0	$100,000	$0
Lavon	6/21/2015	7:00	Lightning		0	0	$50,000	$0
Lolaville	6/26/2015	19:20	Lightning		0	0	$25,000	$0
Foot	4/29/2016	1:11	Lightning		0	0	$200,000	$0
Frisco	5/23/2016	7:25	Lightning		0	0	$300,000	$0
Plano	5/29/2016	18:30	Lightning		0	0	$200,000	$0
Shepton	6/12/2016	16:51	Lightning		0	0	$4,000	$0
Parker	1/2/2017	5:55	Lightning		0	0	$500,000	$0
Lebanon	7/5/2017	20:00	Lightning		0	0	$1,000,000	$0
Allen	8/7/2017	00:50	Lightning		0	0	$100,000	$0
Foot	10/22/2017	00:00	Lightning		0	0	$225,000	$0
Rockhill	8/9/2018	20:08	Lightning		0	0	$400,000	$0
Lebanon	8/18/2018	19:00	Lightning		0	0	$2,000	$0
Foot	12/26/2018	16:15	Lightning		0	0	$100,000	$0
Lolaville	4/23/2019	21:30	Lightning		0	0	$150,000	$0
Foot	4/23/2019	21:45	Lightning		0	0	$500	$0
Frisco	4/23/2019	22:00	Lightning		0	0	$100,000	$0
Frisco	6/9/2019	12:40	Lightning		0	0	$1,000	$0
Frisco	6/16/2019	2:00	Lightning		0	0	$5,000	$0
Lebanon	6/16/2019	15:51	Lightning		0	0	$1,000	$0
Prosper	10/20/2019	23:21	Lightning		0	0	$150,000	$0
Foot	3/18/2020	4:15	Lightning		0	0	$800,000	$0
Frisco	4/28/2020	22:00	Lightning		0	0	$83,000	$0
Lebanon	4/28/2020	22:00	Lightning		0	0	$8,000	$0

Location	Date	Time	Event	Magnitude	Fatalities	Injuries	Property Damage	Crop Damage
Lebanon	4/28/2020	22:00	Lightning		0	0	$500,000	$0
Frisco	4/28/2020	22:00	Lightning		0	0	$3,000	$0
Frisco	4/28/2020	22:00	Lightning		0	0	$30,000	$0
Lebanon	5/23/2020	00:11	Lightning		0	0	$200,000	$0
Frisco	6/23/2020	6:45	Lightning		0	0	$250,000	$0
Totals:					0	1	$10,560,000	$0

Source: National Centers for Environmental Information

The annualized losses due to lightning events were calculated using the methodology described in table 3.16. The annualized loss value can be interpreted as the impact expected from lightning in terms of annualized human losses and human injuries, and annualized property losses. As observed in *Table 3.16*, Collin County can expect $440,000 in property losses, with no fatalities, 0.04 injuries, and no losses in crop production from lightning events.

The geographical occurrence of lightning events cannot be predicted; therefore the area of potential impacts corresponds to all Collin County's territory. According to the recorded historical information, lightning impact property. Because of the regional character of this hazard event, all improved property, emergency and critical facilities, and critical structures are exposed to this hazard.

In compliance to *Requirement 201.6(c)(2)(ii)*, vulnerability to lightning and impacts to assets expected from this event can be summarized as follows:

- **Population**: Based on historical data, lightning events can be expected to cause no fatalities and 0.04 injuries in Collin County per year. All the population of Collin County is exposed to this hazard.
- **Improved Property**: Based on historical data, an average of $440,000 per year in property losses and $0 in crop losses is expected from lightning events in Collin County.
- **Emergency Facilities**: Because of the expected geographical widespread nature of lightning, all existing and future emergency facilities in Collin County are exposed to this hazard.
- **Critical Facilities**: Because of the expected geographical widespread nature of lightning, all existing and future critical facilities in Collin County are exposed to this hazard.
- **Critical Infrastructure**: Because of the expected geographical widespread nature of lightning, all existing and future critical infrastructures in Collin County are exposed to this hazard.

Information needed to fulfill *Requirement 201.6(c)(2)(ii)(C,* which addresses land uses and development trends was unattainable during the preparation of this Hazard Mitigation Plan. Compliance with this requirement will be an objective in the five-year planning cycle.

Tornado

The areas of impact from tornado events cannot be predicted, and they can affect extensive areas of a county. All existing and future buildings, critical facilities, critical infrastructure, emergency facilities, improved property, and population are considered to be vulnerable to this hazard.

Based on the available information, vulnerability to tornados was assessed using two techniques: 1) to comply with *Requirement 201.6(c)(2)(ii)(B*), historical loss data obtained from the National Centers for Environmental Information, and the Texas Hazard Mitigation Action Plan was used to predict expected monetary and human losses from the event; 2) in fulfillment of *Requirement 201.6(c)(2)(ii)(A*), geographical hazard areas identified for tornados and the nature of the impacts expected from this hazard event were used to identify the vulnerable assets.

Table 3.17 presents Collin County's recorded historical losses due to tornado events as provided in the hazard events database obtained from the National Centers for Environmental Information.

Table 3.17 Historical Tornado Occurrences between (1/1/1950-9/22/2020)

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Collin Co.	3/24/1954	21:30	Tornado	F1	0	4	$25,000	$0
Collin Co.	5/25/1954	18:15	Tornado	F0	0	0	$0	$0
Collin Co.	4/2/1957	16:20	Tornado	F3	0	2	$250,000	$0
Collin Co.	4/27/1958	15:30	Tornado	F2	0	0	$250,000	$0
Collin Co.	10/4/1959	6:00	Tornado	F3	0	5	$250,000	$0
Collin Co.	4/22/1963	17:30	Tornado	F2	0	0	$250,000	$0
Collin Co.	4/28/1963	12:30	Tornado	F1	0	0	$2,500	$0
Collin Co.	5/19/1963	15:00	Tornado	F0	0	0	$0	$0
Collin Co.	3/25/1967	21:00	Tornado	F0	0	0	$0	$0
Collin Co.	3/25/1967	21:00	Tornado	F0	0	0	$0	$0
Collin Co.	4/22/1968	7:50	Tornado	F1	0	0	$25,000	$0
Collin Co.	5/13/1968	3:00	Tornado	F2	0	0	$25,000	$0
Collin Co.	4/27/1969	5:10	Tornado	F2	0	45	$250,000	$0
Collin Co.	10/12/1969	7:44	Tornado	F3	0	0	$2,500	$0
Collin Co.	4/18/1970	21:30	Tornado	F1	0	2	$2,500	$0
Collin Co.	9/1/1970	16:15	Tornado	F1	0	0	$0	$0
Collin Co.	7/19/1971	17:15	Tornado	F1	0	0	$25,000	$0
Collin Co.	12/14/1971	18:15	Tornado	F0	0	0	$25,000	$0
Collin Co.	8/10/1972	16:00	Tornado	F0	0	0	$2,500	$0
Collin Co.	11/20/1973	1:10	Tornado	F1	0	3	$25,000	$0
Collin Co.	6/9/1975	18:40	Tornado	F0	0	0	$0	$0
Collin Co.	3/27/1977	4:54	Tornado	F2	0	0	$250,000	$0
Collin Co.	9/7/1977	15:40	Tornado	F1	0	0	$2,500	$0
Collin Co.	9/12/1977	16:20	Tornado	F2	0	0	$25,000	$0
Collin Co.	3/29/1979	14:15	Tornado	F0	0	0	$0	$0
Collin Co.	7/27/1982	13:00	Tornado	F0	0	0	$2,500	$0
Collin Co.	3/27/1984	16:30	Tornado	F1	0	0	$2,500	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Collin Co.	10/18/1985	9:30	Tornado	F2	0	2	$250,000	$0
Collin Co.	3/17/1987	19:40	Tornado	F0	0	0	$0	$0
Collin Co.	9/13/1993	10:10	Tornado	F0	0	0	$0	$0
Farmersville	7/12/1994	21:15	Tornado	F0	0	0	$50,000	$0
Princeton	10/7/1994	15:00	Tornado	F1	0	2	$500,000	$0
Mc Kinney	3/16/1998	19:05	Tornado	F1	0	0	$200,000	$0
Frisco	9/5/2001	14:05	Tornado	F0	0	0	$0	$0
Celina	9/5/2001	14:30	Tornado	F1	0	0	$30,000	$0
Frisco	7/1/2003	13:50	Tornado	F0	0	0	$0	$0
Lavon Res	3/4/2004	15:35	Tornado	F1	0	2	$150,000	$0
Anna	5/9/2006	21:26	Tornado	F0	0	0	$0	$0
Anna	5/9/2006	21:33	Tornado	F0	0	0	$30,000	$0
Anna	5/9/2006	21:37	Tornado	F3	2	6	$1,000,000	$0
Wylie	3/30/2007	20:20	Tornado	EF0	0	0	$500,000	$0
Allen	4/10/2008	3:04	Tornado	EF1	0	0	$12,000,000	$0
Princeton	4/3/2014	18:27	Tornado	EF0	0	1	$200,000	$0
Copeville	12/26/2015	19:09	Tornado	EF2	2	119	$1,400,000	$0
Farmersville	12/26/2015	19:17	Tornado	EF1	0	0	$1,500,000	$0
Fayburg	12/26/2015	19:33	Tornado	EF1	1	2	$600,000	$0
Weston	4/29/2016	15:53	Tornado	EF0	0	0	$30,000	$0
Allen	10/20/2019	23:22	Tornado	EF0	0	0	$200,000	$0
Totals:					5	195	$20,332,000	$0

Source: Texas Forest Service, National Centers for Environmental Information

The annualized losses due to tornado events were calculated using the methodology described in Table 3.17. The annualized loss value can be interpreted as the impact expected from tornados in terms of annualized human losses and human injuries, and annualized property losses. As observed in Table 3.17, Collin County can expect an average of 0.07 fatalities and 2.79 injuries per year. All the population of Collin County is exposed to this hazard. Also, an expected average of $290,457.14 per year in property losses is expected from tornados, with most of the historical events occurring in the unincorporated areas of Collin County. Finally, there are no expected crop losses as result of tornado events.

As stated previously, the geographical area of impact for tornado events cannot be predicted, the area of potential impacts corresponds to all Collin County's territory, and all improved property, emergency and critical facilities, and critical structures are exposed to this hazard. According to the recorded historical information, expected casualties and property losses from tornado events are significant.

In compliance to Requirement 201.6(c)(2)(ii), vulnerability to tornados and impacts to assets expected from this event can be summarized as follows:

- **Population**: Based on historical data, tornado events can be expected to cause an average of 2.79 injuries and 0.07 fatalities per year in Collin County. All the population of Collin County is exposed to this hazard.

- **Improved Property**: Based on historical data, an average loss of $290,457.14 per year in property losses are expected to result from tornado events in Collin County. No crop losses are expected from this hazard in Collin County.
- **Emergency Facilities**: Because of the impossibility to predict the geographical area of impact for tornados, all existing and future emergency facilities in Collin County are exposed to this hazard.
- **Critical Facilities**: Because of the impossibility to predict the geographical area of impact for tornados, all existing and future critical facilities in Collin County are exposed to this hazard.
- **Critical Infrastructure**: Because of the impossibility to predict the geographical area of impact for tornados, all existing and future critical infrastructures in Collin County are exposed to this hazard.

Information needed to fulfill *Requirement 201.6(c)(2)(ii)(C),* which addresses land uses and development trends was unattainable during the preparation of this hazard mitigation plan. Compliance with this requirement will be an objective in the five-year planning cycle.

Winter Storms

Because winter storm events are large and can affect extensive areas of a county, all existing and future buildings, critical facilities, critical infrastructure, emergency facilities, improved property, and population are considered to be exposed to this hazard.

Based on the available information, vulnerability to winter storms was assessed using two techniques: 1) to comply with *Requirement 201.6(c)(2)(ii)(B*), historical loss data obtained from the National Centers for Environmental Information was used to predict expected monetary and human losses from the event; 2) in fulfillment of *Requirement 201.6(c)(2)(ii)(A*), geographical hazard areas identified for winter storms and the nature of the impacts expected from this hazard event were used to identify the vulnerable assets.

Table 3.18 presents Collin County's recorded historical losses due to winter storm events as provided in the hazard events database obtained from the National Centers for Environmental Information.

Table 3.18 Winter Storm Historical Occurrences between (1/1/1996-9/22/2020)

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Collin (Zone)	11/24/1996	14:00	Winter Storm		0	0	$0	$0
Collin (Zone)	12/17/1996	12:00	Winter Weather		0	0	$0	$0
Mc Kinney	1/6/1997	12:00	Winter Weather		0	0	$0	$0
Collin (Zone)	1/12/1997	20:00	Winter Weather		0	0	$0	$0
Collin (Zone)	1/14/1997	23:00	Winter Weather		0	0	$0	$0
Collin (Zone)	12/22/1998	0:00	Ice Storm		0	0	$0	$0
Collin (Zone)	1/25/2000	0:00	Winter Storm		1	0	$0	$0
Collin (Zone)	12/12/2000	18:00	Winter Storm		0	0	$0	$0
Collin (Zone)	12/25/2000	0:00	Winter Storm		0	0	$0	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Collin (Zone)	12/31/2000	0:00	Winter Storm		0	0	$0	$0
Collin (Zone)	1/1/2001	0:00	Heavy Snow		0	0	$0	$0
Collin (Zone)	11/29/2001	6:00	Ice Storm		0	0	$0	$0
Collin (Zone)	2/5/2002	8:00	Winter Storm		0	0	$0	$0
Collin (Zone)	3/2/2002	6:00	Winter Storm		0	0	$0	$0
Collin (Zone)	2/24/2003	11:20	Winter Storm		0	0	$0	$0
Collin (Zone)	2/14/2004	3:00	Heavy Snow		0	0	$0	$0
Collin (Zone)	12/22/2004	0:01	Winter Weather		0	0	$0	$0
Collin (Zone)	12/7/2005	12:00	Winter Storm		0	0	$0	$0
Collin (Zone)	2/18/2006	3:30	Winter Weather		0	0	$0	$0
Collin (Zone)	11/30/2006	1:00	Winter Storm		0	0	$0	$0
Collin (Zone)	1/13/2007	11:00	Ice Storm		0	0	$30,000	$0
Collin (Zone)	1/17/2007	3:00	Winter Weather		0	0	$30,000	$0
Collin (Zone)	2/2/2007	1:00	Winter Weather		0	0	$0	$0
Collin (Zone)	3/3/2008	22:00	Winter Weather		0	0	$0	$0
Collin (Zone)	12/15/2008	18:00	Winter Weather		0	0	$0	$0
Collin (Zone)	12/23/2008	6:00	Winter Weather		0	0	$0	$0
Collin (Zone)	1/27/2009	7:00	Ice Storm		0	0	$60,000	$0
Collin (Zone)	12/24/2009	12:30	Winter Weather		0	0	$100,000	$0
Collin (Zone)	2/11/2010	5:00	Heavy Snow		0	0	$1,000,000	$0
Collin (Zone)	3/20/2010	19:00	Heavy Snow		0	0	$0	$0
Collin (Zone)	1/9/2011	9:00	Heavy Snow		0	0	$150,000	$0
Collin (Zone)	2/1/2011	0:30	Ice Storm		0	0	$150,000	$0
Collin (Zone)	2/3/2011	23:30	Heavy Snow		0	0	$10,000	$0
Collin (Zone)	12/25/2012	13:30	Heavy Snow		0	0	$550,000	$0
Collin (Zone)	12/5/2013	14:30	Winter Storm		0	0	$500,000	$0

Location	Date	Time	Event	Mag	Fatalities	Injuries	Property Damage	Crop Damage
Collin (Zone)	2/22/2015	18:00	Winter Storm		0	0	$10,000	$0
Collin (Zone)	2/27/2015	9:00	Heavy Snow		0	0	$200,000	$0
Collin (Zone)	3/5/2015	00:02	Heavy Snow		0	0	$0	$0
Collin (Zone)	3/5/2015	00:23	Heavy Snow		0	0	$0	$0
Collin (Zone)	3/5/2015	00:25	Winter Weather		0	0	$0	$0
Collin (Zone)	3/5/2015	00:50	Heavy Snow		0	0	$0	$0
Collin (Zone)	3/5/2015	1:00	Heavy Snow		0	0	$0	$0
Collin (Zone)	3/5/2015	1:02	Heavy Snow		0	0	$0	$0
Collin (Zone)	3/5/2015	1:15	Heavy Snow		0	0	$0	$0
Collin (Zone)	3/5/2015	1:34	Heavy Snow		0	0	$0	$0
Collin (Zone)	3/5/2015	1:34	Heavy Snow		0	0	$0	$0
Collin (Zone)	3/5/2015	1:46	Heavy Snow		0	0	$0	$0
Collin (Zone)	3/5/2015	2:50	Heavy Snow		0	0	$0	$0
Collin (Zone)	3/5/2015	3:59	Heavy Snow		0	0	$0	$0
Collin (Zone)	3/5/2015	8:15	Heavy Snow		0	0	$0	$0
Collin (Zone)	3/5/2015	9:11	Heavy Snow		0	0	$0	$0
Collin (Zone)	3/5/2015	9:11	Heavy Snow		0	0	$0	$0
Collin (Zone)	3/5/2015	10:20	Heavy Snow		0	0	$0	$0
Collin (Zone)	3/5/2015	11:29	Heavy Snow		0	0	$0	$0
Collin (Zone)	12/7/2017	9:00	Winter Weather		0	0	$0	$0
Collin (Zone)	2/11/2018	10:00	Winter Weather		0	0	$0	$0
Totals:					1	0	$2,790,000	$0

Source: National Centers for Environmental Information

The annualized losses due to winter storm events were calculated using the methodology described previously. The annualized loss value can be interpreted as the impact expected from winter storm in terms of annualized human losses and human injuries, and annualized property losses. As observed in *Table 3.18*, Collin County can expect in average an annual $116,250 in property losses, with no injuries, 0.04 fatalities, and no crop losses from winter storm events.

The geographical occurrence of winter storm events is widespread; therefore, the area of potential impacts corresponds to all Collin County's territory. According to the recorded historical information, winter storm events impact property. Because of the regional character of this hazard event, all improved property, emergency and critical facilities, and critical structures are exposed to this hazard.

In compliance to *Requirement 201.6(c)(2)(ii)*, vulnerability to winter storm events and impacts to assets expected from this event can be summarized as follows:

- **Population**: Based on historical data, winter storm events can be expected to cause an average of zero injuries and 0.04 fatalities per year in Collin County. All the population of Collin County is exposed to this hazard.
- **Improved Property**: Based on historical data, an average loss of $116,250 per year in property losses are expected to result from winter storm events in Collin County. No crop losses are expected from this hazard in Collin County.
- **Emergency Facilities**: Because of the expected geographical widespread nature of winter storms, all existing and future emergency facilities in Collin County are exposed to this hazard.
- **Critical Facilities**: Because of the expected geographical widespread nature of winter storms, all existing and future critical facilities in Collin County are exposed to this hazard.
- **Critical Infrastructure**: Because of the expected geographical widespread nature of winter storms, all existing and future critical infrastructures in Collin County are exposed to this hazard.

Information needed to fulfill *Requirement 201.6(c)(2)(ii)(c),* which addresses land uses and development trends was unattainable during the preparation of this hazard mitigation plan. Compliance with this requirement will be an objective in the five-year planning cycle.

3.6 Qualitative Analysis

In compliance to *Requirement 201.6(c)(2)(ii)* a qualitative analysis was made for three of the hazards representing low risk to Collin County: Dam Failure, Earthquake, and Expansive Soil. Because historical and geographical data regarding these events is unattainable for quantitative analysis at the present time, a qualitative analysis is in order. Quantitative analyses for these hazards will be an objective in the five-year planning cycle update, should information become available.

Dam Failure

The probability of occurrence for dam and/or levee events in Collin County is likely. There is no record of a dam failing in Collin County; therefore, there is a lack of information regarding this hazard and quantitative predictions are not available at the present time. A study is needed to gather more inundation information. All five categories, population, improved property, emergency facilities, critical facilities, and critical infrastructure are considered vulnerable to damage caused by dam and/or levee failure. According to the Priority Risk Index analysis presented in section 3.3, any estimated losses associated with this hazard are anticipated to be of moderate to no risk across Collin County. Based on data from the participating jurisdictions a total of 153 dams are located in Collin County (*Table 3.19).*

Table 3.19 Dams located in Collin County and Participating Jurisdictions

Jurisdiction	Number of Dams	Dam Classification		
		High	Significant	Low
Collin County	153	59	9	85
Total	**153**	**59**	**9**	**85**

Source: National Inventory of Dams

The Hazard Mitigation Planning Team provided a list of high hazard dams located in Collin County. (Table 3.19).

Table 3.20 High Hazard Dams

Jurisdiction	Dam Name
Collin County	EAST FORK ABOVE LAVON WS SCS SITE 32A DAM
Collin County	EAST FORK ABOVE LAVON WS SCS SITE 1C DAM
Collin County	EAST FORK ABOVE LAVON WS SCS SITE 3A DAM
Collin County	EAST FORK ABOVE LAVON WS SCS SITE 8A DAM
Collin County	LAVON LAKE
Collin County	EAST FORK ABOVE LAVON WS SCS SITE 5A DAM
Collin County	EAST FORK ABOVE LAVON WS SCS SITE 10 DAM
Collin County	LITTLE ELM AND LATERALS WS SCS SITE 18A DAM
Collin County	EAST FORK ABOVE LAVON WS SCS SITE 33 DAM
Collin County	ROWLETT CREEK WS SCS SITE 5 DAM
Collin County	PILOT GROVE CREEK WS SCS SITE 83A DAM
Collin County	EAST FORK ABOVE LAVON WS SCS SITE 3C DAM
Collin County	EAST FORK ABOVE LAVON WS SCS SITE 4 DAM

Jurisdiction	Dam Name
Collin County	EAST FORK ABOVE LAVON WS SCS SITE 11 DAM
Collin County	EAST FORK ABOVE LAVON WS SCS SITE 9 DAM
Collin County	EAST FORK ABOVE LAVON WS SCS SITE 30 DAM
Collin County	EAST FORK ABOVE LAVON WS SCS SITE 2B DAM
Collin County	EAST FORK ABOVE LAVON WS SCS SITE 1A DAM
Collin County	WILLOW BEND LAKE NO 1 DAM
Collin County	PILOT GROVE CREEK WS SCS SITE 82 DAM
Collin County	EAST FORK ABOVE LAVON WS SCS SITE 8G DAM
Collin County	PILOT GROVE CREEK WS SCS SITE 80 DAM
Collin County	EAST FORK ABOVE LAVON WS SCS SITE 16 DAM
Collin County	UPPER EAST FK LATERALS WS SCS SITE 2 DAM
Collin County	EAST FORK ABOVE LAVON WS SCS SITE 3B DAM
Collin County	ROWLETT CREEK WS SCS SITE 7 DAM
Collin County	EAST FORK ABOVE LAVON WS SCS SITE 12 DAM
Collin County	PILOT GROVE CREEK WS SCS SITE 28 DAM
Collin County	EAST FORK ABOVE LAVON WS SCS SITE 3E DAM
Collin County	EAST FORK ABOVE LAVON WS SCS SITE 31 DAM
Collin County	EAST FORK ABOVE LAVON WS SCS SITE 14 DAM
Collin County	EAST FORK ABOVE LAVON WS SCS SITE 3D DAM
Collin County	EAST FORK ABOVE LAVON WS SCS SITE 17 DAM
Collin County	EAST FORK ABOVE LAVON WS SCS SITE 15 DAM
Collin County	EAST FORK ABOVE LAVON WS SCS SITE 2A DAM
Collin County	EAST FORK ABOVE LAVON WS SCS SITE 32 DAM
Collin County	ROWLETT CREEK WS SCS SITE 4 DAM
Collin County	PILOT GROVE CREEK WS SCS SITE 79 DAM
Collin County	STONEBRIDGE LAKE F 3 DAM
Collin County	STONEBRIDGE LAKE F 4 DAM
Collin County	STONEBRIDGE LAKE F 2 DAM
Collin County	STONEBRIDGE LAKE 13 DAM
Collin County	STONEBRIDGE LAKE 11 D DAM
Collin County	STONEBRIDGE LAKE 12 DAM
Collin County	PRESTONWOOD WEST DAM
Collin County	STONEBRIDGE LAKE 11 A DAM
Collin County	STONEBRIDGE LAKE B DAM
Collin County	STONEBRIDGE LAKE F 1 DAM
Collin County	SISTER GROVE CREEK WS SCS SITE 38 DAM
Collin County	LAGO GRANDE DAM
Collin County	SISTER GROVE CREEK WS SCS SITE 3 DAM
Collin County	WILLOW BEND LAKE NO 2 DAM
Collin County	ROACH TRACT LOWER DAM

Jurisdiction	Dam Name
Collin County	ROACH TRACT DAM
Collin County	STONEBRIDGE LAKE A DAM
Collin County	LAKE LACIMA DAM
Collin County	GLENEAGLES DAM D6
Collin County	STONEBRIDGE LAKE C DAM
Collin County	CARTER RANCH DAM

Source: National Inventory of Dams

Earthquake

The probability of occurrence for an earthquake event in Collin County is extremely low. Due to unattainable information regarding this hazard, quantitative predictions are not available at the present time and further study is needed.

All five categories, population, improved property, emergency facilities, critical facilities, and critical infrastructure are considered vulnerable to damage caused by an earthquake. According to the Priority Risk Index analysis presented in section 3.3 any estimated losses associated with this hazard are anticipated to be of little to no risk across Collin County.

Expansive Soils

The probability of occurrence for expansive soil events in Collin County is at a low to moderate risk. Damage from expansive soils is difficult to document. Further studies are needed. There have been no documented previous occurrences of expansive soils in Collin County and the jurisdictions participating on this plan, with the exception of Fairview. The documentation of the occurrence can be found in Annex F.

Population is not considered vulnerable to damage caused by expansive soils; therefore, any estimated population losses associated with this hazard are anticipated to be minimal across Collin County. Improved property, emergency facilities, critical facilities, and critical Infrastructures are more vulnerable to this event. Collin County is located in an area which contains abundant clay with high swelling potential. According to the Priority Risk Index analysis, impacts from expansive soils have a low to moderate risk of creating a hazard that could cause damage to highways, streets, as well as other structures

3.7 Summary

Table 3.21 provides a summary of annualized losses for each of the nine hazard events for which the quantitative analysis (Geographic Information System and/or statistical) was conducted. *Table 3.22* summarizes the qualitative analysis conducted on the remaining three hazard events. Hurricane/Tropical Storm, Land Subsidence, and Coastal Erosion are not listed due to lack of impact.

Table 3.21 Annualized Losses Expected from Hazards Analyzed using a Quantitative Analysis

Hazard Event	Annualized Expected Fatalities	Annualized Expected Injuries	Annualized Expected Property Losses	Annualized Expected Crop Loss	Annualized Expected Crop Loss per Acre
Drought	0	0	$21,208.33	$58,916.67	$0.25
Extreme Heat	0.17	0	$0	$0	$0
Flood	0	0	$15,166.67	$0	$0
Hail	0	0	$25,204,914.29	$0	$0
High Wind	0.06	0.29	$61,328.57	$71.43	$0
Lightning	0	0.06	$440,000	$0	$0
Tornado	0.07	2.79	$290,457.14	$0	$0
Wildfire	0.04	0	$2,791.67	$100	$0.01
Winter Storm	0.04	0	$116,250	$0	$0

Table 3.22 Summary of Qualitative Analysis

Hazard Event	Probability of Occurrence According to the Priority Risk Index	Vulnerable Categories				
		Population	Property Damage	Emergency Facilities	Critical Facilities	Critical Infrastructures
Dam Failure	Moderate to No Risk	√	√	√	√	√
Earthquake	Low to No Risk	√	√	√	√	√
Expansive Soils	Negligible to No Risk		√	√	√	√

Chapter Four: 2016 Plan Action Items

4.1 Unincorporated Collin County Action Items: 2016 Plan

Collin County Action Item	Adopt and promote a comprehensive public education program that provides resources to mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Hail, Lightning, Drought, Extreme Heat, High Winds, Tornado, Wildfire, Winter Storm, Dam Failure, Earthquake, Expansive Soils, Flooding
Goal/Objective	4-A, 4-B, 4-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	General Fund, HMGP
Potential Matching Sources	Local funds, in-kind
Lead Department	Homeland Security
Implementation Schedule	1-3 years
Effect on Old Buildings	Depending on mitigation actions employed, can reduce the damage from multiple hazards to existing buildings.
Effect on New Buildings	Depending on mitigation actions implements, can reduce damages from multiple hazards to new buildings.
Cost Effectiveness	Public education is extremely effective for low cost.
Discussion	This program will include discussion about mitigation projects for all identified hazards and what mitigation actions can be taken.
Status	Some work performed in this area using regional resources along with utilizing general fund dollars from Collin County.

Collin County Action Item	Develop and implement building codes to mitigate against structural damages caused by drought, high winds and tornado.
Hazard(s) Addressed	Drought, Tornado, High Winds
Goal/Objective	3-C
Priority	Low
Estimated Cost	$5,000
Potential Funding Sources	Local Funding
Lead Department	Collin County Engineering
Implementation Schedule	1-5 years
Effect on Old Buildings	If retrofitted, could mitigate damages to old buildings.
Effect on New Buildings	This action can reduce the effects of drought, tornadoes, and high winds on new buildings.
Cost Effectiveness	The cost of this project is low compared to the potential benefits of reducing the effects of drought.
Discussion	During times of drought, earth experiences significant changes that often impact structural foundations. Building codes can mitigate these effects through mandatory use of new technologies such as resource-efficient (low-flow) plumbing for drought and water conservation. Roof bracing requirements for new construction will mitigate damages from tornado and high Winds.
Status	Collin County utilizes adopted building codes.

Collin County Action Item	Expand water conservation measures to new developments and populations
Hazard(s) Addressed	Drought
Goal/Objective	2-C
Priority	Medium
Estimated Cost	$50,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Engineering
Implementation Schedule	1-2 years
Effect on Old Buildings	May require low-flow retrofits and soil stabilization through landscaping for existing foundations to reduce effects of drought.
Effect on New Buildings	May require low-flow plumbing installations during construction, foundation protection through alternate landscaping to reduce effects of drought.
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Work with local water suppliers and building developers to expand water conservation measures in new areas of development, to include reduced taps and drought resistant landscaping.
Status	Deferred, but rely heavily on local water districts to educate and implement needed programs. Additionally, added water systems have been brought online along with new systems being constructed as of 2021.

Collin County Action Item	Implement Community Tornado Safe Room Program
Hazard(s) Addressed	Tornado, High Winds
Goal/Objective	1-C
Priority	High
Estimated Cost	$25,000
Potential Funding Sources	HMGP, PDM, Local Funds
Potential Matching Sources	Local Grants, Donations, In-Kind Match, Resident Match
Lead Department	Fire Marshal/Emergency Management
Implementation Schedule	1-5 years
Effect on Old Buildings	Existing building may be retrofitted for community safe room installation.
Effect on New Buildings	New buildings may include construction of safe rooms for the community.
Cost Effectiveness	Community and residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind events.
Discussion	Implement Local Community Tornado Safe Room Program in Identified Vulnerable Areas.

Status	Collin County residents were able to apply, and some received, grant funding through the North Central Texas Council of Government (NCTCOG) Saferoom Rebate Program. This program provided funding for saferooms through December 2020, when it was ended.

Collin County Action Item	Develop and Implement a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	2-A
Priority	Medium
Estimated Cost	$50,000
Potential Funding Sources	Texas A&M Forest Service and USDA Grants
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Fire Marshal
Implementation Schedule	2-3 years
Effect on Old Buildings	Can prevent serious damages to or loss of existing buildings due to wildfire.
Effect on New Buildings	Can prevent serious damages to or loss of new buildings due to wildfire.
Cost Effectiveness	CWPPs identify where wildfire mitigation efforts would be most effective.
Discussion	Identify wildland urban interface areas that would benefit from mitigation actions. Based on the individual variables of each area, actions such as fuel management, or defensible space development could be implemented.
Status	Deferred – no actions

Collin County Action Item	Implement Firewise mitigation programs in unincorporated Collin County.
Hazard(s) Addressed	Wildfire
Goal/Objective	4-A, 4-B
Priority	Medium
Estimated Cost	$50,000
Potential Funding Sources	USDA and Texas A&M Forest Service Grants
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Fire Marshal
Implementation Schedule	1-4 years
Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire.
Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire.
Cost Effectiveness	Cost low compared to potential loss of life and property to wildfire.
Discussion	Firewise communities experience fewer losses to wildfire than communities without the program.
Status	Deferred – no actions

Collin County Action Item	Develop and implement an extreme temperature program that identifies locations for vulnerable residents to go to during periods of extreme temperatures.
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	2-D
Priority	Medium
Estimated Cost	$5,000-$15,000
Potential Funding Sources	HMGP, PDM
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	H.R. Dept.
Implementation Schedule	1-2 years
Effect on Old Buildings	Could require retrofit to accommodate required space and resources.
Effect on New Buildings	May entail enhanced construction materials.
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.
Discussion	Cooling shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold.
Status	Places identified during past event, however, additional resources need to be utilized to make this a viable option for residents

Collin County Action Item	Coordinate and complete new inundation studies of all high and moderate hazard dams.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	3-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local Sponsors, In-Kind
Lead Department	Planning and Zoning/ NRCS, Emergency Management
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones.
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones.
Cost Effectiveness	Low
Discussion	Dam Failure data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	Deferred – most dams are now under the jurisdictions of incorporated cities.

Collin County Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	4-B, 2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes.
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes.
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.
Status	Deferred – no action. Many of the earthquake threats in the region of slowed

Collin County Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils.
Hazard(s) Addressed	Expansive Soils
Goal/Objective	4-A
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.
Status	Deferred – no action

Collin County Action Item	Distribute all-hazards NOAA Weather Radios to vulnerable populations.
Hazard(s) Addressed	3-C, 4-A, 4-B, 4-C

Goal/Objective	Hail, Lightning, Drought, Extreme Heat, High Winds, Tornado, Wildfire, Winter Storm, Dam Failure, Earthquake, Expansive Soils, Flooding
Priority	Medium
Estimated Cost	$50,000 - $75,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Emergency Management
Implementation Schedule	1-2 years
Effect on Old Buildings	n/a
Effect on New Buildings	n/a
Cost Effectiveness	Cost of lives lost and injuries sustained is very high compared to cost of proactive mitigation.
Discussion	This project would lead to greater capabilities for vulnerable populations to take mitigation actions prior to and in the event of all hazards.
Status	Deferred – no action

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4.2 City of Allen Action Items: 2016 Plan

City of Allen Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken on structures, can make existing building safer, stronger and less vulnerable to damages
Effect on New Buildings	Depending on mitigation actions taken on structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as other hazards and civil emergencies.
Status	Cancelled – No longer a viable action item

City of Allen Action Item	Develop and establish extreme temperature plan including cooling and heating shelters for vulnerable residents.
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$50,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	Emergency Management, CERT
Implementation Schedule	1-2 years
Effect on Old Buildings	May require retrofit to accommodate new designs, resources needed
Effect on New Buildings	Will make new buildings safer for vulnerable populations
Cost Effectiveness	Cost to implement this program is low compared to the benefits of reduced injury and death related to extreme temperature.

Discussion	Developing an extreme temperature program that identifies both public and private safe locations for vulnerable residents to go during periods of extreme temperatures would reduce levels of injury and death in this segment of the population.
Status	Cancelled – No longer a viable action item

City of Allen Action Item	Adopt and promote a comprehensive public education program, including information about mitigation projects.
Hazard(s) Addressed	Extreme Heat, High Wind, Wildfire, Tornado, Drought, Winter Storms, Flooding, Hail, Expansive Soils, Dam Failure, Earthquake
Goal/Objective	4-A, 4-B
Priority	Medium
Estimated Cost	$15,000
Potential Funding Sources	General fund, HMGP, PDM, other state/federal grants
Potential Matching Sources	Local funds, citizen cost-share, donations
Lead Department	Emergency Management, CERT
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken, can make existing building safer, stronger and less vulnerable to damages through retrofits and other actions
Effect on New Buildings	Depending on mitigation actions taken, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Public education is an extremely effective low cost method.
Discussion	Adopt and promote a comprehensive public education program based on the hazards identified in this annex, including information on mitigation projects.
Status	Receive supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021

City of Allen Action Item	Expand outdoor warning sirens to cover new populations
Hazard(s) Addressed	Hail, High Wind, Tornado , Dam Failure, Lightning
Goal/Objective	1-B
Priority	Medium
Estimated Cost	$35,000 each
Potential Funding Sources	General fund, HMGP, PDM, other state/federal grants
Potential Matching Sources	Local funds
Lead Department	Emergency Management

Implementation Schedule	1-2 years
Effect on Old Buildings	May require siren tower construction on existing buildings
Effect on New Buildings	None
Cost Effectiveness	Cost of implementation is low compared to the benefits of reduced injury and death related to tornados.
Discussion	Replacement of old or damaged warning sirens and expanding coverage to new populations is a proactive approach to mitigating the effects of severe weather and prevent loss of life by providing advanced warning to citizens.
Status	Cancelled – No longer a viable action item

City of Allen Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	3-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local Sponsors, In-Kind
Lead Department	Planning and Zoning/ NRCS
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Dam Failure data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	Cancelled – No longer a viable action item

City of Allen Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP

Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for earthquake damage
Effect on New Buildings	Study would identify existing construction most at risk for earthquake damage
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.
Status	Cancelled – No longer a viable action item

City of Allen Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.
Status	Cancelled – No longer a viable action item

Allen Action Item	Improve construction standards and techniques through requiring, by ordinance, builders to utilize water saving plumbing and fixtures in new construction.
Hazard(s) Addressed	Drought
Goal/Objective	2-C

Priority	High
Estimated Cost	$2,000-3,000
Potential Funding Sources	Local budget, Builders.
Lead Department	Building Department
Implementation Schedule	1-5 years
Effect on Old Buildings	No effect unless retrofitted
Effect on New Buildings	Reduced water consumption
Cost Effectiveness	Cost is very low compared to water shortages.
Discussion	This project would require low-flow plumbing and fixtures in all new construction, mitigating the effects of drought.
Status	Cancelled – No longer a viable action item

4.3 City of Anna Action Items: 2016 Plan

City of Anna Action Item	Develop and implement a comprehensive public education program, including hazard mitigation activities.
Hazard(s) Addressed	Dam Failure, Drought, High Winds, Tornado, Wildfire, Winter Storm, Expansive Soil, Extreme Heat, Hail, Lightning, Flooding, Earthquake
Goal/Objective	4-A, 4-B, 4-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	General Fund, HMGP
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken, can make existing building safer, stronger and less vulnerable to damages through retrofits and other actions.
Effect on New Buildings	Depending on mitigation actions taken, can make new building safer, stronger and less vulnerable to damages.
Cost Effectiveness	Public education is extremely effective for low cost.
Discussion	This public education program would be based on the hazards that the City of Anna identified as being vulnerable to. The program would use a combination of distributed literature, social media, and civic presentations to educate residents on natural hazards and promote hazard mitigation.
Status	Receive supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021 Plan

City of Anna Action Item	Establish centers for vulnerable residents to go for relief during periods of extreme temperatures.
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	3-C
Priority	Medium
Estimated Cost	Current staffing project time/resources
Potential Funding Sources	HMGP, PDM
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	Emergency Management
Implementation Schedule	1-2 years
Effect on Old Buildings	Could require retrofit to accommodate space and resources.
Effect on New Buildings	May entail enhanced construction materials.
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.
Discussion	Cooling and heating shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold.

Status	Deferred – will be included in 2021 Plan

City of Anna Action Item	Implement Individual Tornado Safe Room Rebate Program
Hazard(s) Addressed	High Wind, Tornado
Goal/Objective	1-C
Priority	High
Estimated Cost	Up to $3,000 per shelter
Potential Funding Sources	HMGP, PDM, Resident Match
Potential Matching Sources	Local Grants, FEMA
Lead Department	EMC
Implementation Schedule	1-3 years
Effect on Old Buildings	Enhance safety of existing residential structures.
Effect on New Buildings	Enhance safety of new residential structures.
Cost Effectiveness	Residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind events.
Discussion	This program gives rebates to residents who purchase and install safe rooms in their homes or on their properties to protect against severe weather.
Status	Will be included in 2021, however, come residents were able to obtain funds through the NCTCOG Saferoom Rebate Program

City of Anna Action Item	Increase outdoor warning siren coverage for new development areas.
Hazard(s) Addressed	Dam Failure, High Winds, Tornado, Wildfire, Hail, Lightning, Flooding
Goal/Objective	1-A, 1-B
Priority	High
Estimated Cost	$25,000 per siren, number of sirens TBD
Potential Funding Sources	General Fund, HMGP, Developer cost
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	1—2 years
Effect on Old Buildings	May entail adding a siren tower to existing buildings.
Effect on New Buildings	None
Cost Effectiveness	Early warning is a key element in keeping citizens that are outdoors notified of hazards.
Discussion	This project will expand the City of Anna's siren coverage to new areas of development not currently protect by sirens.
Status	Deferred – will be included in 2021 Plan

City of Anna Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.

Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	3-A
Priority	Medium
Estimated Cost	$50,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Planning
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones.
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones.
Cost Effectiveness	Low
Discussion	Data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	Deferred – will be included in 2021 Plan

City of Anna Action Item	Develop a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$5,000
Potential Funding Sources	TFS Grants
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Fire Dept.
Implementation Schedule	2-5 years
Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire.
Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire.
Cost Effectiveness	CWPPs show city officials where to redouble their efforts in preventing wildfire, saving time and money. Also work to establish urban wildfire interface around new development properties.
Discussion	Identify all structures and infrastructures that would be impacted by a potential wildfire.
Status	Deferred – will be included in 2021 Plan

City of Anna Action Item	Develop a drought contingency plan.
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind

Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Results may entail retrofits for low-flow plumbing.
Effect on New Buildings	Results may require new codes for low-flow plumbing and foundations.
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Develop a plan for conserving water based on the stages of drought. Plan would include strategies for soil movement abatement depending on drought stage.
Status	Plan developed and will be continued to be modified updated to meet the City's needs

City of Anna Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Results could define required retrofits or additions to reduce vulnerability to earthquakes.
Effect on New Buildings	Results could require updated codes for new construction to reduce vulnerability to earthquakes.
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.
Status	Deferred – will be included in 2021 Plan

City of Anna Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils.
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.

Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.
Status	Deferred – will be included in 2021 Plan

City of Anna Action Item	Purchase and distribute NOAA Weather Radios to vulnerable residents.
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on any mitigation actions taken on structures, can make existing building safer, stronger and less vulnerable to damages.
Effect on New Buildings	Depending on any mitigation actions taken on structures, can make new building safer, stronger and less vulnerable to damages.
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as other emergency and hazard information.
Status	Deferred – will be included in 2021 Plan

4.4 City of Blue Ridge Action Items: 2016 Plan

City of Blue Ridge Action Item	Develop and implement a comprehensive public education program, including resources to mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Tornado, High Winds, Winter Storm, Wildfire, Drought, Hail, Flooding, Lightning, Extreme Heat, Expansive Soils, Dam Failure, Earthquake
Goal/Objective	4-A, 4-B, 4-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	General Fund, HMGP
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken on structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken on structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Public education is extremely effective for low cost.
Discussion	Develop and distribute, via social media, information about mitigating the hazards identified and what actions can be taken in this annex
Status	Receive supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021

City of Blue Ridge Action Item	Develop and implement an extreme temperature program that establishes centers for vulnerable residents.
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	3-C
Priority	Medium
Estimated Cost	Current staffing project time/resources
Potential Funding Sources	HMGP, PDM,
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	H.R. Dept.
Implementation Schedule	1-2 years
Effect on Old Buildings	Could require retrofit to accommodate required space and resources
Effect on New Buildings	May entail enhanced construction materials
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.

Discussion	Cooling shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold
Status	Deferred – will be included in 2021 Plan

City of Blue Ridge Action Item	Develop and Implement Individual Tornado Safe Room Rebate Program
Hazard(s) Addressed	High Winds, Tornado, Hail
Goal/Objective	1-C
Priority	High
Estimated Cost	Up to $3,000 per shelter
Potential Funding Sources	HMGP, PDM, Resident Match
Potential Matching Sources	Local Grants, FEMA
Lead Department	EMC
Implementation Schedule	2-3 years
Effect on Old Buildings	Enhance safety of existing residential structures through retrofits
Effect on New Buildings	Enhance safety of new residential structures
Cost Effectiveness	Residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind events.
Discussion	
Status	Deferred – Residents did received funding through the NCTCOG Saferoom Rebate Program. The NCTCOG Program has been suspended

City of Blue Ridge Action Item	Increase outdoor warning siren coverage for new development areas.
Hazard(s) Addressed	High Winds, Tornado, Wildfire, Hail, Lightning, Flooding
Goal/Objective	1-A, 1-B
Priority	High
Estimated Cost	$25,000
Potential Funding Sources	General Fund, HMGP, Developer cost
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	2-3 years
Effect on Old Buildings	None
Effect on New Buildings	None

Cost Effectiveness	Early warning is a key element in keeping citizens that are outdoors notified of hazards.
Discussion	The City of Blue Ridge will expand its current siren program into newly developed areas of the jurisdiction that are currently outside of siren coverage.
Status	Deferred – will be included in 2021 Plan

City of Blue Ridge Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	3-A
Priority	Medium
Estimated Cost	$50,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Planning
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	Deferred – will be included in 2021 Plan

City of Blue Ridge Action Item	Develop and implement a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	2-A
Priority	Medium
Estimated Cost	$5,000
Potential Funding Sources	TFS Grants,
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Fire Dept.
Implementation Schedule	2-5 years
Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire

Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire
Cost Effectiveness	CWPPs show city officials where to redouble their efforts in preventing wildfire, saving time and money. Also work to establish urban wildfire interface around new development properties.
Discussion	Identify all structures and infrastructures that would be impacted by a potential wildfire and implement mitigation actions to reduce vulnerability.
Status	Deferred – will be included in 2021 Plan

City of Blue Ridge Action Item	Develop and implement a drought contingency plan that will implement water mandatory water conservation measures.
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	Results may require new codes for low-flow plumbing and foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Develop a plan for conserving water based on the stages of drought. Plan would include strategies for soil movement abatement depending on drought stage and mandatory water restrictions for water conservation.
Status	Deferred – will be included in 2021 Plan

City of Blue Ridge Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds

Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Results would help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results would help identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.
Status	Deferred – will be included in 2021 Plan

City of Blue Ridge Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.
Status	Deferred – will be included in 2021 Plan

City of Blue Ridge Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$75,000

Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken on structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken on structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as other emergency and hazard information
Status	Deferred – will be included in 2021 Plan

4.5 City of Celina Action Items: 2016 Plan

City of Celina Action Item	Purchase and utilize mobile back-up generator
Hazard(s) Addressed	Flooding, Tornado, Earthquake, Extreme Heat, Lightning, Wildfire, Winter Storms, Dam Failure, Hail, High Winds
Goal/Objective	2-D
Priority	High
Estimated Cost	$5,000 - $10,000
Potential Funding Sources	Local Funding
Potential Matching Sources	Local Funding
Lead Department	Public Works, OEM
Implementation Schedule	1-2 years
Effect on Old Buildings	Some buildings will need to be retrofit with ability to connect with generator
Effect on New Buildings	Buildings will need to be planned with the ability to connect to generator
Cost Effectiveness	Backup generator will prevent loss of power and data to critical government buildings
Discussion	Introduction of a mobile back-up generator will allow the City of Celina or other critical facilities to function as close to normal as possible in the event of a massive power loss.
Status	Deferred – will be included in 2021 Plan

City of Celina Action Item	Develop and implement a drought contingency plan
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Develop a plan for conserving water based on the stages of drought. Plan would include strategies for soil movement abatement depending on drought stage.

Status	Deferred – will be included in 2021 Plan

City of Celina Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken on structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken on structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as other emergency and hazard information
Status	Deferred – will be included in 2021 Plan

City of Celina Action Item	Implement all-hazards community education program, including information on mitigation activities.
Hazard(s) Addressed	Flooding, Tornado, Extreme Heat, Lightning, Wildfire, Winter Storms, Dam Failure, Hail, High Winds, Earthquake, Expansive Soils, Drought
Goal/Objective	4-A, 4-B, 4-C
Priority	High
Estimated Cost	$1,000 - $5,000
Potential Funding Sources	Local funding
Potential Matching Sources	Local grants, FEMA
Lead Department	OEM
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits

Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Educating public on mitigation against loss of life and property will save government resources in the event of a disaster event
Discussion	Community education is important for reducing loss of life and property.
Status	Receive supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021

City of Celina Action Item	Analyze needs, develop and implement water conservation measures for new populations
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	2-C
Priority	High
Estimated Cost	$1,000 - $5,000
Potential Funding Sources	Local funding
Potential Matching Sources	Local grants, citizen match
Lead Department	Public Works, OEM
Implementation Schedule	2-3 years
Effect on Old Buildings	New constraints will be placed on water usage without compromising soil integrity.
Effect on New Buildings	New constraints will be placed on water usage without compromising soil integrity.
Cost Effectiveness	Expanded water and soil consistency standards will help the city of Celina plan for a boost in infrastructure and population and help maintain normal water levels
Discussion	As the City of Celina grows water conservation measures will encompass new infrastructure and residential/commercial areas. This plan implements conservation efforts that also maintain soil consistency, mitigating damage from expansive soils.
Status	Deferred – will be included in 2021 Plan

City of Celina Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	3-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local Sponsors, In-Kind

Lead Department	Planning and Zoning/ NRCS, Emergency Management
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Dam Failure data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	Deferred – will be included in 2021 Plan

City of Celina Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works, Planning Zoning
Implementation Schedule	1-2 years
Effect on Old Buildings	Results would help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results would identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.
Status	Deferred – will be included in 2021 Plan

City of Celina Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	TBD
Potential Funding Sources	Federal grants, state grants

Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works, Planning Zoning
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.
Status	Deferred – will be included in 2021 Plan

4.6 Town of Fairview Action Items: 2016 Plan

Town of Fairview Action Item	Implement all-hazards public education program, including hazard mitigation activities for each identified hazard
Hazard(s) Addressed	Tornado, Winter Storm, Drought, Extreme Heat, Flooding, Wildfire, Expansive Soils, Hail, Earthquake, High Winds, Lightning, Dam Failure
Goal/Objective	3-B, 4-A, 4-B, 4-C
Priority	High
Estimated Cost	$5,000
Potential Funding Sources	Operating Budget
Potential Matching Sources	Local Grants
Lead Department	Emergency Management
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Public Education is extremely effective for low cost
Discussion	The Town of Fairview will implement an all-hazards comprehensive public education program based on the hazards identified in this annex and what actions can be taken to mitigate impacts. This program will use a variety of means for distributing information, including social media, printed literature, and presentations to civic groups.
Status	Receive supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021

Town of Fairview Action Item	Implement tornado safe room education program
Hazard(s) Addressed	High Winds, Tornados
Goal/Objective	1-C
Priority	Medium
Estimated Cost	$500
Potential Funding Sources	Operating Budget
Potential Matching Sources	Local Grants/FEMA
Lead Department	Emergency Management
Implementation Schedule	1-3 years
Effect on Old Buildings	Retrofit will be required on some structures

Effect on New Buildings	Enhance safety of new residential structures
Cost Effectiveness	Moderate to high depending on level of acceptance
Discussion	Residential safe room shelters potentially decrease the likelihood of personal injuries and death during severe weather, tornado or hail events.
Status	Will be included in 2021, however, come residents were able to obtain funds through the NCTCOG Saferoom Rebate Program

Town of Fairview Action Item	Implement and actively promote Nixle Notification alert system.
Hazard(s) Addressed	Tornado, Winter Storm, Drought, Extreme Heat, Flooding, Wildfire, Expansive Soils, Hail, Earthquake, High Winds, Lightning, Dam Failure
Goal/Objective	1-A, 1-B, 3-B, 4-A, 4-B
Priority	Medium
Estimated Cost	$1,500
Potential Funding Sources	Operating Budget
Potential Matching Sources	Local Grants/FEMA
Lead Department	Emergency Management
Implementation Schedule	1-3 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warnings will assist in saving lives for no cost.
Discussion	Weather/all-hazards notifications are a proven means to alert and warn citizens about severe weather conditions as well as other emergency and hazard information.
Status	Deferred – will be included in 2021 Plan

Town of Fairview Action Item	Update and enforce water conservation measures and implement public education outreach
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	2-C, 3-C
Priority	Medium/Low
Estimated Cost	$1000
Potential Funding Sources	Operating Budget
Potential Matching Sources	North Texas Municipal Water District

Lead Department	Public Works, Code Enforcement
Implementation Schedule	1-2 years
Effect on Old Buildings	Water conservations measures would stabilize soils, mitigating damage to existing structures.
Effect on New Buildings	Water conservations measures would stabilize soils, mitigating damage to new structures.
Cost Effectiveness	Low-cost effort for increasing awareness of water restrictions.
Discussion	Town of Fairview will review water conservation measures and update as necessary. These conservation efforts regulate water used for maintaining soil consistency. Updates will be communicated to the public.
Status	Deferred – will be included in 2021 Plan

Town of Fairview Action Item	Develop and implement regulations for the construction of town buildings deemed “critical infrastructure”.
Hazard(s) Addressed	Tornado, Winter Storm, Drought, Extreme Heat, Flooding, Wildfire, Expansive Soils, Hail, Earthquake, High Winds, Lightning, Dam Failure
Goal/Objective	1-C, 2-A, 2-B, 2-C, 2-D, 2-E
Priority	Medium/Low
Estimated Cost	$5000
Potential Funding Sources	Operating Budget
Potential Matching Sources	NCTCOG/FEMA
Lead Department	Emergency Management
Implementation Schedule	2-3 years
Effect on Old Buildings	May involve cascading retrofits
Effect on New Buildings	Strengthening construction requirements for new critical infrastructure will result in greater resiliency to hazards
Cost Effectiveness	Moderate to High.
Discussion	Town will develop and implement construction design regulations for new Critical Infrastructure, as defined by the EMC. Regulations would include elevating structures, reinforcing doors and windows, using flame-retardant, hail and wind resistant external materials, roof bracing, installing higher grade insulation, stabilizing foundations, installing lightning rods, and using low-flow technology for all plumbing.
Status	Deferred – will be included in 2021 Plan

Town of Fairview Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams.
Hazard(s) Addressed	Dam Failure, Flood

Goal/Objective	2-A, 3-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local Sponsors, In-Kind
Lead Department	Engineering/ NRCS
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Dam Failure data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	Deferred – will be included in 2021 Plan

Town of Fairview Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	Earthquake
Goal/Objective	2-A
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Engineering
Implementation Schedule	1-2 years
Effect on Old Buildings	Results would help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results would identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.
Status	Deferred – will be included in 2021 Plan

4.7 Town of Farmersville Action Items: 2016 Plan

City of Farmersville Action Item	Develop and Implement a Comprehensive Public Education Program to Mitigate the Impacts of Each Identified Hazard.
Hazard(s) Addressed	Tornado, Winter Storm, Drought, Extreme Heat, Flooding, Wildfire, Expansive Soils, Hail, Earthquake, High Winds, Lightning, Dam Failure
Goal/Objective	4-A, 4-B, 4-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	General Fund, HMGP
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Public education is extremely effective for low cost.
Discussion	Farmersville will develop a program for educating the public on our hazards and effective mitigation activities for each. Program will combine distributed written literature and social media to educate residents on hazards, their dangers, and how to mitigate against them to protect life and property.
Status	Receive supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021

City of Farmersville Action Item	Develop and implement water conservation measures
Hazard(s) Addressed	Drought
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Public Works
Implementation Schedule	1-2 years

Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Farmersville will develop stringent regulations/codes for water conservation.
Status	Deferred – will be included in 2021 Plan

City of Farmersville Action Item	Develop and Implement an Extreme Temperature Program
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	2-D
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM,
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	H.R. Dept.
Implementation Schedule	1-2 years
Effect on Old Buildings	Could require retrofit to accommodate required space and resources
Effect on New Buildings	May entail enhanced construction materials
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.
Discussion	Developing heating and cooling shelters as part of an extreme temperature program would allow threatened residents to reduce their vulnerability to extreme temperature hazards.
Status	Deferred – will be included in 2021 Plan

City of Farmersville Action Item	Implement Individual Tornado Safe Room Rebate Program
Hazard(s) Addressed	High Wind, Tornado
Goal/Objective	1-C, 2-D
Priority	High
Estimated Cost	$25,000
Potential Funding Sources	HMGP, PDM, Resident Match
Potential Matching Sources	Local Grants, FEMA
Lead Department	EMC
Implementation Schedule	2-3 years

Effect on Old Buildings	Enhance safety of existing residential structures through retrofit
Effect on New Buildings	Enhance safety of new residential structures
Cost Effectiveness	Residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind events.
Discussion	By implementing its own program separate of that run by the North Central Texas COG, Farmersville would be able to directly target its residents for storm shelter rebates, ensuring their lives and property are protected against High Winds, Tornado, and Hail
Status	Will be included in 2021, however, come residents were able to obtain funds through the NCTCOG Saferoom Rebate Program

City of Farmersville Action Item	Purchase and install outdoor warning sirens to increase coverage for new development areas.
Hazard(s) Addressed	Dam Failure, High Winds, Tornado, Wildfire, Hail, Lightning, Flooding
Goal/Objective	1-A
Priority	High
Estimated Cost	$25,000 per siren
Potential Funding Sources	General Fund, HMGP, PDM
Potential Matching Sources	Local funds, in-kind, user fees
Lead Department	EMC
Implementation Schedule	1-3 years
Effect on Old Buildings	Could entail tower construction on existing buildings
Effect on New Buildings	None
Cost Effectiveness	High. Early warning is a key element in outdoor safety
Discussion	Installing sirens in areas of new development, Farmersville can ensure long-term reduction of vulnerability to life and personal property.
Status	Deferred – will be included in 2021 Plan

City of Farmersville Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	3-A
Priority	Medium
Estimated Cost	$50,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors

Potential Matching Sources	Local sponsors, in-kind
Lead Department	Planning
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	Deferred – will be included in 2021 Plan

City of Farmersville Action Item	Develop a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$5,000
Potential Funding Sources	TFS Grants,
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Fire Dept.
Implementation Schedule	2-3 years
Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire
Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire
Cost Effectiveness	CWPPs show city officials where to redouble their efforts in preventing wildfire, saving time and money. Also work to establish urban wildfire interface around new development properties.
Discussion	A CWPP would identify locations in Farmersville that are vulnerable to wildfire. These locations might include critical facilities, critical infrastructure, or other properties that are vital to the interests of Farmersville. By identifying these locations, targeted preparedness and response measures can be implemented.
Status	Deferred – will be included in 2021 Plan

City of Farmersville Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake

Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Results would help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results would identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.
Status	Deferred – will be included in 2021 Plan

City of Farmersville Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.
Status	Deferred – will be included in 2021 Plan

City of Farmersville Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents

Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as other emergency and hazard information
Status	Deferred – will be included in 2021 Plan

4.8 City of Frisco Action Items: 2016 Plan

City of Frisco Action Item	Expanding the Early Warning Sirens and Local Warning System to notify new populations of impending severe weather or imminent hazards to reduce the loss of life and mitigate the effects of the hazards.
Hazard(s) Addressed	Tornado, hail, high winds, lightning, wildfire
Goal/Objective	1-B
Priority	High
Estimated Cost	$40,000 - $50,000 each siren / total to be determined
Potential Funding Sources	City of Frisco annual budget, HMGP
Lead Department	Fire Department
Implementation Schedule	2-5 years
Effect on Old Buildings	Outdoor warning sirens do not have an impact on structures; they are designed to be heard outdoors only.
Effect on New Buildings	The outdoor warning sirens do not have an impact on structures; they are designed to be heard outdoors only.
Cost Effectiveness	The costs associated with maintaining an outdoor warning system are minimal and less expensive than total replacement of an outdoor warning system.
Discussion	The outdoor warning siren system is the most effective tool for outdoor notification, especially as relative to the fact that Frisco has many outdoor parks, trails, and nature areas that are used by citizens.

City of Frisco Action Item	Implement the Texas Individual Tornado Safe Room Rebate Program Locally
Hazard(s) Addressed	Tornado, High Winds
Goal/Objective	1-C
Priority	Medium
Estimated Cost	50% of cost (up to) $3,000 per shelter. Number of shelters to be determined
Potential Funding Sources	County Budget, HMGP, PDM, Homeowner, Work-in-kind
Lead Department	Building Inspections Department, Emergency Management, HMC
Implementation Schedule	2-5 years
Effect on Old Buildings	This action will improve the safety of existing homes with either in-ground or in-house shelters.
Effect on New Buildings	This action will improve the safety of new homes with either in-ground or in-house shelters.
Cost Effectiveness	The cost of this project is low compared to the potential benefits of reduction in personal injuries and/or deaths.
Discussion	Residential safe room sheltering can decrease potential personal injuries or deaths in the event of a tornado.

4.9 City of Josephine Action Items: 2016 Plan

City of Josephine Action Item	Develop and implement a comprehensive public education program to mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Tornado, Winter Storm, Drought, Extreme Heat, Flooding, Wildfire, Expansive Soils, Hail, Earthquake, High Winds, Lightning, Dam Failure
Goal/Objective	4-A, 4-B, 4-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	General Fund, HMGP
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Public education is extremely effective for low cost.
Discussion	This public education program would be based on the hazards that the City of Josephine identified. The program would use a combination of distributed literature, social media, and civic presentations to educate residents on natural hazards and promote hazard mitigation.
Status	Receive supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021

City of Josephine Action Item	Identify and establish heating and cooling centers for vulnerable populations
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	2-D, 3-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM,
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	H.R. Dept.
Implementation Schedule	1-2 years
Effect on Old Buildings	Could require retrofit to accommodate required space and resources

Effect on New Buildings	May entail enhanced construction materials
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.
Discussion	Establishing heat and cooling shelters would allow special populations to reduce their vulnerability to extreme heat and cold
Status	Deferred – will be included in 2021 Plan

City of Josephine Action Item	Implement Individual Tornado Safe Room Rebate Program
Hazard(s) Addressed	High Wind, Tornado
Goal/Objective	1-C
Priority	High
Estimated Cost	Up to $3,000 per shelter
Potential Funding Sources	HMGP, PDM, Resident Match
Potential Matching Sources	Local Grants, FEMA
Lead Department	EMC
Implementation Schedule	2-3 years
Effect on Old Buildings	Enhance safety of existing residential structures through retrofit
Effect on New Buildings	Enhance safety of new residential structures
Cost Effectiveness	Residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind events.
Discussion	This program gives rebates to residents who purchase and install safe rooms in their homes or on their properties to protect against severe weather.
Status	Deferred – Residents did received funding through the NCTCOG Saferoom Rebate Program. The NCTCOG Program has been suspended

City of Josephine Action Item	Increase outdoor warning siren coverage for new development areas
Hazard(s) Addressed	Dam Failure, High Winds, Tornado, Wildfire, Hail, Flooding, Lightning
Goal/Objective	1-A, 1-B
Priority	High
Estimated Cost	$25,000 per siren. Number of sirens TBD.
Potential Funding Sources	General Fund, HMGP, PDM
Potential Matching Sources	Local funds, in-kind, donations
Lead Department	EMC
Implementation Schedule	1-2 years

Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	Early warning is a key element in keeping citizens that are outdoors notified of hazards.
Discussion	This project will expand Josephine's siren coverage to new areas of development not currently protect by sirens.
Status	Deferred – will be included in 2021 Plan

City of Josephine Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	2-A, 3-A
Priority	Medium
Estimated Cost	$50,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Planning
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	Deferred – will be included in 2021 Plan

City of Josephine Action Item	Develop and implement a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$5,000
Potential Funding Sources	TFS Grants
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Fire Dept.
Implementation Schedule	2-3 years

Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire
Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire
Cost Effectiveness	CWPPs show city officials where to redouble their efforts in preventing wildfire, saving time and money. Also work to establish urban wildfire interface around new development properties.
Discussion	A CWPP will Identify all structures and infrastructures that would be impacted by a potential wildfire, and identify potential targeted mitigation projects.
Status	Deferred – will be included in 2021 Plan

City of Josephine Action Item	Develop, adopt, and enforce water conservation measures
Hazard(s) Addressed	Drought
Goal/Objective	2-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Public Works
Implementation Schedule	1-3 years
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	City of Josephine will develop, adopt, and enforce water conservation ordinances, codes, and other regulatory measures to conserve water during times of drought.
Status	Deferred – will be included in 2021 Plan

City of Josephine Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds

Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.
Status	Deferred – will be included in 2021 Plan

City of Josephine Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	TBD
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.
Status	Deferred – will be included in 2021 Plan

City of Josephine Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$75,000

Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as other emergency and hazard information
Status	Deferred – will be included in 2021 Plan

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4.10 City of Lavon Action Items: 2016 Plan

Lavon Action Item	Establish an AM radio station to broadcast weather conditions, hazards and road closures. Also will allow for broadcast of watches, warnings, evacuation routes, shelter information, and mitigation information.
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	Medium
Estimated Cost	$50,000
Potential Funding Sources	City Budget, Grant Programs
Lead Department	City Manager's Office
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	This project's cost effectiveness is in the lives it saves by alerting citizens to take shelter during extreme weather conditions.
Discussion	The AM Radio Station will reduce the threats to the citizens by alerting them to impending severe weather and warn citizens to seek appropriate shelter inside.
Status	Deferred – included in 2021 Action Items

Lavon Action Item	Reduce the impact of Severe Heat by utilizing Green Landscaping Roofing on all new city construction.
Hazard(s) Addressed	Extreme Heat
Goal/Objective	2-B, 2-D
Priority	Medium
Estimated Cost	$50,000
Potential Funding Sources	Local funding, HMGP
Lead Department	Public Works
Implementation Schedule	1-5 years
Effect on Old Buildings	No effect
Effect on New Buildings	The green landscaping will reduce overall effect of extreme heat on buildings, making cooling more efficient and reducing the use of electricity as well as reducing the effects of extreme summer heat on the citizens.
Cost Effectiveness	This project is cost effective in the reduction of hazards to citizens as well as the reduced power and electricity requirements for cooling buildings in summer heat.
Discussion	By utilizing landscaping on the roofs several significant benefits will be utilized. Including, insulation in the facility reducing the need for electricity, reducing the impact of extreme heat on the residents.

Status	Deferred – included in 2021 Action Items

Lavon Action Item	Develop and implement a Master Storm Water Drainage Plan for the City.
Hazard(s) Addressed	Flooding
Goal/Objective	2-E
Priority	High
Estimated Cost	$50,000
Potential Funding Sources	City Budget, Grant Programs
Lead Department	Department of Public Works
Implementation Schedule	1-5 years
Effect on Old Buildings	Improved planning reduces potential flooding impacts
Effect on New Buildings	Mitigates flooding impacts
Cost Effectiveness	This project is extremely cost effective when compared to the property and agriculture/crop damage that will be avoided once the Master Storm Drainage plan enactment begins.
Discussion	There is currently no Master Storm Drainage Plan. By preparing and implementing this plan, it will reduce the occurrence of flash flooding and sudden inundation of areas. It will improve transportation during severe weather. Reduce vulnerabilities to those homeowners who are located in areas outside of flood zones but vulnerable to overflow flooding. And eliminate the rerouting of storm water to unattended areas.
Status	Deferred – included in 2021 Action Items

Lavon Action Item	Implement Building Codes requiring New Commercial Facilities to utilize Hail Resistant Roofing Materials.
Hazard(s) Addressed	Hail
Goal/Objective	2-C
Priority	Medium
Estimated Cost	$5,000-$10,000
Potential Funding Sources	HMGP, Local budget
Lead Department	Emergency Management
Implementation Schedule	1-5 years
Effect on Old Buildings	Hail resistant roofing and window coverings will significantly mitigate the potential hazards of property damage as well as possible personal injury due to severe storm and hail.
Effect on New Buildings	Reduce impacts of hail on new structures
Cost Effectiveness	The cost effectiveness of the project will be the reduction of damage to property as well as reducing the need for debris disposal after a storm.

Discussion	The City of Lavon will enact codes for new development and city construction by requiring developers to install hail resistant roofing and window coverings, thus reducing the effect of severe weather and damage.
Status	Deferred – included in 2021 Action Items

Lavon Action Item	Retrofit an existing structure or construct a new City Hall built to withstand an EF2 Tornado.
Hazard(s) Addressed	Tornado
Goal/Objective	1-C
Priority	High
Estimated Cost	$5,000,000
Potential Funding Sources	City Budget, Grant Programs
Lead Department	Department of Public Works
Implementation Schedule	3-5 years
Effect on Old Buildings	No effect on existing buildings unless retrofit
Effect on New Buildings	This would affect the new City Hall building, making it able to withstand an EF2 tornado, mitigating the loss of such critical infrastructure.
Cost Effectiveness	This project is cost effective because the current City Hall building is manufactured and will not withstand an EF2 tornado. City Hall houses many functions, documents, and records, and the potential loss of those greatly outweighs the cost of a new hardened structure.
Discussion	The current City Hall houses Administration, Clerical, Secretary, Devel. Services, Marshal Office, Council Court, PW and all the records are housed. The City Hall facility is currently two manufactured modular trailer buildings. The construction or retrofit of the new City Hall should include a hardened infrastructure to withstand known hazard extent levels.
Status	Deferred – included in 2021 Action Items

Lavon Action Item	Retrofit an existing structure or construct a new Public Works office and shop built to withstand a EF2 Tornado
Hazard(s) Addressed	Tornado
Goal/Objective	1-C
Priority	High
Estimated Cost	$1,000,000
Potential Funding Sources	City Budget, Grant Programs
Lead Department	Department of Public Works
Implementation Schedule	2-4 years
Effect on Old Buildings	No effect on existing buildings unless retrofit

Effect on New Buildings	This would affect the new Public Works office and shop buildings, making them able to withstand an EF2 tornado, mitigating the loss of such critical infrastructure.
Cost Effectiveness	This project is cost effective because the current Public Works buildings are manufactured and will not withstand an EF2 tornado. These buildings house many functions, documents, and records, and the potential loss of those greatly outweighs the cost of a new hardened structure.
Discussion	The current Public Works office and shop contain all document and vital records. The offices are currently manufactured modular trailer buildings, and these would not withstand an EF2 tornado. In order to mitigate the effects of that hazard, the retrofit or construction of the new Public Works office and shop should include a hardened infrastructure to withstand known hazard extent levels.
Status	Deferred – included in 2021 Action Items

Lavon Action Item	Implement a program to inspect and clear excessive brush along high-voltage power lines and surrounding land, reducing the vulnerability to citizens located in potential wildland fire areas.
Hazard(s) Addressed	Wildland Fire
Goal/Objective	2-C
Priority	High
Estimated Cost	$500,000/year
Potential Funding Sources	Local funding, HMGP
Lead Department	Public Works, Fire Department
Implementation Schedule	1-2 years
Effect on Old Buildings	This would mitigate the effects of wildland fire encroaching upon built up areas for existing construction.
Effect on New Buildings	This would mitigate the effects of wildland fire encroaching upon built up areas for new structures.
Cost Effectiveness	This project's cost effectiveness is seen in the management of wildland fire fuels to significantly reduce the damage or loss of buildings, structures, agriculture products, or homes to wildland fire.
Discussion	Currently the City of Lavon is susceptible to wildland due to the large amounts of family owned and un-maintained land along with the large farming industry. With the clearing of brush around high power voltage lines and surrounding land, this will create a fire break, greatly reducing the hazard and risks associated with possible ignition sources of wildland fire.
Status	Deferred – included in 2021 Action Items

Lavon Action Item	Develop and implement a community awareness program utilizing the City's existing communication outlets including the website and newsletter in order to mitigate the effects of wildland fire.
Hazard(s) Addressed	Wildland Fire

Goal/Objective	4-A, 4-B
Priority	High
Estimated Cost	$7,000-$10,000
Potential Funding Sources	City Budget
Lead Department	Development Services
Implementation Schedule	1-5 years
Effect on Old Buildings	This will greatly mitigate the effect of wildland fire on all buildings by increasing mitigation actions through public awareness and education campaigns, especially during periods of low rain and high heat.
Effect on New Buildings	This will greatly mitigate the effect of wildland fire on all buildings by increasing mitigation actions through public awareness and education campaigns, especially during periods of low rain and high heat.
Cost Effectiveness	This project is cost effective when compared to property damage, crop consumption, and potential loss of life that can be attributed to the hazards of wildland fire.
Discussion	The City of Lavon is highly susceptible to the dangers posed by wildland fire. By educating the public, they will be more aware of conditions, hazard assessment, and any applicable codes or burn ban enforcements applied by the city. This will mitigate the hazards associated with wildland fire.
Status	Receive supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021 Plan

4.11 City of Lowry Crossing Action Items: 2016 Plan

Lowry Crossing Action Item	Implement Hazard Mitigation Education Series to mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Tornado, Wildfire, Winter Storm, Extreme Heat, High Winds, Flooding, Expansive Soils, Hail, Drought, Earthquake, Lightning, Dam Failure
Goal/Objective	2A, 2B, 2C
Priority	High
Estimated Cost	$5,000
Potential Funding Sources	FEMA
Potential Matching Sources	N/A
Lead Department	City Administration
Implementation Schedule	0 – 24 Months
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Will be instrumental in planning and correction.
Discussion	In FY2022 Lowry Crossing is partnering with NCTCOG on a flood study of 17 miles of tributary within the city.
Status	Continue - Received supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021

Lowry Crossing Action Item	Implement Storm Shelter/Safe Room Rebate Program
Hazard(s) Addressed	Tornado, High Winds
Goal/Objective	1B
Priority	High
Estimated Cost	$3000/safe room
Potential Funding Sources	Federal Grants
Potential Matching Sources	NCTCOG
Lead Department	City Administration
Implementation Schedule	1-3 years
Effect on Old Buildings	Existing construction could have safe room added
Effect on New Buildings	New building could be constructed with safe rooms
Cost Effectiveness	Residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind.
Discussion	Develop list of storm shelter and safe rooms for emergency personnel to check safety of inhabitants.

Status	Continue - Will be included in 2021, however, some residents were able to obtain funds through the NCTCOG Saferoom Rebate Program

Lowry Crossing Action Item	Develop and adopt a drought contingency plan.
Hazard(s) Addressed	Drought
Goal/Objective	3A, 3B, 3C
Priority	High
Estimated Cost	$5,000
Potential Funding Sources	Local Funds
Potential Matching Sources	
Lead Department	City Administration
Implementation Schedule	1-2 years
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and foundation integrity
Cost Effectiveness	Very low cost to ensure benefit of saving water for future generations.
Discussion	Drought contingency plan will limit water usage based on drought conditions.
Status	Deferred – will be included in 2021 Plan

Lowry Crossing Action Item	Develop and implement an extreme temperature program that establishes heating and cooling centers for vulnerable residents
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	2-A, 2-D, 3-C
Priority	Medium
Estimated Cost	$5,000-$15,000
Potential Funding Sources	HMGP, PDM
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	H.R. Dept.
Implementation Schedule	12 months
Effect on Old Buildings	Could require retrofit to accommodate required space and resources
Effect on New Buildings	May entail enhanced construction materials
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.
Discussion	Cooling shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold

Status	Deferred – will be included in 2021 Plan

Lowry Crossing Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	Protect existing and new properties from the effects of all natural hazards.
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local Sponsors, In-Kind
Lead Department	Planning and Zoning/ NRCS
Implementation Schedule	12-18 Months
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Dam Failure data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	Deferred – will be included in 2021 Plan

Lowry Crossing Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	4-B
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	6 months – 18 months
Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low

Discussion	Project outputs will guide development of future earthquake mitigation projects.
Status	Deferred – will be included in 2021 Plan

Lowry Crossing Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	4-A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	12-18 months
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.
Status	Deferred – will be included in 2021 Plan

Lowry Crossing Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years

Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as provide other emergency and hazard information
Status	Deferred – will be included in 2021 Plan

4.12 City of Lucas Action Item: 2016 Plan

City of Lucas Action Item	Develop a Community Wildfire Protection Plan (CWPP).
Hazard(s) Addressed	Wildfire
Goal/Objective	2-A
Priority	Medium
Estimated Cost	$20,000
Potential Funding Sources	HMGP, PDM, and/or General Fund
Potential Matching Sources	Local funds, donations, in-kind, and/or grants
Lead Department	Fire-Rescue and Emergency Management with assistance from Collin County and the Texas A&M Forest Service.
Implementation Schedule	18-36 Months
Effect on Old Buildings	Will reduce vulnerability of existing structures to damages or loss from wildfire.
Effect on New Buildings	Will reduce vulnerability of new structures to damages or loss from wildfire.
Cost Effectiveness	CWPPs show officials where to focus their efforts in preventing wildfire. Saving lives and protecting property is cost effective in the long-run.
Discussion	This project will become needed as the population in the Wildland Urban Interface area increases. This plan will protect life and property.
Status	Not yet started.

City of Lucas Action Item	Develop a wildfire and drought education program for residents.
Hazard(s) Addressed	Wildfire, Drought
Goal/Objective	4-A, 4-B
Priority	Medium
Estimated Cost	$5,000.00
Potential Funding Sources	HMGP, PDM, and/or General Fund
Potential Matching Sources	Local funds, in-kind, and/or grants
Lead Department	Fire-Rescue and Emergency Management with assistance from the Texas A&M Forest Service
Implementation Schedule	0-12 months
Effect on Old Buildings	Will reduce vulnerability of existing buildings to wildfire and drought through resident education and behavior.
Effect on New Buildings	Will reduce vulnerability of new buildings to wildfire and drought through resident education and behavior.
Cost Effectiveness	Public education is extremely effective with a low cost.
Discussion	Residents will be educated on mitigation actions to protect their lives and property from wildfire and drought. Residents will be provided

	with supplies and materials from the NCTCOG KnoWhat2Do Program.
Status	Not yet started. The City will request supplies and materials from the NCTCOG when a plan for education and distribution has been determined.

City of Lucas Action Item	Develop an extreme heat education program for residents.
Hazard(s) Addressed	Extreme Heat
Goal/Objective	4-A, 4-B
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, and/or General Fund
Potential Matching Sources	Local funds, in-kind, and/or grants
Lead Department	Fire-Rescue and Emergency Management
Implementation Schedule	2 years
Effect on Old Buildings	Will reduce vulnerability of existing buildings to extreme heat through resident education and behavior.
Effect on New Buildings	Will reduce vulnerability of new buildings to extreme heat through resident education and behavior.
Cost Effectiveness	Public education is extremely effective with a low cost.
Discussion	Residents will be educated on mitigation actions to protect their lives and property from extreme heat. Residents will be provided with supplies and materials from the NCTCOG KnoWhat2Do Program.
Status	Not yet started. The City will request supplies and materials from the NCTCOG when a plan for education and distribution has been determined.

City of Lucas Action Item	Develop a winter weather/storm education program for residents.
Hazard(s) Addressed	Winter Storms
Goal/Objective	4-A, 4-B
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HGMP, PDM, and/or General Fund
Potential Matching Sources	Local funds, in-kind, and/or grants
Lead Department	Fire-Rescue and Emergency Management
Implementation Schedule	2 years
Effect on Old Buildings	Will reduce vulnerability of existing buildings to winter weather/storms through resident education and behavior.

Effect on New Buildings	Will reduce vulnerability of new buildings to winter weather/storms through resident education and behavior.
Cost Effectiveness	Public education is extremely effective with a low cost.
Discussion	Residents will be educated on mitigation actions to protect their lives and property from winter weather/storms. Residents will be provided with supplies and materials from the NCTCOG KnoWhat2Do Program
Status	Not yet started. The City will request supplies and materials from the NCTCOG when a plan for education and distribution has been determined.

City of Lucas Action Item	Develop a Large Animal Rescue Plan and educate residents on actions to mitigate impact to large animals from severe weather and natural disasters.
Hazard(s) Addressed	Flood, Tornado, Winter Storm, Wildfire
Goal/Objective	4-B
Priority	Medium
Estimated Cost	$25,000
Potential Funding Sources	HMGP, PDM, and/or General Fund
Potential Matching Sources	Local funds, in-kind, and/or grants
Lead Department	Fire-Rescue
Implementation Schedule	18-36 months
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	Public education is extremely effective with a low cost.
Discussion	This project will help Lucas Fire-Rescue educate owners of large animals about how to mitigate impact to their large animals from severe weather and natural disasters. This plan will also give Lucas Fire-Rescue the plans and directions on rescuing large animals around the City during disaster.
Status	Not yet started.

City of Lucas Action Item	Implement stricter building codes and standards to mitigate the impacts of hazards to buildings around the City.
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, High Winds, Lightning, Tornado, Wildfire, Winter Storm
Goal/Objective	2-C
Priority	Medium
Estimated Cost	$10,000 - $15,000

Potential Funding Sources	Local
Potential Matching Sources	None
Lead Department	Planning and Zoning, Code Enforcement, Engineering
Implementation Schedule	1-2 years
Effect on Old Buildings	Old buildings would be retrofitted to meet current or updated building code standards.
Effect on New Buildings	New buildings would be constructed to meet current or updated building code standards.
Cost Effectiveness	This is cost effective because it will protect life and property from future disasters.
Discussion	Updated and current building code standards will be continuously implemented in the City through retrofits to old buildings and initial construction to new buildings.
Status	The City of Lucas has adopted current building code and will continue to adopt the most current building codes. This action item will be included in future HazMAP updates.

City of Lucas Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	Earthquake
Goal/Objective	2-A
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local funds
Lead Department	Public Works, Planning Zoning
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce the vulnerability to earthquakes
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low.
Discussion	Study results will identify information to determine mitigation projects
Status	No longer a relevant action item to the City of Lucas. This item will not be included as a 2021 Action Item.

City of Lucas Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils.
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants and/or state grants
Potential Matching Sources	Local funds
Lead Department	Emergency Management, Public Works, Planning and Zoning
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	This study would lead to targeted mitigation projects to lower vulnerability to expansive soils. This soil analysis will protect life and property.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.
Status	Not yet started.

City of Lucas Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	3-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local Sponsors, In-Kind
Lead Department	Emergency Management, Planning and Zoning
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low

Discussion	Dam Failure data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	No longer a relevant action item to the City of Lucas. This item will not be included as a 2021 Action Item.

4.13 City of Melissa Action Item: 2016 Plan

City of Melissa Action Item	Adopt and promote public education program to mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Tornado, Wildfire, Winter Storm, Extreme Heat, High Winds, Flooding, Expansive Soils, Hail, Drought, Earthquake, Lightning, Dam Failure
Goal/Objective	4-A, 4-B, 4-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	General Fund, HMGP
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	9-12 months
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Public education is extremely effective for low cost.
Discussion	Program will include information on hazard mitigation and what actions can be taken to reduce impacts on people and property.
Status	Receive supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021

City of Melissa Action Item	Increase outdoor warning siren coverage for new development areas.
Hazard(s) Addressed	Tornado, Wildfire, High Winds, Flooding, Hail, Lightning, Dam Failure
Goal/Objective	1-A
Priority	High
Estimated Cost	$25,000
Potential Funding Sources	General Fund, HMGP, Developer cost
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	9-12 months
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	Early warning is a key element in the safety of citizens who are outdoors

Discussion	Outdoor warning sirens help prevent loss of life during severe storms.
Status	Deferred – will be included in 2021 Plan

City of Melissa Action Item	Develop and implement an extreme temperature program that identifies both safe locations for vulnerable residents to go to during periods of extreme temperatures.
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	2-A
Priority	Medium
Estimated Cost	Current staffing project time/resources
Potential Funding Sources	HMGP, PDM,
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	H.R. Dept.
Implementation Schedule	12 months
Effect on Old Buildings	May require retrofit
Effect on New Buildings	None
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.
Discussion	Cooling shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold
Status	Deferred – will be included in 2021 Plan

City of Melissa Action Item	Implement Individual Tornado Safe Room Rebate Program
Hazard(s) Addressed	Tornado, High Winds
Goal/Objective	1-C
Priority	High
Estimated Cost	Up to $3,000 per shelter
Potential Funding Sources	HMGP, PDM, Resident Match
Potential Matching Sources	Local Grants, FEMA
Lead Department	EMC
Implementation Schedule	12 to 24 months
Effect on Old Buildings	Retrofit will increase life safety
Effect on New Buildings	Will add additional protection to reduce injury and loss of life
Cost Effectiveness	Residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind events.

Discussion	Residential safe room programs help prevent loss of life during tornado or severe storm.
Status	Deferred – Residents did received funding through the NCTCOG Saferoom Rebate Program. The NCTCOG Program has been suspended

City of Melissa Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as provide other emergency and hazard information
Status	Deferred – will be included in 2021 Plan

City of Melissa Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	3-A
Priority	Medium
Estimated Cost	$50,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Planning
Implementation Schedule	12 - 18 months

Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	Deferred – will be included in 2021 Plan

City of Melissa Action Item	Develop a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	3-A
Priority	Medium
Estimated Cost	$5,000
Potential Funding Sources	TFS Grants,
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Fire Dept.
Implementation Schedule	18 – 36 months
Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire
Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire
Cost Effectiveness	CWPPs show city officials where to redouble their efforts in preventing wildfire, saving time and money. Also work to establish urban wildfire interface around new development properties.
Discussion	Identify all structures and infrastructures that would be impacted by a potential wildfire.

Status	Deferred – will be included in 2021 Plan
City of Melissa Action Item	Develop and implement mandatory water conservation measures
Hazard(s) Addressed	Drought
Goal/Objective	3-A
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Public Works

Implementation Schedule	12 - 18 months
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Promote water conservation throughout the county and work with local water supplies to increase public education on drought. Develop and implement mandatory water restrictions for water conservation.
Status	Deferred – will be included in 2021 Plan

City of Melissa Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works, Planning Zoning
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.
Status	Deferred – will be included in 2021 Plan

City of Melissa Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	TBD

Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works, Planning Zoning
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.
Status	

4.14 City of Murphy Action Items: 2016 Plan

City of Murphy Action Item	Increase the percentage of population covered by Outdoor Warning Sirens by relocating one siren and purchasing and installing an additional siren.
Hazard(s) Addressed	Tornado, High Winds, Hail
Goal/Objective	1-B
Priority	High
Estimated Cost	$38,000
Potential Funding Sources	HGMP, PDM, General Fund
Potential Matching Sources	Local funds, in-kind
Lead Department	Fire/OEM
Implementation Schedule	6-18 months
Effect on Old Buildings	N/A
Effect on New Buildings	N/A
Cost Effectiveness	Very cost effective. Quantifying the value of a human life is extremely difficult at best.
Discussion	The city has four tower sites currently, but has a gap in coverage in some areas. Relocating an existing site and adding one site would allow full coverage for the city and its residents.
Status	100% Complete

City of Murphy Action Item	Obtain portable generators to ensure continuity of operations at critical facilities.
Hazard(s) Addressed	Tornado, Wildfire, Winter Storm, Extreme Heat, High Winds, Flooding, Hail, Earthquake, Lightning, Dam Failure
Goal/Objective	1-E
Priority	High
Estimated Cost	$7,500 each
Potential Funding Sources	HGMP, HMA, General Fund
Potential Matching Sources	Local, In-kind
Lead Department	Fire
Implementation Schedule	3-6 Months
Effect on Old Buildings	Would require retrofit for generator hookups
Effect on New Buildings	N/A
Cost Effectiveness	Very cost effective
Discussion	Natural hazards can create power outages for extended periods of time.

Status	Not started and no longer a viable action item. Will be removed from Plan

City of Murphy Action Item	Purchase and Install CASA-WX Weather Radar
Hazard(s) Addressed	Tornado, High Winds, Hail
Goal/Objective	1-A, 1-B
Priority	High
Estimated Cost	$2.5 Million
Potential Funding Sources	HGMP, PDM, General Fund
Potential Matching Sources	Local funds, in-kind
Lead Department	Fire/OEM
Implementation Schedule	3-6 months
Effect on Old Buildings	N/A
Effect on New Buildings	N/A
Cost Effectiveness	Very cost effective. Quantifying the value of a human life is extremely difficult at best.
Discussion	The Collaborative Adaptive Sensing of the Atmosphere (CASA WX) project is a multi-sector partnership dedicated to engineering revolutionary weather-sensing networks. The more accurate data will also provide a better means to analyze severe weather post event which can also help in the assessment of damage after a severe weather event.
Status	No longer a viable project for Murphy, will be removed from Plan on 2021

City of Murphy Action Item	Implement the Residential Safe Room Rebate Program locally
Hazard(s) Addressed	Tornado, High Winds
Goal/Objective	1-C
Priority	Medium
Estimated Cost	$3,000 per safe room
Potential Funding Sources	HGMP, PDM, General Fund
Potential Matching Sources	Local funds, in-kind
Lead Department	City Council – City Manager
Implementation Schedule	1-3 years
Effect on Old Buildings	Some buildings may be modified for shelter retrofit
Effect on New Buildings	New home construction would result in safer houses

Cost Effectiveness	Moderate: Residential safe room shelters potentially decrease personal injuries and death during severe weather, tornados or high winds events.
Discussion	Support the existing active FEMA 320 safe room rebate program for North Central Texas by helping offset the cost to the resident.
Status	Will be included in 2021, however, come residents were able to obtain funds through the NCTCOG Saferoom Rebate Program

City of Murphy Action Item	Develop and implement seasonal program for identifying and removing tree limbs that threaten infrastructure.
Hazard(s) Addressed	Tornado, Wildfire, Winter Storm, High Winds, Lightning
Goal/Objective	1-D
Priority	Medium
Estimated Cost	$25,000
Potential Funding Sources	HGMP, General Fund
Potential Matching Sources	Local funds, in-kind
Lead Department	Parks
Implementation Schedule	3-6 Months
Effect on Old Buildings	Reduce potential for power line/debris/limb damage to existing buildings during extreme weather
Effect on New Buildings	Reduce potential for power line/debris/limb damage to new construction during extreme weather
Cost Effectiveness	Very cost effective in mitigating tree limbs prior to severe weather events.
Discussion	Severe storms, winter storms, and wildfires damage tree limbs and power lines that damage homes, buildings, vehicles and create power outages when they fall. Roads become impassable due to the obstructions created by the falling limbs and charged power lines as well. The ability to mitigate these overgrowth items and strategically located limbs will lessen the effects of the hazards.
Status	Completed

City of Murphy Action Item	Retrofit the existing Emergency Operations Center to harden it against multiple hazards
Hazard(s) Addressed	Tornado, Wildfire, Winter Storm, Extreme Heat, High Winds, Flooding, Expansive Soils, Hail, Drought, Earthquake, Lightning, Dam Failure
Goal/Objective	2-B
Priority	High
Estimated Cost	$30,000-$150,000

Potential Funding Sources	HGMP, PDM, HMA, General Fund
Potential Matching Sources	Local, In-kind, Bond
Lead Department	Public Works
Implementation Schedule	12 – 24 months
Effect on Old Buildings	Existing building would be retrofitted to mitigate against structure-impacting hazards.
Effect on New Buildings	N/A
Cost Effectiveness	Low cost effectiveness for construction, but very cost effective for 'command structure' to remain intact to operate through emergency events
Discussion	Dry floodproofing ground floor; reinforcing doors and windows; installing flame-retardant, hail and wind resistant external materials (window coatings, roofing); roof bracing; higher grade insulation; foundations stabilizers; lightning rods; soil stabilizing plants, and low-flow plumbing.
Status	Partially completed and will continue to perform enhancements. Will be included in 2021 Plan.

City of Murphy Action Item	Replace undersized culverts at five locations.
Hazard(s) Addressed	Flooding
Goal/Objective	2-A, 2-E
Priority	Moderate
Estimated Cost	$620,000
Potential Funding Sources	HGMP, PDM, HMA, General Fund
Potential Matching Sources	Local, in-kind, Bonds
Lead Department	Engineering
Implementation Schedule	1-2 years
Effect on Old Buildings	Reduce flooding for existing structures in area
Effect on New Buildings	Reduce flooding for planned construction in area
Cost Effectiveness	Very effective for the long term results gained
Discussion	Providing proper water flow and drainage during times of excessive rains is imperative. Improper water flow results in damage to roads, bridges and property; which may lead to injuries and deaths. These replacements will be for 5 separate projects that have been identified as insufficient.
Status	Mostly completed and will be included in 2021 Update

City of Murphy Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as provide other emergency and hazard information
Status	Deferred – will be included in the 2021 Plan

City of Murphy Action Item	Drainage channel improvements and additions.
Hazard(s) Addressed	Flooding
Goal/Objective	2-A, 2-E
Priority	Moderate
Estimated Cost	$3.11 Million
Potential Funding Sources	HGMP, PDM, HMA, General Fund
Potential Matching Sources	Local, in-kind, Bonds
Lead Department	Engineering
Implementation Schedule	12 – 18 Months
Effect on Old Buildings	Reduce flooding for existing structures in area
Effect on New Buildings	Reduce flooding for planned construction in area
Cost Effectiveness	Very effective for the long term results gained

Discussion	Providing proper water flow and drainage during times of excessive rains is imperative. Improper water flow results in damage to roads, bridges and property; which may lead to injuries and deaths. These replacements will be for 4 separate projects that have been identified as insufficient.
Status	Mostly completed and will be included in 2021 Update

City of Murphy Action Item	Purchase and install lightning detection equipment for city parks
Hazard(s) Addressed	Lightning
Goal/Objective	1-A
Priority	Moderate
Estimated Cost	$10,000
Potential Funding Sources	HGMP, PDM, General Fund
Potential Matching Sources	Local, in-kind
Lead Department	Public works
Implementation Schedule	12 months
Effect on Old Buildings	N/A
Effect on New Buildings	N/A
Cost Effectiveness	Very cost effective. Quantifying the value of a human life is extremely difficult at best.
Discussion	The city has two major parks with outdoor sporting event capabilities, pavilions and an amphitheater where multiple events are held throughout the year. Providing a secondary source of severe weather information such as lightning indication could prevent injury or death to one or more of our citizens or guests
Status	No longer a viable project. Will not be included in the 2021 Plan

City of Murphy Action Item	Develop and implement a water conservation plan
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	3-A
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Public Works
Implementation Schedule	12 - 18 months

Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and protection of foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Promote water conservation and work with local water supplies to increase mitigation measures for drought. Develop and implement mandatory water restrictions/codes for water conservation measures that address soil stabilization.
Status	Deferred – will be included in the 2021 Plan

4.15 Town of New Hope Action Items: 2016 Plan

Town of New Hope Action Item	Adopt and promote public education program to mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Tornado, Wildfire, Winter Storm, Extreme Heat, High Winds, Flooding, Expansive Soils, Hail, Drought, Earthquake, Lightning, Dam Failure
Goal/Objective	4-A, 4-B, 4-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local funds General fund
Lead Department	Town Council
Implementation Schedule	Yearly effort
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Public education is extremely effective for low cost.
Discussion	The utilization of social media will be key in this program. Program will include educational information about hazard awareness and mitigation.
Status	Receive supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021 Plan

Town of New Hope Action Item	Implement Individual Tornado Safe Room Rebate Program
Hazard(s) Addressed	Tornado/High Winds
Goal/Objective	1-C
Priority	High
Estimated Cost	Up to $3,000 per shelter
Potential Funding Sources	HMGP, PDM, Resident Match
Potential Matching Sources	Residents receiving grant
Lead Department	N/A
Implementation Schedule	1-3 Years
Effect on Old Buildings	Enhance Safety of existing residential structures through retrofit
Effect on New Buildings	Enhance safety of new residential structures
Cost Effectiveness	Residential safe room shelter potentially decrease personal injuries and death during severe weather, tornados, or high wind events

Discussion	
Status	Will be included in 2021, however, come residents were able to obtain funds through the NCTCOG Saferoom Rebate Program

Town of New Hope Action Item	Develop and Implement an extreme temperature program that identifies both locations for vulnerable residents to go to during periods of extreme temperatures.
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	2-A, 2D
Priority	Medium
Estimated Cost	$5,000-$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local funds, General fund
Lead Department	Town Council
Implementation Schedule	12 months
Effect on Old Buildings	Could require retrofit to accommodate required space and resources, including but not limited to emergency generators.
Effect on New Buildings	May entail enhanced construction materials
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.
Discussion	Cooling shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold
Status	Deferred – will be included in 2021 Plan

Town of New Hope Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	Low
Estimated Cost	$75,000
Potential Funding Sources	HMPG, Partial payment by receiving party
Potential Matching Sources	Local funds, General Fund, citizen cost-share
Lead Department	Town Council
Implementation Schedule	2-5 years

Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios could be especially useful to provide information about severe weather as well as provide other emergency and hazard information to residents without use of their cell phones or access to Internet.
Status	Deferred – will be included in 2021 Plan

Town of New Hope Action Item	Increase outdoor warning siren coverage for new development areas.
Hazard(s) Addressed	Tornado, Wildfire, High Winds, Flooding, Hail, Lightning, Dam Failure
Goal/Objective	1-A
Priority	Medium
Estimated Cost	$25,000 per siren
Potential Funding Sources	HMGP
Potential Matching Sources	Local funds, General Fund, Developer cost
Lead Department	Town Council
Implementation Schedule	9-12 months
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	Early warning is a key element in keeping citizens notified of hazards.
Discussion	Obtaining grants will be key to implementation of outdoor warning siren coverage due to high costs and New Hope's ow fiscal capability assessment scores.
Status	Deferred – will be included in 2021 Plan

Town of New Hope Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the County.
Hazard(s) Addressed	Dam Failure, Flooding
Goal/Objective	2-A, 3-A
Priority	Low
Estimated Cost	$50,000

Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local sponsors, General Fund
Lead Department	Town Council
Implementation Schedule	12 - 18 months
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Identify all structures and infrastructures that would be impacted by a potential dam failure. There are currently no dams located in or immediately surrounding New Hope.
Status	Deferred – will be included in 2021 Plan

Town of New Hope Action Item	Develop a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	1-A, 3-C
Priority	Medium
Estimated Cost	$5,000
Potential Funding Sources	HMGP, PDM
Potential Matching Sources	Local, General Fund
Lead Department	Town Council
Implementation Schedule	18 – 36 months
Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire
Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire
Cost Effectiveness	CWPPs show town officials where to redouble their efforts in preventing wildfire, saving time and money. Also work to establish urban wildfire interface around new development properties.
Discussion	With assistance from Collin County Fire Marshall, identify mitigation strategies for all structures and infrastructures that would be impacted by a potential wildfire.
Status	Deferred – will be included in 2021 Plan

Town of New Hope Action Item	Develop a drought contingency plan
Hazard(s) Addressed	Drought

Goal/Objective	3-C, 4-B
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local, General Fund
Lead Department	Town Council
Implementation Schedule	12 - 18 months
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and preservation of foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Develop a plan for conserving water based on North Collin Special Utility District recommendations. Use of social media will be key in implementing this plan.
Status	Deferred – will be included in 2021 Plan

Town of New Hope Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	4-B
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	6 – 18 months
Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects
Status	Deferred – will be included in 2021 Plan

Town of New Hope Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils.
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2A,
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local, General Funds
Lead Department	Town Council
Implementation Schedule	12-18 months
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction. Expansive soils are not prevalent in New Hope.
Status	Deferred – will be included in 2021 Plan

4.16 City of Parker Action Items: 2016 Plan

City of Parker Action Item	Develop and implement a comprehensive public education program to mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Tornado, Wildfire, Winter Storm, Extreme Heat, High Winds, Flooding, Expansive Soils, Hail, Drought, Earthquake, Lightning, Dam Failure
Goal/Objective	4-A, 4-B, 4-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	General Fund, HMGP
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Public education is extremely effective for low cost.
Discussion	This public education program would be based on the hazards that the City of Parker identified as being vulnerable to. The program would use a combination of distributed literature, social media, and civic presentations to educate residents on natural hazards and promote hazard mitigation.
Status	Receive supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021

City of Parker Action Item	Establish centers for vulnerable residents to mitigate the effects of extreme temperatures.
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	2-D
Priority	Medium
Estimated Cost	$5,000-$15,000
Potential Funding Sources	HMGP, PDM,
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	Emergency Management
Implementation Schedule	1-2 years
Effect on Old Buildings	Could require retrofit to accommodate required space and resources

Effect on New Buildings	May entail enhanced construction materials
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.
Discussion	Cooling and heating shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold
Status	Deferred – will be included in 2021 Plan

City of Parker Action Item	Implement Individual Tornado Safe Room Rebate Program
Hazard(s) Addressed	High Wind, Tornado
Goal/Objective	1-C
Priority	High
Estimated Cost	Up to $3,000 per shelter
Potential Funding Sources	HMGP, PDM, Resident Match
Potential Matching Sources	Local Grants, FEMA
Lead Department	EMC
Implementation Schedule	2-3 years
Effect on Old Buildings	Enhance safety of existing residential structures through retrofit
Effect on New Buildings	Enhance safety of new residential structures
Cost Effectiveness	Residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind events.
Discussion	This program gives rebates to residents who purchase and install safe rooms in their homes or on their properties to protect against severe weather.
Status	Deferred – Residents did received funding through the NCTCOG Saferoom Rebate Program. The NCTCOG Program has been suspended

City of Parker Action Item	Increase outdoor warning siren coverage for new development areas.
Hazard(s) Addressed	Tornado, Wildfire, High Winds, Flooding, Hail, Lightning, Dam Failure
Goal/Objective	1-A, 1-B
Priority	High
Estimated Cost	$25,000 per siren, number of sirens TBD
Potential Funding Sources	General Fund, HMGP, Developer cost
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC

Implementation Schedule	9-12 months
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	Early warning is a key element in keeping citizens that are outdoors notified of hazards.
Discussion	This project will expand Parker's siren coverage to new areas of development not currently protected by sirens.
Status	Deferred – will be included in 2021 Plan

City of Parker Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.
Hazard(s) Addressed	Dam Failure, Flooding
Goal/Objective	2-A, 3-A
Priority	Medium
Estimated Cost	$50,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Planning
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	Deferred – will be included in 2021 Plan

City of Parker Action Item	Develop a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	2-A
Priority	Medium
Estimated Cost	$5,000
Potential Funding Sources	TFS Grants,
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Fire Dept.

Implementation Schedule	2-3 years
Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire
Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire
Cost Effectiveness	CWPPs show city officials where to redouble their efforts in preventing wildfire, saving time and money. Also work to establish urban wildfire interface around new development properties.
Discussion	Identify and mitigate all structures and infrastructures that would be impacted by a potential wildfire.
Status	Deferred – will be included in 2021 Plan

City of Parker Action Item	Develop a drought contingency plan
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	2-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Public Works
Implementation Schedule	12 - 18 months
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing, soil conditioning around foundations
Effect on New Buildings	May require new codes for low-flow plumbing and preservation of foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Develop a plan for conserving water based on the stages of drought. Plan would include strategies for soil movement abatement depending on drought stage.
Status	Deferred – will be included in 2021 Plan

City of Parker Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP

Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.
Status	Deferred – will be included in 2021 Plan

City of Parker Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.
Status	

City of Parker Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A

Priority	High
Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as provide other emergency and hazard information
Status	Deferred – will be included in 2021 Plan

4.17 City of Princeton Action Items: 2016 Plan

City of Princeton Action Item	Adopt and promote a public education program to mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Tornado, Wildfire, Winter Storm, Extreme Heat, High Winds, Flooding, Expansive Soils, Hail, Drought, Earthquake, Lightning, Dam Failure
Goal/Objective	4-A, 4-B, 4-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	General Fund, HMGP
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	2-3 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Public education is extremely effective for low cost.
Discussion	Program will include information on hazard mitigation and what actions can be taken.
Status	Utilize as able regional, state, and federal public education information. Will be included in 2021 Plan

City of Princeton Action Item	Develop and implement an extreme temperature program that establishes centers for vulnerable residents
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	2-D, 3-C
Priority	Medium
Estimated Cost	$5,000-$20,000
Potential Funding Sources	HMGP, PDM,
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	Fire Department/EMC
Implementation Schedule	12 months
Effect on Old Buildings	Could require retrofit to accommodate required space and resources
Effect on New Buildings	May entail enhanced construction materials
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.

Discussion	Cooling shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold
Status	Deferred – Will be included in 2021 Plan

City of Princeton Action Item	Implement Individual Tornado Safe Room Rebate Program
Hazard(s) Addressed	High Wind, Tornado
Goal/Objective	1-C
Priority	High
Estimated Cost	Up to $3,000 per safe room
Potential Funding Sources	HMGP, PDM, Resident Match
Potential Matching Sources	Local Grants, FEMA
Lead Department	EMC
Implementation Schedule	2-5 years
Effect on Old Buildings	Enhance safety of existing residential structures through retrofit
Effect on New Buildings	Enhance safety of new residential structures
Cost Effectiveness	Residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind events.
Discussion	Implement Individual Tornado Safe Room Rebate Program.
Status	Will be included in 2021, however, come residents were able to obtain funds through the NCTCOG Saferoom Rebate Program

City of Princeton Action Item	Increase outdoor warning siren coverage for new development areas.
Hazard(s) Addressed	Tornado, Wildfire, High Winds, Flooding, Hail, Lightning, Dam Failure
Goal/Objective	1-B
Priority	High
Estimated Cost	$25,000 each
Potential Funding Sources	General Fund, HMGP, Developer cost
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	2-5 years
Effect on Old Buildings	None
Effect on New Buildings	None

Cost Effectiveness	Cost is low compared to lives saved and reduced injuries
Discussion	Early warning is a key element in keeping citizens that are outdoors notified of hazards.
Status	Deferred – will be included in 2021 Plan

City of Princeton Action Item	Develop a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	2A, 3C
Priority	Medium
Estimated Cost	$5,000
Potential Funding Sources	TFS Grants,
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Fire Dept.
Implementation Schedule	3-4 years
Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire
Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire
Cost Effectiveness	CWPPs show city officials where to redouble their efforts in preventing wildfire, saving time and money. Also work to establish urban wildfire interface around new development properties.
Discussion	Identify all structures and infrastructures that would be impacted by a potential wildfire.
Status	Deferred – will be included in 2021 Plan

City of Princeton Action Item	Develop a drought contingency plan
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Public Works
Implementation Schedule	2-3 years
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing

Effect on New Buildings	May require new codes for low-flow plumbing and foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Develop a plan for conserving water based on the stages of drought. Plan would include strategies for soil movement abatement depending on drought stage.
Status	Deferred – Will be included in 2021 Plan

City of Princeton Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams.
Hazard(s) Addressed	Dam Failure, Flooding
Goal/Objective	2A, 3A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local Sponsors, In-Kind
Lead Department	Planning and Zoning/ NRCS
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Dam Failure data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	Deferred – will be included in 2021 Plan

City of Princeton Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds

Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.
Status	Deferred – will be included in 2021 Plan

City of Princeton Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.
Status	Deferred – will be included in 2021 Plan

City of Princeton Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High

Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as provide other emergency and hazard information
Status	Deferred – Will be included in 2021 Plan

4.18 Town of Prosper Action Items: 2016 Plan

Town of Prosper Action Item	Adopt and promote a public education program to mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Dam Failure, Flooding, High Wind, Lightning, Wildfire, Tornado, Hail, Extreme Heat, Drought, Winter Storms, Earthquakes, Expansive Soils
Goal/Objective	4A, 4B, 4C
Priority	Medium
Estimated Cost	$15,000
Potential Funding Sources	General Fund, EMPG, PDM
Potential Matching Sources	Local funds, citizen cost-share, donations
Lead Department	Fire Department
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Extreme cost effectiveness
Discussion	Share perceptions of disaster myths, increases information gathering. Program will include information about mitigation actions for each hazard.
Status	Receive supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021 Plan

Town of Prosper Action Item	Develop, implement, and enforce ordinances to restrict the use of public water resources for non-essential usage, such as washing cars, landscape, and filling swimming pools
Hazard(s) Addressed	Drought
Goal/Objective	2A, 2C, 3C
Priority	Moderate
Estimated Cost	$45,000
Potential Funding Sources	General Fund, EMPG, other grants
Potential Matching Sources	Local donations, in-kind matching
Lead Department	Public Works, OEM
Implementation Schedule	2-5 years
Effect on Old Buildings	May require retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and lawn sprinklers

Cost Effectiveness	High. With millions of dollars potentially lost due to drought, this mitigation technique would have a long term benefit on local farmers and citizens
Discussion	Additional project to include working with builders to encourage drought –tolerant landscape to reduce water usage with incentives
Status	Deferred – will be included in 2021 Plan

Town of Prosper Action Item	Implement individual/public tornado safe rooms and location awareness
Hazard(s) Addressed	Tornado, High Wind
Goal/Objective	1C, 2D, 4A, 4B,
Priority	High
Estimated Cost	Up to $3,000 per residential safe room/$1,000,000 public retrofit
Potential Funding Sources	FEMA, Local grants, PDM
Potential Matching Sources	Local Funding, Donations, Resident Match
Lead Department	Engineering
Implementation Schedule	2-5 years
Effect on Old Buildings	Enhance safety of existing residential/public structures through retrofit
Effect on New Buildings	Enhance safety of new residential structures
Cost Effectiveness	High, Residential safe room shelters decrease personal injuries and death during severe weather, tornadoes, or high winds
Discussion	Possible FEMA rebate program
Status	Will be included in 2021, however, come residents were able to obtain funds through the NCTCOG Saferoom Rebate Program

Town of Prosper Action Item	Protect citizens from extreme weather by building covered patios in public parks
Hazard(s) Addressed	Extreme Heat, Hail, High Winds, Lightning
Goal/Objective	2D
Priority	High
Estimated Cost	$50,000
Potential Funding Sources	PDM, General Budget, State and Federal Grants
Potential Matching Sources	Citizen cost-share, Donations
Lead Department	Public Works/Parks
Implementation Schedule	2-3 years
Effect on Old Buildings	Potentially add covered patios to existing small structures

Effect on New Buildings	N/A
Cost Effectiveness	Cost is low compared to loss of life from heat illness and debris injuries
Discussion	Covered patios are an effective means of providing temporary relief from severe weather
Status	Deferred – will be included in 2021 Plan

Town of Prosper Action Item	Purchase and Distribute NOAA Radios to Vulnerable Populations
Hazard(s) Addressed	Hail, Lightning, Drought, Extreme Heat, High Winds, Tornado, Wildfire, Winter Storm, Dam Failure, Earthquake, Expansive Soils, Flooding
Goal/Objective	3C
Priority	High
Estimated Cost	$60,000
Potential Funding Sources	Grant Funds, HMGP, PDM
Potential Matching Sources	Local funds, General Budget, Donations, citizens cost-share
Lead Department	Fire Department, Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	moderate
Discussion	Early warning, hazard and mitigation information, and reliable communications have been established to reduce loss of life, injuries, and property damage
Status	Deferred – will be included in 2021 Plan

Town of Prosper Action Item	Develop, Implement, and Enforce Private Residential and Commercial Construction Requirements
Hazard(s) Addressed	Hail, Lightning, Drought, Extreme Heat, High Winds, Tornado, Wildfire, Winter Storm, Dam Failure, Earthquake, Expansive Soils, Flooding
Goal/Objective	1C, 2C
Priority	Moderate
Estimated Cost	$25,000
Potential Funding Sources	PDM, EMGP
Potential Matching Sources	General budget, In-Kind

Lead Department	Development Services, OEM
Implementation Schedule	6-9 Months
Effect on Old Buildings	New standards could be used to drive retrofitting
Effect on New Buildings	Buildings will be safer and more resilient in face of hazards
Cost Effectiveness	High
Discussion	Develop and adopt building codes to harden private construction based on the hazards identified in this annex such as hail-resistant roofing and windows; wind and impact resistant doors, windows, and roofing ; wildfire breaks and fire resistant building materials; stricter foundation standards for earthquake and expansive soils; increased elevation (BFE) standards for flooding; higher grade insulation to mitigate extreme heat and winter weather; and resource-efficient (low-flow) plumbing for drought. Also, additional codes for dry-proofing and lightning protection (rods, grounding) for public buildings to mitigate flood, dam failure and lightning
Status	Town of Prosper has adopted current building code and will continue to adopt the most current building codes – will continue to be in future plans and updates

Town of Prosper Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	2A, 3A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local Sponsors, In-Kind
Lead Department	Planning and Zoning/ NRCS
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Dam Failure data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	Deferred – will be included in 2021 Plan

Town of Prosper Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.
Status	Deferred will be included in 2021 Plan (50,000)

Town of Prosper Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	12-18 months
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.

Status	Deferred – will be included in 2021 Plan

4.19 Town of St. Paul Action Items: 2016 Plan

Town of St. Paul Action Item	Adopt and promote public education program.
Hazard(s) Addressed	Hail, Lightning, Drought, Extreme Heat, High Winds, Tornado, Wildfire, Winter Storm, Dam Failure, Earthquake, Expansive Soils, Flooding
Goal/Objective	4A, 4B, 4-C
Priority	Medium
Estimated Cost	$15,000
Potential Funding Sources	General fund, HMGP, PDM, other state/federal grants
Potential Matching Sources	Local funds, citizen cost-share, donations
Lead Department	Town Administration
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Public education is extremely effective for low cost.
Discussion	Also the utilization of social media will be key in this program. Program will include information about mitigation actions and education.
Status	Receive supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021

Town of St. Paul Action Item	Implement Individual Tornado Safe Room Rebate Program
Hazard(s) Addressed	Tornadoes
Goal/Objective	1-C
Priority	High
Estimated Cost	$3,000 per safe room
Potential Funding Sources	HMGP, PDM, Resident Match
Potential Matching Sources	Local Grants, FEMA
Lead Department	Town Administration
Implementation Schedule	2-3 years
Effect on Old Buildings	Some buildings modified for safe room retrofit
Effect on New Buildings	Buildings constructed with safe rooms
Cost Effectiveness	Residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind events.
Discussion	Implement Individual Tornado Safe Room Rebate Program

Status	Deferred – Residents did received funding through the NCTCOG Saferoom Rebate Program. The NCTCOG Program has been suspended

Town of St. Paul Action Item	Purchase of a CASA (WX) Weather Radar system
Hazard(s) Addressed	Hail, Tornadoes, Wildfire, Flooding, Lightning, Dam Failure
Goal/Objective	1-A, 3-C
Priority	High
Estimated Cost	$550,000
Potential Funding Sources	Local Funding, Federal Funding, HMPG
Potential Matching Sources	Local Grants
Lead Department	Town Administration
Implementation Schedule	12-36 Months
Effect on Old Buildings	n/a
Effect on New Buildings	Increase response decisions by 100%
Cost Effectiveness	Cost effectiveness is low compared to the benefits.
Discussion	The Collaborative Adaptive Sensing of the Atmosphere (CASA WX) project is a multi-sector partnership dedicated to engineering revolutionary weather-sensing networks. The main purpose of the CASA WX project is to save lives and minimize injuries due to severe weather. This is accomplished through the enhancement of data by providing lower atmospheric coverage at faster rates. The CASA WX radars provide jurisdictions more accurate weather data and geographically specific weather data culled from the most active levels of the atmosphere. This data could save lives by providing the public more time to react and prepare appropriately as severe weather affects their location. The more accurate data will also provide a better means to analyze severe weather post event which can also help in the assessment of damage after a severe weather event.
Status	No longer viable project for St. Paul

Town of St. Paul Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Populations, Businesses, and Critical Infrastructure.
Hazard(s) Addressed	Hail, Lightning, Drought, Extreme Heat, High Winds, Tornado, Wildfire, Winter Storm, Expansive Soils, Earthquake, Dam Failure, Flooding
Goal/Objective	3-C
Priority	High
Estimated Cost	$60,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share

Lead Department	Town Administration
Implementation Schedule	12-18 months
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning saves lives, which outweighs the cost of the radios.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens about severe weather, civil emergencies and hazard information. It is impossible to quantify the value of a human life or value of an injury.
Status	Deferred – will be included in 2021 Plan

Town of St. Paul Action Item	Develop a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	1-A, 3-C
Priority	Medium
Estimated Cost	$65,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local funds, donations, in-kind, grants
Lead Department	Town Administration
Implementation Schedule	18-36 Months
Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire
Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire
Cost Effectiveness	CWPPs show county officials where to redouble their efforts in preventing wildfire, saving time and money. Also work to establish urban wildfire interface around lake development properties.
Discussion	This project will become increasingly needed as development around Richland Chambers (Tarrant County Water Supply) increases.
Status	Deferred – will be included in 2021 Plan

Town of St. Paul Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	2-A, 3-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors

Potential Matching Sources	Local Sponsors, In-Kind
Lead Department	Town Administration
Implementation Schedule	12-18 Months
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	Deferred – will be included in 2021 Plan

Town of St. Paul Action Item	Develop and implement an extreme temperature program that identifies locations for vulnerable residents to go to during periods of extreme temperatures.
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$5,000-$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	Town Administration
Implementation Schedule	12 months
Effect on Old Buildings	Could require retrofit to accommodate required space and resources
Effect on New Buildings	May entail enhanced construction materials
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.
Discussion	Cooling shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold
Status	Deferred – will be included in 2021 Plan

Town of St. Paul Action Item	Develop, implement, and enforce building codes that would prevent building deterioration from structure-impacting hazards.
Hazard(s) Addressed	Hail, Lightning, Drought, Extreme Heat, High Winds, Tornado, Wildfire, Winter Storm, Dam Failure, Earthquake, Expansive Soils, Flooding
Goal/Objective	2-C, 3-C
Priority	Low

Estimated Cost	$5,000- $7,500
Potential Funding Sources	General Fund
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	Town Administration
Implementation Schedule	12 Months
Effect on Old Buildings	New building codes would allow for existing buildings to be retrofitted to mitigate against structure-impacting hazards.
Effect on New Buildings	New building codes would allow for new buildings to be constructed to mitigate against structure-impacting
Cost Effectiveness	Low - Benefits outweigh costs
Discussion	Building codes would help to promote better building standards such as including hail-resistant roofing and windows; wind and impact resistant doors, windows, and roofing ; wildfire breaks and fire resistant building materials; stricter foundation standards for earthquake and expansive soils; increased elevation (BFE) standards for flooding; higher grade insulation to mitigate extreme heat and winter weather; and resource-efficient (low-flow) plumbing for drought. Also, additional codes for dry-proofing and lightning protection (rods, grounding) for public buildings to mitigate flood, dam failure and lightning.
Status	Deferred – will be included in 2021 Plan

Town of St. Paul Action Item	Develop and implement mandatory water conservation measures
Hazard(s) Addressed	Drought
Goal/Objective	4-C
Priority	Medium
Estimated Cost	$1,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	Town Administration
Implementation Schedule	1-2 years
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Promote water conservation throughout the county and work with local water supplies to implement mandatory water restrictions
Status	Deferred – will be included in 2021 Plan

Town of St. Paul Action Item	Develop and implement storm water management on creek waterways
Hazard(s) Addressed	Flooding
Goal/Objective	2-D, 2-E, 3-C
Priority	Medium
Estimated Cost	$75,000
Potential Funding Sources	HMGP, General Funds
Potential Matching Sources	Local funds, In-kind match
Lead Department	Town Administration
Implementation Schedule	6 months
Effect on Old Buildings	My prevent flooding of existing structures
Effect on New Buildings	May prevent flooding of planned development areas
Cost Effectiveness	Low compared to life safety benefits
Discussion	Project would prevent erosion, stopping expansion of the floodplain
Status	Deferred – will be included in 2021 Plan

Town of St. Paul Action Item	Develop and implement debris management program targeting stream banks at bridges
Hazard(s) Addressed	Flooding
Goal/Objective	2-E, 3-C
Priority	Medium
Estimated Cost	$534,000
Potential Funding Sources	HMGP, General Funds
Potential Matching Sources	Local funds, In-kind match
Lead Department	Town Administration
Implementation Schedule	6 months
Effect on Old Buildings	Could prevent flooding and disruption to transportation
Effect on New Buildings	None
Cost Effectiveness	Low compared to life safety benefits
Discussion	Town of St. Paul needs to ensure clear waterways in order to prevent buildup of debris and materials that could cause flooding and contribute to damage to bridges.
Status	Deferred – will be included in 2021 Plan

Town of St. Paul Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	6 months – 18 months
Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	. Project outputs will guide development of future earthquake mitigation projects.
Status	Deferred – will be included in 2021 Plan

Town of St. Paul Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	12-18 months
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.

Status	Deferred – will be included in 2021 Plan

Town of St. Paul Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	3-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local Sponsors, In-Kind
Lead Department	Planning and Zoning/ NRCS, Emergency Management
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Dam Failure data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	Deferred – will be included in 2021 Plan

4.20 City of Wylie Action Items: 2016 Plan

City of Wylie Action Item	Add outdoor warning sirens to meet the needs of the growing population in newly developed areas and/or subdivisions.
Hazard(s) Addressed	Tornado, Hail, High Winds, Dam Failure, Lightning, Flooding, Wildfire
Goal/Objective	1-A, 1-B
Priority	High
Estimated Cost	$30,000 per siren
Potential Funding Sources	General Fund
Potential Matching Sources	None
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	Minimal compared to preservation of life safety
Discussion	Outdoor warning systems will help alert the public to reduce personal and property damage before a disaster strikes.
Status	Deferred – will be included in 2021 Plan

City of Wylie Action Item	Adopt and implement water conservation regulations
Hazard(s) Addressed	Drought
Goal/Objective	2-C, 3-C
Priority	High
Estimated Cost	$7,500 to $15,000
Potential Funding Sources	General Fund
Potential Matching Sources	None
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and foundation integrity
Cost Effectiveness	Minimal compared to benefit to community
Discussion	This will mitigate against drought conditions.
Status	Deferred – will be included in 2021 Plan

City of Wylie Action Item	Develop and implement a comprehensive public education program to educate on the actions to help mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Tornado, Hail, Winter Storms, High Winds, Dam Failure, Lightning, Expansive Soils, Extreme Heat, Earthquake, Flooding, Wildfire, Drought
Goal/Objective	4-A, 4-B, 4-C
Priority	High
Estimated Cost	$7,500-$15,000
Potential Funding Sources	General Fund
Potential Matching Sources	None
Lead Department	Emergency Management
Implementation Schedule	2-3 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Minimal compared to preservation of life safety
Discussion	Public education can help educate the public to reduce personal and property damage during disasters. Program will include information about hazard mitigation.
Status	Receive supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021

City of Wylie Action Item	Develop and implement an extreme temperature program that provides resources and identifies locations for vulnerable residents to go to during periods of extreme temperatures.
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	2-D
Priority	Medium
Estimated Cost	$10,000-$15,000
Potential Funding Sources	HMGP, PDM
Potential Matching Sources	Local funds, NPO donations, In-kind
Lead Department	Emergency Management, Planning
Implementation Schedule	1-2 years
Effect on Old Buildings	Could require retrofit to accommodate required space and resources
Effect on New Buildings	May entail enhanced construction materials

Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.
Discussion	Cooling shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold.
Status	Deferred – will be included in 2021 Plan

City of Wylie Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	3-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local Sponsors, In-Kind
Lead Department	Planning and Zoning/ NRCS, Emergency Management
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Dam Failure data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	Deferred – will be included in 2021 Plan

City of Wylie Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works, Planning Zoning
Implementation Schedule	1-2 years

Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.
Status	Deferred – will be included in 2021 Plan

City of Wylie Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works, Planning Zoning
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.
Status	Deferred – will be included in 2021 Plan

City of Wylie Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party

Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as provide other emergency and hazard information
Status	Deferred – will be included in 2021 Plan

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National Flood Insurance Program (NFIP) Compliance

The National Flood Insurance Program (NFIP)

The National Flood Insurance Program is a federally run program which enables property owners in participating communities to purchase insurance as a protection against flood losses in exchange for State and community floodplain management regulations that reduce future flood damages.

Community Participation

A community applies for participation in the National Flood Insurance Program (NFIP) either as a result of interest in eligibility for flood insurance or as a result of receiving notification from FEMA that it contains one or more Special Flood Hazard Areas (SFHAs). In order for a community to apply for and receive participation in the NFIP, that community must adopt resolutions or ordinances to minimally regulate new construction in identified SFHAs. FEMA works closely with state and local officials to identify flood hazard areas and flood risks. The floodplain management requirements within the SFHA are designed to prevent new development from increasing the flood threat and to protect new and existing buildings from anticipated flood events.

When a community chooses to join the NFIP, it must require permits for all development in the SFHA and ensure that construction materials and methods used will minimize future flood damage. Permit files must contain documentation to substantiate how buildings were actually constructed. In return, the Federal Government makes flood insurance available for almost every building and its contents within the community.

Communities must ensure that their adopted floodplain management ordinance and enforcement procedures meet program requirements. Local regulations must be updated when additional data are provided by FEMA or when Federal or State standards are revised

A more in-depth description of each jurisdiction's NFIP program is addressed in the jurisdictional annexes.

Chapter Five: Plan Maintenance

5.1 Monitoring, Evaluating and Updating the Plan

In compliance with requirement *§ 201.6(c)(4)(i)*, Collin County has developed a plan maintenance process which is described in the following paragraphs. Collin County, along with participating jurisdictions, is responsible for monitoring the implementation of the plan, executing a yearly evaluation of its effectiveness, and updating the plan within a 5-year cycle.

Following formal adoption by the Collin County Commissioners Court and the city council of each participating jurisdiction, the actions outlined in the Collin County Hazard Mitigation Action Plan (HazMAP) will be implemented by the County and participating jurisdictions as described throughout this document.

The Collin County Emergency Management Coordinator will be responsible for ensuring the mitigation action items and implementation are monitored, evaluated, and reviewed biannually by emailing all the participating jurisdictions for updates on their individual action items. The progress of the action items will be tracked electronically as “in progress”, “deferred” or “completed”. Project implementation will be included in the Mitigation Strategies for the 5 year update of the plan.

The Collin County Emergency Management Coordinator, working in conjunction with the respective jurisdictions, will be responsible for ensuring the mitigation plan is monitored, evaluated, and reviewed on an annual basis. This will be accomplished by calling an annual meeting of the Hazard Mitigation Planning Team (HMPT), whose members will provide assistance and expertise for plan review, evaluating, updating, and monitoring. This meeting will be open to the public and public notices will encourage community participation. During this annual meeting, Collin County will provide information on the implementation status of each action included in the plan. As part of the annual monitoring, review and evaluation process, Collin County will provide reports regarding implementation of actions and project completion dates for the plan. Also, as part of the evaluation, the HMPT will assess whether goals and objectives address current and expected conditions, whether the nature and/or magnitude of the risks have changed, if current resources are appropriate for implementing the plan, whether outcomes have occurred as expected, and if agencies and other partners participated as originally proposed.

At least once every five years the HazMAP will undergo a major update. During this process, all sections of the plan will be updated with current information and analyses, and new and/or modified mitigation plans will be developed. The revised collaborative plan will be submitted for state and federal review and approval. It will then be presented for approval to the Collin County Commissioner’s Court and to the city councils of the respective incorporated cities included on the Collin County plan. Each participating jurisdiction will undertake the same process for reviewing, revising and updating their respective plans, with submission to the local governing body for approval. The plan will be updated every five years in accordance with federal requirements.

** Each individual city’s maintenance schedule is included in their annex.

5.2 Plan Incorporation into Existing Planning Mechanisms
(In compliance with 201.6(c)(4)(ii))

Based on the requirements set forth in § 201.6(c)(4)(ii), the State of Texas Mitigation Plan, the vulnerability and capabilities assessment for each jurisdiction was carefully reviewed and considered when developing the mitigation actions for this plan. The Hazard Mitigation team will use an established process in which the mitigation strategy, goals, objectives and actions outlined in this plan will be incorporated into the existing regional and local planning strategies.

Past and present Collin County Hazard Mitigation Action Plans discuss incorporating mitigation activities through various vehicles. Local planning mechanisms identified include: building codes, planning and zoning ordinances, fire codes, NFIP, and capital improvement plans. Information was also incorporated into the Collin County Emergency Operations Plan and the State of Texas Hazard Mitigation Action Plan. This integration and incorporation strategy will continue with all members of the Collin County HazMAP, provided there is sufficient political, fiscal, and administrative capital to do so.

The process described here is the same as was used since the last planning update.

**Each jurisdiction's individual integration plan can be found in their respective annex.

Once the plan is adopted, the HMPT will coordinate implementation with the engineering, planning, and emergency management departments for the county, participating jurisdictions, river authorities, and drainage districts.

5.3 Continued Public Involvement
(In compliance with 201.6(c)(4)(iii))

As stated in requirement § *201.6(c)(4)(iii)* the plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.

To address this requirement, ongoing public participation will be encouraged throughout the planning and implementation process. A copy of the plan will be provided on the Collin County website. The planning committee will continue meeting on a regular basis to ensure the successful implementation of the plan and to discuss any additional issues regarding the emergency management of Collin County. The annual meetings for monitoring, evaluating, and updating the plan will be open to the public and public notices will encourage community participation.

Chapter Six: Individual Jurisdictional Annexes

Chapter Six contains the individual jurisdictional annexes. The annexes were developed by each individual jurisdiction in order to provide a greater level of detail specific to the jurisdiction. Each annex contains seven sections.

Section One provides a brief introduction to jurisdiction and contents of the annex

Section Two covers the planning process and those involved. Elements included in this section are: plan development and adoption process, planning organization, existing data and plans incorporation, the planning committee, hazard mitigation team members, external stakeholders, the dates of planning meetings, and public involvement. The planning process documentation is contained in Appendix A, located at the back of the plan. (Requirements: §201.6(c)(1)), §201.6(b)(2)), §201.6(b)(1)), §201.6(b)(3)), §201.6(c)(4)(iii)), and §201.6(c)(4)(i)).

Section Three is the hazard identification and risk assessment. This section contains the Priority Risk Index, which allows each individual jurisdiction to rank the hazards in their area; vulnerability narratives, which identifies points of vulnerability in each jurisdiction for each hazard; and the asset identification and vulnerability assessment. (Requirements §201.6(c)(2)(i)) and §201.6(c)(2)(ii))

Section Four provides a summary of jurisdictional capabilities. Elements in this section include: legal and regulatory capabilities, administrative and technical capabilities, fiscal capabilities, and implementation capabilities. (Requirement §201.6(c)(3)).

Sections Five and Six provide the jurisdictional mitigation strategies and action items. The elements included are: mitigation goals and the action items associated with those goals. Additionally, Section Six includes National Flood Insurance Program (NFIP) compliance information. (Requirements §201.6(c)(3)(ii)), §201.6(c)(3)(i)), §201.6(c)(3)(iv)), and §201.6(c)(3)(iii)).

Section Seven is the maintenance portion of the annex. Included are: plan monitoring, evaluating, and updating; and plan incorporation mechanisms. (Requirements §201.6(c)(4)(i)) and §201.6(c)(4)(ii)).

Jurisdictional Annexes:

A. Unincorporated Collin County

B. Allen

C. Anna

D. Blue Ridge

E. Celina

F. Fairview

G. Farmersville

H. Frisco

I. Josephine

J. Lavon

K. Lowry Crossing

L. Lucas

M. Melissa

N. Murphy

O. New Hope

P. Parker

Q. Princeton

R. Prosper

S. St. Paul

T. Wylie

Annex A: Unincorporated Collin County

1. Introduction

This annex was prepared in 2020 as part of an update to the Collin County Multi-Jurisdictional Hazard Mitigation Action Plan. Collin County participated in the Collin County HazMAP Planning Team (HMPT) by representing the unincorporated areas of the County. In addition to the countywide hazards and strategies discussed in the previous section, this annex serves as a complete hazard mitigation planning tool for the unincorporated areas of Collin County. It contains capability assessment information, a specific vulnerability assessment, and a complete mitigation strategy. The methodology and process for developing this annex are explained throughout the following sections.

2. Plan Development and Adoption Process

In order to apply for federal aid for technical assistance and post-disaster funding, local jurisdictions must comply with Part 201.3 of the Disaster Mitigation Act of 2000 implemented in the Federal Code of Regulations 44 CRF Part 201.6. While Collin County has historically implemented measures to reduce their vulnerability to hazards, passage of DMA 2000 helped Collin County officials recognize the benefits of a long-term approach to hazard mitigation, which achieves a gradual decrease of impacts associated through the implementation of a Hazard Mitigation Plan. Collin County's Hazard Mitigation Action Plan represents the collective efforts of all participating jurisdictions, the general public, and stakeholders.

Organizing the Planning Effort

A comprehensive county approach was taken in developing the plan. An open public involvement process was established for the public, neighboring communities, regional agencies, businesses, academia, etc. to provide opportunities for everyone to become involved in the planning process and to make their views known. The meetings were advertised with notices in public places and the local newspaper.

In accordance with Part 201.6(c) (5) of the Disaster Mitigation Act of 2000 (DMA 2000), Collin County developed this Hazard Mitigation Action Plan. This plan identifies hazards and mechanisms to minimize future damages associated with these hazards, which threaten Collin County and its jurisdictions.

Existing Data and Plans

Existing hazard mitigation information and other plans were reviewed during the development of the Hazard Mitigation Action Plan. GIS, statistical and qualitative data were gathered through numerous sources. Table 2.1 outlines the sources of data for the plan:

Table 2.1 Plan Source Data

Source	Data
City and County Appraisal Data 2020	Population and demographics
Regional Hazard Assessment Tool	Hazard occurrences
Nationals Centers for Environmental Information (NCEI)	Hazard occurrences
Texas Forest Service/Texas Wildfire Risk Assessment Summary Report	Wildfire Threat and Wildland/Urban Interface

Source	Data
National Inventory of Dams	Dam Information

Planning Team

This Hazard Mitigation Action Plan was developed by the Collin County Hazard Mitigation Planning Team and team members dedicated to the unincorporated areas of the county. The efforts of the planning team members for unincorporated Collin County were led by the Collin County Assistant Emergency Manager.

The Planning Team was assembled in September, 2020 with representatives from county departments, local hazard mitigation committees, and the general public. The Collin County Fire Marshal/Emergency Management Office acted as the lead plan facilitator, providing hazard mitigation planning services. Table 2.2 provides a list of the primary representative for each department on the planning team for unincorporated Collin County.

Table 2.2 Hazard Mitigation Team – Primary Representatives

Representing	Position	Role
Fire Marshal/Emergency Management	Emergency Manager	Plan Supervision
Fire Marshal/Emergency Management	Assistant Emergency Manager	Plan Supervision/Plan Development
GIS	GIS Analyst	Data Analysis
Fire Marshal/Emergency Management	Emergency Management Intern	Plan Development

Collin County served as the coordinator and lead agency for all jurisdictions, including the unincorporated areas of Collin County, by accomplishing the following activities through the planning process:

- Assigned the County's Assistant Emergency Manager to provide technical assistance and necessary data to the planning team and local committees.
- Scheduled, coordinated, and facilitated community meetings with the assistance of the planning team and local committees.
- Provided any necessary materials, handouts, etc. for public planning meetings.
- Worked with the HMPT and local committees to collect and analyze data and develop goals and implementation strategies.
- Prepared, based on community input and planning team direction, the first draft of the plan and provided technical writing assistance for review, editing and formatting.
- Coordinated with the stakeholders within the cities and the unincorporated areas of Collin County during plan development.

Each of the individual jurisdictions participated in accomplishing similar activities associated with development of the plan as follows:

- Coordinated input from representatives of neighborhood stakeholder groups and provided a representative to the County HMPT.
- Attended regular meetings of the planning team as coordinated by Collin County.
- Assisted Collin County staff with identifying hazards and estimating potential losses from future hazard events.
- Assisted Collin County in developing and prioritizing mitigation actions to address the identified

risks.
- Assisted Collin County in coordinating public meetings to develop the plan.
- Identified the community resources available to support the planning effort.
- Worked for the support of neighborhood stakeholders for the recommendations resulting from the planning process.
- Submitted the proposed plan to all appropriate departments for review and comment and worked with Collin County to incorporate the resulting comments into the proposed plan.

Stakeholders involved in reviewing the Collin County Hazard Mitigation Action Plan:

Table 2.3 External Stakeholders

Representing	Position	Role
American Red Cross	Field Representative	Review of plan
City of Plano	Emergency Management Specialist	Review of plan

Subsequent to the State of Texas and FEMA approval of the plan, Collin County organizations above are committed to accomplishing the following activities:

- Appoint members to a coordinating team to monitor and work toward plan implementation.
- Publicize the plan to neighborhood interests and ensure that new community members are aware of the plan and its contents.
- Monitor progress in achieving the plan's goals through regular maintenance and implementation projects.

Planning Meetings

During the planning process, the HMPT met to obtain relevant information from the participating jurisdictions and to discuss the objectives and progress of the plan. The objectives of these meetings were to gather information and to provide guidance for each jurisdiction throughout the planning stages.

The following meetings were held by Collin County:

- Collin County Kickoff Meeting – August 12, 2020
- Collin County HazMAP Planning Meeting – Week of 11/05/2020
- Collin County HazMAP Public Meeting – 11/2/2021 at 2PM
- Collin County HazMAP Public Meeting – 1/12/2022 at 9AM

Public Involvement

Support from the community is vital for any successful hazard mitigation plan. The HMPT provided opportunities, announced through public communication means, for public participation and input throughout the planning process prior to this draft and before approval of the finalized plan. Advertisement and sign in sheets for these meetings are located in Appendix A.

- The first public meeting was held on November 2, 2021 at 2PM, and advertised on the Collin County website along with other jurisdictional websites inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to comment. The meeting was held virtually via WebEX.

- A second public meeting was held on January 12, 2022 at 9AM. Announcements were placed on jurisdictions websites, including Collin County inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to view and comment on the HazMAP prior to plan submission.

There were no comments directly related to the mitigation plan received from citizens, non-profits, businesses, academia, or interested parties; therefore, no feedback was incorporated. An additional opportunity for the public to comment on the plan will be held prior to formal plan adoption.

This provided all citizens, stakeholders, neighboring communities, agencies, businesses, academia, non-profit organizations, and all interested parties an opportunity to be involved in the planning process and to take part in the decisions making process that affect the future of the communities that they live in.

3. Jurisdictional Hazard Identification and Risk Assessment

The HMPT members for unincorporated Collin County identified several natural hazards and man-made hazards that could affect the unincorporated areas of the county. The HMPT decided to focus on the natural hazards identified in Section 5 of this update. This was done after reviewing the 2016 HazMAP, the State of Texas Hazard Mitigation Plan, as well as other sources such as federal and state agencies. The hazards were ranked using the Priority Risk Index.

Priority Risk Index

A Priority Risk Index (PRI) was developed with the purpose of categorizing potential hazards for Collin County and ranks each hazard as high, moderate, low, or negligible to no risk. The hazard classification generated through the use of the PRI allows for the prioritization of those high hazard risks for mitigation planning purposes, and more specifically, the identification of hazard mitigation opportunities for Collin County jurisdictions to consider as part of their proposed mitigation strategy.

The PRI is used to assist all jurisdictions participating in the Collin County HazMAP in determining which hazards pose the most significant threat based on a variety of factors. The PRI is not scientifically based, but is rather meant to be utilized as an objective and systematic planning tool for classifying and prioritizing hazard risks in Collin County based on standardized criteria. The PRI results in numerical values that allow identified hazards to be ranked against one another. The sum of all four categories equals the final PRI value, as shown below:

PRI Value = (Probability x .30) + (Life Impact x .35) + (Property Impact x .25) + (Spatial Extent x .10)

The higher the PRI value, the greater the hazards risk. These values were obtained by assigning varying degrees of risk to four categories for each hazard: Probability, Life Impact, Property Impact, and Spatial Extent *(Table 3.1).* Each category has been assigned an Index Value (0 to 3) and a Weighing Factor (0 – 100%). These values may be adjusted during future plan updates. In order to evaluate the risk of each hazard, the assigned PRI Value for each category is multiplied by the weighing factor. Then, the PRI for each hazard is calculated by adding the product obtained in each category. According to the weighing scheme applied for Collin County, the highest possible PRI value is 3.0. The PRI calculations are presented in *Table 3.2*. Table 3.1 breaks down the value of each category.

Table 3.1 Priority Risk Index Value

Assigned Weighing Factor	PRI Category	Degree of Risk		
		Level	Criteria	Index Value
30%	Probability	Unlikely	Less than 1% annual probability	0
		Possible	Between 1 and 10% annual probability	1
		Likely	Between 10 and 100% annual probability	2
		Highly Likely	100% annual probability	3
35%	Life Impact	Minor	Very few injuries, if at all none	0
		Limited	Minor Injuries	1
		Critical	Multiple deaths/injuries	2

		Catastrophic	High number of deaths/injuries	3
25%	Property Impact	Minor	Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	0
		Limited	More than 10% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one day.	1
		Critical	More than 25% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one week.	2
		Catastrophic	More than 50% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for 30 days or more.	3
10%	Spatial Extent	Negligible	Less than 1% of area affected	0
		Small	Between 1 and 10% of area affected	1
		Moderate	Between 10 and 50% of area affected	2
		Large	Between 50 and 100% of area affected	3

Table 3.2 Priority Risk Index for Unincorporated Collin County

Hazard	Category/Degree of Risk				
	Probability Index Value (0 - 3 30%)	Life Impact Index Value (0 - 3 35%)	Property Impact Index Value (0 - 3 25%)	Spatial Extent Index Value (0 - 3 10%)	PRI Value 2021
Dam Failure	0	1	1	1	0.7
Drought	2	0	2	3	1.4
Earthquake	0	2	3	3	1.75
Expansive Soils	3	0	0	3	1.2
Extreme Heat	3	2	0	3	1.9
Flooding	2	0	1	1	0.95
Hail	2	1	3	3	2
High Winds	3	0	1	1	1.25
Lightning	3	0	0	0	0.9
Tornado	1	2	3	1	1.85
Wildfire	3	0	3	0	1.65
Winter Storms	2	0	0	3	0.9

The conclusions drawn from the hazard profiling process for Collin County jurisdictions resulted in the classification of risk for each identified hazard according to four categories: High Risk, Moderate Risk, Low Risk, and Negligible to No Risk *(Table 3.3).* For purposes of these classifications, risk is expressed in

relative terms according to the probability of occurrence and estimated impact that a hazard will have on human life and property in Collin County.

Table 3.3 Hazard Rankings for Unincorporated Collin County

High Risk (PRI 2 - 3)	Hail
Moderate Risk (PRI 1.01 -1.9)	Drought Earthquake Extreme Heat High Winds Tornado Wildfire
Low Risk (PRI 0.50 – 1)	Dam Failure Expansive Soil Flooding Lightning Winter Storm
Negligible to No Risk (PRI 0 – 0.49)	None

Changes in Development and Priorities (Requirement §201.6(d) (3))

Collin County was a participating jurisdiction in the 2011 and 2016 Collin County Hazard Mitigation Action Plan. Since then, Collin County has completed one of their original action items in an effort to lower vulnerability on populations and property from natural hazards.

The development and implementation of this project directly led to lower vulnerability for residents and property located in unincorporated Collin County.

New priorities are noted and ranked in each new action item, Section 6. Except for actions completed or cancelled, other priorities remain the same as in the previous version of this plan.

Due to recent changes in annexation laws, Collin County can expect our population to continue to grow in the unincorporated areas. This is due to the fact, that cities no longer and force annex property into their jurisdiction. It was always assumed that the cities would continue to annex and the unincorporated areas would get smaller; however, it must be assumed that the population in the unincorporated area will remain flat, if not increase moving forward.

Vulnerability Narratives

This annex focuses on specific areas of vulnerability unincorporated Collin County faces with each hazard. The hazards identified in the main plan are all addressed in this annex, therefore the natural hazards rated negligible to no risk are included, described, and considered for mitigation.

Dam and Levee Failure Development of the downstream areas necessitates the original low hazard classifications to be changed to higher hazard classifications because the dams are no longer adequate for the increased downstream risks. NRCS data shows that there are 6 dams in Collin County that are no longer adequate for increased downstream risks. This percentage could actually be higher because detailed current evaluations of NRCS dams have not been conducted due to resource limitations. In addition, many of these inadequate dams have not been updated because many of the legally responsible entities of these dams do not have sufficient mechanisms funding for updates, or even adequate maintenance, in some cases. Soil and Water Conservation Districts do not have any statutory funding capability of their own, and counties, especially those with small populations and multiple dams, are not able to generate the resources needed to sustain a consistent and comprehensive effort upgrade these structures. While no record could be found of any previous dam failures in Collin County, three things are clear:

- Many of the dams in Collin County are nearing the end of their designed project lives.
- Many of these dams are in desperate need of detailed evaluations and consistent maintenance
- Increased development downstream of the dams has put more people, property, and infrastructure at risk.

Collin County is responsible for 38 high hazard dams identified by the NRCS in both the unincorporated County area and in several cities due to the use of easements and the Emergency Operations Plans for those dam sites. While a dam failure event would affect jurisdictions not participating in the Collin County Local Mitigation Strategy, the HMT has chosen to include all High Hazard dams the county is responsible for in emergency planning for plan incorporation purposes.

High Risk FRS in Unincorporated Collin County

Dam Name	Site Acres	Year Completed	Sed. Pool Elevation	Acres	Flood Pool Elevation	Acres	Easement Elevation	Acres	Top of Dam Elevation
Little Elm & Laterals WS NRCS Site 18A	5.3	1970	728.0	13.0	743.0	51.0	745.0	60.0	747.4
East Fork Above Lavon WS NRCS Site 1C	6.1	1964	688.3	26.5	701.5	80.5	703.5	93.5	705.7
East Fork Above Lavon WS NRCS Site 2A	4.3	1958	648.6	31.0	668.4	155.0	670.4	165.0	673.4
East Fork Above Lavon WS NRCS Site 2B	4.7	1959	630.5	16.0	642.0	36.0	644.0	41.2	647.0
East Fork Above Lavon WS NRCS Site 3A	3.2	1958	693.2	13.9	702.4	25.4	704.4	32.0	708.0
East Fork Above Lavon WS NRCS Site 3B	5.9	1958	645.0	22.0	661.4	40.7	663.4	42.7	673.7
East Fork Above Lavon WS NRCS Site 3C	6.1	1958	621.1	19.2	633.8	48.0	635.8	54.2	638.3
East Fork Above Lavon WS NRCS Site 3D	5.0	1958	597.3	17.3	608.1	36.9	610.1	40.8	613.0

Dam Name	Site Acres	Year Completed	Sed. Pool Elevation	Acres	Flood Pool Elevation	Acres	Easement Elevation	Acres	Top of Dam Elevation
East Fork Above Lavon WS NRCS Site 3E	3.3	1967	582.3	4.5	594.5	24.6	596.5	29.0	597.4
East Fork Above Lavon WS NRCS Site 4	13.1	1959	610.5	33.0	626.5	108.0	628.5	120.0	632.6
East Fork Above Lavon WS NRCS Site 5A	5.3	1958	575.2	23.5	590.0	48.0	592.0	55.0	594.9
East Fork Above Lavon WS NRCS Site 8A	10.7	1968	664.5	35.0	679.0	116.0	681.0	129.3	683.0
East Fork Above Lavon WS NRCS Site 8G	11.1	1955	717.5	39.8	732.0	125.3	734.0	144.3	737.4
East Fork Above Lavon WS NRCS Site 9	6.6	1951	636.5	17.1	650.0	46.3	652.0	50.9	655.0
East Fork Above Lavon WS NRCS Site 10	8.5	1952	648.0	14.9	662.0	43.8	664.0	49.0	667.0
East Fork Above Lavon WS NRCS Site 11	8.5	1952	644.0	36.3	656.0	72.2	658.0	80.0	661.0
East Fork Above Lavon WS NRCS Site 12	7.4	1952	638.0	18.8	650.0	49.6	652.0	56.6	655.0
East Fork Above Lavon WS NRCS Site 14	4.0	1951	630.0	13.6	642.0	35.8	644.0	40.9	647.0
East Fork Above Lavon WS NRCS Site 15	4.5	1951	614.0	22.7	626.0	49.3	628.0	54.5	631.0
East Fork Above Lavon WS NRCS Site 16	4.2	1951	613.0	28.6	624.0	55.8	626.0	59.6	629.0
East Fork Above Lavon WS NRCS Site 30	8.5	1965	655.7	18.0	664.3	40.0	666.3	45.2	667.0
East Fork Above Lavon WS NRCS Site 31	7.6	1965	646.5	12.5	659.3	32.3	661.3	35.5	663.2
East Fork Above Lavon WS NRCS Site 32	6.0	1966	637.8	17.0	651.0	42.0	653.0	45.9	655.1
East Fork Above Lavon WS NRCS Site 32A	3.6	1966	628.3	10.0	639.0	22.0	641.0	26.0	642.4
East Fork Above Lavon WS NRCS Site 33	6.5	1966	642.3	23.0	653.0	53.0	655.0	62.0	656.9
Sister Grove Creek WS NRCS Site 3	9.9	1963	630.5	19.0	638.5	40.8	640.5	48.5	643.0
Sister Grove Creek WS NRCS Site 4	3.7	1960	621.7	15.0	630.0	35.0	632.0	42.0	633.5
Sister Grove Creek WS NRCS Site 5	10.0	1952	649.0	11.0	666.0	55.0	668.0	61.4	671.0
Pilot Grove Creek WS NRCS Site 28	13.5	1964	572.5	46.0	585.0	144.0	587.0	168.0	590.0
Pilot Grove Creek WS NRCS Site 79	11.1	1965	561.7	20.8	573.4	66.5	575.4	74.0	577.3
Pilot Grove Creek WS NRCS Site 80	12.7	1965	564.8	16.9	578.4	53.4	580.4	58.0	582.5
Pilot Grove Creek WS NRCS Site 82	4.7	1967	584.4	80.0	589.0	111.0	591.0	130.0	592.5
Pilot Grove Creek WS NRCS Site 83A	6.3	1967	590.5	21.5	599.5	54.5	601.5	62.5	603.0
Rowlett Creek WS NRCS Site 4	16.1	1956	506.4	53.0	525.8	347.0	527.8	386.0	533.1
Rowlett Creek WS NRCS Site 5	7.1	1956	517.1	26.6	526.0	88.5	528.0	104.3	532.8
Rowlett Creek WS NRCS Site 7	13.4	1957	487.2	59.0	504.0	225.0	506.0	257.5	509.9
U. East Fork Laterals WS NRCS Site 2	8.3	1959	498.7	51.0	512.0	174.0	514.0	204.0	516.5

Drought has the potential to impact the entire planning area equally; all improved property, emergency facilities, critical facilities, critical infrastructure, and the entire population of Unincorporated Collin County are vulnerable to this hazard. Foundations of all buildings are vulnerable; however, older structures, or those built under less stringent foundation code requirements are most vulnerable. Lake Lavon, Lake Texoma, Lake Tawakoni and the Trinity Aquifer are water sources for Unincorporated Collin County and are vulnerable to drought. In turn, the unincorporated area of Collin County's population, wildlife and vegetation are vulnerable. Lower income populations who may not have the resources to buy containerized water in the event of a shortage may be more vulnerable than other populations.

Earthquake While there are no known reports of seismic activity in the county, there is the possibility that seismic events could happen anywhere in the planning area. Buildings constructed under older building codes, dams, aging underground infrastructure, and roads are most vulnerable to damages from seismic activity. Building codes in the Collin County do not typically meet any type of seismic standards. Even a small earthquake could result in significant damage and impacts.

Expansive Soils The entire planning area is vulnerable to expansive soils. All property has the potential to be vulnerable to expansive soils.

Extreme Heat Extreme heat generally affects the entire population, but the homeless, very young, elderly, and populations without air conditioning are most vulnerable.

Flooding Collin County has identified several low water crossings that are subject to periodic flash flooding. Affected areas differ with each storm as there are several different branches and tributaries of rivers and creeks subject to overflow, and also are dependent upon which area receives the rain. These areas are low water crossings mainly on unimproved county roads that consist of dirt, rock, and caliche (sedimentary rock which cements together other materials, including gravel, sand, clay, and silt). Since the county roads are not paved, when flash flooding occurs these areas need to be barricaded, and the location of the storm determines which areas require barricading. Typical road closures due to flooding occur on the following county roads: 429, 504, 427, 338, 581, 331, 579, 1216, 677, 668, 622, 618, 590, 696, 317, 850, 600, 597, 210, 466, 470, 825, 574, 578, 590, 638, 677, 483, and 484.

Hail can occur anywhere within the planning area; exposed populations, structures, and vehicles are most vulnerable. There are no building codes in place to mitigate the impact of hail on private property; however, there are new materials such as hail resistant shingles are available in the marketplace today.

High Winds The entire planning area and populations therein are vulnerable to high winds. Manufactured homes and exposed populations are most vulnerable to high winds. High winds can just as destructive, if not more destructive, than some tornados. They can also be harder to forecast and detect.

Lightning events can happen anywhere in the unincorporated areas of the county, but most strikes have occurred in areas with little vulnerability. Structures without dedicated lightning protection and exposed populations are most vulnerable.

Tornado Tornados can occur anywhere in the geographic planning area; residents in manufactured homes are most vulnerable.

Wildfire in Collin County is a moderate risk due to the well managed and readily available resources for response. While the entire unincorporated county may experience wildfire, they primarily occur roughly north of highway 380, in the unimproved areas of the county. Collin County contracts with city fire departments to respond to fires within the unincorporated county area, and during times of drought, burn bans, and high fire threat, automatic mutual aid between the cities is enacted. Structures, crops, and populations in the WUI are most vulnerable.

Winter Storms Winter storms have the potential to affect the entire planning area. Winter storms have the potential to make roads impassable for days. Residents may be confined to their homes due to storms and may be without basic services, such as water, data/communications and electricity, for an extended period of time. The homeless, elderly, and populations without heat being most vulnerable.

Identification of Assets and Vulnerability Assessment

An inventory of unincorporated Collin County geo-referenced assets was created in order to identify and characterize property and population potentially at risk to the identified hazards. By understanding the type and number of assets that exist and where they are located in relation to known hazard areas, the relative risk and vulnerability for such assets can be assessed. For this assessment, five categories of assets were evaluated using Geographic Information System and statistical analysis. The five categories of vulnerable assets include:

- **Population**: Includes the number of people residing in unincorporated Collin County as delineated by U.S. Census 2020 block data provided by NCTCOG.
- **Improved property**: Includes all developed properties according to local parcel data from the Collin County Central Appraisal District. The information has been expressed in terms of the total assessed value of improvements that may be exposed to the identified hazards.
- **Emergency facilities**: Includes fire stations, police stations and hospitals, provided by the Regional Hazard Assessment Tool, and the Collin County Emergency Management Coordinator.
- **Critical facilities**: Includes schools and historic places provided by Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator. These are non-emergency facilities, but still provide critical services and functions for vulnerable sectors of the population.
- **Critical infrastructure**: Includes airports, natural gas facilities, wastewater facilities, potable water treatment facilities, wastewater treatment facilities, dams, and bridges. Data for all critical facilities was obtained from Regional Hazard Assessment Tool, and the Collin County Emergency Management Coordinator.

The following tables provide a breakdown of the geo-referenced assets that were used for the vulnerability assessment.

Population

According to the Texas Association of Counties Population Estimates, the total population of Unincorporated Collin County in 2020 is 53,082 people, with 13,837 households as shown in *Table 3.4*.

Table 3.4 Unincorporated Collin County Population Counts

Jurisdiction	Population			Households		
	Population	% of County Total	Population Density (Sq. Mile)	Household	% of County Total	Household Density (Sq. Mile)
Unincorporated Collin County	53,082	4.86%	116.28	18,690	4.86%	40.94

Source: Texas Association of Counties Population Estimate & Collin County Appraisal District

Table 3.5 summarizes population counts and population chance (absolute and percent predications for unincorporated Collin County).

Table 3.5 Population Predictions

Jurisdiction	Population 2010 Census	Population 2018 Estimate	Population 2019 Estimate	Absolute Change 2018-2019	Percent (%) Change 2018-2019
Unincorporated Collin County	35,644	51,144	53,082	1,938	3.79%

Source: Texas Association of Counties Population Estimate

Property

There are an estimated 39,145 parcels in unincorporated Collin County, with an estimated $9,238,947,093 in total assessed value of improvements. *Table 3.6* lists the total number and percentage of parcels.

Table 3.6 Parcel Counts and Improvements Value

Jurisdiction	Number of Parcels	% of County Total	Total Assessed Value of Improvements (Buildings)[1]
Unincorporated Collin County	39,145	7.54%	$9,238,947,093

Source: Collin County Appraisal District
[1]Includes public buildings (residential, commercial, industrial, agricultural, religion, government, education)

Emergency Facilities

There are 2 identified emergency facilities in Unincorporated Collin County, including 2 fire stations, 0 police stations, 0 and hospitals. *Table 3.7* presents the distribution of emergency facilities by jurisdiction. Geographic coordinates were used to determine the location of each facility.

Table 3.7 Emergency Facilities

Jurisdiction	Fire Stations	Police Stations	Hospitals
Unincorporated Collin County	2	0	0

Source: County Data and Regional Hazard Assessment Tool

Critical Facilities

There are 80 critical facilities, which are considered non-emergency in unincorporated Collin County. The critical facilities include 3 schools and 77 historical property sites (*Table 3.8*). Geographic coordinates (i.e., latitude and longitude) were used to determine the location of each facility.

Table 3.8 Critical Facilities

Jurisdiction	Schools	Historical Property
Unincorporated Collin County	3	77

Source: Local jurisdictions

Critical Infrastructure

There are 147 identified critical infrastructure facilities in Collin County, including 1 airport, 6 natural gas facilities, 4 water treatment facilities, 16 wastewater treatment facilities, 88 dams, and 32 railway/highway bridges (*Table 3.9*).

Table 3.9 Critical Infrastructure

Jurisdiction	Airports	Natural Gas Facilities	Wastewater Treatment Facilities	Potable Water Treatment Facilities	Dams	Railway/ Highway Bridges
Unincorporated Collin County	1	6	5	17	88	32

Source: Local jurisdictions

Methodology

Based on the type of information available for analysis, Collin County's vulnerability assessment was conducted using two distinct methodologies, a Geographic Information System-based analysis and a statistical risk assessment methodology. Each approach provides estimates for the potential impact of hazards by using a common, systematic framework for evaluation of historical occurrence information provided by National Centers for Environmental Information, the Texas Forest Service, and the FEMA Resilience and Planning Tool. The results of the vulnerability assessment are provided by jurisdiction for each hazard analyzed.

Of the 12 hazards evaluated for Collin County, four were analyzed using a Geographic Information System-based analysis, 5 using a statistical risk assessment methodology, and the remaining 3 hazards using a qualitative analysis. Qualitative analysis was used due to lack of information, the inability to define specific areas of risk, and/or inexistence of historical records. Additional information regarding these hazards is unattainable at the present time; studies to address this data deficiency are noted as action items in this update. *Table 3.10* summarizes the methodology used for each hazard.

Table 3.10 Analysis used for Vulnerability Assessment

Hazard	Geographic Information System-based Analysis	Statistical Analysis	Qualitative Analysis
Dam Failure			X
Drought	X		
Earthquake			X
Expansive Soils			X

Extreme Heat		X	
Flooding	X		
Hail	X		
High Winds		X	
Lightning		X	
Tornado		X	
Wildfire	X		
Winter Storms		X	

Summary of Vulnerably Assessment

A summary of the vulnerability assessment for each hazard using geographic and statistical analysis is presented in the following pages. The detailed assessment is presented in the following sections.

Summary Table 3.11

Drought	
Population	According to National Centers for Environmental Information (NCEI) no recorded injuries or fatalities have been recorded for drought events. There are no personal losses expected from drought events.
Improved Property	According to National Centers for Environmental Information (NCEI), property loss due to damage from drought is expected but unknown due to lack of accurate reporting. Available historical data indicates that the expected losses from drought correspond to unknown crop due to lack of accurate reporting, mostly experienced in water shortages and crop losses on agricultural lands.
Emergency Facilities	Because of the nature of this hazard, no losses are expected on emergency facilities but foundation issues could occur due to drought events.
Critical Facilities	Because of the nature of this hazard, no losses are expected on critical facilities but foundation issues could occur due to drought events.
Critical Infrastructure	Because of the nature of this hazard, no losses are expected on critical infrastructure but foundation issues and road degradation could occur due to drought events.

Summary Table 3.12

Extreme Heat	
Population	According to National Centers for Environmental Information (NCEI), fatalities and injuries due to extreme heat are unknown due to lack of

Extreme Heat	
	accurate reporting. Unincorporated Collin County and its population are vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to developed areas and the improved property in unincorporated Collin County is not vulnerable to this hazard.
Emergency Facilities	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to buildings, and emergency facilities in unincorporated Collin County are not vulnerable to this hazard.
Critical Facilities	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to buildings, and the critical facilities in unincorporated Collin County are not vulnerable to this hazard.
Critical Infrastructure	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to critical infrastructure, and vulnerability to this hazard is considered minimal in unincorporated Collin County

Summary Table 3.13

Flooding	
Population	Flooding produces an expected annualized count of zero fatalities and injuries per year through the values may be inaccurate due to lack of reporting. Approximately 989 residential parcels in unincorporated Collin County are located within the 100-year floodplain.
Improved Property	Property loss due to flooding in unincorporated Collin County is expected but unknown due to lack of accurate reporting. Approximately $205,695,851 of the total assessed value is at risk from the 100-year storm event.
Emergency Facilities	Emergency facilities have the potential to be as risk in the 100-year storm event.
Critical Facilities	Critical facilities have the potential to be as risk in the 100-year storm event.
Critical Infrastructure	Critical Infrastructure have the potential to be as risk in the 100-year storm event.

Summary Table 3.14

Hail	
Population	According to National Centers for Environmental Information (NCEI), no recorded injuries or fatalities have been recorded for hailstorm events through the values may be inaccurate due to lack of accurate reporting. There are no personal losses expected from hailstorm events.

Hail	
Improved Property	According to National Centers for Environmental Information (NCEI), property loss in unincorporated Collin County due to hailstorm damage is expected but unknown due to lack of accurate reporting and all improved property is vulnerable to this hazard. Although some crops are susceptible to hail hazards, available historical data for unincorporated Collin County indicates that there are no expected crop losses from this event.
Emergency Facilities	Because of the unpredictability of the geographical location of hailstorms, all emergency facilities in unincorporated Collin County are vulnerable to this hazard.
Critical Facilities	Because of the unpredictability of the geographical location of hailstorms, all critical facilities in unincorporated Collin County are vulnerable to this hazard.
Critical Infrastructure	Because of the unpredictability of the geographical location of hailstorms, all critical infrastructures in unincorporated Collin County are vulnerable to this hazard.

Summary Table 3.15

High Wind	
Population	According to National Centers for Environmental Information (NCEI), fatalities and injuries from high wind events are unknown due to lack of accurate reporting. All the population of unincorporated Collin County are vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), property losses from high wind events in unincorporated Collin County is expected but unknown due to lack of accurate reporting. Unknown crop losses resulted from this hazard in unincorporated Collin County due to lack of accurate reporting.
Emergency Facilities	Because of the expected geographical widespread nature of high winds, all emergency facilities in unincorporated Collin County are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of high winds, all critical facilities in unincorporated Collin County are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of high winds, all critical infrastructures in unincorporated Collin County are vulnerable to this hazard.

Summary Table 3.16

Lightning	
Population	According to National Centers for Environmental Information (NCEI), fatalities and injuries from lightning events in unincorporated Collin County are expected but unknown due to lack of accurate reporting. All the population of unincorporated Collin County are vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), property or crop losses resulting from lightning in unincorporated Collin County is unknown due to lack of accurate reporting.
Emergency Facilities	Because of the expected geographical widespread nature of lightning, all emergency facilities in unincorporated Collin County are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of lightning, all critical facilities in unincorporated Collin County are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of lightning, all critical infrastructures in unincorporated Collin County are vulnerable to this hazard.

Summary Table 3.17

Tornado	
Population	According to National Centers for Environmental Information (NCEI), there is an unknown number of fatalities and injuries in unincorporated Collin County due to tornadoes however the values may be inaccurate due to lack of accurate reporting. All the population of unincorporated Collin County are exposed and vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), property losses from tornadoes is expected but unknown due to lack of accurate reporting. Unknown crop losses resulted from this hazard in unincorporated Collin County, but values may be underestimated due to lack of accurate reporting.
Emergency Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all emergency facilities in unincorporated Collin County are exposed and vulnerable to this hazard.
Critical Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all critical facilities in unincorporated Collin County are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the impossibility to predict the geographical area of impact for tornados, all critical infrastructures in unincorporated Collin County are exposed and vulnerable to this hazard.

Summary Table 3.18

Wildfire	
Population	According to National Centers for Environmental Information (NCEI), there is an unknown number of fatalities and injuries in unincorporated Collin County due to wildfires however the values may be inaccurate due to lack of accurate reporting. Based on geographical data, approximately 55.92% of unincorporated Collin County is vulnerable to wildfires.
Improved Property	Based on geographical data, property loss due to wildfires is expected but unknown due to lack of accurate reporting, which is an unknown percent of the overall property improvement values in unincorporated Collin County.
Emergency Facilities	Based on geographic information there are no fire stations at risk from wildfire events.
Critical Facilities	Based on geographic information there are no schools at risk from wildfire events.
Critical Infrastructure	Based on geographic information there are no bridges, no dams, no wastewater treatment facility, and no water treatment facility at risk from wildfire events.

Summary Table 3.19

Winter Storm	
Population	According to National Centers for Environmental Information (NCEI), fatalities and injuries from winter storms are expected but unknown due to lack of accurate reporting. All the population of unincorporated Collin County are exposed and vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), property losses from winter storm events is expected but unknown due to lack of accurate reporting. Unknown crop losses are expected from this hazard in unincorporated Collin County due to lack of accurate reporting.
Emergency Facilities	Because of the expected geographical widespread nature of winter storms, all emergency facilities in unincorporated Collin County are exposed and vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of winter storms, all critical facilities in unincorporated Collin County are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of winter storms, all critical infrastructures in unincorporated Collin County are exposed and vulnerable to this hazard.

4. Capability Assessment

The risk assessment and capabilities assessment serve as the foundation for the development of a meaningful hazard mitigation strategy. During the process of identifying specific mitigation actions to pursue, Collin County considered not only its level of hazard risk but also the existing capabilities to minimize or eliminate that risk.

Table 4.1 Legal and Regulatory Capability Summary

Legal and Regulatory Capabilities															
Jurisdiction	**Building Code**	**Zoning Ordinance**	**Subdivision Ordinance or regulation**	**Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances wildfire ordinances, hazard setback requirements)**	**Growth management ordinances (also called "smart Growth" or anti-sprawl programs)**	**Site Plan review requirements**	**General or comprehensive plan**	**A capital improvements plan**	**An economic development plan**	**An emergency response plan**	**A post-disaster recovery plan**	**A post-disaster recovery ordinance**	**Real estate disclosure requirements**	**Other**	**% Yes per Jurisdiction**
Unincorporated Collin County	Y	N	Y	Y	N	Y	Y	Y	N	Y	Y	N	N	N	**57.1%**
Average % Yes Capabilities – 57.1%															
Y- Yes N- No ?- Don't Know															

Table 4.2 Administrative and Technical Capability Summary

Administrative and Technical Capabilities											
Jurisdiction	Planner(s) or engineer(s) with knowledge of land development and land management	Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Planners or engineer(s) with an understanding of natural and/or human caused hazards	Floodplain manager	Surveyors	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in GIS	Scientists familiar with the hazards of the community	Emergency Manager	Grant writers	% Yes
Unincorporated Collin County	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	**90%**
Average % Yes Capabilities – 61.5%											
Y- Yes N- No ?- Don't Know											

Table 4.3 Fiscal Capability Summary

Fiscal Capabilities											
Jurisdiction	Community Development Block Grants (CDBG)	Capital improvements project funding	Authority to levy taxes for specific purposes	Fees for water, sewer, gas, or electric service	Impact fees for homebuyers or developers for new developments/homes	Incur debt through general obligation bonds	Incur debt through special tax bonds	Incur debt through private activity bonds	Withhold spending in hazard-prone areas	Other	% Yes
Unincorporated Collin County	N	Y	N	N	N	Y	N	N	N	N	**20%**
Average % Yes Capabilities – 20%											
Y- Yes N- No ?- Don't Know											

To quantify Collin County's legal and regulatory, administrative and technical, and fiscal capabilities, an overall rating system was administered for each category: limited (0-30%), moderate (31-70%), and strong (70-100%). Questionnaire responses indicated that on average, unincorporated Collin County has 61.5% of identified legal and regulatory capabilities, 90% of identified administrative and technical capabilities, and 22.2% of identified fiscal capabilities.

Table 4.4 Administrative Information

Jurisdiction	Chief Administrative Officer	Ability to Implement Capabilities
Collin County	County Judge	The Commissioners Court, including the County Judge and County Commissioners, approve the county budget, approve Commissioners Court Orders and county policies, hire staff, approve plans, and determine the direction of the county overall. As the governing body, the ability to approve and regulate mitigation activities, expand and improve existing capabilities to better serve mitigation activities, and integrate mitigation into existing policies and programs is a function of this group.

Specific actions that can expand and improve existing capabilities, authorities, plans, policies, and resources for mitigation include: budgeting and passing policies and procedures, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates and additions to existing plans as new needs are recognized.

5. Mitigation Strategies

Based on the results of the risk and capability assessments, and reviews of the goals and objectives included in the 2011 and 2016 HazMAPs, the Collin County Hazard Mitigation Planning Team developed mitigation strategies for the Plan update. The goals are similar to the goals identified in Section 6.

Goal 1 Reduce or eliminate loss of life, injuries and property damage resulting from severe weather events.

Objective 1-A Provide adequate warning and communication before, during, and after a hazard event.
Objective 1-B Expand and coordinate Early Warning Systems currently in use.
Objective 1-C Reduce or eliminate loss of life and property damage from tornados through the construction and use of safe rooms or shelter areas.

Goal 2 Protect existing and new properties from the effects of all natural hazards.

Objective 2-A Conduct studies to determine hazard and vulnerability threat assessment for all natural hazards.
Objective 2-B Rehabilitate or retrofit identified high hazard critical infrastructure.
Objective 2-C Enact and enforce regulatory measures that enforce hazard mitigation measures.
Objective 2-D Construct enhancements or additions to current and new facilities which mitigate the effects of natural hazards.
Objective 2-E Maintain NFIP compliance, storm water management, and implement drainage projects.

Goal 3 Reduce losses and repetitive damages for chronic hazard events.

Objective 3-A Conduct a hazard/vulnerability assessment of personal properties and structures located in flood zones within Unincorporated Collin County.
Objective 3-B Develop and implement a buyout program for those personal properties and structures located in high hazard flood zones starting with those that are most vulnerable to life and property loss.
Objective 3-C Develop and execute new programs which identify and reduce threats from natural hazards.

Goal 4 Develop public education campaigns to disseminate information about actions to mitigate potential loss of life, injuries and property damage resulting from natural hazards.

Objective 4-A Educate the public on risks, threats, and vulnerability from all natural hazards.
Objective 4-B Educate the public on actions they can take to prevent or reduce the loss of life or property from all natural hazards.
Objective 4-C Develop and implement a community education campaign to heighten public awareness about chronic flooding and options for insurance coverage to protect their personal properties as well as long term benefits from a buyout program.

6. Action Items

Below is a list of the new and deferred action items identified for the HazMAP Update. Each of the actions in this section were prioritized based on FEMA's STAPLEE criteria, which includes considering the social, technical, administrative, political, legal, economic and environmental factors necessary for the implementation of each action. As part of the STAPLEE analysis economic considerations were weighed for each action. Priority rankings are classified as indicated in the table below. The STAPLEE was used for the 2016 Plan along with the 2021 Update.

Priority	Description
High	Benefits of mitigating risk of death or severe bodily injury outweigh costs to implement actions rated as high priorities.
Medium	Reducing vulnerability to threats and the resulting improvement in quality of life and peace of mind are benefits for actions rated as medium priorities.
Low	Awareness of low risk/low impact hazards offer benefits of time to assess, plan and integrate low priority mitigation actions as time, need, and funding permit.

Unincorporated Collin County Action Items: Deferred from 2016 Plan

Collin County Action Item	Adopt and promote a comprehensive public education program that provides resources to mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Hail, Lightning, Drought, Extreme Heat, High Winds, Tornado, Wildfire, Winter Storm, Dam Failure, Earthquake, Expansive Soils, Flooding
Goal/Objective	4-A, 4-B, 4-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	General Fund, HMGP
Potential Matching Sources	Local funds, in-kind
Lead Department	Homeland Security
Implementation Schedule	1-3 years
Effect on Old Buildings	Depending on mitigation actions employed, can reduce the damage from multiple hazards to existing buildings.
Effect on New Buildings	Depending on mitigation actions implements, can reduce damages from multiple hazards to new buildings.
Cost Effectiveness	Public education is extremely effective for low cost.
Discussion	This program will include discussion about mitigation projects for all identified hazards and what mitigation actions can be taken.
Status	Some work performed in this area using regional resources along with utilizing general fund dollars from Collin County.

Collin County Action Item	Develop and implement building codes to mitigate against structural damages caused by drought, high winds and tornado.
Hazard(s) Addressed	Drought, Tornado, High Winds
Goal/Objective	3-C

Priority	Low
Estimated Cost	$5,000
Potential Funding Sources	Local Funding
Lead Department	Collin County Engineering
Implementation Schedule	1-5 years
Effect on Old Buildings	If retrofitted, could mitigate damages to old buildings.
Effect on New Buildings	This action can reduce the effects of drought, tornadoes, and high winds on new buildings.
Cost Effectiveness	The cost of this project is low compared to the potential benefits of reducing the effects of drought.
Discussion	During times of drought, earth experiences significant changes that often impact structural foundations. Building codes can mitigate these effects through mandatory use of new technologies such as resource-efficient (low-flow) plumbing for drought and water conservation. Roof bracing requirements for new construction will mitigate damages from tornado and high Winds.
Status	Collin County utilizes adopted building codes.

Collin County Action Item	Expand water conservation measures to new developments and populations
Hazard(s) Addressed	Drought
Goal/Objective	2-C
Priority	Medium
Estimated Cost	$50,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Engineering
Implementation Schedule	1-2 years
Effect on Old Buildings	May require low-flow retrofits and soil stabilization through landscaping for existing foundations to reduce effects of drought.
Effect on New Buildings	May require low-flow plumbing installations during construction, foundation protection through alternate landscaping to reduce effects of drought.
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Work with local water suppliers and building developers to expand water conservation measures in new areas of development, to include reduced taps and drought resistant landscaping.
Status	Deferred, but rely heavily on local water districts to educate and implement needed programs. Additionally, added water systems have been brought online along with new systems being constructed as of 2021.

Collin County Action Item	Implement Community Tornado Safe Room Program
Hazard(s) Addressed	Tornado, High Winds
Goal/Objective	1-C

Priority	High
Estimated Cost	$25,000
Potential Funding Sources	HMGP, PDM, Local Funds
Potential Matching Sources	Local Grants, Donations, In-Kind Match, Resident Match
Lead Department	Fire Marshal/Emergency Management
Implementation Schedule	1-5 years
Effect on Old Buildings	Existing building may be retrofitted for community safe room installation.
Effect on New Buildings	New buildings may include construction of safe rooms for the community.
Cost Effectiveness	Community and residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind events.
Discussion	Implement Local Community Tornado Safe Room Program in Identified Vulnerable Areas.
Status	Collin County residents were able to apply, and some received, grant funding through the North Central Texas Council of Government (NCTCOG) Saferoom Rebate Program. This program provided funding for saferooms through December 2020, when it was ended.

Collin County Action Item	Develop and Implement a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	2-A
Priority	Medium
Estimated Cost	$50,000
Potential Funding Sources	Texas A&M Forest Service and USDA Grants
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Fire Marshal
Implementation Schedule	2-3 years
Effect on Old Buildings	Can prevent serious damages to or loss of existing buildings due to wildfire.
Effect on New Buildings	Can prevent serious damages to or loss of new buildings due to wildfire.
Cost Effectiveness	CWPPs identify where wildfire mitigation efforts would be most effective.
Discussion	Identify wildland urban interface areas that would benefit from mitigation actions. Based on the individual variables of each area, actions such as fuel management, or defensible space development could be implemented.
Status	Deferred – no actions

Collin County Action Item	Implement Firewise mitigation programs in unincorporated Collin County.
Hazard(s) Addressed	Wildfire

Goal/Objective	4-A, 4-B
Priority	Medium
Estimated Cost	$50,000
Potential Funding Sources	USDA and Texas A&M Forest Service Grants
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Fire Marshal
Implementation Schedule	1-4 years
Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire.
Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire.
Cost Effectiveness	Cost low compared to potential loss of life and property to wildfire.
Discussion	Firewise communities experience fewer losses to wildfire than communities without the program.
Status	Deferred – no actions

Collin County Action Item	Develop and implement an extreme temperature program that identifies locations for vulnerable residents to go to during periods of extreme temperatures.
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	2-D
Priority	Medium
Estimated Cost	$5,000-$15,000
Potential Funding Sources	HMGP, PDM
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	H.R. Dept.
Implementation Schedule	1-2 years
Effect on Old Buildings	Could require retrofit to accommodate required space and resources.
Effect on New Buildings	May entail enhanced construction materials.
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.
Discussion	Cooling shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold.
Status	Places identified during past event, however, additional resources need to be utilized to make this a viable option for residents

Collin County Action Item	Coordinate and complete new inundation studies of all high and moderate hazard dams.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	3-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local Sponsors, In-Kind
Lead Department	Planning and Zoning/ NRCS, Emergency Management

Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones.
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones.
Cost Effectiveness	Low
Discussion	Dam Failure data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	Deferred – most dams are now under the jurisdictions of incorporated cities.

Collin County Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	4-B, 2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes.
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes.
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.
Status	Deferred – no action. Many of the earthquake threats in the region of slowed

Collin County Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils.
Hazard(s) Addressed	Expansive Soils
Goal/Objective	4-A
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.

Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.
Status	Deferred – no action

Collin County Action Item	Distribute all-hazards NOAA Weather Radios to vulnerable populations.
Hazard(s) Addressed	3-C, 4-A, 4-B, 4-C
Goal/Objective	Hail, Lightning, Drought, Extreme Heat, High Winds, Tornado, Wildfire, Winter Storm, Dam Failure, Earthquake, Expansive Soils, Flooding
Priority	Medium
Estimated Cost	$50,000 - $75,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Emergency Management
Implementation Schedule	1-2 years
Effect on Old Buildings	n/a
Effect on New Buildings	n/a
Cost Effectiveness	Cost of lives lost and injuries sustained is very high compared to cost of proactive mitigation.
Discussion	This project would lead to greater capabilities for vulnerable populations to take mitigation actions prior to and in the event of all hazards.
Status	Deferred – no action

Unincorporated Collin County Action Items: New

Collin County Action Item	Generators on or available for all critical infrastructure
Hazard(s) Addressed	Winter Weather, Tornado, Extreme Heat, Earthquake, Dam Failure, Flooding, Lightning, Hail, High Winds, Wildland Fire
Goal/Objective	2-B
Priority	High
Estimated Cost	$250,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Emergency Management
Implementation Schedule	1-2 years
Effect on Old Buildings	n/a
Effect on New Buildings	n/a
Cost Effectiveness	Cost of lives lost and injuries sustained is very high compared to cost of proactive mitigation.

Discussion	This project would help ensure all critical facilities do not lose power during events such as winter weather, tornados, or others in which we lose connection to the electrical grid

Collin County Action Item	Public education can help educate the public to reduce personal and property damage during disasters. Program will include information about hazard mitigation of each identified hazard.
Hazard(s) Addressed	Tornado, Hail, Winter Storms, High Winds, Dam Failure, Lightning, Expansive Soils, Extreme Heat, Earthquake, Flooding, Wildfire, Drought
Goal/Objective	4-A, 4-B, 4-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	General Fund, HMGP
Potential Matching Sources	Local funds, in-kind
Lead Department	Emergency Management
Implementation Schedule	1-3 years
Effect on Old Buildings	Depending on mitigation actions employed, can reduce the damage from multiple hazards to existing buildings.
Effect on New Buildings	Depending on mitigation actions implements, can reduce damages from multiple hazards to new buildings.
Cost Effectiveness	Minimal compared to preservation of life safety
Discussion	Public education can help educate the public to reduce personal and property damage during disasters. Program will include information about hazard mitigation.

Collin County Action Item	Develop and implement building codes to mitigate against structural damages caused by drought, high winds, expansive soils and tornado.
Hazard(s) Addressed	Drought, Tornado, High Winds, Expansive Soils
Goal/Objective	3-C
Priority	Low
Estimated Cost	$5,000
Potential Funding Sources	Local Funding
Lead Department	Collin County Engineering
Implementation Schedule	1-5 years
Effect on Old Buildings	If retrofitted, could mitigate damages to old buildings.
Effect on New Buildings	This action can reduce the effects of drought, tornadoes, and high winds on new buildings.
Cost Effectiveness	The cost of this project is low compared to the potential benefits of reducing the effects of drought.
Discussion	During times of drought, earth experiences significant changes that often impact structural foundations. Building codes can mitigate these effects through mandatory use of new technologies such as resource-efficient (low-flow) plumbing for drought and water conservation. Roof

	bracing requirements for new construction will mitigate damages from tornado and high Winds.

Collin County Action Item	Expand water conservation measures to new developments and populations
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	2-C
Priority	Medium
Estimated Cost	$50,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Engineering
Implementation Schedule	1-2 years
Effect on Old Buildings	May require low-flow retrofits and soil stabilization through landscaping for existing foundations to reduce effects of drought.
Effect on New Buildings	May require low-flow plumbing installations during construction, foundation protection through alternate landscaping to reduce effects of drought.
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Work with local water suppliers and building developers to expand water conservation measures in new areas of development, to include reduced taps and drought resistant landscaping. When water is conserved and not used for landscape during droughts, this would provide water for homeowners to use, through drip irrigation, to keep their foundations at a consistent saturation level, mitigating the impacts of drought and lack of water.

Collin County Action Item	Implement Community Tornado Safe Room Program
Hazard(s) Addressed	Tornado, High Winds
Goal/Objective	1-C
Priority	High
Estimated Cost	$25,000
Potential Funding Sources	HMGP, PDM, Local Funds
Potential Matching Sources	Local Grants, Donations, In-Kind Match, Resident Match
Lead Department	Fire Marshal/Emergency Management
Implementation Schedule	1-5 years
Effect on Old Buildings	Existing building may be retrofitted for community safe room installation.
Effect on New Buildings	New buildings may include construction of safe rooms for the community.
Cost Effectiveness	Community and residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind events.
Discussion	Implement Local Community Tornado Safe Room Program in Identified Vulnerable Areas.

Collin County Action Item	Develop and Implement a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	2-A
Priority	Medium
Estimated Cost	$50,000
Potential Funding Sources	Texas A&M Forest Service and USDA Grants
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Fire Marshal
Implementation Schedule	2-3 years
Effect on Old Buildings	Can prevent serious damages to or loss of existing buildings due to wildfire.
Effect on New Buildings	Can prevent serious damages to or loss of new buildings due to wildfire.
Cost Effectiveness	CWPPs identify where wildfire mitigation efforts would be most effective.
Discussion	Identify wildland urban interface areas that would benefit from mitigation actions. Based on the individual variables of each area, actions such as fuel management, or defensible space development could be implemented.

Collin County Action Item	Implement Firewise mitigation programs in unincorporated Collin County.
Hazard(s) Addressed	Wildfire
Goal/Objective	4-A, 4-B
Priority	Medium
Estimated Cost	$50,000
Potential Funding Sources	USDA and Texas A&M Forest Service Grants
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Fire Marshal
Implementation Schedule	1-4 years
Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire.
Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire.
Cost Effectiveness	Cost low compared to potential loss of life and property to wildfire.
Discussion	Firewise communities experience fewer losses to wildfire than communities without the program.

Collin County Action Item	Develop and implement an extreme temperature program that identifies locations for vulnerable residents to go to during periods of extreme temperatures.
Hazard(s) Addressed	Extreme Heat, Winter Storms

Goal/Objective	2-D
Priority	Medium
Estimated Cost	$5,000-$15,000
Potential Funding Sources	HMGP, PDM
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	H.R. Dept.
Implementation Schedule	1-2 years
Effect on Old Buildings	Could require retrofit to accommodate required space and resources.
Effect on New Buildings	May entail enhanced construction materials.
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.
Discussion	Cooling shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold.

Collin County Action Item	Coordinate and complete new inundation studies of all high and moderate hazard dams.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	3-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local Sponsors, In-Kind
Lead Department	Planning and Zoning/ NRCS, Emergency Management
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones.
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones.
Cost Effectiveness	Low
Discussion	Dam Failure data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.

Collin County Action Item	Coordinate and complete flood impact maps that include possible depth and speed information
Hazard(s) Addressed	Flood
Goal/Objective	3-A
Priority	Medium
Estimated Cost	$75,000
Potential Funding Sources	HMPG, Water Shed Authorities, TWDB
Potential Matching Sources	Local Sponsors, In-Kind
Lead Department	Planning and Zoning/ NRCS, Emergency Management

Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in and out of flood zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in and out of flood zones
Cost Effectiveness	Low
Discussion	Flood data and maps are available for Collin County; however, data on potential flood water depths or water flow rates depending on rain fall amounts and/or intensity are not available. This data would help better identify potential areas that would benefit from mitigation action items.

Collin County Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	4-B, 2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes.
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes.
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.

Collin County Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils.
Hazard(s) Addressed	Expansive Soils
Goal/Objective	4-A
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.

Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.

Collin County Action Item	Distribute all-hazards NOAA Weather Radios to vulnerable populations.
Hazard(s) Addressed	3-C, 4-A, 4-B, 4-C
Goal/Objective	Hail, Lightning, Drought, Extreme Heat, High Winds, Tornado, Wildfire, Winter Storm, Dam Failure, Earthquake, Expansive Soils, Flooding
Priority	Medium
Estimated Cost	$50,000 - $75,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Emergency Management
Implementation Schedule	1-2 years
Effect on Old Buildings	n/a
Effect on New Buildings	n/a
Cost Effectiveness	Cost of lives lost and injuries sustained is very high compared to cost of proactive mitigation.
Discussion	This project would lead to greater capabilities for vulnerable populations to take mitigation actions prior to and in the event of all hazards.

National Flood Insurance Program (NFIP) Compliance

Collin County participates in the National Flood Insurance Program and has identified their respective areas as vulnerable to flooding. This is incorporated into all current and future planning for dealing with repetitive loss vulnerabilities.

CID	Community Name	County	Initial FHBM Identified	Initial FIRM Identified	Curr Eff Map Date	Reg-Emer Date	Tribal
480130#	COLLIN COUNTY*	COLLIN COUNTY	12/6/1977	3/16/1981	6/2/2009	6/16/1981	No

**: Unincorporated Collin County*
Source: http://www.fema.gov/cis/TX.html

Jurisdiction Compliance

Once the community applies for the NFIP, FEMA arranges for a study of the community to determine base flood elevations and flood risk zones. Consultation with the community occurs at the start of and during the study, and those communities with minimal flood risk are converted to the Regular Program without a study.

FEMA provides the studied community with a Flood Insurance Rate Map delineating base flood elevations and flood risk zones. The community is then given 6 months to adopt base flood elevations in its local zoning and building code ordinances. Once the community adopts more stringent ordinances, FEMA converts the community to the NFIP's Regular Program. FEMA then authorizes the sale of additional flood insurance in the community up to the Regular Program limits. The community must implement and enforce the adopted floodplain management measures. FEMA provides periodic community assistance visits with local officials to provide technical assistance regarding complying with NFIP floodplain management requirements.

The purchase of flood insurance is mandatory as a condition of receipt of federal or federally-related financial assistance for acquisition and/or construction of buildings in SFHAs of any participating community. Those communities notified as flood-prone which do not apply for participation in the NFIP within 1 year of notification are ineligible for federal or federally-related financial assistance for acquisition, construction, or reconstruction of insurable buildings in the SFHA.

Jurisdiction Activities

In order to maintain eligibility with NFIP, jurisdictions are required to maintain their list of properties that hold a policy with NFIP, along with up-to-date maps of the floodplains in the jurisdictions. Each jurisdiction participating in the Collin County Hazard Mitigation Action Plan completes this basic requirement and has the information on file with the jurisdiction's designated floodplain manager. Using this plan, participating jurisdictions will be able to continue their compliance with NFIP by implementing damage control measures and take action to minimize the effects of flooding in their respective jurisdictions.

Jurisdiction	Community Floodplain Administrator	NFIP Activity	Activity Description	Enforcement
Unincorporated Collin County	Director of Engineering	Taking action to minimize the effects of flooding on people, property, and building contents through measures including flood warning, emergency response, and evacuation planning	Collin County approved a Commissioners Court Order to deal with flooding issues in the county. The court order imposes stands for developing in flood-prone areas, including but not limited to, requiring construction materials be resistant to flooding, requiring "new construction or substantial improvements" to be designed to prevent water from entering or accumulating within electrical components, and requiring all new subdivision proposals have adequate storm water drainage plans.	NFIP compliance is implemented and enforced through a process of floodplain identification using FEMA floodplain maps, permit issuance, building requirements, and compliance inspections pending approval. Failure to comply with County's flood damage prevention order shall result in fines not more than $2000.00 for each violation, and in addition shall pay all costs and expenses involved in the case.

The Community Rating System (CRS)

The Community Rating System (CRS) is a voluntary program for NFIP-participating communities. The goals of the CRS are to reduce flood damages to insurable property, strengthen and support the insurance aspects of the NFIP, and encourage a comprehensive approach to floodplain management. All CRS communities must maintain completed FEMA elevation and flood proofing certificates for all new and substantially improved construction in the Special Flood Hazard Area after the date of application for CRS classification.

Collin County will apply for and participate in the CRS program to provide discounted insurance premium incentives for communities to go beyond the minimum floodplain management requirements and to analyze and manage future development.

The following link provides information on jurisdictions that currently have CRS:
http://www.fema.gov/library/viewRecord.do?id=3629

7. Plan Maintenance

Monitoring, Evaluating and Updating the Plan

In Compliance with requirement § 201.6(c) (4) (i), Collin County has developed a plan maintenance process which is described in the following paragraphs. Collin County, along with participating jurisdictions are responsible for monitoring implementation of the plan, executing a yearly evaluation of its effectiveness, and updating the plan within a 5-year cycle.

Following formal adoption by Collin County Commissioners Court, and formal adoption of the plan by city council by each participating jurisdiction, the actions outlined in the Collin County Hazard Mitigation Plan will be implemented by the county and participating jurisdictions as described throughout this document.

The Collin County Assistant Emergency Management Coordinator, working in conjunction with the respective jurisdictions, will be responsible for ensuring the mitigation plan is monitored, evaluated, and reviewed on an annual basis. This will be accomplished by calling an annual meeting of the planning team, whose members will provide assistance and expertise for plan review, evaluating, updating, and monitoring. This meeting will be open to the public and public notices will encourage community participation. During this annual meeting, Collin County will provide information on the implementation status of each action included in the plan. As part of the evaluation, the planning team will assess whether goals and objectives address current and expected conditions, whether the nature and/or magnitude of the risks have changed, if current resources are appropriate for implementing the plan, whether outcomes have occurred as expected, and if agencies and other partners participated as originally proposed. These activities will take place according to the timetable presented below:

Table 7.1 Plan Maintenance Timeline

Personnel	Activity	Schedule
Assistant Emergency Managers	Monitoring Plan: Track implementation and action items, changes to risk assessment, changes to planning team members, changes to capabilities, plan integrations	Biannually
	Evaluate Plan: Assess effectiveness by evaluating completed actions, implementation processes, responsible personnel and lessons learned.	Annually
	Update Plan	Once every 5 years

At least once every five (5) years, or more frequently, if such a need is determined by the participating jurisdiction, the multi-jurisdictional plan will undergo a major update. During this process, all sections of the plan will be updated with current information, analyses done and new and/or modified mitigation action plans will be developed. The revised plan will be submitted for state and federal review and approval, and presented for approval to the Collin County Commissioner's Court and the respective councils of incorporated cities/towns included in the Collin County plan. Each participating jurisdiction will undertake the same process for reviewing, revising and updating their respective plans and submitting them for approval. The plans will be updated every five years in accordance with federal requirements.

Plan Incorporation into Existing Planning Mechanisms *(In compliance with 201.6(c) (4) (ii))*

2016 Plan Incorporation: The State of Texas Mitigation Plan, vulnerability assessments, and capabilities assessments were carefully reviewed and considered when developing the mitigation actions for this plan. The HMPT will establish a process in which the mitigation strategy, goals, objectives and actions

outlined in this plan will be incorporated into existing local planning strategies. Those mechanisms include the following:

Table 7.2 Plan Incorporation Mechanisms

Jurisdiction	Responsible Personnel	Jurisdictional Plans	Integration Schedule	Integration Plan
Unincorporated Collin County	County Commissioners	Budget	Annually	Integration of mitigation projects identified in HazMAP, grants, and other fiscal allowances for mitigation actions and related costs
	Emergency Management Coordinator	Emergency Management Plan	Reviewed Annually, updated as needed	EMP Mitigation annex updates based on HazMAP HIRA; update preparedness, response and recovery actions related to identified hazards
	Designated Floodplain Manager	Floodplain Ordinances	As needed	Enhance mitigation of flood hazards using HazMAP flood data for floodplain management and community development.
	County Commissioners	Capital Improvement Plan	Annually	Strengthen critical infrastructure and key resources based on HazMAP hazard analysis, incorporate vulnerability data and action items.
	Public Works Director, County Commissioners, Water Districts	Drought Contingency Plan	As needed	Integrate drought actions such as xeriscaping, water restrictions, and public education

Although it is recognized there are many possible benefits to integrating components of this HazMAP into other planning mechanisms, the Collin County Hazard Mitigation Planning Team considers this HazMAP, including development and maintenance, to be the primary vehicle to ensure implementation of local hazard mitigation actions.

The process described here is the same as was used since the last planning update.

Continued Public Involvement (In compliance with 201.6(c) (4) (iii))

As stated in requirement § *201.6(c) (4) (iii)* the plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.

To address this requirement, ongoing public participation will be encouraged throughout the entire planning and implementation process. A copy of the plan will be provided on the Collin County website. The planning team will continue meeting on a regular basis to ensure the successful implementation of the plan and to discuss any additional issues regarding the emergency management of Collin County.

The annual meetings for monitoring, evaluating, and updating the plan will be open to the public and public notices will encourage community participation.

Annex B: City of Allen

This annex was prepared in 2020 as part of an update to the Collin County Multi-Jurisdictional Hazard Mitigation Action Plan (HazMAP). This plan updates the Allen hazard mitigation plan submitted to FEMA as part of the 2016 Collin County plan. The City of Allen participated on the Collin County HazMAP Hazard Mitigation Planning Team (HMPT) for this update. In addition to the countywide hazards and strategies discussed in the main plan, this annex serves as a complete hazard mitigation planning tool for the City of Allen. It contains capability assessment information, a specific vulnerability assessment, and a complete mitigation strategy. The methodology and process for developing this annex are explained throughout the following sections.

1. Introduction

The City of Allen is located at latitude 33°6'11"N and longitude 96°40'13"W. It sits in the southern region of Collin County with McKinney to its North and Plano to the South. Two (2) feeder creeks exist in Allen, Mustang Creek and West Rowlett Creek. There are four (4) main creek systems, Rowlett Creek, Cottonwood Creek, Watters Creek, and Russell Creek.

The City of Allen was named after Ebenezer Allen, a state politician and railroad promoter in 1872. Incorporated in 1953, Allen is home to the Allen Independent School District's new open-air sports facility Eagle Stadium as well as the city-owned and operated indoor arena, the Allen Event Center. Allen also hosts a satellite campus of Collin College, located inside Allen High School.

According to the North Central Texas Council of Governments (NCTCOG), the population of Allen is estimated to be about 105,623. The city has a total area of approximately 27.11 square miles of land area.

The City of Allen operates under a system of local government called Council/Manager, wherein all powers of the city are vested in the City Council.

Allen has a wide variety of local businesses and business development sites including Andrew's Distribution, Cabela's, Top Golf, Experian Information Solutions, Frontier Communications, and Cisco. Prominent in the local retail economy are The Village at Allen, Allen Premium Outlets, and Watters Creek at Montgomery Farm.

The city offers much in the way of recreational facilities and entertainment events which include the Allen Event Center which is home to the Allen Americans hockey team and the Dallas Sidekicks indoor soccer team; Celebration Park, which

hosts the annual pre-Fourth of July gala called the Allen USA Celebration; the Joe Farmer Recreation Center; the Don Rodenbaugh Natatorium; and Chase Oaks Golf Club.

2. Plan Development and Adoption Process

In order to apply for federal aid for technical assistance and post-disaster funding, local jurisdictions must comply with Part 201.3 of the Disaster Mitigation Act of 2000 implemented in the Federal Code of Regulations 44 CRF Part 201.6. While Allen has historically implemented measures to reduce their vulnerability to hazards, passage of DMA 2000 helped Allen officials to recognize the benefits of a long-term approach to hazard mitigation, which achieves a gradual decrease of impacts associated through the implementation of a Hazard Mitigation Plan. Collin County's Hazard Mitigation Action Plan represents the collective efforts of all participating jurisdictions, the general public, and stakeholders.

Organizing the Planning Effort

A comprehensive county approach was taken in developing the plan. An open public involvement process was established for the public, neighboring communities, regional agencies, businesses, academia, etc. to provide opportunities for everyone to become involved in the planning process and to make their views known. The meetings were advertised with notices in public places and online.

In accordance with Part 201.6(c) (5) of the Disaster Mitigation Act of 2000 (DMA 2000), Collin County developed this Hazard Mitigation Action Plan. This plan identifies hazards and mechanisms to minimize future damages associated with these hazards, which threaten Collin County and its jurisdictions.

Existing Data and Plans

Existing hazard mitigation information and other plans were reviewed during the development of the Hazard Mitigation Action Plan. GIS, statistical and qualitative data was gathered through numerous sources. Table 2.1 outlines the sources of data for the plan:

Table 2.1 Plan Source Data

Source	Data
City and County Appraisal Data 2020	Population and demographics
Regional Hazard Assessment Tool	Hazard occurrences
National Centers for Environmental Information (NCEI)	Hazard occurrences
Texas Forest Service/Texas Wildfire Risk Assessment Summary Report	Wildfire Threat and Urban Interface
National Inventory of Dams	Dam information
City Ordinances	Structural and Safety designs

Planning Committee

This Hazard Mitigation Action Plan was developed by the City of Allen Hazard Mitigation Planning Committee, with support of the North Central Texas Council of Governments and the Collin County

HMPT. Allen planning committee representatives participated on the HMPT, with local efforts led by the City of Allen Emergency Management Coordinator.

The planning committee was assembled with representatives from the city, including the mayor, city manager, emergency management representatives, department heads, and the general public. Collin County acted as the plan development consultant providing hazard mitigation planning services. Table 2.2 provides a list of the primary representatives on the Allen planning committee.

Table 2.2 Hazard Mitigation Committee – Primary Representatives

Representing	Position	Role
City of Allen	Mayor	General Policy Guidance
City of Allen	City Manager	Policy Implementation
City of Allen	Emergency Management Coordinator	Supervise
Collin County	Asst. Emergency Management Coordinator	General Assistance

Collin County served as the coordinator and lead agency for all jurisdictions by accomplishing the following activities through the planning process:

- Assigned the County's Assistant Emergency Management Coordinator to provide technical assistance and necessary data to the planning committee.
- Scheduled, coordinated, and facilitated community meetings with the assistance of the HMPT and the planning committees.
- Provided any necessary materials, handouts, etc. for public planning meetings.
- Worked with the HMPT and planning committees to collect and analyze data and develop goals and implementation strategies.
- Prepared, based on community input and planning team/committee direction, the first draft of the plan and provided technical writing assistance for review, editing and formatting.
- Coordinated with the stakeholders within the jurisdictions and the unincorporated areas of Collin County during plan development.

Each of the individual jurisdictions participated in accomplishing similar activities associated with development of the plan as follows:

- Coordinated input from representatives of neighborhood stakeholder groups and provided a representative to the County HMPT.
- Attended regular meetings of the planning team as coordinated by Collin County.
- Assisted Collin County staff with identifying hazards and estimating potential losses from future hazard events.
- Assisted Collin County in developing and prioritizing mitigation actions to address the identified risks.
- Assisted Collin County in coordinating public meetings to develop the plan.
- Identified the community resources available to support the planning effort.
- Worked for the support of neighborhood stakeholders for the recommendations resulting from the planning process.
- Submitted the proposed plan to all appropriate departments for review and comment and worked with Collin County to incorporate the resulting comments into the proposed plan

External stakeholders emailed and involved in reviewing the Collin County Hazard Mitigation Action Plan:

Table 2.3 External Stakeholders

Representing	Position	Role
Texas Health Presbyterian Hospital - Allen	Chief of Security/Risk Management	Review of plan
Texas Independent Insurance Group - Allen	Owner/Agent	Review of plan
Allen Board of Adjustment, Building and Standards Commission, and Sign Control Board	Citizen Board Member	Review of plan
Allen Independent School District (AISD)	Risk Manager	Review of plan

Subsequent to the State of Texas and FEMA approval of the plan, each organization above is committed to accomplishing the following activities:

- Appoint members to a coordinating committee to monitor and work toward plan implementation.
- Publicize the plan to neighborhood interests and ensure that new community members are aware of the plan and its contents.
- Monitor progress in achieving the plan's goals through regular maintenance and implementation projects.

Planning Meetings

During the planning process, the HMPT met to obtain relevant information from the participating jurisdictions and to discuss the objectives and progress of the plan. The objectives of these meetings were to gather information and to provide guidance for each jurisdiction throughout the planning stages.

The following meetings were held by Collin County and included participation by all jurisdictions:

- Plan provided to the City of Allen on August 18, 2020
- Collin County Planning Meeting – November 5, 2020
- Collin County HazMAP Public Meeting – 11/2/2021 at 2PM
- Collin County HazMAP Public Meeting – 01/12/2022 at 9AMTBD

Public Involvement

Support from the community is vital for any successful hazard mitigation plan. The HMPT and Allen planning committee provided opportunities, announced through public communication means, for public participation and input throughout the planning process prior to this draft and before approval of the finalized plan. Advertisement and sign-in sheets for these meetings are located in Appendix A.

- The first public meeting was held on November 2, 2021 at 2PM, and advertised on the Collin County website along with other jurisdictional websites inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to comment. The meeting was held virtually via WebEX.
- A second public meeting was held on January 12, 2022 at 9AM. Announcements were placed on jurisdictions websites, including Collin County inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to view and comment on the HazMAP prior to plan submission.

There were no comments directly related to the mitigation plan received from citizens, non-profits, businesses, academia, or interested parties; therefore, no feedback was incorporated. An additional opportunity for the public to comment on the plan will be held prior to formal plan adoption.

This provided all citizens, stakeholders, neighboring communities, agencies, businesses, academia, non-profit organizations, and all interested parties an opportunity to be involved in the planning process and to take part in the decisions making process that affect the future of the communities that they live in.

3. Jurisdictional Hazard Identification and Risk Assessment

The planning committee for the City of Allen identified several natural hazards and man-made hazards that could affect the city. The committee decided to focus on the natural hazards identified in Section 5 of this update. This was done after reviewing the 2016 HazMAP, the State of Texas Hazard Mitigation Plan, as well as other sources such as federal and state agencies. The hazards were ranked using the Priority Risk Index.

Priority Risk Index

A Priority Risk Index (PRI) was developed with the purpose of categorizing potential hazards for Collin County and ranks each hazard as high, moderate, low, or negligible to no risk. The hazard classification generated through the use of the PRI allows for the prioritization of those high hazard risks for mitigation planning purposes, and more specifically, the identification of hazard mitigation opportunities for Collin County jurisdictions to consider as part of their proposed mitigation strategy.

The PRI is used to assist all jurisdictions participating in the Collin County HazMAP in determining which hazards pose the most significant threat based on a variety of factors. The PRI is not scientifically based, but is rather meant to be utilized as an objective and systematic planning tool for classifying and prioritizing hazard risks in Collin County based on standardized criteria. The PRI results in numerical values that allow identified hazards to be ranked against one another. The sum of all four categories equals the final PRI value, as shown below:

PRI Value = (Probability x .30) + (Life Impact x .35) + (Property Impact x .25) + (Spatial Extent x .10)

The higher the PRI value, the greater the hazards risk. These values were obtained by assigning varying degrees of risk to four categories for each hazard: Probability, Life Impact, Property Impact, and Spatial Extent *(Table 3.1).* Each category has been assigned an Index Value (0 to 3) and a Weighing Factor (0 – 100%). These values may be adjusted during future plan updates. In order to evaluate the risk of each hazard, the assigned PRI Value for each category is multiplied by the weighing factor. Then, the PRI for each hazard is calculated by adding the product obtained in each category. According to the weighing scheme applied for Collin County, the highest possible PRI value is 3.0. The PRI calculations are presented in *Table 3.2*. Table 3.1 breaks down the value of each category.

Table 3.1 Priority Risk Index Value

Assigned Weighing Factor	PRI Category	Degree of Risk		
		Level	Criteria	Index Value
30%	Probability	Unlikely	Less than 1% annual probability	0
		Possible	Between 1 and 10% annual probability	1
		Likely	Between 10 and 100% annual probability	2
		Highly Likely	100% annual probability	3

35%	Life Impact	Minor	Very few injuries, if at all none	0
		Limited	Minor Injuries	1
		Critical	Multiple deaths/injuries	2
		Catastrophic	High number of deaths/injuries	3
25%	Property Impact	Minor	Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	0
		Limited	More than 10% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one day.	1
		Critical	More than 25% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one week.	2
		Catastrophic	More than 50% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for 30 days or more.	3
10%	Spatial Extent	Negligible	Less than 1% of area affected	0
		Small	Between 1 and 10% of area affected	1
		Moderate	Between 10 and 50% of area affected	2
		Large	Between 50 and 100% of area affected	3

Table 3.2 Priority Risk Index for the City of Allen

Hazard	Category/Degree of Risk				
	Probability Index Value (0 - 3 30%)	Life Impact Index Value (0 - 3 35%)	Property Impact Index Value (0 - 3 25%)	Spatial Extent Index Value (0 - 3 10%)	PRI Value 2021
Dam Failure	0	0	0	0	0
Drought	2	0	0	3	0.9
Earthquake	0	0	0	0	0
Expansive Soils	1	0	0	1	0.4
Extreme Heat	2	1	0	3	1.25
Flooding	1	1	1	1	1
Hail	3	0	1	2	1.35
High Winds	2	1	1	2	1.4
Lightning	3	0	1	2	1.35
Tornado	1	2	2	2	1.7

Wildfire	0	0	0	0	0
Winter Storms	2	1	0	2	1.15

The conclusions drawn from the hazard profiling process for the City of Allen resulted in the classification of risk for each identified hazard according to four categories: High Risk, Moderate Risk, Low Risk, and Negligible to No Risk *(Table 3.3).* For purposes of these classifications, risk is expressed in relative terms according to the probability of occurrence and estimated impact that a hazard will have on human life and property in the City of Allen.

Table 3.3 Hazard Rankings City of Allen

High Risk (PRI 2 - 3)	
Moderate Risk (PRI 1.01 -1.9)	Tornado High Winds Hail Lightning Extreme Heat Winter Storms
Low Risk (PRI 0.50 – 1)	Flooding Drought
Negligible to No Risk (PRI 0 – 0.49)	Expansive Soils Dam Failure Earthquake Wildfire

Changes in Development and Priorities (Requirement §201.6(d) (3))

The City of Allen was a participating jurisdiction in the 2016 Collin County Hazard Mitigation Action Plan. Since then, the city has seen an increase in growth and commuter traffic and forecasts additions to single-family lots. Based on 2020 Census projections, the population of Allen increased from 98,344 to 105,623 during the time period 2015-2019. Housing units increased from 28,877 to 30,436, and related transportation routes and business structures also increased to accommodate the growing population. Travel lanes were added to US HWY-75 and widths of major roadways including Stacy Road, Bethany Road, Exchange Parkway, and Watters Road were increased. Overall growth is rated at 9%.

To minimize the damage caused by manmade and natural disasters, the City of Allen developed, implemented and enforces up-to-date building and fire codes and adopted a policy to prohibit development in FEMA identified flood plains. In addition, Allen has completed one of their original action items.

- Education and Awareness Projects
  - Develop and institute water conservation education program to mitigate and reduce the effects of extreme heat.

In 2011, the Fire Department added an additional fire station (Station 5) located on McDermott Road near the Custer Road intersection. The construction of Station 5 facilitated the addition of an early warning siren at the same location. The development and implementation of these mitigation projects have directly led to lower vulnerability for residents and property located in the City of Allen.

New priorities are noted and ranked in each new action item, Section 6. Except for actions completes or cancelled, other priorities remain the same as in the previous version of this plan.

Vulnerability Narratives

This annex focuses on specific areas of vulnerability the City of Allen faces with each hazard. The hazards identified in the main plan are all addressed in this annex, therefore the natural hazards rated negligible to no risk are included, described, and considered for mitigation.

Dam and Levee Failure The City of Allen is not perceived to be vulnerable to dam or levee failure on a large scale. One (1) dam was constructed within a small, residential neighborhood called The Preserve, located at the intersection of McDermott Drive and Shallowater Drive. The dam was constructed to preserve the original stock-pond impoundment, which dated back to the original farmstead use, as an amenity to the residents. Even though the impoundment is small, the dam has been registered with the Texas Commission on Environmental Quality, incurs routine inspection, and has an emergency action plan in-place for the structure.

Drought When defining drought as an occurrence in Texas it is best to consider two types of drought - *agricultural and hydrologic*. Agricultural drought is a dry period of sufficient length and intensity that markedly reduces crop yields. Hydrologic drought is a long term condition of abnormally dry weather that ultimately leads to the depletion of surface and ground water supplies, the drying up of rivers and streams and the cessation of spring flows. These two types of drought may, but do not necessarily, occur together. It should be noted that the severity of a drought cannot be completely measured in terms of precipitation alone, but precipitation statistics do provide an easily obtainable index of drought severity. Declining reservoir and stock tank levels due to a prolonged lack of precipitation are stark evidence of a severe drought. Texas experiences a cycle of extended wet and drought conditions that can extend over a period of months even years. Extended periods of drought can have an enormous impact on an area by affecting the abundance of water supply, the agriculture economy, and foundations of structures. All geographic areas of Allen have the potential to be vulnerable to drought.

An adequate supply of high quality water has become a critical issue for the future prosperity of Texas, where water is a limited resource. Due to increasing population, water demand is projected to exceed supply by 2030, based on current use rates. Protecting, managing and planning for the wise use of our water resources is an efficient and effective strategy to meet future water supply needs.

The City of Allen is a member city of the North Texas Municipal Water District (NTMWD). All of Allen's Water and Waste Water Treatment Services are provided by NTMWD, who is the regional wholesale supplier of potable water. More than 1.8 million people rely on this treated water. The raw water sources include Bonham Lake, Lavon Lake, Lake Texoma, Jim Chapman Lake (Cooper Lake), Lake Tawakoni, and the East Fork of the Trinity River southeast of Dallas.

The construction of a $306 million water transmission line from Lake Texoma to the water treatment plant at Wylie was completed and has begun delivery of water to the treatment plant in June 2014. It is estimated to be online in June 2014. Even with the return of the Lake Texoma water, it must be blended with Lake Lavon. Due to Lake Lavon's current level, Allen must continue water conservation efforts.

Stage 3 of the Water Conservation and Drought Contingency and Emergency Water Response Plan for the City of Allen, Texas and Ordinance Numbers 2760-8-08 and 3234-6-14 are currently in effect. A 10% reduction goal is required by NTMWD.
Restrictions caused by a drought affect local revenues significantly and can have major impacts on local industry, fire protection, and local agriculture. Allen's summer water consumption is 3.75 times our winter consumption due to increased landscape irrigation. This fact should make it apparent why the City of Allen restricts landscape irrigation as the primary way to achieve water use reductions as we continue Stage 3 conservation into the foreseeable future.

Drought has the potential to impact the entire planning area equally, all improved property, emergency facilities, critical facilities, critical infrastructure, and the entire population of the city are vulnerable to this hazard. Foundations of all buildings are vulnerable; however, older structures, or those built under less stringent foundation code requirements are most vulnerable. In turn, the city's population, wildlife and vegetation are vulnerable. Lower income populations who may not have the resources to buy containerized water in the event of a shortage may be more vulnerable than other populations.

Earthquake An earthquake is a sudden motion or trembling caused by an abrupt release of accumulated strain on the tectonic plates that comprise the Earth's crust. The theory of plate tectonics holds that the Earth's crust is broken into several major plates. These rigid, 50- to 60- mile thick plates move slowly and continuously over the interior of the earth, meeting in some areas and separating in others. As the tectonic plates move together they bump, slide, catch, and hold. Eventually, faults along or near plate boundaries slip abruptly when the stress exceeds the elastic limit of the rock, and an earthquake occurs. The ensuing seismic activity and ground motion provoke secondary hazards: surface faulting, ground failure, and tsunamis. The vibration or shaking of the ground during an earthquake is referred to as ground motion. In general, the severity of ground motion increases with the amount of energy released and decreases with distance from the causative fault or epicenter. When a fault ruptures, seismic waves are propagated in all directions, causing the ground to vibrate at frequencies ranging from 0.1 to 30 Hz. Seismic waves are referred to as P waves, S waves, and surface waves. Earthquakes have the potential to occur anywhere in the geographic planning area, therefore all geographic areas are potentially vulnerable. Buildings constructed under older building codes, aging underground infrastructure, and roads are most vulnerable to damages from seismic activity. However, this hazard was identified as having negligible or no risk to the City of Allen.

Expansive Soils Soil conditions can have a significant effect on urban development as different soils can create various problems for structures and uses. Most soils have moderate to severe limitations for urban development as a result of shallow bedrock, high shrink-swell potential, and low strength. These problems must be recognized in construction to avoid foundation problems.

During months of prolonged high temperatures and drought, expansive soils may become more prevalent. Surface layers of soil can form sizable cracks as it expands and contracts over time, leading to structural foundation problems. Expansive soils are not a prevalent hazard within the City of Allen and were found to pose only a minor threat. Geographically, areas of Allen have the potential to be vulnerable to expansive soils. This hazard was identified as having negligible or no risk to the City of Allen.

Extreme Heat Extreme heat contributes to and may exacerbate drought conditions due to increased water use. Elevated heat indexes also affect asthma patients and the elderly when exposed. Working conditions outside are more difficult and heat stroke becomes a greater danger. Instances of heat stroke and death occur in vulnerable populations such as the homeless, elderly, and the very young if exposed to the high temperatures for an extended period of time. Electrical usage also spikes during the summer which can result in periods of grid blackout. Extreme heat has the potential to affect the entire planning area.
Allen's climate can be characterized as very humid and sub-tropical in the summer. It is usually very hot and dry with average maximum highs in the heart of summer reaching 96°F. However, the temperature frequently rises above 100°F. On average, Allen experiences 16 days per year where temperatures meet or exceed 100°F. Overnight lows usually stay in the lower to mid-70s, but sometimes they fail to fall below 80°F during extreme hot spells. Coupling these warm temperatures with high humidity creates what is called the heat index. The hottest temperature ever recorded, 113°F, occurred for two consecutive days on June 26th and 27th, 1980. Incidentally, that summer is the hottest summer on record with nearly forty (40) consecutive days of triple digit heat.

The City of Allen has the potential during heat emergencies to exceed the capabilities of the local hospital and Emergency Medical System. Extreme heat generally affects the entire population, but the homeless, very young, elderly, and populations without air conditioning are most vulnerable.

Flooding is the most prevalent and costly disaster in the United States. Floods have the ability to roll boulders the size of cars, uproot trees, and transport building. At the point the water concentration hyper extends the capacity of the flood way, the water enters the floodplain. Floods are most common in seasons of rain and thunderstorms. Floods can be associated with other natural phenomenon such as rainstorms, thunderstorms, hurricanes, earthquakes, and rapidly melting snow.

The City of Allen has a comprehensive flood program to go along with organized growth. The Allen Land Development Code (Ordinance # 2112-11-02) has dedicated one complete article to the aspect of flood control and several related sections on drainage.

The highlights of the city ordinance, with regards to flood control, are topics related to: what constitutes flood hazards, methods of reducing flood losses, flood plain administration, and risk reduction. The City of Allen has had an ordinance (since 1991) to evaluate development in terms of the "Ultimate 100-Year Flood". The term "Ultimate" indicates a model for fully developed conditions on the upstream portion of the watershed condition. The provision for flood related structures (bridges, culverts, drainage ditches, storm pipes etc.) designed for fully developed conditions and the requirement for the lowest floor of buildings to be a minimum of 18" above the base flood elevation in the case of commercial structures and 24" for residential structures have worked effectively to serve the city in heavy storms and floods.

The city has improved several structures that were inherited prior to the above referenced ordinance. Mustang Creek channel improvements in 2001, upstream of Main Street, has removed several houses from the flood plain. The rebuilding of McDermott Drive and the subsequent improvement of several drainage structures has prevented the road from flooding. Also, the project to replace the existing Exchange Parkway (Old Rowlett Road) Bridge with a new bridge made Exchange Parkway a safe conduit for traffic to cross Rowlett Creek. Overall, Allen has handled flood related issues with enough foresight to avoid major failures and significantly reduce hazards.

The City of Allen can be affected by two types of floods, though in limited areas. These include:

- Riverine Flood – Occurs in the floodplain of a river or stream when the amount of water and the rate at which the moving increases. This type generally can be forecast in advance, and proper precautions taken to save lives.
- Flash Flood – A type of Riverine flood that occurs after a heavy storm, when the ground cannot absorb the high amount of precipitation. This can occur when heavy precipitation falls on already-saturated soils. Flash Floods occur rapidly with little warning.

The city lies in the Blackland Prairies where the maximum elevation is 1000 feet and the minimum elevation is 450 feet. Allen is located in the Trinity River Basin where rainfall is between 30 to 40 inches per year, on average. Two (2) feeder creeks exist in Allen, Mustang Creek and West Rowlett Creek. There are four (4) main creek systems, Rowlett Creek, Cottonwood Creek, Watters Creek, and Russell Creek.

The City of Allen enjoys a relatively low susceptibility of flooding due to above average drainage and sewer systems as well as a robust infrastructure. Allen's most important measure to ensure that flooding does not become a life threatening hazard is to limit the use of flood prone areas. Other methods include the use of automatic roadblocks over roadways which are prone to seasonal flooding.

Hail Two conditions must be fulfilled for a thunderstorm to become a hail storm: (1) updraft velocities must be sufficiently strong enough to support hail storms during their growth; and, (2) liquid moisture must accumulate in a super-cooled state in the upper parts of the storm. Hail ranges in size from vanishing small particles to grapefruit dimensions. They may be spherical, conical or very irregular in shape.

The hail hazard is primarily in terms of damage of crops and property. Injury and loss of human life are rarely associated with hailstorms. Hail tends to fall in swaths that may be from 20 to 115 miles long and 5 to 30 miles wide. A hail swath is not a continuous path of hail but generally consists of a series of hail strikes, which are produced by individual thunderstorm cells traversing the same general area. Hail strikes are typically about 1/2 mile wide and 5 miles long. They may partially overlap, but often they leave completely undamaged areas between them. The amount of damage and destructive effects of a hailstorm is governed by size, number of hailstones, mass of ice, momentum, impact energy, and the dimensions of the hail swaths. Strong winds and heavy rains, which often accompany hail, will also add to the damage to crops and property.

Hail storms are most prevalent in the State of Texas in the north (where Allen is located) and western areas of the state. This can be contributed to the effects from large-scale weather systems that are evident in a broad band of maximum occurrence from New Mexico to Ohio. This is directly related to the area of greatest tornado activity known as "tornado alley". It is significant that hailstorm frequency is greatest during early spring and summer months. Hail during the three hottest months of the summer, however, is rare. All geographic areas of Allen are potentially susceptible to damaging hail. Damage in the City of Allen due to hail could result in a significant loss.

Insurance is the most widely used mitigation measure for property damage due to hail. It is not unusual for people in hail prone area to replace the roof covering of structures every three to five years due primarily to the use of cheaper, less hail resistant roof covering products. Windstorms and hail damage is the one single most costly loss suffered by Texans. Severe roof damage can be reduced by installing roofing products that are manufactures using heavy duty, quality materials that has the Underwriters

Laboratory (UL) 2218, hail resistant product listing. Exposed populations, manufactured homes, and older properties are most vulnerable to hail.

High Winds Straight-line winds are often responsible for the wind damage associated with a thunderstorm. These winds are often confused with tornadoes because of similar damage and wind speeds. However, the strong and gusty winds associated with straight-line winds blow roughly in a straight line unlike the rotating winds of a tornado. Downbursts or micro-bursts are examples of damaging straight-line winds. A downburst is a small area of rapidly descending rain and rain-cooled air beneath a thunderstorm that produces a violent, localized downdraft covering 2.5 miles or less. Wind speeds in some of the stronger downbursts can reach 100 to 150 miles per hour, which is similar to that of a strong tornado. The winds produced from a downburst often occur in one direction, and the worst damage is usually on the forward side of the downburst. High winds have the potential to affect the entire planning area.

High winds are a frequent occurrence with severe thunderstorms and they can affect all areas of Allen. These winds can occur suddenly and without warning during severe weather and may pose access challenges due to fallen trees on roadways. There have been several instances of damage occurring to business and commercial structures as a result of high winds. Outside of primary residential structures, there are few locations for the public to seek shelter during high winds.

The City of Allen has typically experienced power outages, fires, and damage to roofs, cars, out buildings, and electrical utilities due to high winds. These events create significant planning and recovery issues.

Lightning damage results from four (4) effects of lightning strike: electrocution of humans and animals; vaporization of materials along the path of strike; fire caused by the high temperature produced by the strike; and a sudden power surge that can damage electrical and electronic utility substations and distribution lines. It is estimated that throughout the United States, a power outage caused by lightning occurs on 50 percent of the days throughout the year. Lightning has the potential to affect all populations and property in the City of Allen.

Although property damage is the major cost of the lightning hazard, it should be emphasized that lightning kills more people in the US each year than either tornadoes or hurricanes. On the average, six (6) people die from lightning strike every year in Texas. Allen has lost at least one (1) citizen due to electrocution from a lightning strike. Additionally, lightening is responsible for at least five (5) residential structure fires over the past two (2) years resulting in a total loss for each residence. Property without lightning protection and exposed populations are most vulnerable.

Tornado Tornadoes are directly associated with dark, heavy cumulonimbus (thunderstorm, squall line) clouds with intense lightning. The average tornado path is four (4) miles long but tornado tracks of more than 150 miles have been reported. The average width is 300 to 400 yards; however, some tornadoes cut swaths more than a mile wide. Precipitation usually occurs first as rain preceding the storm, frequently with hail and as a heavy down pour immediately to the left of the tornado's path.

While tornadoes in Texas can occur in any month and at all hours of the day or night, they occur with greatest frequency during the late spring and early summer months and during late afternoon and early evening hours.

Allen is in an area where the annual average tornado occurs 15 to 20 times per year. Special issues concerning a tornado incident within the City of Allen involve the large population of special needs residents within nursing homes and the many daycares and schools. An additional concern is the number of large trees in residential areas that could impact power lines and the restriction into areas needing assistance due to limbs blocking roadways.

The single most important factor influencing human response to tornado hazards is the adequate emergency warning system. Because a tornado is a very sudden event, a “short fused” type of disaster, there rarely is sufficient warning time. Police, Fire and Rescue, and volunteer storm spotters trained by the National Weather Service (NWS) SKYWARN tornado preparedness programs provide the initial step in adequate warning system.

The City of Allen incorporates the mentioned measures of early detection and utilizes the Emergency Operation Plan at the moment the NWS issues a tornado watch or warning. Additionally, sufficient insurance is the first order of mitigation to cover major losses of the home and belongings. Exposed populations, manufactured homes, and older properties are most vulnerable.

Wildland Fire Wildland fire is any fire occurring on grassland, forest, or prairie, regardless of ignition source. Wildland fires are fueled almost exclusively by natural vegetation. Typically, wildland fires occur in national forests and state parks where federal or state agencies are responsible for fire management and suppression. Interface or intermix fires are urban/wildland fires in which vegetation and the built-environment provide fuel. Firestorms are events of such extreme intensity that effective suppression is virtually impossible. Firestorms occur during extreme weather and generally burn until conditions change or the available fuel is exhausted. For the purposes of this hazard analysis, wildland fires are assessed under what is known as the Wildland Urban Interface (WUI). The WUI is an area of development that is susceptible to wildland fires due to the amount of structures located in an area with vegetation that can act a fuel for a wildland fire.

Due to the lack of fuel, there is negligible to no risk in Allen for a wildland fire. There have been no major wildland fires in the city for the past 10 years.

Winter Storms Winter storms in Allen can and have occurred with enough severity to be a threat to people and property. The types of winter storms that Allen is most familiar with are ice storms and cold waves. A snowfall with an accumulation of four (4) or more inches in a 12-hour period is considered a heavy snowfall. Although it has never been witnessed in Allen, blizzards are also possible, and can create a threat to the community.

An ice storm occurs when rain falls out of the warm and moist upper levels of the atmosphere into a cold and dry layer near the ground. The rain freezes on contact with the cold ground and accumulates on exposed surfaces. If a half-inch of rain freezes on trees and utility wires, damage can occur, especially if accompanied by high winds. Ice storm usually occurs from late December to mid-February. Winter storms have the potential to occur anywhere in the geographic planning area, with greatest vulnerabilities in highly populated or commercial areas.

Allen has experienced multiple severe ice storms over the past six (6) years. Loss of utilities, such as natural gas and electrical services has resulted from some of these storms. There have also been instances of structural damage to various roofs and car ports in Allen due to ice accumulation.

The passage of a winter cold front with a drastic drop in temperature heralds the arrival of a cold wave.

Blizzards are the most perilous of all winter storms, characterized by low temperatures and strong winds in excess of 35 MPH, bearing large amounts of blowing or drifting snow. True blizzards are rare in the Allen area; however, blizzard like conditions do exist during heavy snowstorms when gusty winds cause blowing and drifting snow.

The city has two (2) major highways (US 75 and SH 121) that may be impacted during winter storms. Areas impacted include local commerce, medical services, and local sheltering capabilities for potential stranded motorists.

Identification of Assets and Vulnerability Assessment

An inventory of Allen's geo-referenced assets was created in order to identify and characterize property and population potentially at risk to the identified hazards. By understanding the type and number of assets that exist and where they are located in relation to known hazard areas, the relative risk and vulnerability for such assets can be assessed. For this assessment, five categories of assets were evaluated using Geographic Information System and statistical analysis. The five categories of vulnerable assets include:

- **Population**: Includes the number of people residing in Collin County jurisdictions as delineated by U.S. Census 2020 block data provided by NCTCOG.
- **Improved property**: Includes all developed properties according to local parcel data from the Collin County Central Appraisal District. The information has been expressed in terms of the total assessed value of improvements that may be exposed to the identified hazards.
- **Emergency facilities**: Includes fire stations, police stations and hospitals, provided by the Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.
- **Critical facilities**: Includes schools and historic places provided by Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions. These are non-emergency facilities, but still provide critical services and functions for vulnerable sectors of the population.
- **Critical infrastructure**: Includes airports, natural gas facilities, wastewater facilities, potable water treatment facilities, wastewater treatment facilities, dams, and bridges. Data for all critical facilities was obtained from Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.

The following tables provide a breakdown by municipal jurisdiction of the geo-referenced assets that were used for the vulnerability assessment.

Population

According to the US Census Bureau, the total population of Allen in 2020 was 105,823 people, with 30,436 households. The population breakdown is provided in *Table 3.4.*

Table 3.4 City of Allen Population Counts

Jurisdiction	Population			Households		
	Population	% of County Total**	Population Density (Sq. Mile)	Household	% of County Total**	Household Density (Sq. Mile)
Allen	105,823	9.50%	3927.91	36,526	9.50%	1386.07

Source: US Census Bureau & Collin County Appraisal District
***Includes totals from incorporated jurisdictions not participating in the plan*

Table 3.5 summarizes population counts and population change absolute and percent predications for Allen).

Table 3.5 City of Allen Population Predictions

Jurisdiction	Population 2010 Census	Population 2018 Estimate	Population 2019 Estimate	Absolute Change 2018-2019	Percent (%) Change 2018-2019
Allen	84,246	87,980	90,030	2050	2.28%

Source: 2020 NCTCOG Population Estimates

Property

There are an estimated 37,282 thousand parcels in Allen, with an estimated $11,650,015,117 in total assessed value of, *Table 3.6* lists the total number and percentage of parcels by jurisdiction.

Table 3.6 Parcel Counts and Improvements Value

Jurisdiction	Number of Parcels	% of County Total	Total Assessed Value of Improvements (Buildings)[1]
Allen	37,282	7.48%	$11,650,015,117

Source: Collin County Appraisal District
[1]Includes public buildings (residential, commercial, industrial, agricultural, religion, government, education)

Emergency Facilities

There are seven (7) identified emergency facilities in the City of Allen, including five (5) fire stations, one (1) police station, and two (2) hospitals. *Table 3.7* presents the distribution of emergency facilities by jurisdiction. Geographic coordinates were used to determine the location of each facility.

Table 3.7 City of Allen Emergency Facilities

Jurisdiction	Fire Stations	Police Stations	Hospitals
Allen	5	1	2

Source: FEMA Resilience and Planning Tool

Critical Facilities

There are thirty two (32) critical facilities, which are considered non-emergency in Allen. The critical facilities include thirty one (31) schools and one (1) historical property site (*Table 3.8*). Geographic coordinates (i.e., latitude and longitude) were used to determine the location of each facility.

Table 3.8 City of Allen Critical Facilities

Jurisdiction	Schools	Historical Property
Allen	31	1

Source: FEMA Resilience and Planning Tool

Critical Infrastructure

There are eighty seven (87) identified critical infrastructure facilities in the City of Allen, including two (2) natural gas facilities, one (1) dam, three (3) railway bridges, forty four (44) highway bridges, and 37 city-owned vehicular bridges (*Table 3.9*). The rail system in Allen is owned by Dallas Area Rapid Transit (DART) and is not currently in use.

Table 3.9 City of Allen Critical Infrastructure

Jurisdiction	Airports	Natural Gas Facilities	Wastewater Treatment Facilities	Potable Water Treatment Facilities	Dams	Railway/ Highway Bridges
Allen	0	2	0	0	1	84

Source: Local jurisdictions

Methodology

Based on the type of information available for analysis, a City of Allen vulnerability assessment was conducted using two distinct methodologies, a Geographic Information System-based analysis and a statistical risk assessment methodology. Each approach provides estimates for the potential impact of hazards by using a common, systematic framework for evaluation of historical occurrence information provided by National Centers for Environmental Information, the Texas Forest Service, and FEMA Resilience and Planning Tool. The results of the vulnerability assessment are provided by jurisdiction for each hazard analyzed.

Of the 12 hazards evaluated for the City of Allen, four were analyzed using a Geographic Information System-based analysis, five using a statistical risk assessment methodology, and the remaining three hazards using a qualitative analysis. Qualitative analysis was used due to lack of information, the inability to define specific areas of risk, and/or inexistence of historical records. Additional information regarding these hazards is unattainable at the present time; studies to address this data deficiency are noted as action items in this update. *Table 3.10* summarizes the methodology used for each hazard.

Table 3.10 Analysis used for Vulnerability Assessment

Hazard	Geographic Information System-based Analysis	Statistical Analysis	Qualitative Analysis
Dam Failure			X
Drought	X		
Earthquake			X
Expansive Soils			X
Extreme Heat		X	
Flooding	X		

Hail	X		
High Winds		X	
Lightning		X	
Tornado		X	
Wildfire	X		
Winter Storms		X	

Summary of Vulnerability Assessment

A summary of the vulnerability assessment for each hazard using geographic and statistical analysis is presented in the following pages. The detailed assessment is presented in the following sections.

Summary Table 3.11

Drought	
Population	According to National Centers for Environmental Information (NCEI) no recorded injuries or fatalities have been recorded for drought events. There are no personal losses expected from drought events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Allen are expected but financially unknown due to lack of accurate reporting. Historical data indicates that crop losses in the City of Allen are expected mostly during water shortages, financially unknown due to lack of accurate reporting.
Emergency Facilities	Because of the nature of this hazard, no losses are expected on emergency facilities but foundation issues could occur due to drought events.
Critical Facilities	Because of the nature of this hazard, no losses are expected on critical facilities but foundation issues could occur due to drought events.
Critical Infrastructure	Because of the nature of this hazard, no losses are expected on critical infrastructure but foundation issues and road degradation could occur due to drought events.

Summary Table 3.12

Extreme Heat	
Population	According to National Centers for Environmental Information (NCEI), there were no fatalities recorded due to extreme heat from the City of Allen. The City of Allen and its population are vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to developed areas and the improved property in the City of Allen is not vulnerable to this hazard.

Emergency Facilities	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to buildings and the emergency facilities in the City of Allen are not vulnerable to this hazard.
Critical Facilities	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to buildings, and the critical facilities in the City of Allen are not vulnerable to this hazard.
Critical Infrastructure	According to National Centers for Environmental Information (NCEI) there is no impact of extreme heat to critical infrastructure, and vulnerability to this hazard is considered minimal in Allen.

Summary Table 3.13

Flooding	
Population	Flooding produces an expected annualized count of zero (0) fatalities and injuries per year.
Improved Property	There have been two (2) recorded flood events in the City of Allen. Property losses are expected at $5,000 per year however these values are underestimated due to lack of accurate reporting. No crop losses are expected or recorded. Approximately $5,046,310,777 of the total assessed value is at risk from the 100-year storm event.
Emergency Facilities	Emergency facilities have the potential to be as risk in the 100-year storm event.
Critical Facilities	Critical facilities have the potential to be as risk in the 100-year storm event.
Critical Infrastructure	Critical Infrastructure has the potential to be as risk in the 100-year storm event.

Summary Table 3.14

Hail	
Population	According to National Centers for Environmental Information (NCEI), no recorded injuries or fatalities have been recorded for hailstorm events. There are no personal losses expected from hailstorm events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Allen are expected at $91,428.57 per year however these values are underestimated due to lack of accurate reporting. All improved property is vulnerable to this hazard. Although some crops are susceptible to hail hazards, available historical data indicates that there are no expected crop losses from this event.

Emergency Facilities	Because of the unpredictability of the geographical location of hailstorms, all emergency facilities in Allen are vulnerable to this hazard.
Critical Facilities	Because of the unpredictability of the geographical location of hailstorms, all critical facilities in Allen are vulnerable to this hazard.
Critical Infrastructure	Because of the unpredictability of the geographical location of hailstorms, all critical infrastructures in Allen are vulnerable to this hazard.

Summary Table 3.15

High Wind	
Population	According to National Centers for Environmental Information (NCEI), there are no recorded injuries or fatalities from high wind events. All the population of Allen is vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Allen are expected at $1,900 per year however these values are underestimated due to lack of accurate reporting. No crop losses resulted from this hazard in Allen.
Emergency Facilities	Because of the expected geographical widespread nature of high winds, all emergency facilities in Allen are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of high winds, all critical facilities in Allen are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of high winds, all critical infrastructures in Allen are vulnerable to this hazard.

Summary Table 3.16

Lightning	
Population	According to National Centers for Environmental Information (NCEI), lightning events can be expected to cause no deaths and no injuries in Allen. All the population of Allen is vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Allen are expected at $4,375 per year however these values are underestimated due to lack of accurate reporting. No crop losses resulted from this hazard in Allen.
Emergency Facilities	Because of the expected geographical widespread nature of lightning, all emergency facilities in Allen are vulnerable to this hazard.

Critical Facilities	Because of the expected geographical widespread nature of lightning, all critical facilities in Allen are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of lightning, all critical infrastructures in Allen are vulnerable to this hazard.

Summary Table 3.17

Tornado	
Population	According to National Centers for Environmental Information (NCEI), there have been no recorded injuries or fatalities from tornado events in Allen. All the population of Allen is exposed and vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), an average loss of $174,285.71 per year in property losses is expected to result from tornado events however these values are underestimated due to lack of accurate reporting. No crop losses are expected from this hazard in Allen.
Emergency Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all emergency facilities in Allen are exposed and vulnerable to this hazard.
Critical Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all critical facilities in Allen are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the impossibility to predict the geographical area of impact for tornados, all critical infrastructures in Allen are exposed and vulnerable to this hazard.

Summary Table 3.18

Wildfire	
Population	There have been no recorded injuries or fatalities due to wildfires.
Improved Property	Based on historical data, annual financial losses expected from property loss due to wildfires are unknown but unknown due to lack of accurate reporting;
Emergency Facilities	Based on geographic information there are no fire stations in Allen at risk from wildfire events.
Critical Facilities	Based on geographic information there are no schools at risk from wildfire events in Allen.

Critical Infrastructure	Based on geographic information there are no bridges, no dams, no wastewater treatment facilities, and no water treatment facilities at risk from wildfire events in Allen.

Summary Table 3.19

Winter Storm	
Population	According to National Centers for Environmental Information (NCEI), there was one (1) county-wide fatality recorded due to winter storms, none from the City of Allen. All the population of Allen is exposed and vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Allen are expected but unknown due to lack of reporting however county-wide property loss is estimated at $116,250 per year. No crop losses are expected from this hazard in the City of Allen.
Emergency Facilities	Because of the expected geographical widespread nature of winter storms, all emergency facilities in Allen are exposed and vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of winter storms, all critical facilities in Allen are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of winter storms, all critical infrastructures in Allen are exposed and vulnerable to this hazard.

4. Capability Assessment

The risk assessment and capabilities assessment serve as the foundation for the development of a meaningful hazard mitigation strategy. During the process of identifying specific mitigation actions to pursue, the City of Allen considered not only its level of hazard risk but also the existing capabilities to minimize or eliminate that risk.

Table 4.1 Legal and Regulatory Capability Summary

Legal and Regulatory Capabilities															
Jurisdiction	**Building Code**	**Zoning Ordinance**	**Subdivision Ordinance or regulation**	**Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances wildfire ordinances, hazard setback requirements)**	**Growth management ordinances (also called "smart Growth" or anti-sprawl programs)**	**Site Plan review requirements**	**General or comprehensive plan**	**A capital improvements plan**	**An economic development plan**	**An emergency response plan**	**A post-disaster recovery plan**	**A post-disaster recovery ordinance**	**Real estate disclosure requirements**	**Other**	**% Yes per Jurisdiction**
Allen	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	N	N	N	**71 %**
Average % Yes Capabilities – 71%															
Y- Yes N- No ?- Don't Know															

Table 4.2 Administrative and Technical Capability Summary

Administrative and Technical Capabilities											
Jurisdiction	Planner(s) or engineer(s) with knowledge of land development and land management	Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Planners or engineer(s) with an understanding of natural and/or human caused hazards	Floodplain manager	Surveyors	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in GIS	Scientists familiar with the hazards of the community	Emergency manager	Grant writers	% Yes per Jurisdiction
Allen	Y	Y	Y	Y	N	Y	Y	N	Y	Y	**80%**
Average % Yes Capabilities – 80%											
Y- Yes N- No ?- Don't Know											

Table 4.3 Fiscal Capability Summary

Fiscal Capabilities											
Jurisdiction	Community Development Block Grants (CDBG)	Capital improvements project funding	Authority to levy taxes for specific purposes	Fees for water, sewer, gas, or electric service	Impact fees for homebuyers or developers for new developments/homes	Incur debt through general obligation bonds	Incur debt through special tax bonds	Incur debt through private activity bonds	Withhold spending in hazard-prone areas	Other	% Yes per Jurisdiction
Allen	Y	Y	N	Y	Y	Y	N	N	N	N	**50%**
Average % Yes Capabilities – 50%											
Y- Yes N- No ?- Don't Know											

To quantify City of Allen's legal and regulatory, administrative and technical, and fiscal capabilities, an overall rating system was administered for each category: limited (0-30%), moderate (31-70%), and strong (70-100%). Questionnaire responses indicated that on average, the City of Allen has 71% of identified legal and regulatory capabilities, 80% of identified administrative and technical capabilities, and 50% of identified fiscal capabilities.

Table 4.4 Administrative Information

Jurisdiction	Chief Administrative Officer	Ability to Implement Capabilities
City of Allen	City Manager	The city council, including the mayor, mayor pro-tem, and council members, along with the city manager, address the budget; pass laws, regulations, and codes; hire staff; approve plans; and determine the direction of the city overall. As the governing body, the ability to implement, expand, and approve mitigation actions and integrate mitigation into existing policies and programs is a function of this group.

Specific actions that can expand and improve existing capabilities, authorities, plans, policies, and resources for mitigation include: budgeting and passing policies and procedures, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates and additions to existing plans as new needs are recognized.

5. Mitigation Strategies

Based on the results of the risk and capability assessments, and reviews of the goals and objectives included in the 2021 HazMAP, the City of Allen Hazard Mitigation Planning Committee developed mitigation strategies for the plan update.

Goal 1 **Reduce or eliminate loss of life, injuries and property damage resulting from severe weather events.**

Objective 1-A Provide adequate warning and communication before, during, and after a hazard event.
Objective 1-B Expand and coordinate Early Warning Systems currently in use.
Objective 1-C Reduce or eliminate loss of life and property damage from tornados through the construction and use of safe rooms or shelter areas.

Goal 2 **Protect existing and new properties from the effects of all natural hazards.**

Objective 2-A Conduct studies to determine hazard and vulnerability threat assessment for all natural hazards.
Objective 2-B Rehabilitate or retrofit identified high hazard critical infrastructure.
Objective 2-C Enact and enforce regulatory measures that enforce hazard mitigation measures.
Objective 2-D Construct enhancements or additions to current and new facilities which mitigate the effects of natural hazards.

Goal 3 **Reduce losses and repetitive damages for chronic hazard events.**

Objective 3-A Conduct a hazard/vulnerability assessment of personal properties and structures located in flood zones within Allen.
Objective 3-B Develop and implement a buyout program for those personal properties and structures located in high hazard flood zones starting with those that are most vulnerable to life and property loss.
Objective 3-C Develop and execute new programs which identify and reduce threats from natural hazards.

Goal 4 **Develop public education campaigns to disseminate information about actions to mitigate potential loss of life, injuries and property damage resulting from natural hazards.**

Objective 4-A Educate the public on risks, threats, and vulnerability from all natural hazards.
Objective 4-B Educate the public on actions they can take to prevent or reduce the loss of life or property from all natural hazards.

6. Action Items

Below is a list of the new and deferred action items identified for the HazMAP Update. Each of the actions in this section were prioritized based on FEMA's STAPLEE criteria, which includes considering the social, technical, administrative, political, legal, economic and environmental factors necessary for the implementation of each action. As part of the STAPLEE analysis economic considerations were weighed for each action. The STAPLEE was used for the 2016 Plan along with the 2021 Update. Priority rankings are classified as indicated in the table below.

Priority	Description
High	Benefits of mitigating risk of death or severe bodily injury outweigh costs to implement actions rated as high priorities.
Medium	Reducing vulnerability to threats and the resulting improvement in quality of life and peace of mind are benefits for actions rated as medium priorities.
Low	Awareness of low risk/low impact hazards offer benefits of time to assess, plan and integrate low priority mitigation actions as time, need, and funding permit.

City of Allen Action Items: Deferred from 2016 Plan

City of Allen Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken on structures, can make existing building safer, stronger and less vulnerable to damages
Effect on New Buildings	Depending on mitigation actions taken on structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as other hazards and civil emergencies.
Status	Cancelled – No longer a viable action item

City of Allen Action Item	Develop and establish extreme temperature plan including cooling and heating shelters for vulnerable residents.
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$50,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	Emergency Management, CERT
Implementation Schedule	1-2 years
Effect on Old Buildings	May require retrofit to accommodate new designs, resources needed
Effect on New Buildings	Will make new buildings safer for vulnerable populations
Cost Effectiveness	Cost to implement this program is low compared to the benefits of reduced injury and death related to extreme temperature.
Discussion	Developing an extreme temperature program that identifies both public and private safe locations for vulnerable residents to go during periods of extreme temperatures would reduce levels of injury and death in this segment of the population.
Status	Cancelled – No longer a viable action item

City of Allen Action Item	Adopt and promote a comprehensive public education program, including information about mitigation projects.
Hazard(s) Addressed	Extreme Heat, High Wind, Wildfire, Tornado, Drought, Winter Storms, Flooding, Hail, Expansive Soils, Dam Failure, Earthquake
Goal/Objective	4-A, 4-B
Priority	Medium
Estimated Cost	$15,000
Potential Funding Sources	General fund, HMGP, PDM, other state/federal grants
Potential Matching Sources	Local funds, citizen cost-share, donations
Lead Department	Emergency Management, CERT
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken, can make existing building safer, stronger and less vulnerable to damages through retrofits and other actions
Effect on New Buildings	Depending on mitigation actions taken, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Public education is an extremely effective low cost method.

Discussion	Adopt and promote a comprehensive public education program based on the hazards identified in this annex, including information on mitigation projects.
Status	Receive supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021

City of Allen Action Item	Expand outdoor warning sirens to cover new populations
Hazard(s) Addressed	Hail, High Wind, Tornado , Dam Failure, Lightning
Goal/Objective	1-B
Priority	Medium
Estimated Cost	$35,000 each
Potential Funding Sources	General fund, HMGP, PDM, other state/federal grants
Potential Matching Sources	Local funds
Lead Department	Emergency Management
Implementation Schedule	1-2 years
Effect on Old Buildings	May require siren tower construction on existing buildings
Effect on New Buildings	None
Cost Effectiveness	Cost of implementation is low compared to the benefits of reduced injury and death related to tornados.
Discussion	Replacement of old or damaged warning sirens and expanding coverage to new populations is a proactive approach to mitigating the effects of severe weather and prevent loss of life by providing advanced warning to citizens.
Status	Added 9 additional sirens since last report, all are operational Cancelled – No longer a viable action item

City of Allen Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	3-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local Sponsors, In-Kind
Lead Department	Planning and Zoning/ NRCS
Implementation Schedule	1-2 years

Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Dam Failure data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	Cancelled – No longer a viable action item

City of Allen Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for earthquake damage
Effect on New Buildings	Study would identify existing construction most at risk for earthquake damage
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.
Status	Cancelled – No longer a viable action item

City of Allen Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants

Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.
Status	Cancelled – No longer a viable action item

Allen Action Item	Improve construction standards and techniques through requiring, by ordinance, builders to utilize water saving plumbing and fixtures in new construction.
Hazard(s) Addressed	Drought
Goal/Objective	2-C
Priority	High
Estimated Cost	$2,000-3,000
Potential Funding Sources	Local budget, Builders.
Lead Department	Building Department
Implementation Schedule	1-5 years
Effect on Old Buildings	No effect unless retrofitted
Effect on New Buildings	Reduced water consumption
Cost Effectiveness	Cost is very low compared to water shortages.
Discussion	This project would require low-flow plumbing and fixtures in all new construction, mitigating the effects of drought.
Status	Cancelled – No longer a viable action item

City of Allen Action Items: New

City of Allen Action Item	Public education can help educate the public to reduce personal and property damage during disasters. Program will include information about hazard mitigation of each identified hazard.
Hazard(s) Addressed	Tornado, Hail, Winter Storms, High Winds, Lightning, Expansive Soils, Extreme Heat, Earthquake, Flooding, Wildfire, Drought
Goal/Objective	4-A, 4-B
Priority	Medium

Estimated Cost	$15,000
Potential Funding Sources	General fund, HMGP, PDM, other state/federal grants
Potential Matching Sources	Local funds, citizen cost-share, donations
Lead Department	Emergency Management, CERT
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken, can make existing building safer, stronger and less vulnerable to damages through retrofits and other actions
Effect on New Buildings	Depending on mitigation actions taken, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Minimal compared to preservation of life safety
Discussion	Public education can help educate the public to reduce personal and property damage during disasters. Program will include information about hazard mitigation.

City of Allen Action Item	Purchase and utilize mobile back-up generator
Hazard(s) Addressed	Flooding, Tornado, Earthquake, Extreme Heat, Lightning, Wildfire, Winter Storms, Hail, High Winds
Goal/Objective	2-D
Priority	High
Estimated Cost	$5,000 - $10,000
Potential Funding Sources	Local Funding
Potential Matching Sources	Local Funding
Lead Department	Public Works, OEM
Implementation Schedule	1-2 years
Effect on Old Buildings	Some buildings will need to be retrofit with ability to connect with generator
Effect on New Buildings	Buildings will need to be planned with the ability to connect to generator
Cost Effectiveness	Backup generator will prevent loss of power and data to critical government buildings
Discussion	Introduction of a mobile back-up generator will allow the City of Celina or other critical facilities to function as close to normal as possible in the event of a massive power loss.

City of Allen Action Item	Develop and implement a drought contingency plan
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$10,000

Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Develop a plan for conserving water based on the stages of drought. Plan would include strategies for soil movement abatement depending on drought stage. When water is conserved and not used for landscape during droughts, this would provide water for homeowners to use, through drip irrigation, to keep their foundations at a consistent saturation level, mitigating the impacts of drought and lack of water.

City of Allen Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken on structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken on structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as other emergency and hazard information

City of Allen Action Item	Analyze needs, develop and implement water conservation measures for new populations
Hazard(s) Addressed	Drought, Expansive Soils

Goal/Objective	2-C
Priority	High
Estimated Cost	$1,000 - $5,000
Potential Funding Sources	Local funding
Potential Matching Sources	Local grants, citizen match
Lead Department	Public Works, OEM
Implementation Schedule	2-3 years
Effect on Old Buildings	New constraints will be placed on water usage without compromising soil integrity.
Effect on New Buildings	New constraints will be placed on water usage without compromising soil integrity.
Cost Effectiveness	Expanded water and soil consistency standards will help the city of Celina plan for a boost in infrastructure and population and help maintain normal water levels
Discussion	As the City of Allen grows water conservation measures will encompass new infrastructure and residential/commercial areas. This plan implements conservation efforts that also maintain soil consistency, mitigating damage from expansive soils.

City of Allen Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works, Planning Zoning
Implementation Schedule	1-2 years
Effect on Old Buildings	Results would help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results would identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.

City of Allen Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	TBD
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works, Planning Zoning
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.

National Flood Insurance Program (NFIP) Compliance

Allen is participating in the National Flood Insurance Program and has identified their respective areas as vulnerable to flooding. This is incorporated into all current and future planning for dealing with repetitive loss vulnerabilities.

Table 6.1 NFIP Compliance

CID	Community Name	County	Initial FHBM Identified	Initial FIRM Identified	Curr Eff Map Date	Reg-Emer Date	Tribal
480131#	ALLEN, CITY OF	COLLIN COUNTY	12/20/1974	6/1/1978	6/2/2009	6/1/1978	No

Source: http://www.fema.gov/cis/TX.html

Jurisdiction Compliance

Once the community applies for the NFIP, FEMA arranges for a study of the community to determine base flood elevations and flood risk zones. Consultation with the community occurs at the start of and during the study, and those communities with minimal flood risk are converted to the Regular Program without a study.

FEMA provides the studied community with a Flood Insurance Rate Map delineating base flood elevations and flood risk zones. The community is then given 6 months to adopt base flood elevations in its local zoning and building code ordinances. Once the community adopts more stringent ordinances, FEMA converts the community to the NFIP's Regular Program. FEMA then authorizes the sale of additional flood insurance in the community up to the Regular Program limits. The community must implement and enforce the adopted floodplain management measures. FEMA provides periodic community assistance visits with local officials to provide technical assistance regarding complying with NFIP floodplain management requirements.

Jurisdiction Activities

In order to maintain eligibility with NFIP, jurisdictions are required to maintain their list of properties that hold a policy with NFIP, along with up-to-date maps of the floodplains in the jurisdictions. Each jurisdiction participating in the Collin County Hazard Mitigation Action Plan completes this basic requirement and has the information on file with the jurisdiction's designated floodplain manager. Using this plan, participating jurisdictions will be able to continue their compliance with NFIP by implementing damage control measures and take action to minimize the effects of flooding in their respective jurisdictions.

Table 6.2 NIFP Activity

Jurisdiction	Community Floodplain Administrator	NFIP Activity	Activity Description	Enforcement
Allen	Program Manager	Adopt comprehensive regulations pertaining to the development and maintenance of the floodplain within city limits.	City Council adoption and amendment of Article V of the Allen Land Development Code (ALDC).	NFIP compliance is implemented and enforced through a process of floodplain identification using FEMA floodplain maps, permit issuance, building requirements, and compliance inspections pending approval. Failure to comply with City's flood damage prevention order shall result in fines up to $500 per violation plus court costs.

The City of Allen is a participant in the National Flood Insurance Program (NFIP) and has identified their respective areas as vulnerable to flooding. This is incorporated into all current and future planning for dealing with repetitive loss vulnerabilities. The City has an article in the Allen Land Development Code (ALDC), adopted by ordinance, dedicated exclusively to floodplain management and development regulations. The community philosophy has been to identify and preserve floodplain areas when development occurs in close proximity to watercourses and creeks. The regulations require the floodplain areas to remain in a natural state and avoid encroachment without offsetting mitigation. Allen is a freeboard community, requiring 2-feet of elevation difference between residential structures (1.5-feet for commercial uses) and the fully-developed 100-year water surface elevation. As a result of these conservative standards, the City of Allen has been able to keep flood insurance policies within our community to a very low number.

Article V – "Special Zones" of the ALDC was most recently updated in September of 2014.

7. Plan Maintenance

Monitoring, Evaluating and Updating the Plan

In Compliance with requirement § 201.6(c) (4) (i), Collin County has developed a plan maintenance process which is described in the following paragraphs. Collin County, along with participating jurisdictions are responsible for monitoring implementation of the plan, executing a yearly evaluation of its effectiveness, and updating the plan within a 5-year cycle.

Following formal adoption by the City of Allen, the county, and the city council of each participating jurisdiction, the actions outlined in the Collin County Hazard Mitigation Action Plan (HazMAP) will be implemented by participating jurisdictions as described throughout this document.

The Collin County Emergency Management Coordinator, working in conjunction with the respective jurisdictions, will be responsible for ensuring the mitigation plan is monitored, evaluated, and reviewed on an annual basis. This will be accomplished by calling an annual meeting of the planning team, whose members will provide assistance and expertise for plan review, evaluating, updating, and monitoring. This meeting will be open to the public and public notices will encourage community participation. During this annual meeting, Allen will provide information on the implementation status of each action included in the plan. As part of the evaluation, the planning team and committees will assess whether goals and objectives address current and expected conditions, whether the nature and/or magnitude of the risks have changed, if current resources are appropriate for implementing the plan, whether outcomes have occurred as expected, and if agencies and other partners participated as originally proposed. These activities will take place according to the timetable presented in table 7.1:

Table 7.1 Plan Maintenance Timeline

Personnel	What	Time
Emergency Management Coordinator	Monitoring Plan: Track implementation and action items, changes to risk assessment, changes to planning team members, changes to capabilities, plan integrations	Biannually
	Evaluate Plan: Assess effectiveness by evaluating completed actions, implementation processes, responsible personnel and lessons learned.	Annually
	Update Plan	Once every 5 years

At least once every five (5) years, or more frequently, if such a need is determined by the participating jurisdiction, the multi-jurisdictional plan will undergo a major update. During this process, all sections of the plan will be updated with current information, analyses done and new and/or modified mitigation action plans will be developed. The revised plan will be submitted for state and federal review and approval, and presented for approval to the Collin County Commissioner's Court and the respective councils of incorporated cities/towns included in the Collin County plan. Each participating jurisdiction will undertake the same process for reviewing, revising and updating their respective plans and submitting them for approval. The plans will be updated every five years in accordance with federal requirements.

Plan Incorporation into Existing Planning Mechanisms *(In compliance with 201.6(c) (4) (ii))*

2020 Plan Incorporation: The Allen City Council adopts a rolling five-year capital improvement plan each and every year, subsequent to a recommendation from the Planning & Zoning Commission. Bank stabilization at two locations has occurred to mitigate the effects of erosion along publicly maintained creeks and waterways. This past calendar year, the Engineering Department administered bank stabilization projects for: The Old Stone Dam (along Cottonwood Creek, upstream of Exchange Parkway) and The Cottonwood Trail (Cottonwood Creek, upstream of Bethany). The Old Stone Dam Project ($500,000 approx.) was to preserve and stabilize banks on either side of a historic dam constructed in 1874. The Cottonwood Trail Project ($800,000 approx.) was implemented to preserve an existing hike and bike trail, and avoid further risk to a neighboring residential structure. The residential structure was not in the regulatory floodplain, but the edge of the bank had come within 10 feet of the backyard fence. NFIP language in Article V was also updated (2014), stricter water conservation plans have been instituted, and building codes were update to the 2009 International Building Code.

2021 Plan Incorporation: The State of Texas Hazard Mitigation Plan, vulnerability assessments, and capabilities assessments for each jurisdiction were carefully reviewed and considered when developing the mitigation actions for this plan. The HMPT and planning committees will establish a process in which the mitigation strategy, goals, objectives and actions outlined in this plan will be incorporated into existing local planning strategies and mechanisms, as applicable. Those mechanisms include the following:

Table 7.2 Plan Incorporation Mechanisms

Jurisdiction	Responsible Personnel	Jurisdictional Plans	Integration Schedule	Integration Plan
Allen	City Council	Budget	Annually	Integration of mitigation projects identified in HazMAP, grants, and other fiscal allowances for mitigation actions and related costs
	Emergency Management Coordinator	Emergency Action Plan	Every five years	EAP Mitigation annex updates based on HazMAP HIRA; update preparedness, response and recovery actions related to identified hazards
	Designated Floodplain Manager	Floodplain Ordinances	As needed	Enhance mitigation of flood hazards using HazMAP flood data for floodplain management and community development.
	City Council	Capital Improvement Plan	Annually	Strengthen critical infrastructure and key resources based on HazMAP hazard analysis, incorporate vulnerability data and action items.
	Public Works Director, City Council	Drought Contingency Plan	As needed	Integrate drought actions such as xeriscaping, water restrictions, and public education

Jurisdiction	Responsible Personnel	Jurisdictional Plans	Integration Schedule	Integration Plan
	Planning Director, City Council	Natural Resource Conservation Plan	Annually	Integrate conservation measures by directing development away from hazard-prone areas identified in HazMAP.

Although it is recognized there are many possible benefits to integrating components of this HazMAP into other planning mechanisms, the City of Allen Hazard Mitigation Planning Committee considers this HazMAP, including development and maintenance, to be the primary vehicle to ensure implementation of local hazard mitigation actions.

The process described here is the same as was used since the last planning update.

Continued Public Involvement (In compliance with 201.6(c) (4) (iii))

As stated in requirement § *201.6(c) (4) (iii)* the plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.

To address this requirement, ongoing public participation will be encouraged throughout the entire planning and implementation process. A copy of the plan will be provided on the Collin County website. The planning team and committees will continue meeting on a regular basis to ensure the successful implementation of the plan and to discuss any additional issues regarding the emergency management of Collin County. The annual meetings for monitoring, evaluating, and updating the plan will be open to the public and public notices will encourage community participation.

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Annex C: The City of Anna

1. Introduction

This annex was prepared in 2021 as part of an update to the Collin County Multi-Jurisdictional Hazard Mitigation Action Plan. The City of Anna participated on the Collin County HazMAP Hazard Mitigation Planning Team (HMPT). This is a new hazard mitigation plan and the first to be submitted to FEMA for the City of Anna. In addition to the countywide hazards and strategies discussed in the main plan, this annex serves as a complete hazard mitigation planning tool for the City of Anna. It contains capability assessment information, a specific vulnerability assessment, and a complete mitigation strategy. The methodology and process for developing this annex are explained throughout the following sections.

2. Plan Development and Adoption Process

In order to apply for federal aid for technical assistance and post-disaster funding, local jurisdictions must comply with Part 201.3 of the Disaster Mitigation Act of 2000 implemented in the Federal Code of Regulations 44 CRF Part 201.6. While the City of Anna has historically implemented measures to reduce their vulnerability to hazards, passage of DMA 2000 helped City officials to recognize the benefits of a long-term approach to hazard mitigation, which achieves a gradual decrease of impacts associated through the implementation of a Hazard Mitigation Plan. Collin County's Hazard Mitigation Action Plan represents the collective efforts of all participating jurisdictions, the general public, and stakeholders.

Organizing the Planning Effort

A comprehensive county approach was taken in developing the plan. An open public involvement process was established for the public, neighboring communities, regional agencies, businesses, academia, etc. to provide opportunities for everyone to become involved in the planning process and to make their views known. The meetings were advertised with notices in public places and online.

In accordance with Part 201.6(c)(5) of the Disaster Mitigation Act of 2000 (DMA 2000), Collin County developed this Hazard Mitigation Action Plan. This plan identifies hazards and mechanisms to minimize future damages associated with these hazards, which threaten Collin County and its jurisdictions.

Existing Data and Plans

Existing hazard mitigation information and other plans were reviewed during the development of the Hazard Mitigation Action Plan. GIS, statistical and qualitative data was gathered through numerous sources. Table 2.1 outlines the sources of data for the plan:

Table 2.1 Plan Source Data

Source	Data
City and County Appraisal Data 2020	Population and Demographics
Regional Hazard Assessment Tool	Hazard Occurrences
National Climatic Data Center (NCDC)	Hazard Occurrences
Texas Forest Service/Texas Wildfire Risk Assessment Summary Report	Wildfire Threat and Wildland/Urban Interface

National Inventory of Dams	Dam Information

Planning Committee

This Hazard Mitigation Action Plan was developed by the City of Anna Hazard Mitigation Planning Committee, with support of the North Central Texas Council of Governments and the Collin County HMPT. An Anna planning committee representative participated on the county HMPT, with local committee efforts led by the fire chief.

The planning committee was assembled with several representatives including the Anna city manager; police chief; fire chief; finance, public works and planning directors; and the general public. Collin County acted as the plan development consultant providing hazard mitigation planning services. Table 2.2 provides a list of the primary representatives on the Anna planning committee.

Table 2.2 Hazard Mitigation Committee – Primary Representatives

Representing	Position	Role
Fire Department	Fire Chief/EMC	Plan Development
Planning Department	Planning Director	Plan Development
Finance Department	Finance Director	Plan Development
Public Works Department	Public Works Director/Floodplain Manager	Plan Development
Police Department	Police Chief	Plan Development
City Management	City Manager	Plan Development

Collin County served as the coordinator and lead agency for all jurisdictions, including the unincorporated areas of Collin County, by accomplishing the following activities through the planning process:

- Assigned the County's Assistant Emergency Management Coordinator to provide technical assistance and necessary data to the planning committee.
- Scheduled, coordinated, and facilitated community meetings with the assistance of the HMPT and the planning committees.
- Provided any necessary materials, handouts, etc. for public planning meetings.
- Worked with the HMPT and planning committees to collect and analyze data and develop goals and implementation strategies.
- Prepared, based on community input and planning team/committee direction, the first draft of the plan and provided technical writing assistance for review, editing and formatting.
- Coordinated with the stakeholders within the cities and the unincorporated areas of Collin County during plan development.

Each of the individual jurisdictions participated in accomplishing similar activities associated with development of the plan as follows:

- Coordinated input from representatives of neighborhood stakeholder groups and provided a representative to the County HMPT.
- Attended regular meetings of the planning team as coordinated by Collin County.

- Assisted Collin County staff with identifying hazards and estimating potential losses from future hazard events.
- Assisted Collin County in developing and prioritizing mitigation actions to address the identified risks.
- Assisted Collin County in coordinating public meetings to develop the plan.
- Identified the community resources available to support the planning effort.
- Worked for the support of neighborhood stakeholders for the recommendations resulting from the planning process.
- Submitted the proposed plan to all appropriate departments for review and comment and worked with Collin County to incorporate the resulting comments into the proposed plan.

External stakeholders emailed and involved in reviewing the Collin County Hazard Mitigation Action Plan:

Table 2.3 External Stakeholders

Representing	Position	Role
Anna Independent School District	Executive Director	Review of plan
American Medical Response	Collin County Supervisor	Review of plan
Atmos Energy	District Representative	Review of plan
TXU Energy	District Representative	Review of plan
Grayson-Collin Electric Cooperative	Area Representative	Review of plan

Subsequent to the State of Texas and FEMA approval of the plan, each jurisdiction above is committed to accomplishing the following activities:

- Appoint members to a coordinating committee to monitor and work toward plan implementation.
- Publicize the plan to neighborhood interests and ensure that new community members are aware of the plan and its contents.
- Monitor progress in achieving the plan's goals through regular maintenance and implementation projects.

Planning Meetings

During the planning process, the HMPT met to obtain relevant information from the participating jurisdictions and to discuss the objectives and progress of the plan. The objectives of these meetings were to gather information and to provide guidance for each jurisdiction throughout the planning stages.

The following meetings were held by Collin County and included all jurisdiction's participation:

- Collin County HazMAP Kickoff Meeting – August 12, 2020
- Collin County HazMAP Planning Meeting – Week of 11/05/2020
- Collin County HazMAP Public Meeting – 11/2/2021 at 2PM
- Collin County HazMAP Public Meeting – 01/12/2022 at 9AM

Public Involvement

Support from the community is vital for any successful hazard mitigation plan. The HMPT and planning committee provided opportunities, announced through public communication means, for public participation and input throughout the planning process prior to this draft and before approval of the finalized plan. Advertisement and sign in sheets for these meetings are located in Appendix A.

- The first public meeting was held on November 2, 2021 at 2PM, and advertised on the Collin County website along with other jurisdictional websites inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to comment. The meeting was held virtually via WebEX.
- A second public meeting was held on January 12, 2022 at 9AM. Announcements were placed on jurisdictions websites, including Collin County inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to view and comment on the HazMAP prior to plan submission.

There were no comments directly related to the mitigation plan received from citizens, non-profits, businesses, academia, or interested parties; therefore, no feedback was incorporated. An additional opportunity for the public to comment on the plan will be held prior to formal plan adoption.

This provided all citizens, stakeholders, neighboring communities, agencies, businesses, academia, non-profit organizations, and all interested parties an opportunity to be involved in the planning process and to take part in the decisions making process that affect the future of the communities that they live in.

3. Jurisdictional Hazard Identification and Risk Assessment

The planning committee for the City of Anna identified several natural hazards and man-made hazards that could affect the city. The committee decided to focus on the natural hazards identified in Section 5 of this update. This was done after reviewing the 2016 HazMAP, the State of Texas Hazard Mitigation Plan, as well as other sources such as federal and state agencies. The hazards were ranked using the Priority Risk Index.

Priority Risk Index

A Priority Risk Index (PRI) was developed with the purpose of categorizing potential hazards for Collin County and ranks each hazard as high, moderate, low, or negligible to no risk. The hazard classification generated through the use of the PRI allows for the prioritization of those high hazard risks for mitigation planning purposes, and more specifically, the identification of hazard mitigation opportunities for Collin County jurisdictions to consider as part of their proposed mitigation strategy.

The PRI is used to assist all jurisdictions participating in the Collin County HazMAP in determining which hazards pose the most significant threat based on a variety of factors. The PRI is not scientifically based, but is rather meant to be utilized as an objective and systematic planning tool for classifying and prioritizing hazard risks in Collin County based on standardized criteria. The PRI results in numerical values that allow identified hazards to be ranked against one another. The sum of all four categories equals the final PRI value, as shown below:

PRI Value = (Probability x .30) + (Life Impact x .35) + (Property Impact x .25) + (Spatial Extent x .10)

The higher the PRI value, the greater the hazards risk. These values were obtained by assigning varying degrees of risk to four categories for each hazard: Probability, Life Impact, Property Impact, and Spatial Extent *(Table 3.1).* Each category has been assigned an Index Value (0 to 3) and a Weighing Factor (0 – 100%). These values may be adjusted during future plan updates. In order to evaluate the risk of each hazard, the assigned PRI Value for each category is multiplied by the weighing factor. Then, the PRI for each hazard is calculated by adding the product obtained in each category. According to the weighing scheme applied for Collin County, the highest possible PRI value is 3.0. The PRI calculations are presented in *Table 3.2*. Table 3.1 breaks down the value of each category.

Table 3.1 Priority Risk Index Value

Assigned Weighing Factor	PRI Category	Degree of Risk		
		Level	Criteria	Index Value
30%	Probability	Unlikely	Less than 1% annual probability	0
		Possible	Between 1 and 10% annual probability	1
		Likely	Between 10 and 100% annual probability	2
		Highly Likely	100% annual probability	3
35%	Life Impact	Minor	Very few injuries, if at all none	0
		Limited	Minor Injuries	1
		Critical	Multiple deaths/injuries	2
		Catastrophic	High number of deaths/injuries	3
25%	Property Impact	Minor	Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	0
		Limited	More than 10% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one day.	1
		Critical	More than 25% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one week.	2
		Catastrophic	More than 50% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for 30 days or more.	3
10%	Spatial Extent	Negligible	Less than 1% of area affected	0
		Small	Between 1 and 10% of area affected	1
		Moderate	Between 10 and 50% of area affected	2
		Large	Between 50 and 100% of area affected	3

Table 3.2 Priority Risk Index for the City of Anna

Hazard	Category/Degree of Risk				
	Probability Index Value (0 - 3 30%)	Life Impact Index Value (0 - 3 35%)	Property Impact Index Value (0 - 3 25%)	Spatial Extent Index Value (0 - 3 10%)	PRI Value 2021
Dam Failure	1	1	2	1	1.25
Drought	3	0	1	3	1.45
Earthquake	0	1	0	1	0.45
Expansive Soils	2	0	0	1	0.7
Extreme Heat	1	1	0	2	0.85
Flooding	1	1	0	0	0.65
Hail	2	0	0	1	0.7
High Winds	2	1	1	1	1.3
Lightning	1	0	1	0	0.55
Tornado	2	1	2	1	1.55
Wildfire	1	1	1	1	1
Winter Storms	2	0	2	3	1.4

The conclusions drawn from the hazard profiling process for the City of Anna resulted in the classification of risk for each identified hazard according to four categories: High Risk, Moderate Risk, Low Risk, and Negligible to No Risk *(Table 3.3).* For purposes of these classifications, risk is expressed in relative terms according to the probability of occurrence and estimated impact that a hazard will have on human life and property in the City of Anna.

Table 3.3 Hazard Rankings for the City of Anna

High Risk (PRI 2 - 3)	
Moderate Risk (PRI 1.01 -1.9)	Tornado Drought High Winds Winter Storms Dam Failure
Low Risk (PRI 0.50 – 1)	Extreme Heat Expansive Soils Hail Flooding Lightning Wildfire
Negligible to No Risk (PRI 0 – 0.49)	Earthquake

Changes in Development and Priorities (Requirement §201.6(d) (3))

Our jurisdiction is in one of the fastest growing areas of the nation, hence development has increased and will continue to increase our vulnerability to hazards that may impact us.

Vulnerability Narratives

This annex focuses on specific areas of vulnerability The City of Anna faces with each hazard. The hazards identified in the main plan are all addressed in this annex; therefore, the natural hazards rated negligible to no risk are included, described, and considered for mitigation in this plan.

Dam and Levee Failure While there are no dams or levees in the City of Anna, there are dams near the city in unincorporated Collin County. Population and infrastructure would be negatively affected by dam failure. As a participant in the county plan inundation studies will be considered.

Drought Although droughts happen often in the City of Anna their impact has been negligible, the risk is considered to be moderate. Drought has the potential to impact the entire planning area equally, all improved property, emergency facilities, critical facilities, critical infrastructure, and the entire population of the city are vulnerable to this hazard. Foundations of all buildings are vulnerable; however, older structures, or those built under less stringent foundation code requirements are most vulnerable. Lake Lavon, Lake Texoma, Lake Tawakoni, Lake Fork, Woodbine Aquifer and the Trinity Aquifer are water sources for the City of Anna and are vulnerable to drought. In turn, the city's population, wildlife and vegetation are vulnerable. Lower income populations who may not have the resources to buy containerized water in the event of a shortage may be more vulnerable than other populations.

Earthquake Even though earthquakes were identified as having negligible to no risk to the City of Anna they still have the potential to occur anywhere in the geographic planning area. Therefore, all geographic areas are potentially vulnerable. Buildings constructed under older building codes, aging underground infrastructure, and roads are most vulnerable to damages from seismic activity.

Expansive Soils The City of Anna is vulnerable to this hazard; however, its impact on infrastructure is projected to be minor. All property has the potential to be affected by expansive soils, especially those constructed under older building codes.

Extreme Heat The City of Anna has experienced rolling blackouts due to extreme heat through the years. Extreme heat generally affects the entire population, but it is especially dangerous to the homeless, elderly, the very young, those without air conditioning, and those who require refrigerated medications.

Flooding When flash flooding occurs, roads in low lying areas need to be closed. The location of the storm determines which areas require closure however, typical road closures due to flooding occur on Rosamond and Victoria Falls.

Hail All geographic areas, property, and populations of the City of Anna have the potential to be vulnerable to hail. Exposed populations, manufactured homes, and older properties are most vulnerable.

High Winds All geographic areas, property, and populations of the City of Anna have the potential to be vulnerable to high winds, manufactured homes and exposed populations are most vulnerable.

Lightning The City of Anna has experienced lightning strikes in the past, including one that damaged electrical equipment in the fire station. All property and populations have are potentially vulnerable to lightning. Exposed populations and property without lightning protection are most vulnerable.

Tornado All geographic areas and populations of the City of Anna have the potential to be vulnerable to tornados. Exposed populations, manufactured homes, and older properties are most vulnerable.

Wildland Fire 39.81% of the City of Anna's population lives in the Wildland Urban Interface, but wildfire in the City of Anna is a moderate vulnerability due to the well managed and readily available resources for response. According to the Texas A&M Forest Service the majority of the WUI is in the low threat area location in the middle of the city and the east and west sides of the city are in the moderate threat area.

Winter Storms All geographic areas of the City of Anna have the potential to be vulnerable to winter storms. These winter storms have the potential to make roads impassable for days. Residents may be confined to their homes due to the storm and may be without basic services, such as water and electricity, for an extended period of time.

Identification of Assets and Vulnerability Assessment

An inventory of the City of Anna's geo-referenced assets was created in order to identify and characterize property and population potentially at risk to the identified hazards. By understanding the type and number of assets that exist and where they are located in relation to known hazard areas, the relative risk and vulnerability for such assets can be assessed. For this assessment, five categories of assets were evaluated using Geographic Information System and statistical analysis. The five categories of vulnerable assets include:

- **Population**: Includes the number of people residing in Collin County as delineated by U.S. Census 2020 block data provided by NCTCOG.
- **Improved property**: Includes all developed properties according to local parcel data from the Collin County Central Appraisal District. The information has been expressed in terms of the total assessed value of improvements that may be exposed to the identified hazards.
- **Emergency facilities**: Includes fire stations, police stations and hospitals, provided by the Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.
- **Critical facilities**: Includes schools and historic places provided by Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions. These are non-emergency facilities, but still provide critical services and functions for vulnerable sectors of the population.
- **Critical infrastructure**: Includes airports, natural gas facilities, wastewater facilities, potable water treatment facilities, wastewater treatment facilities, dams, and bridges. Data for all critical facilities was obtained from Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.

The following tables provide a breakdown by municipal jurisdiction of the geo-referenced assets that were used for the vulnerability assessment.

Population

According to the 2020 NCTCOG Population Predictions, the total population of City of Anna in 2020 was 16,945 people, with 5,770 households. The count breakdown by municipal jurisdiction is provided in *Table 3.4.*

Table 3.4. Population Counts

Jurisdiction	Population			Households		
	Population	% of County Total	Population Density (Sq. Mile)	Household	% of County Total	Household Density (Sq. Mile)
City of Anna	16,945	1.44%	983.05	5,555	1.44%	346.15

Source: US Census Bureau & Collin County Appraisal District
***Includes totals from incorporated jurisdictions not participating in the plan*

Table 3.5 summarizes population counts and population chance (absolute and percent predications for the City of Anna).

Table 3.5 Population Predictions

Jurisdiction	Population 2010 Census	Population 2018 Estimate	Population 2019 Estimate	Absolute Change 2018-2019	Percent (%) Change 2018-2019
City of Anna	8,249	13,690	15,010	1,320	9.6%

Source: 2020 NCTCOG Population Predictions

Property

There are an estimated 8,030 parcels in the City of Anna, with an estimated $1,147,264,604 in total assessed value of, *Table 3.6* lists the total number and percentage of parcels by jurisdiction.

Table 3.6 Parcel Counts and Improvements Value

Jurisdiction	Number of Parcels	% of County Total	Total Assessed Value of Improvements (Buildings)[1]
City of Anna	8,030	0.94%	$1,147,264,604

Source: Collin County Appraisal District

Emergency Facilities

There are two identified emergency facilities in the City of Anna, including one fire station, one police station, and one free standing ER facility, but no hospitals]. *Table 3.7* presents the distribution of emergency facilities by jurisdiction. Geographic coordinates were used to determine the location of each facility.

Table 3.7 Emergency Facilities

Jurisdiction	Fire Stations	Police Stations	Hospitals
City of Anna	1	1	0

Source: City Data

Critical Facilities

There are six critical facilities, which are considered non-emergency in the City of Anna. The critical facilities include five schools and one historical property site (*Table 3.8*).

Table 3.8 Critical Facilities

Jurisdiction	Schools	Historical Property
City of Anna	5	1

Source: City and County Data

Critical Infrastructure

There are 10 identified critical infrastructure facilities in the City of Anna, including one natural gas facility, one water treatment facility, one wastewater treatment facilities, and three railway/highway bridges (*Table 3.9*).

Table 3.9 Critical Infrastructure

Jurisdiction	Airports	Natural Gas Facilities	Wastewater Treatment Facilities	Potable Water Treatment Facilities	Dams	Railway/ Highway Bridges
City of Anna	0	1	1	5	0	3

Source: City/County Data

Methodology

Based on the type of information available for analysis, Collin County's vulnerability assessment was conducted using two distinct methodologies, a Geographic Information System-based analysis and a statistical risk assessment methodology. Each approach provides estimates for the potential impact of hazards by using a common, systematic framework for evaluation of historical occurrence information provided by National Centers for Environmental Information, the Texas Forest Service, and the FEMA Resilience and Planning Tool. The results of the vulnerability assessment are provided by jurisdiction for each hazard analyzed.

Of the 12 hazards evaluated for Collin County, four were analyzed using a Geographic Information System-based analysis, five using a statistical risk assessment methodology, and the remaining three hazards using a qualitative analysis. Qualitative analysis was used due to lack of information, the inability to define specific areas of risk, and/or inexistence of historical records. Additional information regarding these hazards is unattainable at the present time; studies to address this data deficiency are noted as action items in this update. *Table 3.10* summarizes the methodology used for each hazard.

Table 3.10 Analysis used for Vulnerability Assessment

Hazard	Geographic Information System-based Analysis	Statistical Analysis	Qualitative Analysis
Dam Failure			X
Drought	X		
Earthquake			X
Expansive Soils			X
Extreme Heat		X	
Flooding	X		
Hail	X		
High Winds		X	
Lightning		X	
Tornado		X	
Wildfire	X		

Winter Storms		X	

Summary of Vulnerably Assessment

A summary of the vulnerability assessment for each hazard using geographic and statistical analysis is presented in the following pages. The detailed assessment is presented in the following sections.

Summary Table 3.11

Drought	
Population	According to National Centers for Environmental Information (NCEI) no recorded injuries or fatalities have been recorded for drought events. There are no personal losses expected from drought events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Anna are expected but financially unknown due to lack of accurate reporting. Historical data indicates that crop losses in the City of Anna are expected mostly during water shortages, financially unknown due to lack of accurate reporting.
Emergency Facilities	Because of the nature of this hazard, no losses are expected on emergency facilities but foundation issues could occur due to drought events.
Critical Facilities	Because of the nature of this hazard, no losses are expected on critical facilities but foundation issues could occur due to drought events.
Critical Infrastructure	Because of the nature of this hazard, no losses are expected on critical infrastructure but foundation issues and road degradation could occur due to drought events.

Summary Table 3.12

Extreme Heat	
Population	According to National Centers for Environmental Information (NCEI), there were no fatalities recorded due to extreme heat from the City of Anna. The City of Anna and its population are vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to developed areas and the improved property in the City of Anna is not vulnerable to this hazard.
Emergency Facilities	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to buildings, and the emergency facilities in the City of Anna are not vulnerable to this hazard.
Critical Facilities	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to buildings, and the critical facilities in the City of Anna are not vulnerable to this hazard.
Critical Infrastructure	According to National Centers for Environmental Information (NCEI) there is no impact of extreme heat to critical infrastructure, and vulnerability to this hazard is considered minimal in the City of Anna.

Summary Table 3.13

Flooding	
Population	Flooding produces an expected annualized count of zero (0) fatalities and injuries per year. Approximately 147, based on parcels within or that intersect the floodplain.
Improved Property	Though there have been two (2) recorded flood events in the City of Anna, property losses are expected but financially unknown due to lack of accurate reporting. No crop losses are expected or recorded county-wide. Approximately 34 parcels with an estimated 2020 value of $6,549,778 are located in the 100-year flood plain. In addition, 271 parcels, with a value of $63,346,653 are within or in some way intersect the 100 year floodplain.
Emergency Facilities	Emergency facilities do not have the potential to be as risk in the 100-year storm event.
Critical Facilities	One critical facility has the potential to be at risk in the 100-year storm event.
Critical Infrastructure	Critical Infrastructure have the potential to be as risk in the 100-year storm event.

Summary Table 3.14

Hail	
Population	According to National Centers for Environmental Information (NCEI), no recorded injuries or fatalities have been recorded for hailstorm events. There are no personal losses expected from hailstorm events.
Improved Property	According to National Centers for Environmental Information (NCEI), a loss of $285.71 per year however these values are underestimated due to lack of accurate reporting. All improved property is vulnerable to this hazard. Although some crops are susceptible to hail hazards, available historical data for City of Anna indicates that there are no expected crop losses from this event.
Emergency Facilities	Because of the unpredictability of the geographical location of hailstorms, all emergency facilities in City of Anna are vulnerable to this hazard.
Critical Facilities	Because of the unpredictability of the geographical location of hailstorms, all critical facilities in City of Anna are vulnerable to this hazard.
Critical Infrastructure	Because of the unpredictability of the geographical location of hailstorms, all critical infrastructures in City of Anna are vulnerable to this hazard.

Summary Table 3.15

High Wind	
Population	According to National Climatic Data Center (NCDC), there are two (2) recorded fatalities and no recorded injuries from high wind events. All the population of City of Anna are vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Anna are expected at $1,421.43 per year however these values are underestimated due to lack of

	accurate reporting. No crop losses resulted from this hazard in City of Anna.
Emergency Facilities	Because of the expected geographical widespread nature of high winds, all emergency facilities in City of Anna are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of high winds, all critical facilities in City of Anna are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of high winds, all critical infrastructures in City of Anna are vulnerable to this hazard.

Summary Table 3.16

Lightning	
Population	According to National Centers for Environmental Information (NCEI), lightning events can be expected to cause no deaths and no injuries in Collin County. All the population of City of Anna is vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Anna are expected at $2,083.33 per year however these values are underestimated due to lack of accurate reporting. No crop losses resulted from this hazard in City of Anna.
Emergency Facilities	Because of the expected geographical widespread nature of lightning, all emergency facilities in City of Anna are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of lightning, all critical facilities in City of Anna are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of lightning, all critical infrastructures in City of Anna are vulnerable to this hazard.

Summary Table 3.17

Tornado	
Population	According to National Centers for Environmental Information (NCEI), there have been 6 recorded injuries and 2 fatalities from tornado events in the City of Anna. All the population of City of Anna is exposed and vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), an average loss of $14,714.29 per year in property losses is expected to result from tornado events however these values are underestimated due to lack of accurate reporting. No crop losses are expected from this hazard in the City of Anna.
Emergency Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all emergency facilities in the City of Anna are exposed and vulnerable to this hazard.
Critical Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all critical facilities in the City of Anna are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the impossibility to predict the geographical area of impact for tornados, all critical infrastructures in the City of Anna are exposed and vulnerable to this hazard.

Summary Table 3.18

Wildfire	
Population	Based on geographical data, approximately 39.81% of the City of Anna is vulnerable to wildfires
Improved Property	Based on historical data, annual financial losses expected from property loss due to wildfires are unknown but unknown due to lack of accurate reporting; therefore, percentage of the overall property improvement values across the City of Anna are also unknown.
Emergency Facilities	Based on geographic information there are zero (0) fire stations at risk from wildfire events.

Critical Facilities	Based on geographic information there are no schools at risk from wildfire events.
Critical Infrastructure	Based on geographic information there are zero (0) bridges, zero (0) dams, zero (0) wastewater treatment facility, and zero (0) water treatment facility at risk from wildfire events.

Summary Table 3.19

Winter Storm	
Population	According to National Centers for Environmental Information (NCEI), there was one (1) county-wide fatality recorded due to winter storms, none from the City of Anna. All the population of the City of Anna are exposed and vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Anna are expected but unknown due to lack of reporting however county-wide property loss is estimated at $116,250 per year. No crop losses are expected from this hazard in the City of Anna.
Emergency Facilities	Because of the expected geographical widespread nature of winter storms, all emergency facilities in City of Anna are exposed and vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of winter storms, all critical facilities in City of Anna are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of winter storms, all critical infrastructures in City of Anna are exposed and vulnerable to this hazard.

4. Capability Assessment

The risk assessment and capabilities assessment serve as the foundation for the development of a meaningful hazard mitigation strategy. During the process of identifying specific mitigation actions to pursue, the City of Anna considered not only its level of hazard risk but also the existing capabilities to minimize or eliminate that risk.

Table 4.1 Legal and Regulatory Capability Summary

Legal and Regulatory Capabilities															
Jurisdiction	**Building Code**	**Zoning Ordinance**	**Subdivision Ordinance or regulation**	**Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances wildfire ordinances, hazard setback requirements)**	**Growth management ordinances (also called "smart Growth" or anti-sprawl programs)**	**Site Plan review requirements**	**General or comprehensive plan**	**A capital improvements plan**	**An economic development plan**	**An emergency response plan**	**A post-disaster recovery plan**	**A post-disaster recovery ordinance**	**Real estate disclosure requirements**	**Other**	**% Yes per Jurisdiction**
City of Anna	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	?	**100%**
Average % Yes Capabilities – 100%															
Y- Yes N- No ?- Don't Know															

Table 4.2 Administrative and Technical Capability Summary

Administrative and Technical Capabilities											
Jurisdiction	Planner(s) or engineer(s) with knowledge of land development and land management	Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Planners or engineer(s) with an understanding of natural and/or human caused hazards	Floodplain manager	Surveyors	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in GIS	Scientists familiar with the hazards of the community	Emergency Manager	Grant writers	% Yes per Jurisdiction
City of Anna	Y	Y	Y	Y	N	Y	Y	N	Y	N	**70%**
Average % Yes Capabilities – 70%											
Y- Yes N- No ?- Don't Know											

Table 4.3 Fiscal Capability Summary

Fiscal Capabilities											
Jurisdiction	Community Development Block Grants (CDBG)	Capital improvements project funding	Authority to levy taxes for specific purposes	Fees for water, sewer, gas, or electric service	Impact fees for homebuyers or developers for new	Incur debt through general obligation bonds	Incur debt through special tax bonds	Incur debt through private activity bonds	Withhold spending in hazard-prone areas	Other	% Yes per Jurisdiction
City of Anna	Y	Y	Y	Y	Y	Y	Y	N	N	?	**70%**
Average % Yes Capabilities – 70%											
Y- Yes N- No ?- Don't Know											

To quantify the City of Anna's legal and regulatory, administrative and technical, and fiscal capabilities, an overall rating system was administered for each category: limited (0-30%), moderate (31-70%), and strong (70-100%). Questionnaire responses indicated that on average, the city of Anna has 100% of identified legal and regulatory capabilities, 70% of identified administrative and technical capabilities, and 70% of identified fiscal capabilities.

Table 4.2 Administrative and Technical Capability Summary

Jurisdiction	Chief Administrative Officer	Ability to Implement Capabilities
The City of Anna	City Manager	The city council, including the mayor, mayor pro-tem, and council members, along with the city manager, address the budget; pass laws, regulations, and codes; hire staff; approve plans; and determine the direction of the city overall. As the governing body, the Ability to implement, approve, and expand mitigation actions and integrate mitigation into existing policies and programs is a function of this group.

Specific actions that can expand and improve existing capabilities, authorities, plans, policies, and resources for mitigation include: budgeting and passing policies and procedures, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates and additions to existing plans as new needs are recognized.

5. Mitigation Strategies

Based on the results of the risk and capability assessments, and reviews of the goals and objectives included in the 2016 HazMAP, the City of Anna Hazard Mitigation Planning Committee developed mitigation strategies for the plan update.

Goal 1 Reduce or eliminate loss of life, injuries and property damage resulting from severe weather events.

Objective 1-A Provide adequate warning and communication before, during, and after a hazard event.
Objective 1-B Expand and coordinate Early Warning Systems currently in use.
Objective 1-C Reduce or eliminate loss of life and property damage from tornados through the construction and use of safe rooms or shelter areas.

Goal 2 Protect existing and new properties from the effects of all natural hazards.

Objective 2-A Conduct studies to determine hazard and vulnerability threat assessment for all natural hazards.
Objective 2-B Rehabilitate or retrofit identified high hazard critical infrastructure.
Objective 2-C Enact and enforce regulatory measures that enforce hazard mitigation measures.
Objective 2-D Construct enhancements or additions to current and new facilities which mitigate the effects of natural hazards.
Objective 2-E Maintain NFIP compliance, storm water management, and implement drainage projects.

Goal 3 Reduce losses and repetitive damages for chronic hazard events.

Objective 3-A Conduct a hazard/vulnerability assessment of personal properties and structures located in flood zones.
Objective 3-B Develop and implement a buyout program for those personal properties and structures located in high hazard flood zones starting with those that are most vulnerable to life and property loss.
Objective 3-C Develop and execute new programs which identify and reduce threats from natural hazards.

Goal 4 Develop public education campaigns to disseminate information about actions to mitigate potential loss of life, injuries and property damage resulting from natural hazards.

Objective 4-A Educate the public on risks, threats, and vulnerability from all natural hazards.
Objective 4-B Educate the public on actions they can take to prevent or reduce the loss of life or property from all natural hazards.
Objective 4-C Develop and implement a community education campaign to heighten public awareness about chronic flooding and options for insurance coverage to protect their personal properties as well as long term benefits from a buyout program.

6. Action Items

Below is a list of action items identified for the HazMAP Update. Each of the actions in this section were prioritized based on FEMA's STAPLEE criteria, which includes considering the social, technical, administrative, political, legal, economic and environmental factors necessary for the implementation of each action. As part of the STAPLEE analysis, economic considerations were weighed for each action. Priority rankings are classified as indicated in the table below. The STAPLEE was used for the 2016 Plan along with the 2021 Update.

Priority	Description
High	Benefits of mitigating risk of death or severe bodily injury outweigh costs to implement actions rated as high priorities.
Medium	Reducing vulnerability to threats and the resulting improvement in quality of life and peace of mind are benefits for actions rated as medium priorities.
Low	Awareness of low risk/low impact hazards offer benefits of time to assess, plan and integrate low priority mitigation actions as time, need, and funding permit.

City of Anna Action Items: Deferred from 2016 Plan

City of Anna Action Item	Develop and implement a comprehensive public education program, including hazard mitigation activities.
Hazard(s) Addressed	Dam Failure, Drought, High Winds, Tornado, Wildfire, Winter Storm, Expansive Soil, Extreme Heat, Hail, Lightning, Flooding, Earthquake
Goal/Objective	4-A, 4-B, 4-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	General Fund, HMGP
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken, can make existing building safer, stronger and less vulnerable to damages through retrofits and other actions.
Effect on New Buildings	Depending on mitigation actions taken, can make new building safer, stronger and less vulnerable to damages.
Cost Effectiveness	Public education is extremely effective for low cost.
Discussion	This public education program would be based on the hazards that the City of Anna identified as being vulnerable to. The program would use a combination of distributed literature, social media, and civic presentations to educate residents on natural hazards and promote hazard mitigation.

Status	Receive supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021 Plan

City of Anna Action Item	Establish centers for vulnerable residents to go for relief during periods of extreme temperatures.
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	3-C
Priority	Medium
Estimated Cost	Current staffing project time/resources
Potential Funding Sources	HMGP, PDM
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	Emergency Management
Implementation Schedule	1-2 years
Effect on Old Buildings	Could require retrofit to accommodate space and resources.
Effect on New Buildings	May entail enhanced construction materials.
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.
Discussion	Cooling and heating shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold.
Status	Deferred – will be included in 2021 Plan

City of Anna Action Item	Implement Individual Tornado Safe Room Rebate Program
Hazard(s) Addressed	High Wind, Tornado
Goal/Objective	1-C
Priority	High
Estimated Cost	Up to $3,000 per shelter
Potential Funding Sources	HMGP, PDM, Resident Match
Potential Matching Sources	Local Grants, FEMA
Lead Department	EMC
Implementation Schedule	1-3 years
Effect on Old Buildings	Enhance safety of existing residential structures.
Effect on New Buildings	Enhance safety of new residential structures.
Cost Effectiveness	Residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind events.
Discussion	This program gives rebates to residents who purchase and install safe rooms in their homes or on their properties to protect against severe weather.
Status	Will be included in 2021, however, come residents were able to obtain funds through the NCTCOG Saferoom Rebate Program

City of Anna Action Item	Increase outdoor warning siren coverage for new development areas.
Hazard(s) Addressed	Dam Failure, High Winds, Tornado, Wildfire, Hail, Lightning, Flooding
Goal/Objective	1-A, 1-B
Priority	High
Estimated Cost	$25,000 per siren, number of sirens TBD
Potential Funding Sources	General Fund, HMGP, Developer cost
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	1—2 years
Effect on Old Buildings	May entail adding a siren tower to existing buildings.
Effect on New Buildings	None
Cost Effectiveness	Early warning is a key element in keeping citizens that are outdoors notified of hazards.
Discussion	This project will expand the City of Anna's siren coverage to new areas of development not currently protect by sirens.
Status	Cost prohibitive at this time and requires significant maintenance. Not as an effective tool to notify the public as in the past. There are many other tools that are more effective today.

City of Anna Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	3-A
Priority	Medium
Estimated Cost	$50,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Planning
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones.
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones.
Cost Effectiveness	Low
Discussion	Data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	The City no longer has plans to undertake this action item.

City of Anna Action Item	Develop a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$5,000

Potential Funding Sources	TFS Grants
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Fire Dept.
Implementation Schedule	2-5 years
Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire.
Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire.
Cost Effectiveness	CWPPs show city officials where to redouble their efforts in preventing wildfire, saving time and money. Also work to establish urban wildfire interface around new development properties.
Discussion	Identify all structures and infrastructures that would be impacted by a potential wildfire.
Status	Deferred – will be included in 2021 Plan. This will be included in the upcoming Community Risk Assessment study.

City of Anna Action Item	Develop a drought contingency plan
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Results may entail retrofits for low-flow plumbing.
Effect on New Buildings	Results may require new codes for low-flow plumbing and foundations.
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Develop a plan for conserving water based on the stages of drought. Plan would include strategies for soil movement abatement depending on drought stage.
Status	Plan developed and will be continued to be modified updated to meet the City's needs

City of Anna Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	1-2 years

Effect on Old Buildings	Results could define required retrofits or additions to reduce vulnerability to earthquakes.
Effect on New Buildings	Results could require updated codes for new construction to reduce vulnerability to earthquakes.
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.
Status	No longer a needed action item.

City of Anna Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils.
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.
Status	Deferred – will be included in 2021 Plan

City of Anna Action Item	Purchase and distribute NOAA Weather Radios to vulnerable residents.
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on any mitigation actions taken on structures, can make existing building safer, stronger and less vulnerable to damages.
Effect on New Buildings	Depending on any mitigation actions taken on structures, can make new building safer, stronger and less vulnerable to damages.

Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as other emergency and hazard information.
Status	No longer a viable option, use Hyper-Reach to notify the community

City of Anna Action Items: New

City of Anna Action Item	Public education can help educate the public to reduce personal and property damage during disasters. Program will include information about hazard mitigation of
Hazard(s) Addressed	Tornado, Hail, Winter Storms, High Winds, Dam Failure, Lightning, Expansive Soils, Extreme Heat, Earthquake, Flooding, Wildfire, Drought
Goal/Objective	4-A, 4-B, 4-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	General Fund, HMGP
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken, can make existing building safer, stronger and less vulnerable to damages through retrofits and other actions.
Effect on New Buildings	Depending on mitigation actions taken, can make new building safer, stronger and less vulnerable to damages.
Cost Effectiveness	Minimal compared to preservation of life safety
Discussion	Public education can help educate the public to reduce personal and property damage during disasters. Program will include information about hazard mitigation.

City of Anna Action Item	Establish centers for vulnerable residents to go for relief during periods of extreme temperatures.
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	3-C
Priority	Medium
Estimated Cost	Current staffing project time/resources
Potential Funding Sources	HMGP, PDM
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	Emergency Management
Implementation Schedule	1-2 years
Effect on Old Buildings	Could require retrofit to accommodate space and resources.
Effect on New Buildings	May entail enhanced construction materials.

Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.
Discussion	Cooling and heating shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold.

City of Anna Action Item	Implement Individual Tornado Safe Room Rebate Program
Hazard(s) Addressed	High Wind, Tornado
Goal/Objective	1-C
Priority	High
Estimated Cost	Up to $3,000 per shelter
Potential Funding Sources	HMGP, PDM, Resident Match
Potential Matching Sources	Local Grants, FEMA
Lead Department	EMC
Implementation Schedule	1-3 years
Effect on Old Buildings	Enhance safety of existing residential structures.
Effect on New Buildings	Enhance safety of new residential structures.
Cost Effectiveness	Residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind events.
Discussion	This program gives rebates to residents who purchase and install safe rooms in their homes or on their properties to protect against severe weather.

City of Anna Action Item	Develop a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$5,000
Potential Funding Sources	TFS Grants
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Fire Dept.
Implementation Schedule	2-5 years
Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire.
Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire.
Cost Effectiveness	CWPPs show city officials where to redouble their efforts in preventing wildfire, saving time and money. Also work to establish urban wildfire interface around new development properties.
Discussion	Identify all structures and infrastructures that would be impacted by a potential wildfire.

City of Anna Action Item	Maintain and enhance the City's drought contingency plan.

Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Results may entail retrofits for low-flow plumbing.
Effect on New Buildings	Results may require new codes for low-flow plumbing and foundations.
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Utilize existing plan for conserving water based on the stages of drought. Plan includes strategies for soil movement abatement depending on drought stage. When water is conserved and not used for landscape during droughts, this would provide water for homeowners to use, through drip irrigation, to keep their foundations at a consistent saturation level, mitigating the impacts of drought and lack of water.

City of Anna Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils.
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.

City of Anna Action Item	Purchase and utilize mobile back-up generator
Hazard(s) Addressed	Flooding, Tornado, Earthquake, Extreme Heat, Lightning, Wildfire, Winter Storms, Dam Failure, Hail, High Winds
Goal/Objective	2-D
Priority	High

Estimated Cost	$8,000 - $15,000
Potential Funding Sources	Local Funding
Potential Matching Sources	Local Funding
Lead Department	Public Works, OEM
Implementation Schedule	1-2 years
Effect on Old Buildings	Some buildings will need to be retrofit with ability to connect with generator
Effect on New Buildings	Buildings will need to be planned with the ability to connect to generator
Cost Effectiveness	Backup generator will prevent loss of power and data to critical government buildings
Discussion	Introduction of a mobile back-up generator will allow the City of Anna or other critical facilities to function as close to normal as possible in the event of a massive power loss.

City of Anna Action Item	Analyze needs, develop and implement water conservation measures for new populations
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	2-C
Priority	High
Estimated Cost	$2,000 - $5,000
Potential Funding Sources	Local funding
Potential Matching Sources	Local grants, citizen match
Lead Department	Public Works, OEM
Implementation Schedule	2-3 years
Effect on Old Buildings	New constraints will be placed on water usage without compromising soil integrity.
Effect on New Buildings	New constraints will be placed on water usage without compromising soil integrity.
Cost Effectiveness	Expanded water and soil consistency standards will help the City of Anna plan for a boost in infrastructure and population and help maintain normal water levels
Discussion	As the City of Anna grows, water conservation measures will encompass new infrastructure and residential/commercial areas. This plan implements conservation efforts that also maintain soil consistency, mitigating damage from expansive soils.

National Flood Insurance Program (NFIP) Compliance

The City of Anna participates in the National Flood Insurance Program and has identified their respective areas as vulnerable to flooding. This is incorporated into all current and future planning for dealing with repetitive loss vulnerabilities.

Table 6.1 Anna NFIP Compliance

CID	Community Name	County	Initial FHBM Identified	Initial FIRM Identified	Curr Eff Map Date	Reg-Emer Date	Tribal
480132#	ANNA, CITY OF	COLLIN COUNTY	8/9/1974	4/2/1991	06/02/09(M)	11/19/1996	No

Source: http://www.fema.gov/cis/TX.html

Jurisdiction Compliance

Once the community applies for the NFIP, FEMA arranges for a study of the community to determine base flood elevations and flood risk zones. Consultation with the community occurs at the start of and during the study, and those communities with minimal flood risk are converted to the Regular Program without a study.

FEMA provides the studied community with a Flood Insurance Rate Map delineating base flood elevations and flood risk zones. The community is then given 6 months to adopt base flood elevations in its local zoning and building code ordinances. Once the community adopts more stringent ordinances, FEMA converts the community to the NFIP's Regular Program. FEMA then authorizes the sale of additional flood insurance in the community up to the Regular Program limits. The community must implement and enforce the adopted floodplain management measures. FEMA provides periodic community assistance visits with local officials to provide technical assistance regarding complying with NFIP floodplain management requirements.

The purchase of flood insurance is mandatory as a condition of receipt of federal or federally-related financial assistance for acquisition and/or construction of buildings in SFHAs of any participating community. Those communities notified as flood-prone which do not apply for participation in the NFIP within 1 year of notification are ineligible for federal or federally-related financial assistance for acquisition, construction, or reconstruction of insurable buildings in the SFHA.

Jurisdiction Actions

In order to maintain eligibility with NFIP, jurisdictions are required to maintain their list of properties that hold a policy with NFIP, along with up-to-date maps of the floodplains in the jurisdictions. Each jurisdiction participating in the Collin County Hazard Mitigation Action Plan completes this basic requirement and has the information on file with the jurisdiction's designated floodplain manager. Using this plan, participating jurisdictions will be able to continue their compliance with NFIP by implementing damage control measures and take action to minimize the effects of flooding in their respective jurisdictions.

Table 6.2 Anna NIFP Activity

Jurisdiction	Community Floodplain Administrator	NFIP Activity	Activity Description	Enforcement
The City of Anna	City Engineer	Complete and maintain FEMA elevation certificates for pre-FIRM and or post-FIRM buildings	Permits shall be presented to the Floodplain Administrator. The City of Anna requires 2 feet of freeboard above the base flood elevation for the top of bottom floor on residential structures and non-residential structures that will be built on properties created or platted after the effective date of the Flood Damage Prevention Order	NFIP compliance is implemented and enforced through a process of floodplain identification using FEMA floodplain maps, permit issuance, building requirements, and compliance inspections pending approval.
		Floodplain development permits	Permits are required for any new construction in a floodplain.	
		Participate with FEMA in identifying Special Flood Hazard Areas for future FIRM maps	City of Anna participates in Risk Assessment, Mapping and Planning Partners (RAMPP) meetings held by FEMA and/or their contractors to better identify areas that are flood prone that are not shown on current Flood Insurance Rate Maps.	
		Future Mitigation Projects	City of Anna will continue to monitor for new areas of flooding that have not been previously identified for mitigation. The City is also considering the adoption of a stormwater utility to fund future mitigation projects.	

7. Plan Maintenance

Monitoring, Evaluating and Updating the Plan

In Compliance with requirement § 201.6(c)(4)(i), the City of Anna has developed a plan maintenance process which is described in the following paragraphs. Collin County and the participating jurisdictions are responsible for monitoring implementation of the plan, executing a yearly evaluation of its effectiveness, and updating the plan within a 5-year cycle.

Following formal adoption by the City of Anna, the county, and the city council of each participating jurisdiction, the actions outlined in the Collin County Hazard Mitigation Action Plan will be implemented by participating jurisdictions as described throughout this document.

The Collin County Emergency Management Coordinator, working in conjunction with the respective jurisdictions, will be responsible for ensuring the mitigation plan is monitored, evaluated, and reviewed on an annual basis. This will be accomplished by calling an annual meeting of the planning committee, whose members will provide assistance and expertise for plan review, evaluating, updating, and monitoring. This meeting will be open to the public and public notices will encourage community participation. During this annual meeting, the City of Anna will provide information on the implementation status of each action included in the plan. As part of the evaluation, the planning committee will assess whether goals and objectives address current and expected conditions, whether the nature and/or magnitude of the risks have changed, if current resources are appropriate for implementing the plan, whether outcomes have occurred as expected, and if agencies and other partners participated as originally proposed. These activities will take place according to the timetable presented in table 7.1:

Table 7.1 Plan Maintenance Timeline

Personnel	Action	Time
Fire Chief/EMC	Monitoring Plan : Track implementation and action items, changes to risk assessment, changes to planning team members, changes to capabilities, plan integrations	Biannually
	Evaluate Plan: Assess effectiveness by evaluating completed actions, implementation processes, responsible personnel and lessons learned.	Annually
	Update Plan	Once every 5 years

At least once every five (5) years, or more frequently, if such a need is determined by the participating jurisdiction, the multi-jurisdictional plan will undergo a major update. During this process, all sections of the plan will be updated with current information, analyses done and new and/or modified mitigation action plans will be developed. The revised plan will be submitted for state and federal review and approval, and presented for approval to the Collin County Commissioner's Court and the respective councils of incorporated cities/towns included in the Collin County plan. Each participating jurisdiction will undertake the same process for reviewing, revising and updating their respective plans and submitting them for approval. The plans will be updated every five years in accordance with federal requirements.

Plan Incorporation into Existing Planning Mechanisms *(In compliance with 201.6(c)(4)(ii))*

Based on the requirements set forth in § *201.6(c)(4(ii)*, the State of Texas Mitigation Plan, the vulnerability and capabilities assessment for each jurisdiction was carefully reviewed and considered when

developing the mitigation actions for this plan. The HMPT and planning committees will establish a process in which the mitigation strategy, goals, objectives and actions outlined in this plan will be incorporated into the existing regional and local planning strategies.
Local and regional planning committees currently use comprehensive land use planning, capital improvements planning, and building code ordinances to guide development. The mitigation strategy, goals, objectives and actions outlined in this plan will be integrated into these existing mechanisms as applicable. Those mechanisms include the following:

Table 7.2 Plan Incorporation Mechanisms

Jurisdiction	Responsible Personnel	Jurisdictional Plans	Integration Schedule	Integration Plan
City of Anna	City Council	Budget Meetings	Annually	Integration of mitigation projects identified in HazMAP, grants, and other fiscal allowances for mitigation actions and related costs
	Emergency Management Coordinator	Emergency Action Plan updates	Every five years	EAP Mitigation annex updates based on HazMAP HIRA; update preparedness, response and recovery actions related to identified hazards
	Designated Floodplain Manager	Floodplain ordinances	As needed	Enhance mitigation of flood hazards using HazMAP flood data for floodplain management and community development.
	Planning Director, City Manager	Capital improvement plans	Annually	Strengthen critical infrastructure and key resources based on HazMAP hazard analysis, incorporate vulnerability data and action items.
	Public Works Director, City Council	Drought Contingency plans	As needed	Integrate drought actions such as xeriscaping, water restrictions, and public education
	Planning Director, City Council	Natural Resource Conservation Plan	Annually	Integrate conservation measures by directing development away from hazard-prone areas identified in HazMAP.

Although it is recognized there are many possible benefits to integrating components of this HazMAP into other planning mechanisms, the City of Anna Hazard Mitigation Planning Committee considers this HazMAP, including development and maintenance, to be the primary vehicles to ensure implementation of local hazard mitigation actions.

The process described here is the same as was used since the last planning update.

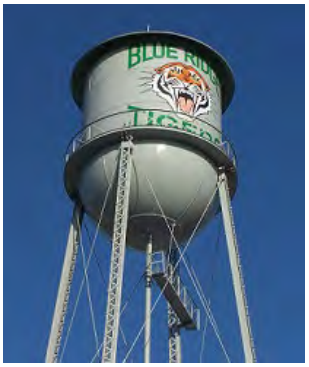
Continued Public Involvement (In compliance with 201.6(c)(4)(iii))

As stated in requirement § *201.6(c)(4)(iii)* The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.

To address this requirement, ongoing public participation will be encouraged throughout the entire planning and implementation process. A copy of the plan will be provided on the Collin County website. The planning team and committees will continue meeting on a regular basis to ensure the successful

implementation of the plan and to discuss any additional issues regarding the emergency management of Collin County. The annual meetings for monitoring, evaluating, and updating the plan will be open to the public and public notices will encourage community participation.

Annex D: City of Blue Ridge



1. Introduction

This annex was prepared in 2020 as part of an update to the Collin County Multi-Jurisdictional Hazard Mitigation Action Plan (HazMAP). The City of Blue Ridge participated on the Collin County HazMAP Planning Team (HMPT). In addition to the countywide hazards and strategies discussed in the main plan, this annex serves as a complete hazard mitigation planning tool for the City of Blue Ridge. It contains capability assessment information, a specific vulnerability assessment, and a complete mitigation strategy. The methodology and process for developing this annex are explained throughout the following sections.

2. Plan Development and Adoption Process

In order to apply for federal aid for technical assistance and post-disaster funding, local jurisdictions must comply with Part 201.3 of the Disaster Mitigation Act of 2000 implemented in the Federal Code of Regulations 44 CRF Part 201.6. While the City of Blue Ridge has historically implemented measures to reduce their vulnerability to hazards, passage of DMA 2000 helped Blue Ridge officials recognize the benefits of a long-term approach to hazard mitigation, which achieves a gradual decrease of impacts associated through the implementation of a Hazard Mitigation Plan. Collin County's Hazard Mitigation Action Plan represents the collective efforts of all participating jurisdictions, the general public, and stakeholders.

Organizing the Planning Effort

A comprehensive county approach was taken in developing the plan. An open public involvement process was established for the public, neighboring communities, regional agencies, businesses, academia, etc. to provide opportunities for everyone to become involved in the planning process and to make their views known. The meetings were advertised with notices in public places and online.

In accordance with Part 201.6(c)(5) of the Disaster Mitigation Act of 2000 (DMA 2000), the City of Blue Ridge developed this Hazard Mitigation Action Plan. This plan identifies hazards and mechanisms to minimize future damages associated with these hazards, which threaten Collin County and its jurisdictions.

Existing Data and Plans

Existing hazard mitigation information and other plans were reviewed during the development of the Hazard Mitigation Action Plan. GIS, statistical and qualitative data were gathered through numerous sources. Table 2.1 outlines the sources of data for the plan:

Table 2.1 Plan Source Data

Source	Data
City and County Appraisal Data 2020	Population and demographics
Regional Hazard Assessment Tool	Hazard occurrences
National Centers for Environmental Information (NCEI)	Hazard occurrences

Source	Data
Texas Forest Service/Texas Wildfire Risk Assessment Summary Report	Wildfire Threat and Wildland/Urban Interface
National Inventory of Dams	Dam Information

Planning Committee

This Hazard Mitigation Action Plan was developed by the City of Blue Ridge Hazard Mitigation Planning Committee, with support of the North Central Texas Council of Governments and in conjunction with the Collin County HMPT. The efforts of the planning committee were led by the Mayor.

The Collin County HMPT was assembled in November 2020 with representatives from participating county jurisdiction planning committees, including mayors, police chiefs, fire chiefs, and the general public. Collin County acted as the plan development consultant providing hazard mitigation planning services. Table 2.2 provides a list of the primary representative on the Blue Ridge planning committee.

Table 2.2 Hazard Mitigation Committee – Primary Representatives

Representing	Position	Role
City Council	Mayor	Plan Development
City Council	Council Members	Plan Development
Volunteer Department	Fire Chief	Plan Development
Public Works Department	Director	Plan Development

Collin County served as the coordinator and lead agency for all jurisdictions by accomplishing the following activities through the planning process:

- Assigned the County's Assistant Emergency Management Coordinator to provide technical assistance and necessary data to the planning committee.
- Scheduled, coordinated, and facilitated community meetings with the assistance of the HMPT and the planning committees.
- Provided any necessary materials, handouts, etc. for public planning meetings.
- Worked with the HMPT and planning committees to collect and analyze data and develop goals and implementation strategies.
- Prepared, based on community input and planning team/committee direction, the first draft of the plan and provided technical writing assistance for review, editing and formatting.
- Coordinated with the stakeholders within the jurisdictions and the unincorporated areas of Collin County during plan development.

Each of the individual jurisdictions participated in accomplishing similar activities associated with development of the plan as follows:

- Coordinated input from representatives of neighborhood stakeholder groups and provided a representative to the County HMPT.
- Attended regular meetings of the planning team as coordinated by Collin County.

- Assisted Collin County staff with identifying hazards and estimating potential losses from future hazard events.
- Assisted Collin County in developing and prioritizing mitigation actions to address the identified risks.
- Assisted Collin County in coordinating public meetings to develop the plan.
- Identified the community resources available to support the planning effort.
- Worked for the support of neighborhood stakeholders for the recommendations resulting from the planning process.
- Submitted the proposed plan to all appropriate departments for review and comment and worked with Collin County to incorporate the resulting comments into the proposed plan.

External stakeholders emailed and involved in reviewing the Collin County Hazard Mitigation Action Plan:

Table 2.3 External Stakeholders

Representing	Position	Role
Blue Ridge Independent School District	School Board	Review of plan
Atmos Energy	Manager of Public Affairs	Review of plan

Subsequent to the State of Texas and FEMA approval of the plan, each organization above is committed to accomplishing the following activities:

- Appoint members to a coordinating committee to monitor and work toward plan implementation.
- Publicize the plan to neighborhood interests and ensure that new community members are aware of the plan and its contents.
- Monitor progress in achieving the plan's goals through regular maintenance and implementation projects.

Planning Meetings

During the planning process, the HMPT met to obtain relevant information from the participating jurisdictions and to discuss the objectives and progress of the plan. The objectives of these meetings were to gather information and to provide guidance for each jurisdiction throughout the planning stages.

The following meetings were hosted by Collin County:

- Collin County Hazard Mitigation Committee Meeting – November 11, 2020
- Collin County and Blue Ridge Meeting – November 12, 2020
- Collin County HazMAP Public Meeting – 11/2/2021 at 2PM
- Collin County HazMAP Public Meeting – 01/12/2022 at 9AM

Public Involvement

Support from the community is vital for any successful hazard mitigation plan. The HMPT and local planning committee provided opportunities, announced through public communication means, for public participation and input throughout the planning process prior to this draft and before approval of the finalized plan. Advertisement and sign in sheets for these meetings are located in Appendix A.

- The first public meeting was held on November 2, 2021 at 2PM, and advertised on the Collin County website along with other jurisdictional websites inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to comment. The meeting was held virtually via WebEX.
- A second public meeting was held on January 12, 2022 at 9AM. Announcements were placed on jurisdictions websites, including Collin County inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to view and comment on the HazMAP prior to plan submission.

There were no comments directly related to the mitigation plan received from citizens, non-profits, businesses, academia, or interested parties; therefore, no feedback was incorporated. An additional opportunity for the public to comment on the plan will be held prior to formal plan adoption.

This provided all citizens, stakeholders, neighboring communities, agencies, businesses, academia, non-profit organizations, and all interested parties an opportunity to be involved in the planning process and to take part in the decisions making process that affect the future of the communities that they live in.

3. Jurisdictional Hazard Identification and Risk Assessment

The Hazard Mitigation Planning Committee for the City of Blue Ridge identified several natural hazards and man-made hazards that could affect the unincorporated areas of the County. The committee decided to focus on the natural hazards identified in Section 5 of this update. This was done after reviewing the 2016 Collin County HazMAP, the State of Texas Hazard Mitigation Plan, as well as other sources such as federal and state agencies. The hazards were ranked using the Priority Risk Index.

Priority Risk Index

A Priority Risk Index (PRI) was developed with the purpose of categorizing potential hazards for the City of Blue Ridge and ranks each hazard as high, moderate, low, or negligible to no risk. The hazard classification generated through the use of the PRI allows for the prioritization of those high hazard risks for mitigation planning purposes, and more specifically, the identification of hazard mitigation opportunities for Collin County jurisdictions to consider as part of their proposed mitigation strategy.

The PRI is used to assist all jurisdictions participating in the Collin County HazMAP in determining which hazards pose the most significant threat based on a variety of factors. The PRI is not scientifically based, but is rather meant to be utilized as an objective and systematic planning tool for classifying and prioritizing hazard risks in Collin County based on standardized criteria. The PRI results in numerical values that allow identified hazards to be ranked against one another. The sum of all four categories equals the final PRI value, as shown below:

PRI Value = (Probability x .30) + (Life Impact x .35) + (Property Impact x .25) + (Spatial Extent x .10)

The higher the PRI value, the greater the hazards risk. These values were obtained by assigning varying degrees of risk to four categories for each hazard: Probability, Life Impact, Property Impact, and Spatial Extent *(Table 3.1).* Each category has been assigned an Index Value (0 to 3) and a Weighing Factor (0 – 100%). These values may be adjusted during future plan updates. In order to evaluate the risk of each hazard, the assigned PRI Value for each category is multiplied by the weighing factor. Then, the PRI for each hazard is calculated by adding the product obtained in each category. According to the weighing scheme applied for Collin County, the highest possible PRI value is 3.0. The PRI calculations are presented in *Table 3.2*. Table 3.1 breaks down the value of each category.

Table 3.1 Priority Risk Index Value

Assigned Weighing Factor	PRI Category	Degree of Risk		
		Level	Criteria	Index Value
30%	Probability	Unlikely	Less than 1% annual probability	0
		Possible	Between 1 and 10% annual probability	1
		Likely	Between 10 and 100% annual probability	2
		Highly Likely	100% annual probability	3

35%	Life Impact	Minor	Very few injuries, if at all none	0
		Limited	Minor Injuries	1
		Critical	Multiple deaths/injuries	2
		Catastrophic	High number of deaths/injuries	3
25%	Property Impact	Minor	Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	0
		Limited	More than 10% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one day.	1
		Critical	More than 25% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one week.	2
		Catastrophic	More than 50% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for 30 days or more.	3
10%	Spatial Extent	Negligible	Less than 1% of area affected	0
		Small	Between 1 and 10% of area affected	1
		Moderate	Between 10 and 50% of area affected	2
		Large	Between 50 and 100% of area affected	3

Table 3.2 Priority Risk Index for the City of Blue Ridge

The conclusions drawn from the hazard profiling process for the City of Blue Ridge resulted in the classification of risk for each identified hazard according to four categories: High Risk, Moderate Risk, Low Risk, and Negligible to No Risk *(Table 3.3).* For purposes of these classifications, risk is expressed in relative terms according to the probability of occurrence and estimated impact that a hazard will have on human life and property in the City of Blue Ridge.

Hazard	Category/Degree of Risk				
	Probability Index Value (0 - 3 30%)	Life Impact Index Value (0 - 3 35%)	Property Impact Index Value (0 - 3 25%)	Spatial Extent Index Value (0 - 3 10%)	PRI Value 2021
Dam Failure	0	0	0	0	0
Drought	3	1	1	2	1.7
Earthquake	0	1	0	1	0.45
Expansive Soils	2	0	0	1	0.7
Extreme Heat	3	1	0	0	1.25

Flooding	2	1	1	1	1.3
Hail	2	0	0	1	0.7
High Winds	3	1	2	2	1.95
Lightning	2	0	1	0	0.85
Tornado	2	3	3	2	2.6
Wildfire	3	1	2	1	1.85
Winter Storms	1	2	3	2	1.95

Table 3.3 Hazard Rankings for the City of Blue Ridge

High Risk (PRI 2 - 3)	Tornado
Moderate Risk (PRI 1.01 -1.95)	High Winds Winter Storm Wildfire Drought Flooding Extreme Heat
Low Risk (PRI 0.50 – 1)	Lightning Hail Expansive Soil
Negligible to No Risk (PRI 0 – 0.49)	Dam Failure Earthquake

Changes in Development and Priorities (Requirement §201.6(d) (3))

Our jurisdiction is in one of the fastest growing areas of the nation, hence development has increased and will continue to increase our vulnerability to hazards that may impact us.

Vulnerability Narratives

This annex focuses on specific areas of vulnerability the City of Blue Ridge faces with each hazard. The hazards identified in the main plan are all addressed in this annex, therefore the natural hazards rated negligible to no risk are included, described, and considered for mitigation.

Dam and Levee Failure The City of Blue Ridge is not subject to dam failure because no Dams are located inside the city limits. The city is not knowingly vulnerable to a Dam failure that occurs outside the city limits, but as a participant in the county plan inundation studies will be considered.

Drought Drought has the potential to impact the entire planning area equally, all improved property, emergency facilities, critical facilities, critical infrastructure, and the entire population of the City of Blue Ridge are vulnerable to this hazard. Foundations of all buildings are vulnerable; however, older structures, or those built under less stringent foundation code requirements are most vulnerable. The Woodbine Aquifer is the water sources for the city and is vulnerable to drought. In turn, the city's

population, wildlife and vegetation are vulnerable. Lower income populations who may not have the resources to buy containerized water in the event of a shortage may be more vulnerable than other populations.

Earthquake All geographic areas of Blue Ridge have the potential to be vulnerable to earthquake. Buildings constructed under older building codes, aging underground infrastructure, and roads are most vulnerable to damages from seismic activity.

Expansive Soils The City of Blue Ridge is vulnerable to of expansive soil. All property has the potential to be vulnerable to expansive soils, especially those constructed under older building codes. Road failures are also a common occurrence from this hazard.

Extreme Heat We have experienced rolling blackouts due to extreme heat through the years. Extreme heat generally affects the entire population, but it is especially dangerous to the homeless, elderly, the very young, those without air conditioning, and those who require refrigerated medications

Flooding The intersection of North Church Street and School Street frequently floods during periods of heavy rainfall and must be closed.

Hail All geographic areas of Blue Ridge have the potential to be vulnerable to hail. Exposed populations, manufactured homes, and older properties are most vulnerable.

High Winds Because Blue Ridge is located in a rural area with many trees, high winds have the potential to block roads, disrupt power, and damage homes.

Lightning All geographic areas, property, and populations in Josephine have the potential to be vulnerable to lightning. Lightning is responsible for at least one (1) residential structure fire over the past ten (10) years resulting in a total loss for the residence. Property without lightning protection and exposed populations are most vulnerable.

Tornado All geographic areas of Blue Ridge have the potential to be vulnerable to tornado. Exposed populations, manufactured homes, and older properties are most vulnerable.

Wildland Fire According to the Texas Forest Service, 89.22% of the population of the City of Blue Ridge is located in the Wildland/Urban Interface. The City of Blue Ridge is predominately rural with a significant amount of wildland-urban area interface. Due to large fuel loads, there is significant risk in Blue Ridge for a wildland fire. There have been two wildland fires in the city in the last year; therefore, this hazard has the potential to harm the City of Blue Ridge.

Winter Storms Winter storms pose a threat to the City of Blue Ridge. These winter storms have the potential to make roads impassable for days. Residents may be confined to their homes due to the storm and may be without basic services, such as water and electricity, for an extended period of time. The entire city is vulnerable to this hazard mainly due to its isolation from a major city.

Identification of Assets and Vulnerability Assessment

An inventory of Collin County geo-referenced assets was created in order to identify and characterize property and population potentially at risk to the identified hazards. By understanding the type and number of assets that exist and where they are located in relation to known hazard areas, the relative risk and vulnerability for such assets can be assessed. For this assessment, five categories of assets were evaluated using Geographic Information System and statistical analysis. The five categories of vulnerable assets include:

- **Population**: Includes the number of people residing in Collin County jurisdictions as delineated by U.S. Census 2020 block data provided by NCTCOG.
- **Improved property**: Includes all developed properties according to local parcel data from the Collin County Central Appraisal District. The information has been expressed in terms of the total assessed value of improvements that may be exposed to the identified hazards.
- **Emergency facilities**: Includes fire stations, police stations and hospitals, provided by the Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.
- **Critical facilities**: Includes schools and historic places provided by Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions. These are non-emergency facilities, but still provide critical services and functions for vulnerable sectors of the population.
- **Critical infrastructure**: Includes airports, natural gas facilities, wastewater facilities, potable water treatment facilities, wastewater treatment facilities, dams, and bridges. Data for all critical facilities was obtained from Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.

The following tables provide a breakdown by municipal jurisdiction of the geo-referenced assets that were used for the vulnerability assessment.

Population

According to the Texas Association of Counties Population Estimates, the total estimated population of Blue Ridge in 2020 was 1023 people, with 360 households. The count breakdown by municipal jurisdiction is provided in *Table 3.4.*

Table 3.4. Population Counts

Jurisdiction	Population			Households		
	Population	% of County Total**	Population Density (Sq. Mile)	Household	% of County Total**	Household Density (Sq. Mile)
Blue Ridge	1023	0.09%	612.57	360	0.09%	215.70

Source: Texas Association of Counties Population Estimates & Collin County Appraisal District

***Includes totals from incorporated jurisdictions not participating in the plan*

Table 3.5 summarizes population counts and population chance (absolute and percent predications for the City of Blue Ridge).

Table 3.5 Population Predictions

Jurisdiction	Population 2010 Census	Population 2018 Estimate	Population 2019 Estimate	Absolute Change 2018-2019	Percent (%) Change 2018-2019
Blue Ridge	799	916	926	10	1.1%

Source: Texas Association of Counties Population Estimates
-: Data Currently Unavailable

Property

There are an estimated 598 parcels in the City of Blue Ridge, with an estimated $51,331,247 in total assessed value of, *Table 3.6* lists the total number and percentage of parcels by jurisdiction.

Table 3.6 Parcel Counts and Improvements Value

Jurisdiction	Number of Parcels	% of County Total	Total Assessed Value of Improvements (Buildings)[1]
Blue Ridge	598	0.19%	$51,331,247

Source: Collin County Appraisal District
[1] Includes public buildings (residential, commercial, industrial, agricultural, religion, government, education)

Emergency Facilities

There is one identified emergency facility in the City of Blue Ridge, including one fire station. *Table 3.7* presents the distribution of emergency facilities by jurisdiction. Geographic coordinates were used to determine the location of each facility.

Table 3.7 Emergency Facilities

Jurisdiction	Fire Stations	Police Stations	Hospitals
Blue Ridge	1	0	0

Source: County Data and Regional Hazard Assessment Tool

Critical Facilities

There are 5 critical facilities, which are considered non-emergency in the City of Blue Ridge. The critical facilities include three schools and zero historical property sites (*Table 3.8*). Geographic coordinates (i.e., latitude and longitude) were used to determine the location of each facility.

Table 3.8 Critical Facilities

Jurisdiction	Schools	Historical Property
Blue Ridge	3	0

Source: Local jurisdictions

Critical Infrastructure

There are 2 identified critical infrastructure facilities in the City of Blue Ridge, including one wastewater treatment facility and one potable water treatment facility (*Table 3.9*).

Table 3.9 Critical Infrastructure

Jurisdiction	Airports	Natural Gas Facilities	Wastewater Treatment Facilities	Potable Water Treatment Facilities	Dams	Railway/ Highway Bridges
Blue Ridge	0	0	1	1	0	0

Source: Local jurisdictions

Methodology

Based on the type of information available for analysis, The City of Blue Ridge's vulnerability assessment was conducted using two distinct methodologies, a Geographic Information System-based analysis and a statistical risk assessment methodology. Each approach provides estimates for the potential impact of hazards by using a common, systematic framework for evaluation of historical occurrence information provided by National Centers for Environmental Information, the Texas Forest Service, and the FEMA Resilience and Planning Tool. The results of the vulnerability assessment are provided by jurisdiction for each hazard analyzed.

Of the 12 hazards evaluated for Collin County, four were analyzed using a Geographic Information System-based analysis, five using a statistical risk assessment methodology, and the remaining three hazards using a qualitative analysis. Qualitative analysis was used due to lack of information, the inability to define specific areas of risk, and/or inexistence of historical records. Additional information regarding these hazards is unattainable at the present time; studies to address this data deficiency are noted as action items in this update. *Table 3.10* summarizes the methodology used for each hazard.

Table 3.10 Analysis used for Vulnerability Assessment

Hazard	Geographic Information System-based Analysis	Statistical Analysis	Qualitative Analysis
Dam Failure			X
Drought	X		
Earthquake			X
Expansive Soils			X
Extreme Heat		X	
Flooding	X		
Hail	X		
High Winds		X	
Lightning		X	
Tornado		X	
Wildfire	X		
Winter Storms		X	

Summary of Vulnerably Assessment

A summary of the vulnerability assessment for each hazard using geographic and statistical analysis is presented in the following pages. The detailed assessment is presented in the following sections.

Summary Table 3.11

Drought	
Population	According to National Centers for Environmental Information (NCEI) no recorded injuries or fatalities have been recorded for drought events in the City of Blue Ridge. There are no personal losses expected from drought events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Blue Ridge are expected but financially unknown due to lack of accurate reporting. Historical data indicates that crop losses in the City of Blue Ridge are expected mostly during water shortages, financially unknown due to lack of accurate reporting.
Emergency Facilities	Because of the nature of this hazard, no losses are expected on emergency facilities but foundation issues could occur due to drought events.
Critical Facilities	Because of the nature of this hazard, no losses are expected on critical facilities but foundation issues could occur due to drought events.
Critical Infrastructure	Because of the nature of this hazard, no losses are expected on critical infrastructure but foundation issues and road degradation could occur due to drought events.

Summary Table 3.12

Extreme Heat	
Population	According to National Centers for Environmental Information (NCEI), there were no fatalities recorded due to extreme heat from the City of Blue Ridge. The City of Blue Ridge and its population are vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to developed areas and the improved property in the City of Blue Ridge is not vulnerable to this hazard.
Emergency Facilities	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to buildings and the emergency facilities in the City of Blue Ridge are not vulnerable to this hazard.
Critical Facilities	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to buildings, and the critical facilities in the City of Blue Ridge are not vulnerable to this hazard.
Critical Infrastructure	According to National Centers for Environmental Information (NCEI) there is no impact of extreme heat to critical infrastructure, and vulnerability to this hazard is considered minimal in the City of Blue Ridge

Summary Table 3.13

Flooding	
Population	Flooding produces an expected annualized count of zero (0) fatalities and injuries per year. Approximately 18 residential parcels in the City of Blue Ridge are located within the 100-year floodplain.
Improved Property	Though there have been zero (0) recorded flood events in the City of Blue Ridge, property losses are unknown due to lack of accurate reporting. No crop losses are expected or recorded county-wide. Approximately $539,608 of the total assessed value is at risk from the 100-year storm event.
Emergency Facilities	Emergency facilities have the potential to be as risk in the 100-year storm event.
Critical Facilities	Critical facilities have the potential to be as risk in the 100-year storm event.
Critical Infrastructure	0% of railways/highways and bridges, 0% of dams, 100% of water treatment works, and 100% waste water treatment facilities are at risk from the 100-year storm event.

Summary Table 3.14

Hail	
Population	According to National Centers for Environmental Information (NCEI), no recorded injuries or fatalities have been recorded for hailstorm events in the City of Blue Ridge. There are no personal losses expected from hailstorm events.
Improved Property	According to National Centers for Environmental Information (NCEI), a loss of $228.57 per year however these values are underestimated due to lack of accurate reporting. All improved property is vulnerable to this hazard in the City of Blue Ridge. Although some crops are susceptible to hail hazards, available historical data for the City of Blue Ridge indicates that there are no expected crop losses from this event.
Emergency Facilities	Because of the unpredictability of the geographical location of hailstorms, all emergency facilities in the City of Blue Ridge are vulnerable to this hazard.
Critical Facilities	Because of the unpredictability of the geographical location of hailstorms, all critical facilities in the City of Blue Ridge are vulnerable to this hazard.
Critical Infrastructure	Because of the unpredictability of the geographical location of hailstorms, all critical infrastructures in the City of Blue Ridge are vulnerable to this hazard.

Summary Table 3.15

High Wind	
Population	According to National Centers for Environmental Information (NCEI), there are no recorded injuries or fatalities from high wind events the City of Blue Ridge. All the population of the City of Blue Ridge is vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Blue Ridge are expected at $42.86 per year however these values are underestimated due to lack of accurate reporting. No crop losses resulted from this hazard in the City of Blue Ridge.
Emergency Facilities	Because of the expected geographical widespread nature of high winds, all emergency facilities in the City of Blue Ridge are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of high winds, all critical facilities in the City of Blue Ridge are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of high winds, all critical infrastructures in the City of Blue Ridge are vulnerable to this hazard.

Summary Table 3.16

Lightning	
Population	According to National Centers for Environmental Information (NCEI), lightning events can be expected to cause no deaths or injuries in the City of Blue Ridge. All the population of the City of Blue Ridge is vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Blue Ridge are expected at $833.33 per year however these values are underestimated due to lack of accurate reporting.
Emergency Facilities	Because of the expected geographical widespread nature of lightning, all emergency facilities in the City of Blue Ridge are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of lightning, all critical facilities in the City of Blue Ridge are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of lightning, all critical infrastructures in the City of Blue Ridge are vulnerable to this hazard.

Summary Table 3.17

Tornado	
Population	According to National Centers for Environmental Information (NCEI), there have been no recorded injuries or fatalities from tornado events in the City of Blue Ridge. All the population of the City of Blue Ridge is exposed and vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Blue Ridge are expected but unknown due to lack of accurate reporting. No crop losses are expected from this hazard in the City of Blue Ridge.
Emergency Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all emergency facilities in the City of Blue Ridge are exposed and vulnerable to this hazard.
Critical Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all critical facilities in the City of Blue Ridge are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the impossibility to predict the geographical area of impact for tornados, all critical infrastructures in the City of Blue Ridge are exposed and vulnerable to this hazard.

Summary Table 3.18

Wildfire	
Population	Based on geographical data, approximately 89.22% of the City of Blue Ridge is vulnerable to wildfires. There have been no recorded injuries or fatalities due to wildfires.
Improved Property	Based on historical data, annual financial losses expected from property loss due to wildfires are unknown but unknown due to lack of accurate reporting; therefore, percentage of the overall property improvement values across the City of Blue Ridge are also unknown.
Emergency Facilities	Based on geographic information 1 fire stations at moderate risk from wildfire events.
Critical Facilities	Based on geographic information 5 schools at moderate risk from wildfire events.
Critical Infrastructure	Based on geographic information there are 0 bridges, 0 dams, 1 wastewater treatment facility, and 0 water treatment facility at moderate risk from wildfire events.

Summary Table 3.19

Winter Storm	
Population	According to National Centers for Environmental Information (NCEI), there was one (1) county-wide fatality recorded due to winter storms, none from the City of Blue Ridge. All the population of The City of Blue Ridge are exposed and vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Blue Ridge are expected but unknown due to lack of reporting however county-wide property loss is estimated at $116,250 per year. No crop losses are expected from this hazard in the City of Blue Ridge.
Emergency Facilities	Because of the expected geographical widespread nature of winter storms, all emergency facilities in the City of Blue Ridge are exposed and vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of winter storms, all critical facilities in the City of Blue Ridge are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of winter storms, all critical infrastructures in the City of Blue Ridge are exposed and vulnerable to this hazard.

4. Capability Assessment

The risk assessment and capabilities assessment serves as the foundation for the development of a meaningful hazard mitigation strategy. During the process of identifying specific mitigation actions to pursue, the City of Blue Ridge considered not only its level of hazard risk but also the existing capability to minimize or eliminate that risk.

Table 4.1 Legal and Regulatory Capability Summary

Legal and Regulatory Capabilities															
Jurisdiction	Building Code	Zoning Ordinance	Subdivision Ordinance or regulation	Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances wildfire ordinances, hazard setback requirements)	Growth management ordinances (also called "smart Growth" or anti-sprawl programs)	Site Plan review requirements	General or comprehensive plan	A capital improvements plan	An economic development plan	An emergency response plan	A post-disaster recovery plan	A post-disaster recovery ordinance	Real estate disclosure requirements	Other	% Yes per Jurisdiction
City of Blue Ridge	Y	Y	Y	N	N	Y	Y	Y	N	Y	Y	N	N	N	**57%**
Average % Yes Capabilities – 57%															
Y- Yes N- No ?- Don't Know															

Table 4.2 Administrative and Technical Capability Summary

Administrative and Technical Capabilities											
Jurisdiction	Planner(s) or engineer(s) with knowledge of land development and land management	Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Planners or engineer(s) with an understanding of natural and/or human caused hazards	Floodplain manager	Surveyors	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in GIS	Scientists familiar with the hazards of the community	Emergency manager	Grant writers (used as needed – not on staff)	% Yes
City of Blue Ridge	Y	Y	Y	N	N	Y	Y	N	N	Y	**60%**
Average % Yes Capabilities – 60%											
Y- Yes N- No ?- Don't Know											

Table 4.3 Fiscal Capability Summary

Fiscal Capabilities											
Jurisdiction	Community Development Block Grants (CDBG)	Capital improvements project funding	Authority to levy taxes for specific purposes	Fees for water, sewer, gas, or electric service	Impact fees for homebuyers or developers for new developments/homes	Incur debt through general obligation bonds	Incur debt through special tax bonds	Incur debt through private activity bonds	Withhold spending in hazard-prone areas	Other	% Yes
City of Blue Ridge	Y	N	Y	Y	Y	Y	N	N	N	N	**50%**
Average % Yes Capabilities – 50%											
Y- Yes N- No ?- Don't Know											

To quantify City of Blue Ridge legal and regulatory, administrative and technical, and fiscal capabilities, an overall rating system was administered for each category: limited (0-30%), moderate (31-70%), and

strong (70-100%). Questionnaire responses indicated that on average, the city of Blue Ridge has 50% of identified legal and regulatory capabilities, 50% of identified administrative and technical capabilities, and 10% of identified fiscal capabilities.

Table 4.4 Administrative Information

Jurisdiction	Chief Administrative Officer	Ability to Implement Capabilities
City of Blue Ridge	City Secretary	The city council, including the mayor, mayor pro-tem, and council members, along with the city manager, address the budget; pass laws, regulations, and codes; hire staff; approve plans; and determine the direction of the city overall. As the governing body, the ability to implement and approve mitigation actions and integrate mitigation into existing policies and programs is a function of this group.

Specific actions that can expand and improve existing capabilities, authorities, plans, policies, and resources for mitigation include: budgeting and passing policies and procedures, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates and additions to existing plans as new needs are recognized.

5. Mitigation Strategies

Based on the results of the risk and capability assessments, and reviews of the goals and objectives included in the 2016 HazMAP, the City of Blue Ridge Hazard Mitigation Planning Committee developed mitigation strategies for the Plan update.

Goal 1 Reduce or eliminate loss of life, injuries and property damage resulting from severe weather events.

Objective 1-A Provide adequate warning and communication before, during, and after a hazard event.
Objective 1-B Expand and coordinate Early Warning Systems currently in use.
Objective 1-C Reduce or eliminate loss of life and property damage from tornados through the construction and use of safe rooms or shelter areas.

Goal 2 Protect existing and new properties from the effects of all natural hazards.

Objective 2-A Conduct studies to determine hazard and vulnerability threat assessment for all natural hazards.
Objective 2-B Rehabilitate or retrofit identified high hazard critical infrastructure.
Objective 2-C Enact and enforce regulatory measures that enforce hazard mitigation measures.
Objective 2-D Construct enhancements or additions to current and new facilities which mitigate the effects of natural hazards.
Objective 2-E Maintain NFIP compliance, storm water management, and implement drainage projects.

Goal 3 Reduce losses and repetitive damages for chronic hazard events.

Objective 3-A Conduct a hazard/vulnerability assessment of personal properties and structures located in flood zones within City of Blue Ridge.
Objective 3-B Develop and implement a buyout program for those personal properties and structures located in high hazard flood zones starting with those that are most vulnerable to life and property loss.
Objective 3-C Develop and execute new programs which identify and reduce threats from natural hazards.

Goal 4 Develop public education campaigns to disseminate information about actions to mitigate potential loss of life, injuries and property damage resulting from natural hazards.

Objective 4-A Educate the public on risks, threats, and vulnerability from all natural hazards.
Objective 4-B Educate the public on actions they can take to prevent or reduce the loss of life or property from all natural hazards.
Objective 4-C Develop and implement a community education campaign to heighten public awareness about chronic flooding and options for insurance coverage to protect their personal properties as well as long term benefits from a buyout program.

6. Action Items

Below is a list of action items identified for the HazMAP Update. Each of the actions in this section were prioritized based on FEMA's STAPLEE criteria, which includes considering the social, technical, administrative, political, legal, economic and environmental factors necessary for the implementation of each action. As part of the STAPLEE analysis, economic considerations were weighed for each action. Priority rankings are classified as indicated in the table below. The STAPLEE was used for the 2016 Plan along with the 2021 Update.

Priority	Description
High	Benefits of mitigating risk of death or severe bodily injury outweigh costs to implement actions rated as high priorities.
Medium	Reducing vulnerability to threats and the resulting improvement in quality of life and peace of mind are benefits for actions rated as medium priorities.
Low	Awareness of low risk/low impact hazards offer benefits of time to assess, plan and integrate low priority mitigation actions as time, need, and funding permit.

City of Blue Ridge Action Items: Deferred from 2016 Plan

City of Blue Ridge Action Item	Develop and implement a comprehensive public education program, including resources to mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Tornado, High Winds, Winter Storm, Wildfire, Drought, Hail, Flooding, Lightning, Extreme Heat, Expansive Soils, Dam Failure, Earthquake
Goal/Objective	4-A, 4-B, 4-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	General Fund, HMGP
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken on structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken on structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Public education is extremely effective for low cost.
Discussion	Develop and distribute, via social media, information about mitigating the hazards identified and what actions can be taken in this annex
Status	Receive supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021

City of Blue Ridge Action Item	Develop and implement an extreme temperature program that establishes centers for vulnerable residents.
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	3-C
Priority	Medium
Estimated Cost	Current staffing project time/resources
Potential Funding Sources	HMGP, PDM,
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	H.R. Dept.
Implementation Schedule	1-2 years
Effect on Old Buildings	Could require retrofit to accommodate required space and resources
Effect on New Buildings	May entail enhanced construction materials
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.
Discussion	Cooling shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold
Status	Deferred – will be included in 2021 Plan

City of Blue Ridge Action Item	Develop and Implement Individual Tornado Safe Room Rebate Program
Hazard(s) Addressed	High Winds, Tornado, Hail
Goal/Objective	1-C
Priority	High
Estimated Cost	Up to $3,000 per shelter
Potential Funding Sources	HMGP, PDM, Resident Match
Potential Matching Sources	Local Grants, FEMA
Lead Department	EMC
Implementation Schedule	2-3 years
Effect on Old Buildings	Enhance safety of existing residential structures through retrofits
Effect on New Buildings	Enhance safety of new residential structures
Cost Effectiveness	Residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind events.
Discussion	
Status	Deferred – Residents did received funding through the NCTCOG Saferoom Rebate Program. The NCTCOG Program has been suspended

City of Blue Ridge Action Item	Increase outdoor warning siren coverage for new development areas.
Hazard(s) Addressed	High Winds, Tornado, Wildfire, Hail, Lightning, Flooding
Goal/Objective	1-A, 1-B
Priority	High
Estimated Cost	$25,000
Potential Funding Sources	General Fund, HMGP, Developer cost
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	2-3 years
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	Early warning is a key element in keeping citizens that are outdoors notified of hazards.
Discussion	The City of Blue Ridge will expand its current siren program into newly developed areas of the jurisdiction that are currently outside of siren coverage.
Status	Deferred – will be included in 2021 Plan

City of Blue Ridge Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	3-A
Priority	Medium
Estimated Cost	$50,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Planning
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	Deferred – will be included in 2021 Plan

City of Blue Ridge Action Item	Develop and implement a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	2-A
Priority	Medium
Estimated Cost	$5,000
Potential Funding Sources	TFS Grants,
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Fire Dept.
Implementation Schedule	2-5 years
Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire
Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire
Cost Effectiveness	CWPPs show city officials where to redouble their efforts in preventing wildfire, saving time and money. Also work to establish urban wildfire interface around new development properties.
Discussion	Identify all structures and infrastructures that would be impacted by a potential wildfire and implement mitigation actions to reduce vulnerability.
Status	Deferred – will be included in 2021 Plan

City of Blue Ridge Action Item	Develop and implement a drought contingency plan that will implement water mandatory water conservation measures.
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	Results may require new codes for low-flow plumbing and foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Develop a plan for conserving water based on the stages of drought. Plan would include strategies for soil movement abatement depending on drought stage and mandatory water restrictions for water conservation.

Status	Completed and adopted on 4/02/2019

City of Blue Ridge Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Results would help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results would help identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.
Status	Deferred – will be included in 2021 Plan

City of Blue Ridge Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.

Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.
Status	Deferred – will be included in 2021 Plan

City of Blue Ridge Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken on structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken on structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as other emergency and hazard information
Status	Deferred – will be included in 2021 Plan

City of Blue Ridge Action Items: New

City of Blue Ridge Action Item	Public education can help educate the public to reduce personal and property damage during disasters. Program will include information about hazard mitigation of each identified hazard..
Hazard(s) Addressed	Tornado, Hail, Winter Storms, High Winds, Lightning, Expansive Soils, Extreme Heat, Earthquake, Flooding, Wildfire, Drought
Goal/Objective	4-A, 4-B, 4-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	General Fund, HMGP
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC

Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken on structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken on structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Minimal compared to preservation of life safety
Discussion	Public education can help educate the public to reduce personal and property damage during disasters. Program will include information about hazard mitigation

City of Blue Ridge Action Item	Develop and implement an extreme temperature program that establishes centers for vulnerable residents.
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	3-C
Priority	Medium
Estimated Cost	Current staffing project time/resources
Potential Funding Sources	HMGP, PDM,
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	H.R. Dept.
Implementation Schedule	1-2 years
Effect on Old Buildings	Could require retrofit to accommodate required space and resources
Effect on New Buildings	May entail enhanced construction materials
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.
Discussion	Cooling shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold

City of Blue Ridge Action Item	Develop and Implement Individual Tornado Safe Room Rebate Program
Hazard(s) Addressed	High Winds, Tornado, Hail
Goal/Objective	1-C
Priority	High
Estimated Cost	Up to $3,000 per shelter
Potential Funding Sources	HMGP, PDM, Resident Match
Potential Matching Sources	Local Grants, FEMA
Lead Department	EMC

Implementation Schedule	2-3 years
Effect on Old Buildings	Enhance safety of existing residential structures through retrofits
Effect on New Buildings	Enhance safety of new residential structures
Cost Effectiveness	Residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind events.
Discussion	

City of Blue Ridge Action Item	Increase outdoor warning siren coverage for new development areas.
Hazard(s) Addressed	High Winds, Tornado, Wildfire, Hail, Lightning, Flooding
Goal/Objective	1-A, 1-B
Priority	High
Estimated Cost	$25,000
Potential Funding Sources	General Fund, HMGP, Developer cost
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	2-3 years
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	Early warning is a key element in keeping citizens that are outdoors notified of hazards.
Discussion	The City of Blue Ridge will expand its current siren program into newly developed areas of the jurisdiction that are currently outside of siren coverage. This action item would be specific to installation/placement of new OWS sirens in the jurisdiction.

City of Blue Ridge Action Item	Develop and implement a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	2-A
Priority	Medium
Estimated Cost	$5,000
Potential Funding Sources	TFS Grants,
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Fire Dept.
Implementation Schedule	2-5 years

Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire
Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire
Cost Effectiveness	CWPPs show city officials where to redouble their efforts in preventing wildfire, saving time and money. Also work to establish urban wildfire interface around new development properties.
Discussion	Identify all structures and infrastructures that would be impacted by a potential wildfire and implement mitigation actions to reduce vulnerability.

City of Blue Ridge Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Results would help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results would help identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.

City of Blue Ridge Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	1-2 years

Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.

City of Blue Ridge Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken on structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken on structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as other emergency and hazard information

City of Anna Action Item	Develop City's drought contingency plan.
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Results may entail retrofits for low-flow plumbing.
Effect on New Buildings	Results may require new codes for low-flow plumbing and foundations.
Cost Effectiveness	Low cost for effective means of preserving water.

Discussion	Utilize existing plan for conserving water based on the stages of drought. Plan includes strategies for soil movement abatement depending on drought stage. When water is conserved and not used for landscape during droughts, this would provide water for homeowners to use, through drip irrigation, to keep their foundations at a consistent saturation level, mitigating the impacts of drought and lack of water.

National Flood Insurance Program (NFIP) Compliance

The City of Blue Ridge is participating in the National Flood Insurance Program and has identified their respective areas as vulnerable to flooding. This is incorporated into all current and future planning for dealing with repetitive loss vulnerabilities.

Table 6.1 Blue Ridge NFIP Compliance

CID	Community Name	County	Initial FHBM Identified	Initial FIRM Identified	Curr Eff Map Date	Reg-Emer Date	Tribal
481628#	BLUE RIDGE, TOWN OF	COLLIN COUNTY	-	04/02/1991	06/02/2009(M)	04/02/91	No

(M): No Elevation Determined - All Zone A, C and X
Source: http://www.fema.gov/cis/TX.html

Jurisdiction Activities

In order to maintain eligibility with NFIP, jurisdictions are required to maintain their list of properties that hold a policy with NFIP, along with up-to-date maps of the floodplains in the jurisdictions. Each jurisdiction participating in the Collin County Hazard Mitigation Action Plan completes this basic requirement and has the information on file with the jurisdiction's designated floodplain manager. Using this plan, participating jurisdictions will be able to continue their compliance with NFIP by implementing damage control measures and take action to minimize the effects of flooding in their respective jurisdictions.

Table 6.2 Blue Ridge NIFP Activity

Community Floodplain Administrator	NFIP Activity	Activity Description	Enforcement
City Manager	Complete and maintain FEMA elevation certificates for pre-FIRM and or post-FIRM buildings	Permits are issued through the Department of Environmental Health. City of Blue Ridge requires 2 feet of freeboard above the base flood elevation for the top of bottom floor on residential structures and non-residential structures that will be built on properties created or platted after the effective date of the Flood Damage Prevention Order	NFIP compliance is implemented and enforced through a process of floodplain identification using FEMA floodplain maps, permit issuance, building requirements, and compliance inspections pending approval. Failure to comply with City's flood damage prevention order shall result in fines up to $500 per violation plus court costs.
	Floodplain development permits	Permits are required for any new construction in a floodplain.	
	Participate with FEMA in identifying Special Flood Hazard Areas for future FIRM maps	City of Blue Ridge participates in Risk Assessment, Mapping and Planning Partners (RAMPP) meetings held by FEMA and/or their contractors to better identify areas that are flood prone that are not shown on current Flood Insurance Rate Maps.	
	Take action to minimize the effects of flooding on people, property, and building contents through measures including flood warning, emergency response, and evacuation planning	City of Blue Ridge public works installs signs at low water crossings that indicate "When flooded turn around don't drown".	
	Future Mitigation Projects	City of Blue Ridge will continue to monitor for new areas of flooding that have not been previously identified for mitigation.	

7. Plan Maintenance

Monitoring, Evaluating and Updating the Plan

In Compliance with requirement § 201.6(c)(4)(i), the City of Blue Ridge has developed a plan maintenance process which is described in the following paragraphs. Collin County, along with participating jurisdictions are responsible for monitoring implementation of the plan, executing a yearly evaluation of its effectiveness, and updating the plan within a 5-year cycle.

Following formal adoption by the City of Blue Ridge, the county, and the city council of each participating jurisdiction, the actions outlined in the Collin County Hazard Mitigation Action Plan (HazMAP) will be implemented by participating jurisdictions as described throughout this document.

The Collin County Emergency Management Coordinator, working in conjunction with the respective jurisdictions, will be responsible for ensuring the mitigation plan is monitored, evaluated, and reviewed on an annual basis. This will be accomplished by calling an annual meeting of the planning committee, whose members will provide assistance and expertise for plan review, evaluating, updating, and monitoring. This meeting will be open to the public and public notices will encourage community participation. During this annual meeting, the City of Blue Ridge will provide information on the implementation status of each action included in the plan. As part of the evaluation, the planning committee will assess whether goals and objectives address current and expected conditions, whether the nature and/or magnitude of the risks have changed, if current resources are appropriate for implementing the plan, whether outcomes have occurred as expected, and if agencies and other partners participated as originally proposed. These activities will take place according to the timetable presented table 7.1:

Table 7.1 Plan Maintenance Timeline

Personnel	Activity	Schedule
Fire Chief	Monitoring Plan : Track implementation and action items, changes to risk assessment, changes to planning team members, changes to capabilities, plan integrations	Biannually
	Evaluate Plan: Assess effectiveness by evaluating completed actions, implementation processes, responsible personnel and lessons learned.	Annually
	Update Plan	Once every 5 years

At least once every five (5) years, or more frequently, if such a need is determined by the participating jurisdiction, the multi-jurisdictional plan will undergo a major update. During this process, all sections of the plan will be updated with current information, analyses done and new and/or modified mitigation action plans will be developed. The revised plan will be submitted for state and federal review and approval, and presented for approval to the Collin County Commissioner's Court and the respective councils of incorporated cities/towns included in the Collin County plan. Likewise, each participating jurisdiction will undertake the same process for reviewing, revising and updating their respective plans and submit same for approval by the state, FEMA and each local jurisdiction's governing body. The plan will be updated every five years in accordance with federal requirements.

Plan Incorporation into Existing Planning Mechanisms *(In compliance with 201.6(c)(4)(ii))*

Based on the requirements set forth in § *201.6(c)(4(ii)*, the State of Texas Mitigation Plan, the vulnerability and capabilities assessment for each jurisdiction was carefully reviewed and considered when developing the mitigation actions for this plan. The HMPT and committees will establish a process in which the mitigation strategy, goals, objectives and actions outlined in this plan will be incorporated into the existing regional and local planning strategies.

Local and regional planning committees currently use comprehensive land use planning, capital improvements planning, and building code ordinances to guide development. The mitigation strategy, goals, objectives and actions outlined in this plan will be integrated into these existing mechanisms as applicable. Those mechanisms include the following:

Table 7.2 Plan Incorporation Mechanisms

Jurisdiction	Responsible Personnel	Jurisdictional Plans	Integration Schedule	Integration Plan
City of Blue Ridge	City manager, City Council	Budget Meetings.	Annually	Integration of mitigation projects identified in HazMAP, grants, and other fiscal allowances for mitigation actions and related costs
	City manager, Fire Chief	Emergency Action Plan updates	Once every five years	EAP Mitigation annex updates based on HazMAP HIRA; update preparedness, response and recovery actions related to identified hazards
	City manager, Director of Public Works	Floodplain ordinances	As needed	Enhance mitigation of flood hazards using HazMAP flood data for floodplain management and community development.
	City manager, Planning director	Capital improvement plans	Annually	Strengthen critical infrastructure and key resources based on HazMAP hazard analysis, incorporate vulnerability data and action items.
	City manager, Director of Public Works	Drought Contingency plans	As needed	Integrate drought actions such as xeriscaping, water restrictions, and public education
	City manager, Planning Director	Natural Resource Conservation Plan	Annually	Integrate conservation measures by directing development away from hazard-prone areas identified in HazMAP.

Although it is recognized there are many possible benefits to integrating components of this HazMAP into other planning mechanisms, the City of Blue Ridge Hazard Mitigation Planning Committee considers this

HazMAP, including development and maintenance, to be the primary vehicles to ensure implementation of local hazard mitigation actions.

The process described here is the same as was used since the last planning update.

Continued Public Involvement (In compliance with 201.6(c)(4)(iii))

As stated in requirement § *201.6(c)(4)(iii)* The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.

To address this requirement, ongoing public participation will be encouraged throughout the entire planning and implementation process. A copy of the plan will be provided on the Collin County website. The planning team and committees will continue meeting on a regular basis to ensure the successful implementation of the plan and to discuss any additional issues regarding the emergency management of Collin County. The annual meetings for monitoring, evaluating, and updating the plan will be open to the public and public notices will encourage community participation.

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Annex E: City of Celina

1. Introduction

This annex was prepared in 2020 as part of an update to the Collin County Multi-Jurisdictional Hazard Mitigation Action Plan. The City of Celina participated in the Collin County Hazard Mitigation Planning Team (HMPT). This is a new hazard mitigation plan and the first to be submitted to FEMA for the City of Celina. In addition to the countywide hazards and strategies discussed in the main plan, this annex serves as a complete hazard mitigation planning tool for the City of Celina. It contains capability assessment information, a specific vulnerability assessment, and a complete mitigation strategy. The methodology and process for developing this annex are explained throughout the following sections.

2. Plan Development and Adoption Process

In order to apply for federal aid for technical assistance and post-disaster funding, local jurisdictions must comply with Part 201.3 of the Disaster Mitigation Act of 2000 implemented in the Federal Code of Regulations 44 CRF Part 201.6. While Celina has historically implemented measures to reduce their vulnerability to hazards, passage of DMA 2000 helped Celina officials to recognize the benefits of a long-term approach to hazard mitigation, which achieves a gradual decrease of impacts associated through the implementation of a Hazard Mitigation Plan. Collin County's Hazard Mitigation Action Plan represents the collective efforts of all participating jurisdictions, the general public, and stakeholders.

Organizing the Planning Effort

A comprehensive county approach was taken in developing the plan. An open public involvement process was established for the public, neighboring communities, regional agencies, businesses, academia, etc. to provide opportunities for everyone to become involved in the planning process and to make their views known. The meetings were advertised with notices in public places and online.

In accordance with Part 201.6(c)(5) of the Disaster Mitigation Act of 2000 (DMA 2000), Collin County developed this Hazard Mitigation Action Plan. This plan identifies hazards and mechanisms to minimize future damages associated with these hazards, which threaten Collin County and its jurisdictions.

Existing Data and Plans

Existing hazard mitigation information and other plans were reviewed during the development of the Hazard Mitigation Action Plan. GIS, statistical and qualitative data was gathered through numerous sources. Table 2.1 outlines the sources of data for the plan:

Table 2.1 Plan Source Data

Source	Data
City and County Appraisal Data 2020	Population and demographics
Regional Hazard Assessment Tool	Hazard occurrences
National Climatic Data Center (NCDC)	Hazard occurrences
Texas Forest Service/Texas Wildfire Risk Assessment Summary Report	Wildfire Threat and Wildland/Urban Interface analysis
National Inventory of Dams	Dam Information

Planning Committee

This Hazard Mitigation Action Plan was developed by the City of Celina Hazard Mitigation Planning Committee, with support of the North Central Texas Council of Governments and in conjunction with the Collin County HMPT.

The Collin County HMPT was assembled in November, 2020 with representatives from participating county jurisdiction planning committees, including mayors, police chiefs, fire chiefs, and the general public. Collin County acted as the plan development consultant providing hazard mitigation planning services. The efforts of the planning committees and the HMPT were led by the Collin County Assistant Emergency Management Coordinator.

Table 2.2 below provides a list of the primary representatives on the Celina planning committee.

Table 2.2 Hazard Mitigation Committee– Primary Representatives

Representing	Position	Role
City of Celina	Fire Chief	Plan development
City of Celina	Deputy Fire Chief	Plan development

Collin County served as the coordinator and lead agency for all jurisdictions by accomplishing the following activities through the planning process:

- Assigned the County's Assistant Emergency Management Coordinator to provide technical assistance and necessary data to the planning committee.
- Scheduled, coordinated, and facilitated community meetings with the assistance of the HMPT and the planning committees.
- Provided any necessary materials, handouts, etc. for public planning meetings.
- Worked with the HMPT and planning committees to collect and analyze data and develop goals and implementation strategies.
- Prepared, based on community input and planning team/committee direction, the first draft of the plan and provided technical writing assistance for review, editing and formatting.
- Coordinated with the stakeholders within the jurisdictions and the unincorporated areas of Collin County during plan development.

Each of the individual jurisdictions participated in accomplishing similar activities associated with development of the plan as follows:

- Coordinated input from representatives of neighborhood stakeholder groups and provided a representative to the County HMPT.
- Attended regular meetings of the planning team as coordinated by Collin County.
- Assisted Collin County staff with identifying hazards and estimating potential losses from future hazard events.
- Assisted Collin County in developing and prioritizing mitigation actions to address the identified risks.
- Assisted Collin County in coordinating public meetings to develop the plan.
- Identified the community resources available to support the planning effort.
- Worked for the support of neighborhood stakeholders for the recommendations resulting from the planning process.
- Submitted the proposed plan to all appropriate departments for review and comment and

worked with Collin County to incorporate the resulting comments into the proposed plan.

External stakeholders emailed and involved in reviewing the Collin County Hazard Mitigation Action Plan:

Table 2.3 External Stakeholders

Representing	Position	Role
Fire Department	Fire chief/ Deputy Fire chief	Emergency Response Capabilities
Police Department	Police chief/Sergeant	Emergency Response Capabilities
City Engineering	City Engineer	Infrastructure Preparedness
Public Works	Public Works Director	Utilities Preparedness
City Planning	City Planner	Development Planning

Subsequent to the State of Texas and FEMA approval of the plan, each organization above is committed to accomplishing the following activities:

- Appoint members to a coordinating committee to monitor and work toward plan implementation.
- Publicize the plan to neighborhood interests and ensure that new community members are aware of the plan and its contents.
- Monitor progress in achieving the plan's goals through regular maintenance and implementation projects.

Planning Meetings

During the planning process, the HMPT met to obtain relevant information from the participating jurisdictions and to discuss the objectives and progress of the plan. The objectives of these meetings were to gather information and to provide guidance for each jurisdiction throughout the planning stages.

The following meetings were held by Collin County and included all jurisdiction's participation:

- Collin County HazMAP Kickoff Meeting – 11/05/2020
- City of Celina Hazard Mitigation Team Meeting – 12/3/2020
- City of Celina HazMAP Discussion/Update – 1/5/2021
- City of Celina Hazard Team Meeting – 12/4/2020
- Collin County Public Meeting – 11/2/2021at 2PM
- Collin County Public Meeting 01/12/2022

Public Involvement

Support from the community is vital for any successful hazard mitigation plan. The HMPT and committee provided opportunities, announced through public communication means, for public participation and input throughout the planning process prior to this draft and before approval of the finalized plan. Advertisement and sign in sheets for these meetings are located in Appendix A.

- The first public meeting was held on November 2, 2021 at 2PM, and advertised on the Collin County website along with other jurisdictional websites inviting the public, neighboring

communities, local business, academia, agencies, and nonprofits to comment. The meeting was held virtually via WebEX.

- A second public meeting was held on January 12, 2022 at 9AM. Announcements were placed on jurisdictions websites, including Collin County inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to view and comment on the HazMAP prior to plan submission.

There were no comments directly related to the mitigation plan received from citizens, non-profits, businesses, academia, or interested parties; therefore, no feedback was incorporated. An additional opportunity for the public to comment on the plan will be held prior to formal plan adoption.

This provided all citizens, stakeholders, neighboring communities, agencies, businesses, academia, non-profit organizations, and all interested parties an opportunity to be involved in the planning process and to take part in the decisions making process that affect the future of the communities that they live in.

3. Jurisdictional Hazard Identification and Risk Assessment

The Hazard Mitigation Planning Committee for the City of Celina identified several natural hazards and man-made hazards that could affect the city. The committee decided to focus on the natural hazards identified in Chapter 3 of this update. This was done after reviewing the 2016 HazMAP, the State of Texas Hazard Mitigation Plan, as well as other sources such as federal and state agencies. The hazards were ranked using the Priority Risk Index.

Priority Risk Index

A Priority Risk Index (PRI) was developed with the purpose of categorizing potential hazards for Collin County and ranks each hazard as high, moderate, low, or negligible to no risk. The hazard classification generated through the use of the PRI allows for the prioritization of those high hazard risks for mitigation planning purposes, and more specifically, the identification of hazard mitigation opportunities for Collin County jurisdictions to consider as part of their proposed mitigation strategy.

The PRI is used to assist all jurisdictions participating in the Collin County HazMAP in determining which hazards pose the most significant threat based on a variety of factors. The PRI is not scientifically based, but is rather meant to be utilized as an objective and systematic planning tool for classifying and prioritizing hazard risks in Collin County based on standardized criteria. The PRI results in numerical values that allow identified hazards to be ranked against one another. The sum of all four categories equals the final PRI value, as shown below:

PRI Value = (Probability x .30) + (Life Impact x .35) + (Property Impact x .25) + (Spatial Extent x .10)

The higher the PRI value, the greater the hazards risk. These values were obtained by assigning varying degrees of risk to four categories for each hazard: Probability, Life Impact, Property Impact, and Spatial Extent *(Table 3.1).* Each category has been assigned an Index Value (0 to 3) and a Weighing Factor (0 – 100%). These values may be adjusted during future plan updates. In order to evaluate the risk of each hazard, the assigned PRI Value for each category is multiplied by the weighing factor. Then, the PRI for each hazard is calculated by adding the product obtained in each category. According to the weighing scheme applied for Collin County, the highest possible PRI value is 3.0. The PRI calculations are presented in *Table 3.2*. Table 3.1 breaks down the value of each category.

Table 3.1 Priority Risk Index Value

Assigned Weighing Factor	PRI Category	Degree of Risk		
		Level	Criteria	Index Value
30%	Probability	Unlikely	Less than 1% annual probability	0
		Possible	Between 1 and 10% annual probability	1
		Likely	Between 10 and 100% annual probability	2
		Highly Likely	100% annual probability	3
35%	Life Impact	Minor	Very few injuries, if at all none	0
		Limited	Minor Injuries	1
		Critical	Multiple deaths/injuries	2
		Catastrophic	High number of deaths/injuries	3
25%	Property Impact	Minor	Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	0
		Limited	More than 10% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one day.	1
		Critical	More than 25% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one week.	2
		Catastrophic	More than 50% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for 30 days or more.	3
10%	Spatial Extent	Negligible	Less than 1% of area affected	0
		Small	Between 1 and 10% of area affected	1
		Moderate	Between 10 and 50% of area affected	2
		Large	Between 50 and 100% of area affected	3

Table 3.2 Priority Risk Index for City of Celina

Hazard	Category/Degree of Risk				
	Probability Index Value (0 - 3 30%)	Life Impact Index Value (0 - 3 35%)	Property Impact Index Value (0 - 3 25%)	Spatial Extent Index Value (0 - 3 10%)	PRI Value 2021
Dam Failure	0	2	0	1	0.8
Drought	3	0	0	3	1.2
Earthquake	0	0	0	0	0
Expansive Soils	3	0	0	1	1
Extreme Heat	3	1	0	3	1.55
Flooding	3	2	1	2	2.05
Hail	2	0	0	2	0.8
High Winds	2	0	0	3	0.9
Lightning	3	1	0	2	1.45
Tornado	2	2	3	2	2.25
Wildfire	1	1	1	3	1.2
Winter Storms	1	1	2	3	1.45

The conclusions drawn from the hazard profiling process for the City of Celina resulted in the classification of risk for each identified hazard according to four categories: High Risk, Moderate Risk, Low Risk, and Negligible to No Risk *(Table 3.3).* For purposes of these classifications, risk is expressed in relative terms according to the probability of occurrence and estimated impact that a hazard will have on human life and property in the City of Celina.

Table 3.3 Hazard Rankings for City of Celina

High Risk (PRI 2 - 3)	Tornado Flooding
Moderate Risk (PRI 1.01 -1.9)	Extreme Heat Wildfire Winter Storms Lightning Drought
Low Risk (PRI 0.50 – 1)	Expansive Soils High Winds Dam Failure Hail
Negligible to No Risk (PRI 0 – 0.49)	Earthquake

Changes in Development and Priorities (Requirement §201.6(d) (3))

Our jurisdiction is in one of the fastest growing areas of the nation, hence development has increased and will continue to increase our vulnerability to hazards that may impact us.

Vulnerability Narratives

This annex focuses on specific areas of vulnerability the City of Celina faces with each hazard. The hazards identified in the main plan are all addressed in this annex, therefore the natural hazards rated negligible to no risk are included, described, and considered for mitigation.

Dam and Levee Failure The City of Celina has identified one dam that poses a threat to the northern part of Preston Road. The dam is located and Kirk Ranch and could cause damage to Preston Road if it were to fail. The dam has a less than 1% probability to fail.

Drought The City of Celina is at moderate risk for a drought occurring. The city needs to enforce water conservation laws and continue to conserve and maintain the water supply. Drought has the potential to impact the entire planning area equally; all improved property, emergency facilities, critical facilities, critical infrastructure, and the entire population of Celina are vulnerable to this hazard. Foundations of all buildings are vulnerable; however, older structures, or those built under less stringent foundation code requirements are most vulnerable. The Lake Ray Roberts-Lewisville-Grapevine reservoir system, Trinity Aquifer, and Woodbine Aquifer are water sources for the City of Celina and are vulnerable to drought. In turn, the city's population, wildlife and vegetation are vulnerable. Lower income populations who may not have the resources to buy containerized water in the event of a shortage may be more vulnerable than other populations.

Earthquake This hazard was identified as having negligible to no risk. All property and populations have the potential to be affected by earthquake. Buildings constructed under older building codes, aging underground infrastructure, and roads are most vulnerable to damages from seismic activity.

Expansive Soils Expansive soils are categorized as a high probability occurrence annually, but overall as low risk. However, it is unlikely that this hazard will cause any loss of life or severe property damage.

Extreme Heat Extreme heat generally affects the entire population, but the homeless, very young, elderly, and populations without air conditioning are most vulnerable.

Flooding The City of Celina is surrounded by large agricultural land mass with very few concrete structures. This lack of development keeps water from impacting a large percentage of property within the city. Historically, the City of Celina has responded to streets impacted by floodwater. Overall, the City of Celina has not had to deal with large amounts of property damage or life impacts because of flooding.

Hail All geographic areas and populations in the City of Celina have the potential to be vulnerable to hail. Exposed populations, manufactured homes, and older properties are most vulnerable.

High Winds All geographic areas in the city of Celina have the potential to be vulnerable to high winds. High wind events can cause debris on roadways which can endanger people's lives and property. Manufactured homes and exposed populations are most vulnerable.

Lightning All geographic areas and populations in the City of Celina have the potential to be vulnerable to lightning. Property without lightning protection and exposed populations are most vulnerable.

Tornado All geographic areas and populations in the City of Celina have the potential to be vulnerable to tornados. Exposed populations, manufactured homes, and older properties are most vulnerable.

Wildland Fire The City of Celina is less than 41.77% built-out with the remainder as maintained agricultural land. The projected buildout for the City of Celina is roughly 380,000 people. Due to a high concentration of fuel within the city limits of the City of Celina, wildfires have been considered a possible risk for the city. Wildfire poses a low life impact risk and property impact risk with a high spatial extent impact. In order to mitigate against this wildfire risk, agricultural land needs to remain well maintained in order to prevent the spread of fire. Structures and populations in the WUI are most vulnerable to wildfire. According to the Texas A&M Forest Service, 54%-of the City of Celina lives in the Wildland/Urban Interface.

Winter Storms The City of Celina has identified winter storms as the hazard that could cause the most interruption in daily life and business. A winter storm would have a large property impact as well as a spatial impact. In 2013, response by first responders was an issue because the departments did not have vehicles that could drive on ice safely. Loss of power and heat to critical buildings and infrastructure was also an issue.

Identification of Assets and Vulnerability Assessment

An inventory of Celina geo-referenced assets was created in order to identify and characterize property and population potentially at risk to the identified hazards. By understanding the type and number of assets that exist and where they are located in relation to known hazard areas, the relative risk and vulnerability for such assets can be assessed. For this assessment, five categories of assets were

evaluated using Geographic Information System and statistical analysis. The five categories of vulnerable assets include:

- **Population**: Includes the number of people residing in Collin County jurisdictions as delineated by U.S. Census 2020 block data provided by NCTCOG.
- **Improved property**: Includes all developed properties according to local parcel data from the Collin County Central Appraisal District. The information has been expressed in terms of the total assessed value of improvements that may be exposed to the identified hazards.
- **Emergency facilities**: Includes fire stations, police stations and hospitals, provided by the Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.
- **Critical facilities**: Includes schools and historic places provided by Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions. These are non-emergency facilities, but still provide critical services and functions for vulnerable sectors of the population.
- **Critical infrastructure**: Includes airports, natural gas facilities, wastewater facilities, potable water treatment facilities, wastewater treatment facilities, dams, and bridges. Data for all critical facilities was obtained from Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.

The following tables provide a breakdown by municipal jurisdiction of the geo-referenced assets that were used for the vulnerability assessment.

Population

According to the City of Celina the current in City population is 22,105 people as of December 1st 2020. The Service Area population (Light Farms included) is 27,607 people as of December 1st 2020.

According to the 2020 NCTCOG Population Estimates and the US Census Bureau, the total estimated population of the City of Celina in 2019 is 16,299 people, with 5,253 households. The count breakdown by municipal jurisdiction is provided in *Table 3.4.*

Table 3.4. Population Counts

Jurisdiction	Population			Households		
	Population	% of County Total**	Population Density (Sq. Mile)	Household	% of County Total**	Household Density (Sq. Mile)
City of Celina	27,607	1.31%	514.06	6,101	1.59%	181.00

Source: US Census Bureau &
***Includes totals from incorporated jurisdictions not participating in the plan*

Table 3.5 summarizes population counts and population chance (absolute and percent predications for the City of Celina).

Table 3.5 Population Predictions

Jurisdiction	Population 2010 Census	Population 2018 Estimate	Population 2019 Estimate	Absolute Change 2018-2019	Percent (%) Change 2018-2019
City of Celina	6,028	13,090	17,680	4,590	35.06%

Source: 2020 NCTCOG Population Estimates

Property

There are an estimated 10,132 thousand parcels in the City of Celina, with an estimated $1,588,281,438 in total assessed value of, *Table 3.6* lists the total number and percentage of parcels by jurisdiction.

Table 3.6 Parcel Counts and Improvements Value

Jurisdiction	Number of Parcels	% of County Total	Total Assessed Value of Improvements (Buildings)[1]
City of Celina	10,132	1.19%	$1,588,281,438

Source: County Data and Regional Hazard Assessment Tool
[1] Includes public buildings (residential, commercial, industrial, agricultural, religion, government, education)
This also includes properties from Denton County. The % of County only reflects the Collin County portion of Celina and in relation to only Collin County.

Emergency Facilities

There are three identified emergency facilities in the City of Celina, including two fire stations and one police station. *Table 3.7* presents the distribution of emergency facilities by jurisdiction. Geographic coordinates were used to determine the location of each facility.

Table 3.7 Emergency Facilities

Jurisdiction	Fire Stations	Police Stations	Hospitals
City of Celina	2	1	0

Source: Celina GIS Dept

Critical Facilities

There are 8 critical facilities, which are considered non-emergency in the City of Celina. The critical facilities include 7 schools, and 1 historical properties. (*Table 3.8*). Geographic coordinates (i.e., latitude and longitude) were used to determine the location of each facility.

Table 3.8 Critical Facilities

Jurisdiction	Schools	Historical Property
City of Celina	7	1

Source: Celina GIS Dept
1 High School – Celina ISD
1 Middle School – Celina ISD
3 Elementary Schools – Prosper ISD
2 Elementary Schools – Celina ISD

Critical Infrastructure

There are 6 identified critical infrastructure facilities in City of Celina, including 3 water treatment facilities, 1 wastewater treatment facility, 1 dam, and 1 bridge (*Table 3.9*).

Table 3.9 Critical Infrastructure

Jurisdiction	Airports	Natural Gas Facilities	Wastewater Treatment Facilities	Potable Water Treatment Facilities	Dams	Railway/ Highway Bridges
City of Celina	0	0	1	3	5	1

Source: Celina GIS Dept
4 Low Hazard Dam and 1 Uknown Hazard Dam within the City Limits

Methodology

Based on the type of information available for analysis, the City of Celina vulnerability assessment was conducted using two distinct methodologies, a Geographic Information System-based analysis and a statistical risk assessment methodology. Each approach provides estimates for the potential impact of hazards by using a common, systematic framework for evaluation of historical occurrence information provided by National Centers for Environmental Information, the Texas Forest Service, and the FEMA Resilience and Planning Tool. The results of the vulnerability assessment are provided by jurisdiction for each hazard analyzed.

Of the 12 hazards evaluated for the City of Celina, four were analyzed using a Geographic Information System-based analysis, five using a statistical risk assessment methodology, and the remaining three hazards using a qualitative analysis. Qualitative analysis was used due to lack of information, the inability to define specific areas of risk, and/or inexistence of historical records. Additional information regarding these hazards is unattainable at the present time; studies to address this data deficiency are noted as action items in this update. *Table 3.10* summarizes the methodology used for each hazard.

Table 3.10 Analysis used for Vulnerability Assessment

Hazard	Geographic Information System-based Analysis	Statistical Analysis	Qualitative Analysis
Dam Failure			X
Drought	X		
Earthquake			X
Expansive Soils			X
Extreme Heat		X	

Flooding	X		
Hail	X		
High Winds		X	
Lightning		X	
Tornado		X	
Wildfire	X		
Winter Storms		X	

Summary of Vulnerably Assessment

A summary of the vulnerability assessment for each hazard using geographic and statistical analysis is presented in the following pages. The detailed assessment is presented in the following sections.

Summary Table 3.11

Drought	
Population	According to National Centers for Environmental Information (NCEI) 0 recorded injuries or fatalities have been recorded for drought events. There are no personal losses expected from drought events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Celina are expected but financially unknown due to lack of accurate reporting. Historical data indicates that crop losses in the City of Celina are expected mostly during water shortages, financially unknown due to lack of accurate reporting.
Emergency Facilities	Because of the nature of this hazard, no losses are expected on emergency facilities but foundation issues could occur due to drought events.
Critical Facilities	Because of the nature of this hazard, no losses are expected on critical facilities but foundation issues could occur due to drought events.
Critical Infrastructure	Because of the nature of this hazard, no losses are expected on critical infrastructure but foundation issues and road degradation could occur due to drought events.

Summary Table 3.12

Extreme Heat	
Population	According to National Centers for Environmental Information (NCEI), there were no fatalities recorded due to extreme heat from the City of Celina. The City of Celina and its population are vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to developed areas and the improved property in the City of Celina is not vulnerable to this hazard.
Emergency Facilities	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to buildings and the emergency facilities in the City of Celina are not vulnerable to this hazard.
Critical Facilities	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to buildings, and the critical facilities in the City of Celina are not vulnerable to this hazard.
Critical Infrastructure	According to National Centers for Environmental Information (NCEI) there is no impact of extreme heat to critical infrastructure, and vulnerability to this hazard is considered minimal in the City of Celina

Summary Table 3.13

Flooding	
Population	Flooding produces an expected annualized count of zero fatalities and injuries per year. Approximately 332 residential parcels in the City of Celina are located within the 100-year floodplain.
Improved Property	Though there have been six (6) recorded flood events in the City of Celina, property losses are at $12,666.67 per year however these values are underestimated due to lack of accurate reporting. No crop losses are expected or recorded county-wide. Approximately $27,779,401 of the total assessed value is at risk from the 100-year storm event.
Emergency Facilities	Emergency facilities have the potential to be as risk in the 100-year storm event.
Critical Facilities	Critical facilities have the potential to be as risk in the 100-year storm event.
Critical Infrastructure	Critical Infrastructure have the potential to be as risk in the 100-year storm event.

Summary Table 3.14

Hail	
Population	According to National Centers for Environmental Information (NCEI), no recorded injuries or fatalities have been recorded for hailstorm events. There are no personal losses expected from hailstorm events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Celina are expected at $7,714.29 per year however these values are underestimated due to lack of accurate reporting. All improved property is vulnerable to this hazard. Although some crops are susceptible to hail hazards, available historical data for the City of Celina indicates that there are no expected crop losses from this event.
Emergency Facilities	Because of the unpredictability of the geographical location of hailstorms, all emergency facilities in the City of Celina are vulnerable to this hazard.
Critical Facilities	Because of the unpredictability of the geographical location of hailstorms, all critical facilities in the City of Celina are vulnerable to this hazard.
Critical Infrastructure	Because of the unpredictability of the geographical location of hailstorms, all critical infrastructures in the City of Celina are vulnerable to this hazard.

Summary Table 3.15

High Wind	
Population	According to National Centers for Environmental Information (NCEI), there are no recorded injuries or fatalities from high wind events. All the population of the City of Celina is vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Celina are expected at $1,312.86 per year however these values are underestimated due to lack of accurate reporting. No crop losses resulted from this hazard in the City of Celina.
Emergency Facilities	Because of the expected geographical widespread nature of high winds, all emergency facilities in the City of Celina are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of high winds, all critical facilities in the City of Celina are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of high winds, all critical infrastructures in the City of Celina are vulnerable to this hazard.

Summary Table 3.16

Lightning	
Population	According to National Centers for Environmental Information (NCEI), lightning events can be expected to cause no deaths or injuries in The City of Celina. All the population of the City of Celina is vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Celina are expected at $1,041.67 per year however these values are underestimated due to lack of accurate reporting.
Emergency Facilities	Because of the expected geographical widespread nature of lightning, all emergency facilities in the City of Celina are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of lightning, all critical facilities in the City of Celina are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of lightning, all critical infrastructures in the City of Celina are vulnerable to this hazard.

Summary Table 3.17

Tornado	
Population	According to National Centers for Environmental Information (NCEI), there have been no recorded injuries or fatalities from tornado events in the City of Celina. All the population of the City of Celina is exposed and vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Celina are expected at $428.57 per year however these values are underestimated due to lack of accurate reporting. No crop losses are expected from this hazard in the City of Celina.
Emergency Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all emergency facilities in the City of Celina are exposed and vulnerable to this hazard.
Critical Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all critical facilities in the City of Celina are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the impossibility to predict the geographical area of impact for tornados, all critical infrastructures in the City of Celina are exposed and vulnerable to this hazard.

Summary Table 3.18

Wildfire	
Population	Based on geographical data, approximately 41.77% of the City of Celina is vulnerable to wildfires. There have been no recorded injuries or fatalities due to wildfires.
Improved Property	Based on historical data, annual financial losses expected from property loss due to wildfires are unknown but unknown due to lack of accurate reporting; therefore, 41.77% percentage of the overall property improvement values across the City of Celina are also unknown.
Emergency Facilities	Based on geographic information there are 0 fire stations at risk from wildfire events.
Critical Facilities	Based on geographic information there are no schools at risk from wildfire events.
Critical Infrastructure	Based on geographic information there are 0 bridges, 0 dams, 0 wastewater treatment facility, and 0 water treatment facility at risk from wildfire events.

Summary Table 3.19

Winter Storm	
Population	According to National Centers for Environmental Information (NCEI), there was one (1) county-wide fatality recorded due to winter storms, none from the City of Celina. All the population of City of Celina is exposed and vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Celina are expected but unknown due to lack of reporting however county-wide property loss is estimated at $116,250 per year. No crop losses are expected from this hazard in City of Celina.
Emergency Facilities	Because of the expected geographical widespread nature of winter storms, all emergency facilities in City of Celina are exposed and vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of winter storms, all critical facilities in City of Celina are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of winter storms, all critical infrastructures in City of Celina are exposed and vulnerable to this hazard.

4. Capability Assessment

The risk assessment and capabilities assessment serve as the foundation for the development of a meaningful hazard mitigation strategy. During the process of identifying specific mitigation actions to pursue, the City of Celina considered not only its level of hazard risk but also the existing capabilities to minimize or eliminate that risk.

Table 4.1 Legal and Regulatory Capability Summary

Legal and Regulatory Capabilities															
Jurisdiction	Building Code	Zoning Ordinance	Subdivision Ordinance or regulation	Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances wildfire ordinances, hazard setback requirements)	Growth management ordinances (also called "smart Growth" or anti-sprawl	Site Plan review requirements	General or comprehensive plan	A capital improvements plan	An economic development plan	An emergency response plan	A post-disaster recovery plan	A post-disaster recovery ordinance	Real estate disclosure requirements	Other	% Yes per Jurisdiction
City of Celina	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	N	Y	N	**71%**
Average % Yes Capabilities – 71%															
Y- Yes N- No ?- Don't Know															

Table 4.2 Administrative and Technical Capability Summary

Administrative and Technical Capabilities											
Jurisdiction	Planner(s) or engineer(s) with knowledge of land development and land management	Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Planners or engineer(s) with an understanding of natural and/or human caused hazards	Floodplain manager	Surveyors	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in GIS	Scientists familiar with the hazards of the community	Emergency manager	Grant writers	% Yes per Jurisdiction
City of Celina	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	**90%**
Average % Yes Capabilities – 90%											
Y- Yes N- No ?- Don't Know											

Table 4.3 Fiscal Capability Summary

Fiscal Capabilities											
Jurisdiction	Community Development Block Grants (CDBG)	Capital improvements project funding	Authority to levy taxes for specific purposes	Fees for water, sewer, gas, or electric service	Impact fees for homebuyers or developers for new developments/homes	Incur debt through general obligation bonds	Incur debt through special tax bonds	Incur debt through private activity bonds	Withhold spending in hazard-prone areas	Other	% Yes per Jurisdiction
City of Celina	N	Y	Y	Y	Y	Y	Y	Y	N	N	**70%**
Average % Yes Capabilities – 70%											
Y- Yes N- No ?- Don't Know											

To quantify the city of Celina's legal and regulatory, administrative and technical, and fiscal capabilities, an overall rating system was administered for each category: limited (0-30%), moderate (31-70%), and strong (70-100%). Questionnaire responses indicated that, on average, the city of Celina has 71% of identified legal and regulatory capabilities, 90% of identified and technical capabilities, and 70% of identified fiscal capabilities.

Table 4.4 Administrative Information

Jurisdiction	Chief Administrative Officer	Ability to Implement Capabilities
City of Celina	City Manager	The city council, including the mayor, mayor pro-tem, and council members, along with the city manager, address the budget; pass laws, regulations, and codes; hire staff; approve plans; and determine the direction of the city overall. As the governing body, the ability to implement and approve mitigation actions, expand, and integrate mitigation into existing policies and programs is a function of this group.

Specific actions that can expand and improve existing capabilities, authorities, plans, policies, and resources for mitigation include: budgeting and passing policies and procedures, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates and additions to existing plans as new needs are recognized.

5. Mitigation Strategies

Based on the results of the risk and capability assessments, and reviews of the goals and objectives included in the 2016 HazMAP, the City of Celina Hazard Mitigation Planning Committee developed mitigation strategies for this plan.

Goal 1 **Reduce or eliminate loss of life, injuries and property damage resulting from severe weather events.**

Objective 1-A Provide adequate warning and communication before, during, and after a hazard event.
Objective 1-B Expand and coordinate Early Warning Systems currently in use.
Objective 1-C Reduce or eliminate loss of life and property damage from tornados through the construction and use of safe rooms or shelter areas.

Goal 2 **Protect existing and new properties from the effects of all natural hazards.**

Objective 2-A Conduct studies to determine hazard and vulnerability threat assessment for all natural hazards.
Objective 2-B Rehabilitate or retrofit identified high hazard critical infrastructure.
Objective 2-C Enact and enforce regulatory measures that enforce hazard mitigation measures.
Objective 2-D Construct enhancements or additions to current and new facilities which mitigate the effects of natural hazards.
Objective 2-E Maintain NFIP compliance, storm water management, and implement drainage projects.

Goal 3 **Reduce losses and repetitive damages for chronic hazard events.**

Objective 3-A Conduct a hazard/vulnerability assessment of personal properties and structures located in flood zones within Celina.
Objective 3-B Develop and implement a buyout program for those personal properties and structures located in high hazard flood zones starting with those that are most vulnerable to life and property loss.
Objective 3-C Develop and execute new programs which identify and reduce threats from natural hazards.

Goal 4 **Develop public education campaigns to disseminate information about actions to mitigate potential loss of life, injuries and property damage resulting from natural hazards.**

Objective 4-A Educate the public on risks, threats, and vulnerability from all natural hazards.
Objective 4-B Educate the public on actions they can take to prevent or reduce the loss of life or property from all natural hazards.
Objective 4-C Develop and implement a community education campaign to heighten public awareness about chronic flooding and options for insurance coverage to protect their personal properties as well as long term benefits from a buyout program.

6. Action Items

Below is a list of action items identified for the HazMAP Update. Each of the actions in this section were prioritized based on FEMA's STAPLEE criteria, which includes considering the social, technical, administrative, political, legal, economic and environmental factors necessary for the implementation of each action. As part of the STAPLEE analysis, economic considerations were weighed for each action. The STAPLEE was used for the 2016 Plan along with the 2021 Update. Priority rankings are classified as indicated in the table below.

Priority	Description
High	Benefits of mitigating risk of death or severe bodily injury outweigh costs to implement actions rated as high priorities.
Medium	Reducing vulnerability to threats and the resulting improvement in quality of life and peace of mind are benefits for actions rated as medium priorities.
Low	Awareness of low risk/low impact hazards offer benefits of time to assess, plan and integrate low priority mitigation actions as time, need, and funding permit.

City of Celina Action Items: Deferred from 2016 Plan

City of Celina Action Item	Purchase and utilize mobile back-up generator
Hazard(s) Addressed	Flooding, Tornado, Earthquake, Extreme Heat, Lightning, Wildfire, Winter Storms, Dam Failure, Hail, High Winds
Goal/Objective	2-D
Priority	High
Estimated Cost	$5,000 - $10,000
Potential Funding Sources	Local Funding
Potential Matching Sources	Local Funding
Lead Department	Public Works, OEM
Implementation Schedule	1-2 years
Effect on Old Buildings	Some buildings will need to be retrofit with ability to connect with generator
Effect on New Buildings	Buildings will need to be planned with the ability to connect to generator
Cost Effectiveness	Backup generator will prevent loss of power and data to critical government buildings
Discussion	Introduction of a mobile back-up generator will allow the City of Celina or other critical facilities to function as close to normal as possible in the event of a massive power loss.
Status	Deferred – will be included in 2021 Plan

City of Celina Action Item	Develop and implement a drought contingency plan
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Develop a plan for conserving water based on the stages of drought. Plan would include strategies for soil movement abatement depending on drought stage.
Status	Deferred – will be included in 2021 Plan

City of Celina Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken on structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken on structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as other emergency and hazard information

Status	Deferred – will be included in 2021 Plan

City of Celina Action Item	Implement all-hazards community education program, including information on mitigation activities.
Hazard(s) Addressed	Flooding, Tornado, Extreme Heat, Lightning, Wildfire, Winter Storms, Dam Failure, Hail, High Winds, Earthquake, Expansive Soils, Drought
Goal/Objective	4-A, 4-B, 4-C
Priority	High
Estimated Cost	$1,000 - $5,000
Potential Funding Sources	Local funding
Potential Matching Sources	Local grants, FEMA
Lead Department	OEM
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Educating public on mitigation against loss of life and property will save government resources in the event of a disaster event
Discussion	Community education is important for reducing loss of life and property.
Status	Receive supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021

City of Celina Action Item	Analyze needs, develop and implement water conservation measures for new populations
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	2-C
Priority	High
Estimated Cost	$1,000 - $5,000
Potential Funding Sources	Local funding
Potential Matching Sources	Local grants, citizen match
Lead Department	Public Works, OEM
Implementation Schedule	2-3 years
Effect on Old Buildings	New constraints will be placed on water usage without compromising soil integrity.
Effect on New Buildings	New constraints will be placed on water usage without compromising soil integrity.

Cost Effectiveness	Expanded water and soil consistency standards will help the city of Celina plan for a boost in infrastructure and population and help maintain normal water levels
Discussion	As the City of Celina grows water conservation measures will encompass new infrastructure and residential/commercial areas. This plan implements conservation efforts that also maintain soil consistency, mitigating damage from expansive soils.
Status	Deferred – will be included in 2021 Plan

City of Celina Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	3-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local Sponsors, In-Kind
Lead Department	Planning and Zoning/ NRCS, Emergency Management
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Dam Failure data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	Deferred – will be included in 2021 Plan

City of Celina Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works, Planning Zoning

Implementation Schedule	1-2 years
Effect on Old Buildings	Results would help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results would identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.
Status	Deferred – will be included in 2021 Plan

City of Celina Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	TBD
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works, Planning Zoning
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.
Status	Deferred – will be included in 2021 Plan

City of Celina Action Items: New

City of Celina Action Item	Purchase and utilize mobile back-up generator
Hazard(s) Addressed	Flooding, Tornado, Earthquake, Extreme Heat, Lightning, Wildfire, Winter Storms, Dam Failure, Hail, High Winds
Goal/Objective	2-D
Priority	High
Estimated Cost	$5,000 - $10,000
Potential Funding Sources	Local Funding

Potential Matching Sources	Local Funding
Lead Department	Public Works, OEM
Implementation Schedule	1-2 years
Effect on Old Buildings	Some buildings will need to be retrofit with ability to connect with generator
Effect on New Buildings	Buildings will need to be planned with the ability to connect to generator
Cost Effectiveness	Backup generator will prevent loss of power and data to critical government buildings
Discussion	Introduction of a mobile back-up generator will allow the City of Celina or other critical facilities to function as close to normal as possible in the event of a massive power loss.

City of Celina Action Item	Develop and implement a drought contingency plan
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Develop a plan for conserving water based on the stages of drought. Plan would include strategies for soil movement abatement depending on drought stage. When water is conserved and not used for landscape during droughts, this would provide water for homeowners to use, through drip irrigation, to keep their foundations at a consistent saturation level, mitigating the impacts of drought and lack of water.

City of Celina Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High

Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken on structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken on structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as other emergency and hazard information

City of Celina Action Item	Public education can help educate the public to reduce personal and property damage during disasters. Program will include information about hazard mitigation of each identified hazard.
Hazard(s) Addressed	Tornado, Hail, Winter Storms, High Winds, Dam Failure, Lightning, Expansive Soils, Extreme Heat, Earthquake, Flooding, Wildfire, Drought
Goal/Objective	4-A, 4-B, 4-C
Priority	High
Estimated Cost	$1,000 - $5,000
Potential Funding Sources	Local funding
Potential Matching Sources	Local grants, FEMA
Lead Department	OEM
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Minimal compared to preservation of life safety
Discussion	Public education can help educate the public to reduce personal and property damage during disasters. Program will include information about hazard mitigation.

City of Celina Action Item	Analyze needs, develop and implement water conservation measures for new populations

Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	2-C
Priority	High
Estimated Cost	$1,000 - $5,000
Potential Funding Sources	Local funding
Potential Matching Sources	Local grants, citizen match
Lead Department	Public Works, OEM
Implementation Schedule	2-3 years
Effect on Old Buildings	New constraints will be placed on water usage without compromising soil integrity.
Effect on New Buildings	New constraints will be placed on water usage without compromising soil integrity.
Cost Effectiveness	Expanded water and soil consistency standards will help the city of Celina plan for a boost in infrastructure and population and help maintain normal water levels
Discussion	As the City of Celina grows water conservation measures will encompass new infrastructure and residential/commercial areas. This plan implements conservation efforts that also maintain soil consistency, mitigating damage from expansive soils. When water is conserved and not used for landscape during droughts, this would provide water for homeowners to use, through drip irrigation, to keep their foundations at a consistent saturation level, mitigating the impacts of drought and lack of water.

City of Celina Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	3-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local Sponsors, In-Kind
Lead Department	Planning and Zoning/ NRCS, Emergency Management
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low

Discussion	Dam Failure data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.

City of Celina Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works, Planning Zoning
Implementation Schedule	1-2 years
Effect on Old Buildings	Results would help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results would identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.

City of Celina Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	TBD
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works, Planning Zoning
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.

Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.

City of Celina Action Item	Purchase and implement citywide radio communications system
Hazard(s) Addressed	Dam Failure, Earthquake, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$150,000 -$165,000
Potential Funding Sources	Local funding, Grant funding
Potential Matching Sources	Local grants, citizen match
Lead Department	Public Works, OEM, Police, Fire
Implementation Schedule	2-3 years
Effect on Old Buildings	No effect on old buildings
Effect on New Buildings	No effect on old buildings
Cost Effectiveness	Allow for consistent and reliable communication across all departments in the city. To include Police, Fire, Emergency Management, Public Works, and City officials
Discussion	This project will improve the overall communication in the city by installing repeaters and implementing a clear and reliable city wide radio system.

City of Celina Action Item	Frontier/Parvin Road extension and bridge project
Hazard(s) Addressed	2-A, 2-B, 2-D, 2-E, 4-C
Goal/Objective	Flooding
Priority	High
Estimated Cost	$60,000,000
Potential Funding Sources	Local funds, in-kind, donations, citizen cost-share, Local grants, Federal grants, State grants
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Public Works, Planning Zoning
Implementation Schedule	1-2 years
Effect on Old Buildings	Results would help identify/define retrofits or additions to reduce vulnerability to flooding
Effect on New Buildings	Results would identify/define codes for new construction to reduce vulnerability to flooding by adding bridges over low lying roadway
Cost Effectiveness	Low

Discussion	Project outputs will guide development of future flood mitigation projects.

National Flood Insurance Program (NFIP) Compliance

The City of Celina is participating in the National Flood Insurance Program and has identified their respective areas as vulnerable to flooding. This is incorporated into all current and future planning for dealing with repetitive loss vulnerabilities.

Table 6.1 Celina NFIP Compliance

CID	Community Name	County	Initial FHBM Identified	Initial FIRM Identified	Curr Eff Map Date	Reg-Emer Date	Tribal
480133#	CELINA, CITY OF	DENTON COUNTY/COLLIN COUNTY	4/12/1974	11/1/1979	4/18/2011	11/1/1979	No

Source: http://www.fema.gov/cis/TX.html

Jurisdiction Compliance

Once the community applies for the NFIP, FEMA arranges for a study of the community to determine base flood elevations and flood risk zones. Consultation with the community occurs at the start of and during the study, and those communities with minimal flood risk are converted to the Regular Program without a study.

FEMA provides the studied community with a Flood Insurance Rate Map delineating base flood elevations and flood risk zones. The community is then given 6 months to adopt base flood elevations in its local zoning and building code ordinances. Once the community adopts more stringent ordinances, FEMA converts the community to the NFIP's Regular Program. FEMA then authorizes the sale of additional flood insurance in the community up to the Regular Program limits. The community must implement and enforce the adopted floodplain management measures. FEMA provides periodic community assistance visits with local officials to provide technical assistance regarding complying with NFIP floodplain management requirements.

Jurisdiction Activities

In order to maintain eligibility with NFIP, jurisdictions are required to maintain their list of properties that hold a policy with NFIP, along with up-to-date maps of the floodplains in the jurisdictions. Each jurisdiction participating in the Collin County Hazard Mitigation Action Plan completes this basic requirement and has the information on file with the jurisdiction's designated floodplain manager. Using this plan, participating jurisdictions will be able to continue their compliance with NFIP by implementing damage control measures and take action to minimize the effects of flooding in their respective jurisdictions.

Table 6.2 Celina NIFP Activity

Jurisdiction	Community Floodplain Administrator	NFIP Activity	Activity Description	Enforcement
City of Celina	City Manager	Actions are taken to prevent flood damage to pre-existing structures, reduce loss of life	Regularly hold educational seminars within the community to inform citizens in flood-prone areas	During meetings to create, adopt, update, or otherwise change any documents that have an effect on vulnerability to natural

		in flood prone areas	about the benefits of having flood insurance	hazards, the City of Celina will consult the most recent version of the Hazard Mitigation Action Plan. Provided there is sufficient political, fiscal, and administrative capability, actions detailed in the HazMAP will be integrated into the document wherever applicable.

7. Plan Maintenance

Monitoring, Evaluating and Updating the Plan

In Compliance with requirement § 201.6(c)(4)(i), Collin County has developed a plan maintenance process which is described in the following paragraphs. Collin County, along with participating jurisdictions are responsible for monitoring implementation of the plan, executing a yearly evaluation of its effectiveness, and updating the plan within a 5-year cycle.

Following formal adoption by the City of Celina, the county, and the city/town council of each participating jurisdiction, the actions outlined in the Collin County Hazard Mitigation Action Plan (HazMAP) will be implemented by participating jurisdictions as described throughout this document.

The Collin County Emergency Management Coordinator, working in conjunction with the respective jurisdictions, will be responsible for ensuring the mitigation plan is monitored, evaluated, and reviewed on an annual basis. This will be accomplished by calling an annual meeting of the planning team, whose members will provide assistance and expertise for plan review, evaluating, updating, and monitoring. This meeting will be open to the public and public notices will encourage community participation. During this annual meeting, Celina will provide information on the implementation status of each action included in the plan. As part of the evaluation, the planning committee will assess whether goals and objectives address current and expected conditions, whether the nature and/or magnitude of the risks have changed, if current resources are appropriate for implementing the plan, whether outcomes have occurred as expected, and if agencies and other partners participated as originally proposed. These activities will take place according to the timetable presented below:

Table 7.1 Plan Maintenance Timeline

Personnel	Activity	Schedule
Deputy Fire Chief	Monitoring Plan : Track implementation and action items, changes to risk assessment, changes to planning team members, changes to capabilities, plan integrations	Biannually
	Evaluate Plan: Assess effectiveness by evaluating completed actions, implementation processes, responsible personnel and lessons learned.	Annually
	Update Plan	Once every 5 years

At least once every five (5) years, or more frequently, if such a need is determined by the participating jurisdiction, the multi-jurisdictional plan will undergo a major update. During this process, all sections of the plan will be updated with current information, analyses done and new and/or modified mitigation action plans will be developed. The revised plan will be submitted for state and federal review and approval, and presented for approval to the Collin County Commissioner's Court and the respective councils of incorporated cities/towns included in the Collin County plan. Likewise, each participating jurisdiction will undertake the same process for reviewing, revising and updating their respective plans and submitting same for approval by the state, FEMA and each local jurisdiction's governing body. The plan will be updated every five years in accordance with federal requirements.

Plan Incorporation into Existing Planning Mechanisms *(In compliance with 201.6(c)(4)(ii))*

Based on the requirements set forth in § *201.6(c)(4(ii)*, the State of Texas Mitigation Plan, the vulnerability and capabilities assessment for each jurisdiction was carefully reviewed and considered when developing the mitigation actions for this plan. The HMPT and committees will establish a process in which the mitigation strategy, goals, objectives and actions outlined in this plan will be incorporated into the existing regional and local planning strategies.

Local and regional planning committees currently use comprehensive land use planning, capital improvements planning, and building code ordinances to guide development. The mitigation strategy, goals, objectives and actions outlined in this plan will be integrated into these existing mechanisms as applicable. Those mechanisms include the following:

Table 7.2 Plan Incorporation Mechanisms

Jurisdiction	Responsible Personnel	Jurisdictional Plans	Integration Schedule	Integration Plan
City of Celina	City Council, City Manager	Budget Meetings	Annually	Integration of mitigation projects identified in HazMAP, grants, and other fiscal allowances for mitigation actions and related costs
	Fire Chief, Deputy Fire Chief	Emergency Action Plan updates	Every five years	EAP Mitigation annex updates based on HazMAP HIRA; update preparedness, response and recovery actions related to identified hazards
	Designated Floodplain Manager	Floodplain ordinances	As needed	Enhance mitigation of flood hazards using HazMAP flood data for floodplain management and community development.
	County Commissioners	Capital improvement plans	Annually	Strengthen critical infrastructure and key resources based on HazMAP hazard analysis, incorporate vulnerability data and action items.
	Public Works Director, County Commissioners	Drought Contingency plans	As needed	Integrate drought actions such as xeriscaping, water restrictions, and public education
	Public Works Director, County Commissioners	Natural Resource Conservation Plan	Annually	Integrate conservation measures by directing development away from hazard-prone areas identified in HazMAP.

Once the plan is adopted, the HMPT will coordinate implementation with the engineering, planning, and emergency management departments for the county, participating jurisdictions, river authorities, and drainage districts.

The process described here is the same as was used since the last planning update.

Continued Public Involvement (In compliance with 201.6(c)(4)(iii))

As stated in requirement § *201.6(c)(4)(iii)* The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.

To address this requirement, ongoing public participation will be encouraged throughout the entire planning and implementation process. A copy of the plan will be provided on the Collin County website. The HMPT and committees will continue meeting on a regular basis to ensure the successful implementation of the plan and to discuss any additional issues regarding the emergency management of Collin County. The annual meetings for monitoring, evaluating, and updating the plan will be open to the public and public notices will encourage community participation.

Annex F: Town of Fairview

1. Introduction

This annex was prepared in 2021 as part of an update to the Town of Fairview Multi-Jurisdictional Hazard Mitigation Action Plan. Following the review and approval of the Texas Division of Emergency Management (TDEM) and the Federal Emergency Management Agency (FEMA), This annex shall be updated every five (5) years or as necessary to ensure its continued accuracy and effectiveness. The Town of Fairview participates on the Collin County HazMAP Hazard Mitigation Planning Team (HMPT). In addition to the countywide hazards and strategies discussed in the main plan, this annex serves as a complete hazard mitigation planning tool for the Town of Fairview. It contains capability assessment information, a specific vulnerability assessment, and a complete mitigation strategy. The methodology and process for developing this annex are explained throughout the following sections.

2. Plan Development and Adoption Process

In order to apply for federal aid for technical assistance and post-disaster funding, local jurisdictions must comply with Part 201.3 of the Disaster Mitigation Act of 2000 implemented in the Federal Code of Regulations 44 CRF Part 201.6. While Fairview has historically implemented measures to reduce their vulnerability to hazards, passage of DMA 2000 helped Fairview officials to recognize the benefits of a long-term approach to hazard mitigation, which achieves a gradual decrease of impacts associated through the implementation of a Hazard Mitigation Plan. Fairview's Hazard Mitigation Action Plan represents the collective efforts of all participating jurisdictions, the general public, and stakeholders.

Organizing the Planning Effort

A comprehensive county approach was taken in developing the plan. An open public involvement process was established for the public, neighboring communities, regional agencies, businesses, academia, etc. to provide opportunities for everyone to become involved in the planning process and to make their views known. The meetings were advertised with notices in public places and online.

In accordance with Part 201.6(c)(5) of the Disaster Mitigation Act of 2000 (DMA 2000), The Town of Fairview developed this Hazard Mitigation Action Plan. This plan identifies hazards and mechanisms to minimize future damages associated with these hazards, which threaten The Town of Fairview and its jurisdictions.

Existing Data and Plans

Existing hazard mitigation information and other plans were reviewed during the development of the Hazard Mitigation Action Plan. GIS, statistical and qualitative data was gathered through numerous sources. Table 2.1 outlines the sources of data for the plan:

Table 2.1 Plan Source Data

Source	Data
City and County Appraisal Data 2021	Population and demographics
Regional Hazard Assessment Tool	Hazard occurrences
National Centers for Environmental Information (NCEI)	Hazard occurrences
Texas Forest Service/Texas Wildfire Risk Assessment Summary Report	Wildfire Threat and Wildland/Urban Interface

Source	Data
National Inventory of Dams	Dam Information
Texas Commission on Environmental Quality	Dam Information

Planning Committee

This Hazard Mitigation Action Plan was developed by The Town of Fairview Hazard Mitigation Planning Committee, with support of the North Central Texas Council of Governments and in conjunction with the Collin County.

The Collin County HMPT was assembled with representatives from participating planning committees, including mayors, police chiefs, fire chiefs, and the general public. Collin County acted as the plan development consultant providing hazard mitigation planning services. Table 2.2 provides a list of the primary representatives on the Fairview planning committee and the departments they represent.

Table 2.2 Hazard Mitigation Committee – Primary Representatives

Representing	Position	Role
The Town of Fairview Town Council	Mayor	Input and Review
The Town of Fairview Town Administration	Town Manager	Input and Review
The Town of Fairview Emergency Management	Emergency Management Coordinator	Plan Leader
The Town of Fairview Fire Department	Fire Chief	Input and Review
The Town of Fairview Public Works	Town Engineer	Input and Review
The Town of Fairview Police Department	Police Chief	Input and Review

Collin County served as the coordinator and lead agency for all jurisdictions by accomplishing the following activities through the planning process:

- Assigned the County's Assistant Emergency Management Office to provide technical assistance and necessary data to the HMPT and planning committees.
- Scheduled, coordinated, and facilitated community meetings with the assistance of the HMPT and the planning committees.
- Provided any necessary materials, handouts, etc. for public planning meetings.
- Worked with the HMPT and planning committees to collect and analyze data and develop goals and implementation strategies.
- Prepared, based on community input and planning team/committee direction, the first draft of the plan and provided technical writing assistance for review, editing and formatting.
- Coordinated with the stakeholders within the jurisdictions during plan development.

Each of the individual jurisdictions participated in accomplishing similar activities associated with development of the plan as follows:

- Coordinated input from representatives of stakeholder groups and provided a representative to the County HMPT.
- Attended regular meetings of the planning committee as coordinated by the Town of Fairview or

Collin County.

- Assisted the Town of Fairview and Collin County staff with identifying hazards and estimating potential losses from future hazard events.
- Assisted the Town of Fairview and Collin County in developing and prioritizing mitigation actions to address the identified risks.
- Assisted in coordinating public meetings to develop the plan.
- Identified the community resources available to support the planning effort.
- Worked for the support of stakeholders for the recommendations resulting from the planning process.
- Submitted the proposed plan to all appropriate departments for review and comment and worked with the Town of Fairview and Collin County to incorporate the resulting comments into the proposed plan.

External stakeholders emailed and involved in reviewing the Collin County Hazard Mitigation Action Plan:

Table 2.3 External Stakeholders

Representing	Position	Role
Baxter I.T. Consulting Services	Owner/Operator	Review of plan
Lincoln Property Company	COO/Senior Vice President	Review of plan

Subsequent to the State of Texas and FEMA approval of the plan, each organization above is committed to accomplishing the following activities:

- Appoint members to a coordinating committee to monitor and work toward plan implementation.
- Publicize the plan to neighborhood interests and ensure that new community members are aware of the plan and its contents.
- Monitor progress in achieving the plan's goals through regular maintenance and implementation projects.

Planning Meetings

During the planning process, the HMPT met to obtain relevant information from the participating jurisdictions and to discuss the objectives and progress of the plan. The objectives of these meetings were to gather information and to provide guidance for each jurisdiction throughout the planning stages.

The following meetings were hosted by Collin County and included all participating jurisdictions:

- HazMAP Kickoff Meeting – August 12, 2020
- Collin County Planning Meeting – November 11, 2020
- Collin County HazMAP Public Meeting – 11/2/2021 at 2PM
- Collin County HazMAP Public Meeting – 01/12/2022

Public Involvement

Support from the community is vital for any successful hazard mitigation plan. The HMPT and planning committee provided opportunities, announced through public communication means, for public

participation and input throughout the planning process prior to this draft and before approval of the finalized plan. Advertisement and sign in sheets for these meetings are located in Appendix A.

- The first public meeting was held on November 2, 2021 at 2PM, and advertised on the Collin County website along with other jurisdictional websites inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to comment. The meeting was held virtually via WebEX.
- A second public meeting was held on January 12, 2022 at 9AM. Announcements were placed on jurisdictions websites, including Collin County inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to view and comment on the HazMAP prior to plan submission.

There were no comments directly related to the mitigation plan received from citizens, non-profits, businesses, academia, or interested parties; therefore, no feedback was incorporated. An additional opportunity for the public to comment on the plan will be held prior to formal plan adoption.

This provided all citizens, stakeholders, neighboring communities, agencies, businesses, academia, non-profit organizations, and all interested parties an opportunity to be involved in the planning process and to take part in the decisions making process that affect the future of the communities that they live in.

3. Jurisdictional Hazard Identification and Risk Assessment

The Hazard Mitigation Planning Committee for the Town of Fairview identified several natural hazards and man-made hazards that could affect the town. The committee decided to focus on the natural hazards identified in Section 5 of this update. This was done after reviewing the 2016-2021 HazMAP, the State of Texas Hazard Mitigation Plan, as well as other sources such as federal and state agencies. The hazards were ranked using the Priority Risk Index.

Priority Risk Index

A Priority Risk Index (PRI) was developed with the purpose of categorizing potential hazards for the Town of Fairview and ranks each hazard as high, moderate, low, or negligible to no risk. The hazard classification generated through the use of the PRI allows for the prioritization of those high hazard risks for mitigation planning purposes, and more specifically, the identification of hazard mitigation opportunities for the Town of Fairview jurisdictions to consider as part of their proposed mitigation strategy.

The PRI is used to assist all jurisdictions participating in the Town of Fairview HazMAP in determining which hazards pose the most significant threat based on a variety of factors. The PRI is not scientifically based, but is rather meant to be utilized as an objective and systematic planning tool for classifying and prioritizing hazard risks in the Town of Fairview based on standardized criteria. The PRI results in numerical values that allow identified hazards to be ranked against one another. The sum of all four categories equals the final PRI value, as shown below:

PRI Value = (Probability x .30) + (Life Impact x .35) + (Property Impact x .25) + (Spatial Extent x .10)

The higher the PRI value, the greater the hazards risk. These values were obtained by assigning varying degrees of risk to four categories for each hazard: Probability, Life Impact, Property Impact, and Spatial Extent *(Table 3.1).* Each category has been assigned an Index Value (0 to 3) and a Weighing Factor (0 – 100%). These values may be adjusted during future plan updates. In order to evaluate the risk of each hazard, the assigned PRI Value for each category is multiplied by the weighing factor. Then, the PRI for each hazard is calculated by adding the product obtained in each category. According to the weighing scheme applied for the Town of Fairview, the highest possible PRI value is 3.0. The PRI calculations are presented in *Table 3.2*. Table 3.1 breaking down the value of each category is below.

Table 3.1 Priority Risk Index Value

Assigned Weighing Factor	PRI Category	Degree of Risk		
		Level	Criteria	Index Value
30%	Probability	Unlikely	Less than 1% annual probability	0
		Possible	Between 1 and 10% annual probability	1
		Likely	Between 10 and 100% annual probability	2
		Highly Likely	100% annual probability	3

35%	Life Impact	Minor	Very few injuries, if at all none	0
		Limited	Minor Injuries	1
		Critical	Multiple deaths/injuries	2
		Catastrophic	High number of deaths/injuries	3
25%	Property Impact	Minor	Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	0
		Limited	More than 10% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one day.	1
		Critical	More than 25% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one week.	2
		Catastrophic	More than 50% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for 30 days or more.	3
10%	Spatial Extent	Negligible	Less than 1% of area affected	0
		Small	Between 1 and 10% of area affected	1
		Moderate	Between 10 and 50% of area affected	2
		Large	Between 50 and 100% of area affected	3

Table 3.2 Priority Risk Index for the Town of Fairview

Hazard	Category/Degree of Risk				
	Probability Index Value (0 - 3 30%)	Life Impact Index Value (0 - 3 35%)	Property Impact Index Value (0 - 3 25%)	Spatial Extent Index Value (0 - 3 10%)	PRI Value 2021
Dam Failure	0	0	0	0	0
Drought	2	0	1	3	1.15
Earthquake	0	1	0	0	0.35
Expansive Soils	2	0	0	1	0.7
Extreme Heat	1	1	0	2	0.85
Flooding	1	1	0	1	0.75
Hail	2	0	0	1	0.7
High Winds	1	0	0	1	0.4
Lightning	1	0	0	0	0.3
Tornado	2	1	1	1	1.3
Wildfire	1	0	0	1	0.4
Winter Storms	2	0	0	2	0.8

The conclusions drawn from the hazard profiling process for the Town of Fairview resulted in the classification of risk for each identified hazard according to four categories: High Risk, Moderate Risk, Low Risk, and Negligible to No Risk *(Table 3.3).* For purposes of these classifications, risk is expressed in relative terms according to the probability of occurrence and estimated impact that a hazard will have on human life and property in the Town of Fairview.

Table 3.3 Hazard Rankings for the Town of Fairview

High Risk (PRI 2.00-3.00)	
Moderate Risk (PRI 1.01 -1.9)	Tornado Drought
Low Risk (PRI 0.50 – 1)	Extreme Heat Winter Storms Flooding Expansive Soils Hail
Negligible to No Risk (PRI 0-0.49)	Wildfire Earthquake High Winds Lightning Dam Failure

Changes in Development and Priorities (Requirement §201.6(d) (3))

Our jurisdiction is in one of the fastest growing areas of the nation, hence development has increased and will continue to increase our vulnerability to hazards that may impact us.

Vulnerability Narratives

This annex focuses on specific areas of vulnerability the Town of Fairview faces with each hazard. The hazards identified in the main plan are all addressed in this annex, therefore the natural hazards rated negligible to no risk are included, described, and considered for mitigation.

Dam and Levee Failure The Town of Fairview has three (3) dams or levees in its jurisdiction and we are unaware of any significant structures upstream from our jurisdiction which could potentially cause harm within our jurisdiction. This hazard was identified as having negligible to no risk to the jurisdiction, but as a participant in the county plan inundation studies will be considered.

Drought This hazard was identified as having moderate risk similar to the rest of the county and surrounding jurisdictions. Drought has the potential to impact the entire planning area equally; all improved property, emergency facilities, critical facilities, critical infrastructure, and the entire population of the Town of Fairview are vulnerable to this hazard. The agriculture industry is typically affected the hardest due to a lack of crops, water for livestock, and feed. The Town of Fairview has minimal agricultural crops and livestock in its jurisdiction. Foundations of all buildings are vulnerable; however, older structures, or those built under less stringent foundation code requirements are most vulnerable. Lake Lavon, Lake Texoma, Lake Tawakoni, Lake Fork and the Lake Chapman-Cooper reservoir system are water sources for the town and are vulnerable to drought. As a drought continues, many residents

who are on private wells as well as those served by the over taxed North Texas Municipal Water District begin to experience water shortages. The lack of water can also impact emergency responder capabilities in the form of firefighting efforts.

Earthquake Due to the risk being associated to a distant quake, earthquakes have the potential to affect the entire planning area. This hazard was identified as having negligible to no risk to the jurisdiction. Buildings constructed under older building codes, aging underground infrastructure, and roads are most vulnerable to damages from seismic activity.

Expansive Soils While there are no documented significant occurrences of damage to structures in its jurisdiction, the Town of Fairview residents do from time-to-time experience foundation issues due to shifting soils. This hazard was identified as having low risk similar to the rest of the county and surrounding jurisdictions.

Extreme Heat This hazard was identified as having low risk similar to the rest of the county and surrounding jurisdictions. Extended extreme heat can cause a rapid and continual loss of moisture in vegetation leading to an escalation of wildfires. Most of the Town of Fairview jurisdiction is developed residential property with some areas of wild land interface in our ETJ. Extreme heat generally affects the entire population, but the homeless, very young, elderly, and populations without air conditioning are most vulnerable. The potential exists for extended heat emergencies to exceed capabilities of our local hospital and Emergency Medical System (in surrounding jurisdictions) due to a large elderly population (1144 units) in Heritage Ranch, an active adult community within the Town of Fairview.

Flooding Common flooding hazards within the planning area include flood hazards from flash flooding and from new development. Flash floods are a high risk hazard since they can roll boulders, tear out trees, and destroy buildings and bridges. This hazard was identified as having low risk in the Town of Fairview's jurisdiction mainly due to limited areas in a flood plain and the potential for flash flooding in the extreme eastern portion of the Town of Fairview's and the ETJ.

Hail occurs when, at the outgrowth of a severe thunderstorm, balls or irregularly shaped lumps of ice greater than 0.75 inches in diameter fall with rain. Early in the developmental stages of a hailstorm, ice crystals form within a low-pressure front due to warm air rising rapidly into the upper atmosphere and the subsequent cooling of the air mass. Frozen droplets gradually accumulate on the ice crystals until, having developed sufficient weight, they fall as precipitation. Hail has the potential to affect the entire planning area. This hazard was identified as having low risk similar to the rest of the county and surrounding jurisdictions. Exposed populations, manufactured homes, and older properties are most vulnerable.

High Winds Wind is defined as the motion of air relative to the earth's surface. The horizontal component of the three-dimensional flow and the near-surface wind phenomenon are the most significant aspects of the hazard. Straight-line winds are often responsible for the wind damage associated with a thunderstorm. These winds are often confused with tornadoes because of similar damage and wind speeds. However, the strong and gusty winds associated with straight-line winds blow roughly in a straight line unlike the rotating winds of a tornado. Downbursts or micro-bursts are examples of damaging straight-line winds. A downburst is a small area of rapidly descending rain and rain-cooled air beneath a thunderstorm that produces a violent, localized downdraft covering 2.5 miles or less. Wind speeds in some of the stronger downbursts can reach 100 to 150 miles per hour, which is similar to that of a strong

tornado. The winds produced from a downburst often occur in one direction, and the worst damage is usually on the forward side of the downburst. High winds may affect the entire planning area.

The Town of Fairview has the potential for power outages, fires, damage to roofs, cars, out buildings, and electrical utilities due to high winds. Areas affected may pose access challenges due to fallen trees on roadways. High winds can occur suddenly and without warning during severe weather. Outside of primary residential structures, there are few locations for the public to seek shelter during high winds. This hazard was identified as having negligible risk to the jurisdiction.

Lightning results from the buildup and discharge of electrical energy between positively and negatively charged areas within thunderstorms. A “bolt” or brilliant flash of light is created when the buildup becomes strong enough. These bolts of lightning can be seen in cloud-to-cloud or cloud-to-ground strikes.

Bolts of lightning can reach temperatures approaching 50,000° Fahrenheit. While lightning is mostly affiliated with thunderstorms, lightning often strikes outside of these storms, as far as 10 miles away from any rainfall. The Federal Emergency Management Agency states that an average of 300 people are injured and 80 people are killed in the United States each year by lightning. Direct strikes have the power to cause significant damage to buildings, critical facilities, infrastructure, and ignition of wildfires which can result in widespread damages to property. All geographic areas, property, and populations in the Town of Fairview have the potential to be vulnerable to lightning. This hazard was identified as having negligible to no risk to the jurisdiction. Property without lightning protection and exposed populations are most vulnerable.

Tornado A tornado is a violently rotating column of air, in contact with the ground, both pendant from a cumuliform cloud or underneath a cumuliform cloud, and often (but not always) visible as a condensation funnel. Tornadoes have the potential affect the entire planning area. This hazard was identified as having moderate risk similar to the rest of the county and surrounding jurisdictions. Exposed populations, manufactured homes, and older properties are most vulnerable.

Wildland Fire A wildland fire is any fire occurring on grassland, forest, or prairie, regardless of ignition source, damages or benefits. Wildland fires are fueled almost exclusively by natural vegetation. They typically occur in national forests and parks, where federal agencies are responsible for fire management and suppression. Interface or intermix fires are urban/wildland fires in which vegetation and the built-environment provide fuel. Firestorms are events of such extreme intensity that effective suppression is virtually impossible. Firestorms occur during extreme weather and generally burn until conditions change or the available fuel is exhausted. Wildland fires affect the entire planning area. For the purposes of this hazard analysis, wildland fires are assessed under what is known as the Wildland Urban Interface (WUI). The WUI is an area of development that is susceptible to wildland fires due to the number of structures located in an area with vegetation that can act a fuel for a wildland fire. 91% of the Town of Fairview is located in the WUI. The Texas A&M Forest Services’ wildfire risk assessment report ranks the wildfire threat from low to moderate with the west side of the town located in the low threat area and the east side of town in the moderate threat area.

Winter Storms Winter storms originate as mid-latitude depressions or cyclonic weather systems, sometimes following the path of the jet stream. A winter storm or blizzard combines heavy snowfall, high winds, extreme cold and ice storms. Many winter depressions give rise to exceptionally heavy rain and widespread flooding and conditions worsen if the precipitation falls in the form of snow. The winter storm season varies widely, depending on latitude, altitude and proximity to moderating influences. Winter

storms affect the entire planning area. Cold snaps in which temperatures fall below the freezing point of 32° Fahrenheit do happen on an annual basis in the planning area and can lead to issues with infrastructure, especially frozen roads and bridges. For the Town of Fairview, this hazard was identified as having low risk similar to the rest of the county and surrounding jurisdictions. These winter storms have the potential to make roads impassable for days. Residents may be confined to their homes due to the storm and may be without basic services, such as water and electricity, for an extended period of time.

Identification of Assets and Vulnerability Assessment

An inventory of the Town of Fairview geo-referenced assets was created in order to identify and characterize property and population potentially at risk to the identified hazards. By understanding the type and number of assets that exist and where they are located in relation to known hazard areas, the relative risk and vulnerability for such assets can be assessed. For this assessment, five categories of assets were evaluated using Geographic Information System and statistical analysis. The five categories of vulnerable assets include:

- **Population**: Includes the number of people residing in Collin County as delineated by U.S. Census 2020 block data provided by NCTCOG.
- **Improved property**: Includes all developed properties according to local parcel data from the Collin County Central Appraisal District. The information has been expressed in terms of the total assessed value of improvements that may be exposed to the identified hazards.
- **Emergency facilities**: Includes fire stations, police stations and hospitals, provided by the Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.
- **Critical facilities**: Includes schools and historic places provided by Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions. These are non-emergency facilities, but still provide critical services and functions for vulnerable sectors of the population.
- **Critical infrastructure**: Includes airports, natural gas facilities, wastewater facilities, potable water treatment facilities, wastewater treatment facilities, dams, and bridges. Data for all critical facilities was obtained from Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.

The following tables provide a breakdown by municipal jurisdiction of the geo-referenced assets that were used for the vulnerability assessment.

Population

According to the 2020 NCTCOG Population Estimates and the Collin County Appraisal District, the total population of the Town of Fairview in 2020 was 9,770 people, with 3,601 households. The count breakdown by municipal jurisdiction is provided in *Table 3.4.*

Table 3.4. Population Counts

Jurisdiction	Population			Households		
	Population	% of County Total**	Population Density (Sq. Mile)	Household	% of County Total**	Household Density (Sq. Mile)
Town of Fairview	9,770	.90%	1,045.35	4,582	1.20%	490.25

Source: 2020 NCTCOG Population Estimates Publication, US Census Bureau & Collin County Appraisal District
***Includes totals from incorporated jurisdictions not participating in the plan*

Table 3.5 summarizes population counts and population chance (absolute and percent predications for Town of Fairview).

Table 3.5 Population Predictions

Jurisdiction	Population 2010 Census	Population 2018 Estimate	Population 2019 Estimate	Absolute Change 2018-2019	Percent (%) Change 2018-2019
Town of Fairview	7,248	9,520	9,610	90	.95%

Source: 2020 Census Data & 2020 NCTCOG Population Estimates Publication

Property

There are an estimated 4,547 parcels in the Town of Fairview, with an estimated $1,596,754,123 in total assessed value of, *Table 3.6* lists the total number and percentage of parcels by jurisdiction.

Table 3.6 Parcel Counts and Improvements Value

Jurisdiction	Number of Parcels	% of County Total	Total Assessed Value of Improvements (Buildings)[1]
Town of Fairview	4,547	1.30%	$1,596,754,123

Source: Collin County Appraisal District
[1] *Includes public buildings (residential, commercial, industrial, agricultural, religion, government, education)*

Emergency Facilities

There are three (3) identified emergency facilities in the Town of Fairview, including two (2) fire stations, one (1) police station and zero (0) hospitals. *Table 3.7* presents the distribution of emergency facilities by jurisdiction. Geographic coordinates were used to determine the location of each facility.

Table 3.7 Emergency Facilities

Jurisdiction	Fire Stations	Police Stations	Hospitals
Town of Fairview	2	1	0

Source: County Data and Regional Hazard Assessment Tool

Critical Facilities

There are three (3) critical facilities, which are considered non-emergency in the Town of Fairview. The critical facilities include three (3) schools and zero (0) historical property sites (*Table 3.8*). Geographic coordinates (i.e., latitude and longitude) were used to determine the location of each facility.

Table 3.8 Critical Facilities

Jurisdiction	Schools	Historical Property
Town of Fairview	3	0

Source: Local jurisdictions

Critical Infrastructure

There are eight (8) identified critical infrastructure facilities in the Town of Fairview, including zero (0) airports, zero (0) natural gas facilities, zero (0) water treatment facilities, zero (0) wastewater treatment facility, zero (0) dams, and eight (8) railway/highway bridges (*Table 3.9*).

Table 3.9 Critical Infrastructure

Jurisdiction	Airports	Natural Gas Facilities	Wastewater Treatment Facilities	Potable Water Treatment Facilities	Dams	Railway/ Highway Bridges
Town of Fairview	0	0	0	0	3	7

Source: Local jurisdictions

Methodology

Based on the type of information available for analysis, the Town of Fairview's vulnerability assessment was conducted using two distinct methodologies, a Geographic Information System-based analysis and a statistical risk assessment methodology. Each approach provides estimates for the potential impact of hazards by using a common, systematic framework for evaluation of historical occurrence information provided by National Centers for Environmental Information, the Texas Forest Service, and the FEMA Resilience and Planning Tool. The results of the vulnerability assessment are provided by jurisdiction for each hazard analyzed.

Of the 12 hazards evaluated for the Town of Fairview, four were analyzed using a Geographic Information System-based analysis, five using a statistical risk assessment methodology, and the remaining three hazards using a qualitative analysis. Qualitative analysis was used due to lack of information, the inability to define specific areas of risk, and/or inexistence of historical records. Additional information regarding these hazards is unattainable at the present time; studies to address this data deficiency are noted as action items in this update. *Table 3.10* summarizes the methodology used for each hazard.

Table 3.10 Analysis used for Vulnerability Assessment

Hazard	Geographic Information System-based Analysis	Statistical Analysis	Qualitative Analysis
Dam Failure			X
Drought	X		
Earthquake			X
Expansive Soils			X
Extreme Heat		X	
Flooding	X		
Hail	X		
High Winds		X	
Lightning		X	
Tornado		X	
Wildfire	X		
Winter Storms		X	

Summary of Vulnerably Assessment

A summary of the vulnerability assessment for each hazard using geographic and statistical analysis is presented in the following pages. The detailed assessment is presented in the following sections.

Summary Table 3.11

Drought	
Population	According to National Centers for Environmental Information (NCEI) zero (0) recorded injuries or fatalities have been recorded for drought events. There are no personal losses expected from drought events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the Town of Fairview are expected but financially unknown due to lack of accurate reporting. Historical data indicates that crop losses in the Town of Fairview are expected mostly during water shortages, financially unknown due to lack of accurate reporting.
Emergency Facilities	Because of the nature of this hazard, no losses are expected on emergency facilities but foundation issues could occur due to drought events.

Critical Facilities	Because of the nature of this hazard, no losses are expected on critical facilities but foundation issues could occur due to drought events.
Critical Infrastructure	Because of the nature of this hazard, no losses are expected on critical infrastructure but foundation issues and road degradation could occur due to drought events.

Summary Table 3.12

Extreme Heat	
Population	According to National Centers for Environmental Information (NCEI), there were no fatalities recorded due to extreme heat from the Town of Fairview. The Town of Fairview and its population are vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), there is minor impact of extreme heat to developed areas and the improved property in the Town of Fairview is not vulnerable to this hazard.
Emergency Facilities	According to National Centers for Environmental Information (NCEI), there is minor impact of extreme heat to buildings and the emergency facilities in the Town of Fairview are not vulnerable to this hazard.
Critical Facilities	According to National Centers for Environmental Information (NCEI), there is minor impact of extreme heat to buildings, and the critical facilities in the Town of Fairview are not vulnerable to this hazard.
Critical Infrastructure	According to National Centers for Environmental Information (NCEI) there is minor impact of extreme heat to critical infrastructure, and vulnerability to this hazard is considered minimal in the Town of Fairview.

Summary Table 3.13

Flooding	
Population	Flooding produces an expected annualized count of zero fatalities and injuries per year. Approximately 7.38% of the population of the Town of Fairview is located within the 100-year floodplain.
Improved Property	Property losses in the Town of Fairview are expected to be $8,734.83 per year. No crop losses are expected or recorded county-wide. Approximately $7,594,973 of the total assessed value of improvements in the Town of Fairview is at risk from the 100-year storm event.
Emergency Facilities	There are zero (0) emergency facilities at imminent risk from the 100-year storm event.
Critical Facilities	There are zero (0) critical facilities located within the 100-year storm event.

Critical Infrastructure	0% of railways/highways and bridges, 0% of dams, 0% of water treatment works, and 0% waste water treatment facilities are at risk from the 100-year storm event. Many of these structures are designed to traverse or be located within the floodplain due to unavoidable circumstances. Additionally, treated wastewater is typically discharged towards streams, which makes portions of wastewater treatment facilities likely to be located within the floodplain.

Summary Table 3.14

Hail	
Population	According to National Centers for Environmental Information (NCEI), no recorded injuries or fatalities have been recorded for hailstorm events. There are no personal losses expected from hailstorm events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the Town of Fairview are expected at $6,426.57 per year however these values are underestimated due to lack of accurate reporting. All improved property is vulnerable to this hazard. Although some crops are susceptible to hail hazards, available historical data for the Town of Fairview indicates that there are no expected crop losses from this event.
Emergency Facilities	Because of the unpredictability of the geographical location of hailstorms, all emergency facilities in the Town of Fairview are vulnerable to this hazard.
Critical Facilities	Because of the unpredictability of the geographical location of hailstorms, all critical facilities in the Town of Fairview are vulnerable to this hazard.
Critical Infrastructure	Because of the unpredictability of the geographical location of hailstorms, all critical infrastructures in the Town of Fairview are vulnerable to this hazard.

Summary Table 3.15

High Wind	
Population	According to National Centers for Environmental Information (NCEI), there are no recorded injuries or fatalities from high wind events. All the population of the Town of Fairview is vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the Town of Fairview are expected at $814.29 per year however these values are underestimated due to lack of accurate reporting. No crop losses resulted from this hazard in the Town of Fairview.
Emergency Facilities	Because of the expected geographical widespread nature of high winds, all emergency facilities in the Town of Fairview are vulnerable to this hazard.

Critical Facilities	Because of the expected geographical widespread nature of high winds, all critical facilities in the Town of Fairview are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of high winds, all critical infrastructures in the Town of Fairview are vulnerable to this hazard.

Summary Table 3.16

Lightning	
Population	According to National Centers for Environmental Information (NCEI), there are no recorded injuries or fatalities from lightning events in the Town of Fairview. All the population of the Town of Fairview is vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the Town of Fairview are expected but unknown due to lack of accurate reporting.
Emergency Facilities	Because of the expected geographical widespread nature of lightning, all emergency facilities in the Town of Fairview are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of lightning, all critical facilities in the Town of Fairview are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of lightning, all critical infrastructures in the Town of Fairview are vulnerable to this hazard.

Summary Table 3.17

Tornado	
Population	According to National Centers for Environmental Information (NCEI), there have been no recorded injuries or fatalities from tornado events in the Town of Fairview. All the population of the Town of Fairview is exposed and vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI) property losses in the Town of Fairview are expected but unknown due to lack of accurate reporting. No crop losses are expected from this hazard in the Town of Fairview.
Emergency Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all emergency facilities in the Town of Fairview are exposed and vulnerable to this hazard.
Critical Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all critical facilities in the Town of Fairview are exposed and vulnerable to this hazard.

Critical Infrastructure	Because of the impossibility to predict the geographical area of impact for tornados, all critical infrastructures in the Town of Fairview are exposed and vulnerable to this hazard.

Summary Table 3.18

Wildfire	
Population	Based on geographical data, approximately 84.42% of the Town of Fairview is vulnerable to wildfires. There have been no recorded injuries or fatalities due to wildfires.
Improved Property	Based on historical data, annual financial losses expected from property loss due to wildfires are unknown due to lack of accurate reporting; therefore, percentage of the overall property improvement values across the Town of Fairview are also unknown.
Emergency Facilities	Based on geographic information there are two (2) fire stations and one (1) police station at risk from wildfire events.
Critical Facilities	Based on geographic information there are three (3) schools at risk from wildfire events.
Critical Infrastructure	Based on geographic information there are zero (0) bridges, zero (0) dams, zero (0) wastewater treatment facility, and zero (0) water treatment facility at risk from wildfire events.

Summary Table 3.19

Winter Storm	
Population	According to National Centers for Environmental Information (NCEI), there was one (1) county-wide fatality recorded due to winter storms, none from the Town of Fairview. All the population of the Town of Fairview is exposed and vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the Town of Fairview are expected but unknown due to lack of reporting however county-wide property loss is estimated at $116,250 per year. No crop losses are expected from this hazard in the Town of Fairview.
Emergency Facilities	Because of the expected geographical widespread nature of winter storms, all emergency facilities in the Town of Fairview are exposed and vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of winter storms, all critical facilities in the Town of Fairview are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of winter storms, all critical infrastructures in the Town of Fairview are exposed and vulnerable to this hazard.

4. Capability Assessment

The risk assessment and capabilities assessment serve as the foundation for the development of a meaningful hazard mitigation strategy. During the process of identifying specific mitigation actions to pursue, the Town of Fairview considered not only its level of hazard risk but also the existing capabilities to minimize or eliminate that risk.

Table 4.1 Legal and Regulatory Capability Summary

Legal and Regulatory Capabilities															
Jurisdiction	Building Code	Zoning Ordinance	Subdivision Ordinance or regulation	Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances wildfire ordinances, hazard setback requirements)	Growth management ordinances (also called "smart Growth" or anti-sprawl programs)	Site Plan review requirements	General or comprehensive plan	A capital improvements plan	An economic development plan	An emergency response plan	A post-disaster recovery plan	A post-disaster recovery ordinance	Real estate disclosure requirements	Other	% Yes per Jurisdiction
Town of Fairview	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	**93%**
Average % Yes Capabilities – %															
Y- Yes N- No ?- Don't Know															

Table 4.2 Administrative and Technical Capability Summary

Administrative and Technical Capabilities											
Jurisdiction	**Planner(s) or engineer(s) with knowledge of land development and land management**	**Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure**	**Planners or engineer(s) with an understanding of natural and/or human caused hazards**	**Floodplain manager**	**Surveyors**	**Staff with education or expertise to assess the community's vulnerability to hazards**	**Personnel skilled in GIS**	**Scientists familiar with the hazards of the community**	**Emergency manager**	**Grant writers**	**% Yes per Jurisdiction**
Town of Fairview	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	**90%**
Average % Yes Capabilities – %											
Y- Yes N- No ?- Don't Know											

Table 4.3 Fiscal Capability Summary

Fiscal Capabilities											
Jurisdiction	**Community Development Block Grants (CDBG)**	**Capital improvements project funding**	**Authority to levy taxes for specific purposes**	**Fees for water, sewer, gas, or electric service**	**Impact fees for homebuyers or developers for new developments/homes**	**Incur debt through general obligation bonds**	**Incur debt through special tax bonds**	**Incur debt through private activity bonds**	**Withhold spending in hazard-prone areas**	**Other**	**% Yes per Jurisdiction**
Town of Fairview	N	Y	Y	Y	Y	Y	Y	N	Y	Y	**80%**
Average % Yes Capabilities – 80%											
Y- Yes N- No ?- Don't Know											

To quantify the Town of Fairview's legal and regulatory, administrative and technical, and fiscal capabilities, an overall rating system was administered for each category: limited (0-30%), moderate (31-70%), and strong (70-100%). Questionnaire responses indicated that on average, the town of Fairview has a moderate level of identified legal and regulatory capabilities, a strong level of identified administrative and technical capabilities, and strong level of identified fiscal capabilities per the rating categories.

Table 4.4 Administrative Information

Jurisdiction	Chief Administrative Officer	Ability to Implement Capabilities
Town of Fairview	Town Manager	The town council, including the mayor, mayor pro-tem, and council members, along with the town manager, address the budget; approve/pass ordinances, regulations, and codes; hire staff; approve plans; and determine the direction of the town overall. As the governing body, the ability to implement and approve mitigation actions, expand, and integrate mitigation into existing policies and programs is a function of this group.

Specific actions that can expand and improve existing capabilities, authorities, plans, policies, and resources for mitigation include: budgeting and passing policies and procedures, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates and additions to existing plans as new needs are recognized

5. Mitigation Strategies

Based on the results of the risk and capability assessments, and reviews of the goals and objectives included in the 2016-2021 HazMAP, the Town of Fairview Hazard Mitigation Planning Committee developed mitigation strategies for the Plan update.

Goal 1 **Reduce or eliminate loss of life, injuries and property damage resulting from severe weather events.**

Objective 1-A Provide adequate warning and communication before, during, and after a hazard event.
Objective 1-B Expand and coordinate Early Warning Systems currently in use.
Objective 1-C Reduce or eliminate loss of life and property damage from tornados through encouragement of the construction and use of safe rooms or shelter areas.

Goal 2 **Protect existing and new properties from the effects of all natural hazards.**

Objective 2-A Conduct studies to determine hazard and vulnerability threat assessment for all natural hazards.
Objective 2-B Work with stake holders to identify high hazard critical infrastructure for the possibility of rehabilitation or retrofit.
Objective 2-C Assess the need for enacting and/or enforcing regulatory measures that enforce hazard mitigation measures.
Objective 2-D Ensure the construction of new facilities take into account methods designed to mitigate the effects of natural hazards.
Objective 2-E Maintain NFIP compliance, storm water management, and implement drainage projects.

Goal 3 **Reduce losses and repetitive damages for chronic hazard events**.

Objective 3-A Update hazard/vulnerability assessments of personal properties and structures located in flood zones within the Town of Fairview.
Objective 3-B Develop and execute new awareness programs which identify and reduce threats from natural hazards.
Objective 3-C Develop and execute new programs which identify and reduce threats from natural hazards.

Goal 4 **Develop public education campaigns to disseminate information about actions to mitigate potential loss of life, injuries and property damage resulting from natural hazards**

Objective 4-A Educate the public on risks, threats, and vulnerability from all natural hazards.
Objective 4-B Educate the public on actions they can take to prevent or reduce the loss of life or property from all natural hazards.
Objective 4-C Develop and implement a community education campaign to heighten public awareness about chronic flooding and options for insurance coverage to protect their personal properties.

6. Action Items

Below is a list of action items identified for the HazMAP Update. Each of the actions in this section were prioritized based on FEMA's STAPLEE criteria, which includes considering the social, technical, administrative, political, legal, economic and environmental factors necessary for the implementation of each action. As part of the STAPLEE analysis, economic considerations were weighed for each action. The STAPLEE was used for the 2016 Plan along with the 2021 Update. Priority rankings are classified as indicated in the table below.

Priority	Description
High	Benefits of mitigating risk of death or severe bodily injury outweigh costs to implement actions rated as high priorities.
Medium	Reducing vulnerability to threats and the resulting improvement in quality of life and peace of mind are benefits for actions rated as medium priorities.
Low	Awareness of low risk/low impact hazards offer benefits of time to assess, plan and integrate low priority mitigation actions as time, need, and funding permit.

Town of Fairview Action Items: Deferred from 2016 Plan

Town of Fairview Action Item	Implement all-hazards public education program, including hazard mitigation activities for each identified hazard
Hazard(s) Addressed	Tornado, Winter Storm, Drought, Extreme Heat, Flooding, Wildfire, Expansive Soils, Hail, Earthquake, High Winds, Lightning, Dam Failure
Goal/Objective	3-B, 4-A, 4-B, 4-C
Priority	High
Estimated Cost	$5,000
Potential Funding Sources	Operating Budget
Potential Matching Sources	Local Grants
Lead Department	Emergency Management
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Public Education is extremely effective for low cost
Discussion	The Town of Fairview will implement an all-hazards comprehensive public education program based on the hazards identified in this annex and what actions can be taken to mitigate impacts. This program will use a variety of means for distributing information,

	including social media, printed literature, and via the Town of Fairview official website.
Status	Town began the implementation of this action item via online public education materials. Town plans to receive supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021

Town of Fairview Action Item	Implement tornado safe room education program
Hazard(s) Addressed	High Winds, Tornados
Goal/Objective	1-C
Priority	Medium
Estimated Cost	$500
Potential Funding Sources	Operating Budget
Potential Matching Sources	Local Grants/FEMA
Lead Department	Emergency Management
Implementation Schedule	1-3 years
Effect on Old Buildings	Retrofit will be required on some structures
Effect on New Buildings	Enhance safety of new residential structures
Cost Effectiveness	Moderate to high depending on level of acceptance
Discussion	Residential safe room shelters potentially decrease the likelihood of personal injuries and death during severe weather, tornado or hail events.
Status	Will be included in 2021, however, some residents were able to obtain funds through the NCTCOG Saferoom Rebate Program

Town of Fairview Action Item	Implement and actively promote Nixle Notification alert system.
Hazard(s) Addressed	Tornado, Winter Storm, Drought, Extreme Heat, Flooding, Wildfire, Expansive Soils, Hail, Earthquake, High Winds, Lightning, Dam Failure
Goal/Objective	1-A, 1-B, 3-B, 4-A, 4-B
Priority	Medium
Estimated Cost	$1,500
Potential Funding Sources	Operating Budget
Potential Matching Sources	Local Grants/FEMA
Lead Department	Emergency Management
Implementation Schedule	1-3 years

Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warnings will assist in saving lives for no cost.
Discussion	Weather/all-hazards notifications are a proven means to alert and warn citizens about severe weather conditions and other emergency and hazard information.
Status	This action item was implemented and will continue to be promoted in order to increase subscribers. Continue – will be included in 2021.

Town of Fairview Action Item	Update and enforce water conservation measures and implement public education outreach
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	2-C, 3-C
Priority	Medium/Low
Estimated Cost	$1000
Potential Funding Sources	Operating Budget
Potential Matching Sources	North Texas Municipal Water District
Lead Department	Public Works, Code Enforcement
Implementation Schedule	1-2 years
Effect on Old Buildings	Water conservations measures would stabilize soils, mitigating damage to existing structures.
Effect on New Buildings	Water conservations measures would stabilize soils, mitigating damage to new structures.
Cost Effectiveness	Low-cost effort for increasing awareness of water restrictions.
Discussion	Town of Fairview will review water conservation measures and update as necessary. These conservation efforts regulate water used for maintaining soil consistency. Updates will be communicated to the public.
Status	The Town has a Water Conservation Plan and a Drought Contingency and Water Emergency Response Plan it reviews and updates, if necessary. No updates were necessary in recent years. Continue – will be included in 2021.

Town of Fairview Action Item	Develop and implement regulations for the construction of town buildings deemed “critical infrastructure”.
Hazard(s) Addressed	Tornado, Winter Storm, Drought, Extreme Heat, Flooding, Wildfire, Expansive Soils, Hail, Earthquake, High Winds, Lightning, Dam Failure
Goal/Objective	1-C, 2-A, 2-B, 2-C, 2-D, 2-E
Priority	Medium/Low

Estimated Cost	$5000
Potential Funding Sources	Operating Budget
Potential Matching Sources	NCTCOG/FEMA
Lead Department	Emergency Management
Implementation Schedule	2-3 years
Effect on Old Buildings	May involve cascading retrofits
Effect on New Buildings	Strengthening construction requirements for new critical infrastructure will result in greater resiliency to hazards
Cost Effectiveness	Moderate to High.
Discussion	Town will develop and implement construction design regulations for new Critical Infrastructure, as defined by the EMC. Regulations would include elevating structures, reinforcing doors and windows, using flame-retardant, hail and wind resistant external materials, roof bracing, installing higher grade insulation, stabilizing foundations, installing lightning rods, and using low-flow technology for all plumbing.
Status	Deferred – will be included in 2021 Plan

Town of Fairview Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	2-A, 3-A
Priority	Medium/Low
Estimated Cost	$75,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local Sponsors, In-Kind
Lead Department	Engineering/ NRCS
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Dam Failure data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	Deferred – will be included in 2021 Plan

Town of Fairview Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	Earthquake
Goal/Objective	2-A
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Engineering
Implementation Schedule	1-2 years
Effect on Old Buildings	Results would help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results would identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.
Status	Deferred – will be included in 2021 Plan

Town of Fairview Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	TBD
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency Management, Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.
Status	Deferred – will be included in 2021 Plan

Town of Fairview Action Items: New

Town of Fairview Action Item	Public education can help educate the public to reduce personal and property damage during disasters. Program will include information about hazard mitigation of each identified hazard.
Hazard(s) Addressed	Tornado, Hail, Winter Storms, High Winds, Lightning, Expansive Soils, Extreme Heat, Earthquake, Flooding, Wildfire, Drought
Goal/Objective	3-B, 4-A, 4-B, 4-C
Priority	High
Estimated Cost	$5,000
Potential Funding Sources	Operating Budget
Potential Matching Sources	Local Grants
Lead Department	Emergency Management
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Minimal compared to preservation of life safety
Discussion	Public education can help educate the public to reduce personal and property damage during disasters. Program will include information about hazard mitigation.

Town of Fairview Action Item	Implement tornado safe room education program
Hazard(s) Addressed	High Winds, Tornados
Goal/Objective	1-C
Priority	Medium
Estimated Cost	$500
Potential Funding Sources	Operating Budget
Potential Matching Sources	Local Grants/FEMA
Lead Department	Emergency Management
Implementation Schedule	1-3 years
Effect on Old Buildings	Retrofit will be required on some structures
Effect on New Buildings	Enhance safety of new residential structures
Cost Effectiveness	Moderate to high depending on level of acceptance
Discussion	Residential safe room shelters potentially decrease the likelihood of personal injuries and death during severe weather, tornado or hail events.

Town of Fairview Action Item	Implement and actively promote Nixle Notification alert system.
Hazard(s) Addressed	Tornado, Winter Storm, Drought, Extreme Heat, Flooding, Wildfire, Expansive Soils, Hail, Earthquake, High Winds, Lightning
Goal/Objective	1-A, 1-B, 3-B, 4-A, 4-B
Priority	High
Estimated Cost	$1,500
Potential Funding Sources	Operating Budget
Potential Matching Sources	Local Grants/FEMA
Lead Department	Emergency Management
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warnings will assist in saving lives for no cost.
Discussion	Weather/all-hazards notifications are a proven means to alert and warn citizens about severe weather conditions as well as other emergency and hazard information.

Town of Fairview Action Item	Update and enforce water conservation measures and implement public education outreach
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	2-C, 3-C
Priority	Medium/Low
Estimated Cost	$1000
Potential Funding Sources	Operating Budget
Potential Matching Sources	North Texas Municipal Water District
Lead Department	Public Works, Code Enforcement
Implementation Schedule	1-2 years
Effect on Old Buildings	Water conservations measures would stabilize soils, mitigating damage to existing structures.
Effect on New Buildings	Water conservations measures would stabilize soils, mitigating damage to new structures.
Cost Effectiveness	Low-cost effort for increasing awareness of water restrictions.
Discussion	Town of Fairview will review water conservation measures and update as necessary. These conservation efforts regulate water used for maintaining soil consistency. Updates will be communicated to the

	public. When water is conserved and not used for landscape during droughts, this would provide water for homeowners to use, through drip irrigation, to keep their foundations at a consistent saturation level, mitigating the impacts of drought and lack of water.

Town of Fairview Action Item	Develop and implement regulations for the construction of town buildings deemed “critical infrastructure”.
Hazard(s) Addressed	Tornado, Winter Storm, Drought, Extreme Heat, Flooding, Wildfire, Expansive Soils, Hail, Earthquake, High Winds, Lightning
Goal/Objective	1-C, 2-A, 2-B, 2-C, 2-D, 2-E
Priority	Medium/Low
Estimated Cost	$5000
Potential Funding Sources	Operating Budget
Potential Matching Sources	NCTCOG/FEMA
Lead Department	Emergency Management
Implementation Schedule	2-3 years
Effect on Old Buildings	May involve cascading retrofits
Effect on New Buildings	Strengthening construction requirements for new critical infrastructure will result in greater resiliency to hazards
Cost Effectiveness	Moderate to High.
Discussion	Town will develop and implement construction design regulations for new Critical Infrastructure, as defined by the EMC. Regulations would include elevating structures, reinforcing doors and windows, using flame-retardant, hail and wind resistant external materials, roof bracing, installing higher grade insulation, stabilizing foundations, installing lightning rods, and using low-flow technology for all plumbing.

Town of Fairview Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	Earthquake
Goal/Objective	2-A
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Engineering
Implementation Schedule	1-2 years
Effect on Old Buildings	Results would help identify/define retrofits or additions to reduce vulnerability to earthquakes

Effect on New Buildings	Results would identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.

Town of Fairview Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	TBD
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency Management, Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.

National Flood Insurance Program (NFIP) Compliance

The Town of Fairview is participating in the National Flood Insurance Program and has identified their respective areas as vulnerable to flooding. This is incorporated into all current and future planning for dealing with repetitive loss vulnerabilities.

Table 6.1 NFIP Compliance

CID	Community Name	County	Initial FHBM Identified	Initial FIRM Identified	Curr Eff Map Date	Reg-Emer Date	Tribal
481069#	FAIRVIEW, TOWN OF	COLLIN COUNTY	1/10/1975	11/1/1979	6/7/2017	11/1/1979	No

Source: http://www.fema.gov/cis/TX.html

Jurisdiction Compliance

Once the community applies for the NFIP, FEMA arranges for a study of the community to determine base flood elevations and flood risk zones. Consultation with the community occurs at the start of and during the study, and those communities with minimal flood risk are converted to the Regular Program without a study.

FEMA provides the studied community with a Flood Insurance Rate Map delineating base flood elevations and flood risk zones. The community is then given 6 months to adopt base flood elevations in its local zoning and building code ordinances. Once the community adopts more stringent ordinances, FEMA converts the community to the NFIP's Regular Program. FEMA then authorizes the sale of additional flood insurance in the community up to the Regular Program limits. The community must implement and enforce the adopted floodplain management measures. FEMA provides periodic community assistance visits with local officials to provide technical assistance regarding complying with NFIP floodplain management requirements.

Jurisdiction Activities

In order to maintain eligibility with NFIP, jurisdictions are required to maintain their list of properties that hold a policy with NFIP, along with up-to-date maps of the floodplains in the jurisdictions. Each jurisdiction participating in the Collin County Hazard Mitigation Action Plan completes this basic requirement and has the information on file with the jurisdiction's designated floodplain manager. Using this plan, participating jurisdictions will be able to continue their compliance with NFIP by implementing damage control measures and take action to minimize the effects of flooding in their respective jurisdictions.

Table 6.2 NIFP Activity

Jurisdiction	Community Floodplain Administrator	NFIP Activity	Activity Description	Enforcement
Town of Fairview	Town Engineer	Review new development adjacent to floodplains and require 3 feet of freeboard (existing floodplain) or 2 feet of freeboard	Development plans are reviewed. If base flood elevations are known, then set minimum FF elevations on plats. If base flood elevations are unknown, developer must perform flood modeling to establish the BFE.	NFIP compliance is implemented and enforced through a process of floodplain identification using FEMA floodplain maps, permit issuance, building requirements, the use of Flood Hazard zoning regulations, and compliance inspections pending approval. Failure to comply with the Town's flood damage prevention order shall result in fines up to $2000 per violation per day.
		Floodplain development permits	Permits are required for any new construction in a floodplain, including fill. Fairview prohibits structures that enclose people or animals in the flood plain.	
		Reduce flooding effects of upstream development on downstream properties in or near the flood plain	Fairview is having a drainage master plan prepared to lessen the effects of upstream development on downstream flooding including regional detention	
		Maintain a zero rise in the floodplain near sensitive properties	Fairview requires computer modeling and hydraulic calculations to demonstrate a zero rise in the 100 year flood plain near properties that are threatened	
		Future Mitigation Projects	Fairview has identified some property for floodplain mitigation and will work with developers to make improvements at the time of development	

7. Plan Maintenance

Monitoring, Evaluating and Updating the Plan

In Compliance with requirement § 201.6(c)(4)(i), Fairview has developed a plan maintenance process which is described in the following paragraphs. The Town of Fairview along with participating jurisdictions is responsible for monitoring implementation of the plan, executing a yearly evaluation of its effectiveness, and updating the plan within a 5-year cycle.

Following formal adoption by the Town of Fairview, the county, and the city/town council of each participating jurisdiction, the actions outlined in the Collin County Hazard Mitigation Action Plan (HazMAP) will be implemented by participating jurisdictions as described throughout this document.

The Collin County Emergency Management Coordinator, working in conjunction with the respective jurisdictions, will be responsible for ensuring the mitigation plan is monitored, evaluated, and reviewed on an annual basis. This will be accomplished by calling an annual meeting of the planning committee, whose members will provide assistance and expertise for plan review, evaluating, updating, and monitoring. This meeting will be open to the public and public notices will encourage community participation. During this annual meeting, the Town of Fairview will provide information on the implementation status of each action included in the plan. As part of the evaluation, the planning committee will assess whether goals and objectives address current and expected conditions, whether the nature and/or magnitude of the risks have changed, if current resources are appropriate for implementing the plan, whether outcomes have occurred as expected, and if agencies and other partners participated as originally proposed. These activities will take place according to the timetable presented below:

Table 7.1 Plan Maintenance Timeline

Personnel	Activity	Schedule
Emergency Management Coordinator	Monitoring Plan: Track implementation and action items, changes to risk assessment, changes to planning team members, changes to capabilities, plan integrations	Biannually
	Evaluate Plan: Assess effectiveness by evaluating completed actions, implementation processes, responsible personnel and lessons learned.	Annually
	Update Plan	Once every 5 years

At least once every five (5) years, or more frequently, if such a need is determined by the participating jurisdiction, the multi-jurisdictional plan will undergo a major update. During this process, all sections of the plan will be updated with current information, analyses done and new and/or modified mitigation action plans will be developed. The revised plan will be submitted for state and federal review and approval, and presented for approval to the Collin County Commissioner's Court and the respective councils of incorporated cities/towns included in the Collin County plan. Likewise, each participating jurisdiction will undertake the same process for reviewing, revising and updating their respective plans and submitting same for approval by the state, FEMA and each local jurisdiction's governing body. The plan will be updated every five years in accordance with federal requirements.

Plan Incorporation into Existing Planning Mechanisms *(In compliance with 201.6(c)(4)(ii))*

Based on the requirements set forth in § *201.6(c)(4(ii)*, the State of Texas Mitigation Plan, the vulnerability and capabilities assessment for each jurisdiction was carefully reviewed and considered when developing the mitigation actions for this plan. The HMPT and committees will establish a process in which the mitigation strategy, goals, objectives and actions outlined in this plan will be incorporated into the existing regional and local planning strategies.

Local and regional planning committees currently use comprehensive land use planning, capital improvements planning, and building code ordinances to guide development. The mitigation strategy, goals, objectives and actions outlined in this plan will be integrated into these existing mechanisms as applicable. Those mechanisms include the following:

Table 7.2 Plan Incorporation Mechanisms

Jurisdiction	Responsible Personnel	Jurisdictional Plans	Integration Schedule	Integration Plan
Town of Fairview	Town Council	Budget Meetings	Annually	Integration of mitigation projects identified in HazMAP, grants, and other fiscal allowances for mitigation actions and related costs
	Emergency Management Coordinator	Emergency Action Plan updates	Every Five Year	EAP Mitigation annex updates based on HazMAP HIRA; update preparedness, response and recovery actions related to identified hazards
	Designated Floodplain Manager	Floodplain ordinances	As needed	Enhance mitigation of flood hazards using HazMAP flood data for floodplain management and community development.
	Town Council, Town Engineer	Capital improvement plans	Annually	Strengthen critical infrastructure and key resources based on HazMAP hazard analysis, incorporate vulnerability data and action items.
	Public Works Director, Town Council	Drought Contingency plans	Assessed annually and updated as needed.	Integrate drought actions such as xeriscaping, water restrictions, and public education
	Town Engineer, Town Council	Natural Resource Conservation Plan	Assessed annually and updated as needed.	Integrate conservation measures by directing development away from hazard-prone areas identified in HazMAP.

Although it is recognized there are many possible benefits to integrating components of this HazMAP into other planning mechanisms, the Fairview Hazard Mitigation Planning Committee considers this HazMAP, including development and maintenance, to be the primary vehicles to ensure implementation of local hazard mitigation actions.

The process described here is the same as was used since the last planning update.

Continued Public Involvement (In compliance with 201.6(c)(4)(iii))

As stated in requirement § *201.6(c)(4)(iii)* The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.

To address this requirement, ongoing public participation will be encouraged throughout the entire planning and implementation process. A copy of the plan will be provided on the Collin County website. The planning team and committees will continue meeting on a regular basis to ensure the successful implementation of the plan and to discuss any additional issues regarding the emergency management of Collin County. The annual meetings for monitoring, evaluating, and updating the plan will be open to the public and public notices will encourage community participation.

1. Introduction

This annex was prepared in 2020 as part of an update to the Collin County Multi-Jurisdictional Hazard Mitigation Action Plan. The City of Farmersville participated on the Collin County Hazard Mitigation Planning Team (HMPT). In addition to the countywide hazards and strategies discussed in the main plan, this annex serves as a complete hazard mitigation planning tool for the City of Farmersville. It contains capability assessment information, a specific vulnerability assessment, and a complete mitigation strategy. The methodology and process for developing this annex are explained throughout the following sections.

2. Plan Development and Adoption Process

In order to apply for federal aid for technical assistance and post-disaster funding, local jurisdictions must comply with Part 201.3 of the Disaster Mitigation Act of 2000 implemented in the Federal Code of Regulations 44 CRF Part 201.6. While Farmersville has historically implemented measures to reduce their vulnerability to hazards, passage of DMA 2000 helped Collin County officials recognize the benefits of a long-term approach to hazard mitigation, which achieves a gradual decrease of impacts associated through the implementation of a Hazard Mitigation Plan. Collin County's Hazard Mitigation Action Plan represents the collective efforts of all participating jurisdictions, the general public, and stakeholders.

Organizing the Planning Effort

A comprehensive county approach was taken in developing the plan. An open public involvement process was established for the public, neighboring communities, regional agencies, businesses, academia, etc. to provide opportunities for everyone to become involved in the planning process and to make their views known. The meetings were advertised with notices in public places and online.

In accordance with Part 201.6(c)(5) of the Disaster Mitigation Act of 2000 (DMA 2000), Collin County developed this Hazard Mitigation Action Plan. This plan identifies hazards and mechanisms to minimize future damages associated with these hazards, which threaten Collin County and its jurisdictions.

Existing Data and Plans

Existing hazard mitigation information and other plans were reviewed during the development of the Hazard Mitigation Action Plan. GIS, statistical and qualitative data was gathered through numerous sources. The table below outlines the sources of data for the plan:

Table 2.1 Plan Source Data

Source	Data
City and County Appraisal Data 2020	Population and demographics
Regional Hazard Assessment Tool	Hazard occurrences
National Centers for Environmental Information (NCEI)	Hazard occurrences
Texas Forest Service/Texas Wildfire Risk Assessment Summary Report	Wildfire Threat and Urban Interface
National Inventory of Dams	Dam Information

Planning Committee

This Hazard Mitigation Action Plan was developed by the Farmersville Hazard Mitigation Planning Committee, with support of the North Central Texas Council of Governments and in conjunction with the Collin County HMPT.

The Collin County HMPT was assembled in November 2020 with representatives from participating county jurisdiction planning committees, including mayors, police chiefs, fire chiefs, and the general public. Collin County acted as the plan development consultant providing hazard mitigation planning services. The efforts of the planning committees and the HMPT were led by the Collin County Assistant Emergency Management Coordinator. The table below provides a list of the primary representatives on the Farmersville planning committee.

Table 2.2 Hazard Mitigation Committee – Primary Representatives

Representing	Position	Role
City of Farmersville	Fire Chief	Plan Development
City of Farmersville	GIS Analyst	Plan Development
City of Farmersville	City Manager	Plan Development
City of Farmersville	City Secretary	Plan Development/Primary Point of Contact
City of Farmersville	Chief of Police	Plan Development
Collin County Homeland Security	Assistant Emergency Manager	Plan Assistance

Collin County served as the coordinator and lead agency for all jurisdictions by accomplishing the following activities through the planning process:

- Assigned the County's Assistant Emergency Management Coordinator to provide technical assistance and necessary data to the planning committee.
- Scheduled, coordinated, and facilitated community meetings with the assistance of the HMPT and the planning committees.
- Provided any necessary materials, handouts, etc. for public planning meetings.
- Worked with the HMPT and planning committees to collect and analyze data and develop goals and implementation strategies.
- Prepared, based on community input and planning team/committee direction, the first draft of the plan and provided technical writing assistance for review, editing and formatting.
- Coordinated with the stakeholders within the jurisdictions and the unincorporated areas of Collin County during plan development.

Each of the individual jurisdictions participated in accomplishing similar activities associated with development of the plan as follows:

- Coordinated input from representatives of neighborhood stakeholder groups and provided a representative to the County HMPT.
- Attended regular meetings of the planning team as coordinated by Collin County.
- Assisted Collin County staff with identifying hazards and estimating potential losses from future hazard events.
- Assisted Collin County in developing and prioritizing mitigation actions to address the identified

risks.

- Assisted Collin County in coordinating public meetings to develop the plan.
- Identified the community resources available to support the planning effort.
- Worked for the support of neighborhood stakeholders for the recommendations resulting from the planning process.
- Submitted the proposed plan to all appropriate departments for review and comment and worked with Collin County to incorporate the resulting comments into the proposed plan.

External stakeholders emailed and involved in reviewing the Collin County Hazard Mitigation Action Plan:

Table 2.3 External Stakeholders

Representing	Position	Role
Farmers Insurance	Insurance Agent	Review of plan
State Farm Insurance	Insurance Agent	Review of plan
First Baptist Church, Farmersville	Disaster Response Coordinator	Review of plan
North Texas Municipal Water District	Representative for Farmersville	Review of plan
RE/MAX International	Realtor	Review of plan

Subsequent to the State of Texas and FEMA approval of the plan, the City of Farmersville organization is committed to accomplishing the following activities:

- Appoint members to a Coordinating Committee to monitor and work toward plan implementation.
- Publicize the plan to neighborhood interests and ensure that new community members are aware of the plan and its contents.
- Monitor progress in achieving the plan's goals through regular maintenance and implementation projects.

Planning Meetings

During the planning process, the HMPT met to obtain relevant information from the participating jurisdictions and to discuss the objectives and progress of the plan. The objectives of these meetings were to gather information and to provide guidance for each jurisdiction throughout the planning stages.

The following meetings were held by the City of Farmersville:

- Collin County HazMAP Kickoff Meeting – August 12, 2020
- Collin County Planning Meeting – April 21, 2021
- Collin County HazMAP Public Meeting – 11/2/2021 at 2PM
- Collin County HazMAP Public Meeting – 01/12/2022TBD

Public Involvement

Support from the community is vital for any successful hazard mitigation plan. The HMPT and planning committee provided opportunities, announced through public communication means, for public participation and input throughout the planning process prior to this draft and before approval of the finalized plan. Advertisement and sign in sheets for these meetings are located in Appendix A.

- The first public meeting was held on November 2, 2021 at 2PM, and advertised on the Collin County website along with other jurisdictional websites inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to comment. The meeting was held virtually via WebEX.
- A second public meeting was held on January 12, 2022 at 9AM. Announcements were placed on jurisdictions websites, including Collin County inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to view and comment on the HazMAP prior to plan submission.

There were no comments directly related to the mitigation plan received from citizens, non-profits, businesses, academia, or interested parties; therefore, no feedback was incorporated. An additional opportunity for the public to comment on the plan will be held prior to formal plan adoption.

This provided all citizens, stakeholders, neighboring communities, agencies, businesses, academia, non-profit organizations, and all interested parties an opportunity to be involved in the planning process and to take part in the decisions making process that affect the future of the communities that they live in.

3. Jurisdictional Hazard Identification and Risk Assessment

The Hazard Mitigation Planning Committee identified several natural hazards and man-made hazards that could affect Farmersville. The committee decided to focus on the natural hazards identified in Section 5 of this update. This was done after reviewing the 2016 HazMAP, the State of Texas Hazard Mitigation Plan, as well as other sources such as federal and state agencies. The hazards were ranked using the Priority Risk Index.

Priority Risk Index

A Priority Risk Index (PRI) was developed with the purpose of categorizing potential hazards for the City of Farmersville and ranks each hazard as high, moderate, low, or negligible to no risk. The hazard classification generated through the use of the PRI allows for the prioritization of those high hazard risks for mitigation planning purposes, and more specifically, the identification of hazard mitigation opportunities for Collin County jurisdictions to consider as part of their proposed mitigation strategy.
The PRI is used to assist all jurisdictions participating in the Collin County HazMAP in determining which hazards pose the most significant threat based on a variety of factors. The PRI is not scientifically based, but is rather meant to be utilized as an objective and systematic planning tool for classifying and prioritizing hazard risks in Collin County based on standardized criteria. The PRI results in numerical values that allow identified hazards to be ranked against one another. The sum of all four categories equals the final PRI value, as shown below:

PRI Value = (Probability x .30) + (Life Impact x .35) + (Property Impact x .25) + (Spatial Extent x .10)

The higher the PRI value, the greater the hazards risk. These values were obtained by assigning varying degrees of risk to four categories for each hazard: Probability, Life Impact, Property Impact, and Spatial Extent *(Table 3.1).* Each category has been assigned an Index Value (0 to 3) and a Weighing Factor (0 – 100%). These values may be adjusted during future plan updates. In order to evaluate the risk of each hazard, the assigned PRI Value for each category is multiplied by the weighing factor. Then, the PRI for each hazard is calculated by adding the product obtained in each category. According to the weighing scheme applied for Collin County, the highest possible PRI value is 3.0. The PRI calculations are presented in *Table 3.2*. Table 3.1 breaks down the value of each category.

Table 3.1 Priority Risk Index Value

Assigned Weighing Factor	PRI Category	Degree of Risk		
		Level	Criteria	Index Value
30%	Probability	Unlikely	Less than 1% annual probability	0
		Possible	Between 1 and 10% annual probability	1
		Likely	Between 10 and 100% annual probability	2
		Highly Likely	100% annual probability	3
35%	Life Impact	Minor	Very few injuries, if at all none	0
		Limited	Minor Injuries	1
		Critical	Multiple deaths/injuries	2
		Catastrophic	High number of deaths/injuries	3
25%	Property Impact	Minor	Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	0
		Limited	More than 10% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one day.	1
		Critical	More than 25% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one week.	2
		Catastrophic	More than 50% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for 30 days or more.	3
10%	Spatial Extent	Negligible	Less than 1% of area affected	0
		Small	Between 1 and 10% of area affected	1
		Moderate	Between 10 and 50% of area affected	2
		Large	Between 50 and 100% of area affected	3

Table 3.2 Priority Risk Index for City of Farmersville

The conclusions drawn from the hazard profiling process for the City of Farmerville resulted in the classification of risk for each identified hazard according to four categories: High Risk, Moderate Risk, Low Risk, and Negligible to No Risk *(Table 3.3).* For purposes of these classifications, risk is expressed in relative terms according to the probability of occurrence and estimated impact that a hazard will have on human life and property in the City of Farmersville.

Hazard	Category/Degree of Risk				
	Probability Index Value (0 - 3 30%)	Life Impact Index Value (0 - 3 35%)	Property Impact Index Value (0 - 3 25%)	Spatial Extent Index Value (0 - 3 10%)	PRI Value 2021
Dam Failure	1	2	1	0	1.25
Drought	2	0	1	3	1.15
Earthquake	0	1	0	1	0.45
Expansive Soils	2	0	0	1	0.7
Extreme Heat	1	1	0	2	0.85
Flooding	1	1	0	0	0.65
Hail	2	0	0	1	0.7
High Winds	2	1	0	1	1.05
Lightning	1	0	0	0	0.3
Tornado	2	1	1	1	1.3
Wildfire	1	2	0	1	1.1
Winter Storms	2	1	2	3	1.75

Table 3.3 Hazard Rankings City of Farmersville

High Risk (PRI 2 - 3)	
Moderate Risk (PRI 1.01 -1.9)	Winter Storm Dam Failure Tornado Drought Wildfire High Winds
Low Risk (PRI 0.50 – 1)	Expansive Soils Extreme Heat Hail Flooding
Negligible to No Risk (PRI 0 – 0.49)	Earthquake Lightning

Changes in Development and Priorities (Requirement §201.6(d) (3))

Our jurisdiction is in one of the fastest growing areas of the nation, hence development has increased and will continue to increase our vulnerability to hazards that may impact us.

Vulnerability Narratives

This annex focuses on specific areas of vulnerability the City of Farmersville faces with each hazard. The hazards identified in the main plan are all addressed in this annex, therefore the natural hazards rated negligible to no risk are included, described, and considered for mitigation.

Dam and Levee Failure A dam is defined as a barrier constructed across a watercourse for the purpose of storage, control, or diversion of water. Dams typically are constructed of earth, rock, concrete, or mine tailings. A dam failure is an accidental or unintentional collapse, breach, or other failure of an impoundment structure that results in downstream flooding. Because dams are man-made structures, dam failures are usually considered technological hazards. However, since most dam failures result from prolonged periods of rainfall, they are often cited as secondary or cascading effects of natural flooding disasters and are not named as the primary hazard that causes disaster declarations.

Development of the downstream areas necessitates the original low hazard classifications to be changed to higher hazard classifications because the dams are no longer adequate for the increased downstream risks. NRCS data shows that there are 6 dams in Collin County that are no longer adequate for increased downstream risks. This percentage could actually be higher because detailed current evaluations of NRCS dams have not been conducted due to resource limitations. In addition, many of these inadequate dams have not been updated because many of the legally responsible entities of these dams do not have sufficient mechanisms funding for updates, or even adequate maintenance, in some cases. Soil and Water Conservation Districts do not have any statutory funding capability of their own, and counties, especially those with small populations and multiple dams, are not able to generate the resources needed to sustain a consistent and comprehensive effort upgrade these structures. While no record could be found of any previous dam failures in Collin County, three things are clear:

- These dams are in desperate need of detailed evaluations and consistent maintenance
- Increased development downstream of the dams has put more people, property, and infrastructure at risk.

The City of Farmersville is responsible for 2 high hazard dams identified by the NRCS in both the City Limits of Farmersville due to the use of easements and the Emergency Operations Plans for those dam sites. While a dam failure event would affect jurisdictions not participating in the Collin County Local Mitigation Strategy, the HMT has chosen to include all High Hazard dams the City is responsible for in Emergency Planning for plan incorporation purposes.

Drought Drought has the potential to impact the entire planning area equally; all improved property, emergency facilities, critical facilities, critical infrastructure, and the entire population of Farmersville are vulnerable to this hazard. Foundations of all buildings are vulnerable; however, older structures, or those built under less stringent foundation code requirements are most vulnerable. Lake Lavon, Lake Texoma, Lake Tawakoni, Lake Fork, and the Lake Chapman-Cooper reservoir system are water sources for the City of Farmersville and are vulnerable to drought. In turn, the city's population, wildlife and vegetation are vulnerable. Lower income populations who may not have the resources to buy containerized water in the event of a shortage may be more vulnerable than other populations. The lack of water can also impact emergency responder capabilities (not facilities) in the form of firefighting efforts as Farmersville has one of the largest fire districts in Collin County.

Earthquake An earthquake is a sudden motion or trembling caused by an abrupt release of accumulated strain on the tectonic plates that comprise the Earth's crust. The theory of plate tectonics

holds that the Earth's crust is broken into several major plates. These rigid, 50- to 60- mile thick plates move slowly and continuously over the interior of the earth, meeting in some areas and separating in others. As the tectonic plates move together they bump, slide, catch, and hold. Eventually, faults along or near plate boundaries slip abruptly when the stress exceeds the elastic limit of the rock, and an earthquake occurs. The ensuing seismic activity and ground motion provoke secondary hazards: surface faulting, ground failure, and tsunamis. The vibration or shaking of the ground during an earthquake is referred to as ground motion. In general, the severity of ground motion increases with the amount of energy released and decreases with distance from the causative fault or epicenter. When a fault ruptures, seismic waves are propagated in all directions, causing the ground to vibrate at frequencies ranging from 0.1 to 30 Hz. Seismic waves are referred to as P waves, S waves, and surface waves. Earthquakes have the potential to occur anywhere in the geographic planning area; therefore, all geographic areas are potentially vulnerable. Buildings constructed under older building codes, aging underground infrastructure, and roads are most vulnerable to damages from seismic activity. This hazard was identified as having negligible or no risk to the City of Farmersville.

Expansive Soils Any soil that expands when wet and shrinks when dry is an expansive soil. Soils are tested using an accepted standard of measurement to determine swell potential. Expansive soils can exert pressures up to 15,000 lbs. per foot causing the breakdown of building foundations and structural integrity. Roadbeds may also be affected, and could lead to avalanche and collapse when cutting into mountains and hillsides. Problems often associated with expansive soils include foundation cracks, heaving and cracking of floor slabs and walls, jammed doors and windows, ruptured pipelines, having and cracking of sidewalks and roads, and damage to the upper floors of a building when motion in the structure is significant. Expansive soils are present throughout the world are known in every United States state. Every year they cause billions of dollars in damage. The entire Farmersville geographic planning area has the potential to be vulnerable to expansive soils.

Extreme Heat Severe summer heat is characterized by a combination of a very high temperatures and exceptionally humid conditions. When persisting over a period of time, it is called a heat wave. Extreme heat generally affects the entire population, but the homeless, very young, elderly, and populations without air conditioning are most vulnerable. Utilities can also be impacted due to rolling blackouts.

Flooding Flooding is defined as the accumulation of water within a water body and the overflow of excess water onto adjacent floodplain lands. The floodplain is the land adjoining the channel of a river, stream, ocean, lake, or other watercourse or water body that is susceptible to flooding. The statistical meaning of terms like “25-year storm” and “100-year flood” can be confusing. Simply stated, a floodplain can be located anywhere; it just depends on how large and how often a flood event occurs. Floodplains are those areas that are subject to inundation from flooding. Floods and the floodplains associated with them are often described in terms of the percent chance of a flood event happening in any given year. As a community management or planning term, “floodplain” most often refers to an area that is subject to inundation by a flood that has a one percent chance of occurring in any given year (commonly and incorrectly referred to as the 100-year floodplain). Common flooding hazards within the planning area include impacts from flash flooding and from new development.

A flash flood is a rapid flood that inundates low-lying areas in less than six hours. This is caused by intense rainfall from a thunderstorm or several thunderstorms. Flash floods can also occur from the collapse of a man-made structure or ice dam. Construction and development can change the natural drainage and create brand new flood risks as new buildings, parking lots, and roads create less land that

can absorb excess precipitation from heavy rains, hurricanes, and tropical storms. Flash floods are a high risk hazard since they can roll boulders, tear out trees, and destroy buildings and bridges.
The City of Farmersville has identified several low water crossings that are subject to periodic flash flooding. Affected areas differ with each storm as there are several different branches and tributaries of rivers and creeks subject to overflow, and also are dependent upon which area receives the rain. These areas are low water crossings mainly on improved city streets.

Hail Hail is an outgrowth of a severe thunderstorm in which balls or irregularly shaped lumps of ice greater than 0.75 inches in diameter fall with rain. Early in the developmental stages of a hailstorm, ice crystals form within a low-pressure front due to warm air rising rapidly into the upper atmosphere and the subsequent cooling of the air mass. Frozen droplets gradually accumulate on the ice crystals until, having developed sufficient weight, they fall as precipitation. The entire geographic planning area has the potential to be vulnerable to hail, exposed populations, manufactured homes, and older properties are most vulnerable.

High Winds Straight-line winds are often responsible for the wind damage associated with a thunderstorm. Downbursts or micro-bursts are examples of damaging straight-line winds. A downburst is a small area of rapidly descending rain and rain-cooled air beneath a thunderstorm that produces a violent, localized downdraft covering 2.5 miles or less. Wind speeds in some of the stronger downbursts can reach 100 to 150 miles per hour, which is similar to that of a strong tornado. The winds produced from a downburst often occur in one direction, and the worst damage is usually on the forward side of the downburst. High winds have the potential to affect the entire planning area, manufactured homes and exposed populations are most vulnerable.

High winds are a frequent occurrence with severe thunderstorms and they can affect all areas of Farmersville. These winds can occur suddenly and without warning during severe weather and may pose access challenges due to fallen trees on roadways. There have been several instances of damage occurring to business and commercial structures as a result of high winds. Outside of primary residential structures, there are few locations for the public to seek shelter during high winds.

Lightning Lightning damage results from four (4) effects of lightning strike: electrocution of humans and animals; vaporization of materials along the path of strike; fire caused by the high temperature produced by the strike; and a sudden power surge that can damage electrical and electronic utility substations and distribution lines. It is estimated that throughout the United States, a power outage caused by lightning occurs on 50 percent of the days throughout the year. Lightning has the potential to affect all populations and property in the City of Farmersville. Property without lightning protection and exposed populations are most vulnerable.

Tornado A violently rotating column of air, in contact with the ground, either pendant from a cumuliform cloud or underneath a cumuliform cloud, and often (but not always) visible as a condensation funnel cloud. The entire Farmersville geographic planning area has the potential to be vulnerable to tornadoes. Manufactured homes and exposed populations are extremely vulnerable to tornadoes.

Wildfire Wildfires are any fire occurring on grassland, forest, or prairie, regardless of ignition source, damages or benefits. Wildfires are fueled almost exclusively by natural vegetation. Interface or intermix fires are urban/wildfires in which vegetation and the built-environment provide fuel. Firestorms are events of such extreme intensity that effective suppression is virtually impossible. Firestorms occur during

extreme weather and generally burn until conditions change or the available fuel is exhausted. 66.43% of the population is vulnerable to the WUI and the risk is identified as moderate by the Texas Forest Service. Automatic mutual aid between city fire departments is enacted to respond to wildfires, especially during times of drought, burn bans and high fire threat.

Winter Storms Winter storms originate as mid-latitude depressions or cyclonic weather systems, sometimes following the path of the jet stream. A winter storm or blizzard, combines heavy snowfall, high winds, extreme cold and ice storms. Many winter depressions give rise to exceptionally heavy rain and widespread flooding and conditions worsen if the precipitation falls in the form of snow. The winter storm season varies widely, depending on latitude, altitude and proximity to moderating influences. The entire geographic planning area has the potential to be vulnerable to winter storms. Populations at greatest risk are the elderly, the homeless, and populations without access to heat. Critical facilities are also vulnerable.

Identification of Assets and Vulnerability Assessment

An inventory of unincorporated Collin County geo-referenced assets was created in order to identify and characterize property and population potentially at risk to the identified hazards. By understanding the type and number of assets that exist and where they are located in relation to known hazard areas, the relative risk and vulnerability for such assets can be assessed. For this assessment, five categories of assets were evaluated using Geographic Information System and statistical analysis. The five categories of vulnerable assets include:

- **Population**: Includes the number of people residing in Collin County as delineated by U.S. Census 2020 block data provided by NCTCOG.
- **Improved property**: Includes all developed properties according to local parcel data from the Collin County Central Appraisal District. The information has been expressed in terms of the total assessed value of improvements that may be exposed to the identified hazards.
- **Emergency facilities**: Includes fire stations, police stations and hospitals, provided by the Regional Hazard Assessment Tool, and the Collin County Emergency Management Coordinator.
- **Critical facilities**: Includes schools and historic places provided by Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator. These are non-emergency facilities, but still provide critical services and functions for vulnerable sectors of the population.
- **Critical infrastructure**: Includes airports, natural gas facilities, wastewater facilities, potable water treatment facilities, wastewater treatment facilities, dams, and bridges. Data for all critical facilities was obtained from Regional Hazard Assessment Tool, and the Collin County Emergency Management Coordinator.

The following tables provide a breakdown of the geo-referenced assets that were used for the vulnerability assessment.

Population

According to the 2020 NCTCOG Population Estimates, the total population of the City of Farmersville in 2020 was 3,351 people, with 1,206 households. The count breakdown by municipal jurisdiction is provided in *Table 3.4.*

Table 3.4. Population Counts

Jurisdiction	Population			Households		
	Population	% of County Total	Population Density (Sq. Mile)	Household	% of County Total	Household Density (Sq. Mile)
City of Farmersville	3,351	0.31%	786.62	1,179	0.31%	276.98

Source: 2020 NCTCOG Population Estimate & Collin County Appraisal District

Table 3.5 summarizes population counts and population chance (absolute and percent predications for the City of Farmersville).

Table 3.5 Population Predictions*

Jurisdiction	Population 2010 Census	Population 2018 Estimate	Population 2019 Estimate	Absolute Change 2018-2019	Percent (%) Change 2018-2019
City of Farmersville	3,301	3,330	3,340	10	.03%

Source: 2020 NCTCOG Population Estimate

Property

There are an estimated 1,888 parcels in the City of Farmersville, with an estimated $217,208,478 in total assessed value of improvements. *Table 3.6* lists the total number and percentage of parcels by jurisdiction.

Table 3.6 Parcel Counts and Improvements Value

Jurisdiction	Number of Parcels	% of County Total	Total Assessed Value of Improvements (Buildings)[1]
City of Farmersville	1,888	0.48%	$217,208,478

Source: Collin County Appraisal District

Emergency Facilities

There is one identified emergency facilities in Farmersville, including Public Safety Building which houses the fire station and police station. *Table 3.7* presents the distribution of emergency facilities by jurisdiction. Geographic coordinates were used to determine the location of each facility.

Table 3.7 Emergency Facilities

Jurisdiction	Fire Stations	Police Stations	Hospitals
City of Farmersville	1	1	0

Source: City/County Data

Critical Facilities

There is four critical facility, which is considered non-emergency in Farmersville. The critical facility is the Public Safety Building which will include schools. (*Table 3.8*). Geographic coordinates (i.e., latitude and longitude) were used to determine the location of each facility.

Table 3.8 Critical Facilities

Jurisdiction	Schools	Historical Property
City of Farmersville	4	0

Source: Local jurisdictions

Critical Infrastructure

There are 7 identified critical infrastructure facilities in Farmersville, including one airport, a water treatment facility, a wastewater treatment facility, three dams, and one railway/highway bridges (*Table 3.9*). In addition to the information on the table Farmersville also has one electric city wide system.

Table 3.9 Critical Infrastructure

Jurisdiction	Airports	Natural Gas Facilities	Wastewater Treatment Facilities	Potable Water Treatment Facilities	Dams	Railway/ Highway Bridges
City of Farmersville	1	0	1	1	3	1

Source: Local jurisdictions

Methodology

Based on the type of information available for analysis, the City of Farmersville's vulnerability assessment was conducted using two distinct methodologies, a Geographic Information System-based analysis and a statistical risk assessment methodology. Each approach provides estimates for the potential impact of hazards by using a common, systematic framework for evaluation of historical occurrence information provided by National Centers for Environmental Information, the Texas Forest Service, and the FEMA Resilience and Planning Tool. The results of the vulnerability assessment are provided by jurisdiction for each hazard analyzed.

Of the 12 hazards evaluated for Collin County, four were analyzed using a Geographic Information System-based analysis, five using a statistical risk assessment methodology, and the remaining three hazards using a qualitative analysis. Qualitative analysis was used due to lack of information, the inability to define specific areas of risk, and/or inexistence of historical records. Additional information regarding these hazards is unattainable at the present time; studies to address this data deficiency are noted as action items in this update. *Table 3.10* summarizes the methodology used for each hazard.

Table 3.10 Analysis used for Vulnerability Assessment

Hazard	Geographic Information System-based Analysis	Statistical Analysis	Qualitative Analysis
Dam Failure			X
Drought	X		
Earthquake			X

Expansive Soils			X
Extreme Heat		X	
Flooding	X		
Hail	X		
High Winds		X	
Lightning		X	
Tornado		X	
Wildfire	X		
Winter Storms		X	

Summary of Vulnerably Assessment

A summary of the vulnerability assessment for each hazard using geographic and statistical analysis is presented in the following pages. The detailed assessment is presented in the following sections.

Summary Table 3.11

Drought	
Population	According to National Centers for Environmental Information (NCEI) zero (0) recorded injuries or fatalities have been recorded for drought events. There are no personal losses expected from drought events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Farmersville are expected but financially unknown due to lack of accurate reporting. Historical data indicates that crop losses in the City of Farmersville are expected mostly during water shortages, financially unknown due to lack of accurate reporting .
Emergency Facilities	Because of the nature of this hazard, no losses are expected on emergency facilities but foundation issues could occur due to drought events.
Critical Facilities	Because of the nature of this hazard, no losses are expected on critical facilities but foundation issues could occur due to drought events.
Critical Infrastructure	Because of the nature of this hazard, no losses are expected on critical infrastructure but foundation issues and road degradation could occur due to drought events.

Summary Table 3.12

Extreme Heat	
Population	According to National Centers for Environmental Information (NCEI), there were no fatalities recorded due to extreme heat from the City of Farmersville. The City of Farmersville and its population are vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to developed areas and the improved property in the City of Farmersville is not vulnerable to this hazard.
Emergency Facilities	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to buildings and the emergency facilities in the City of Farmersville are not vulnerable to this hazard.
Critical Facilities	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to buildings, and the critical facilities in the City of Farmersville are not vulnerable to this hazard.
Critical Infrastructure	According to National Centers for Environmental Information (NCEI), the impact of extreme heat to critical infrastructure would be on the one city-wide electrical system.

Summary Table 3.13

Flooding	
Population	Flooding produces an expected annualized count of zero (0) fatalities and injuries per year. Approximately 5.54% of the population of the City of Farmersville is located within the 100-year floodplain.
Improved Property	There have been three (3) recorded flood events in the City of Farmersville. Property losses are expected but unknown due to inaccurate reporting. No crop losses are expected or recorded county-wide.
Emergency Facilities	There are not emergency facilities at imminent risk from the 100-year storm event.
Critical Facilities	There are not critical facilities located within the 100-year storm event.
Critical Infrastructure	100% of railways/highways and bridges, 100% of dams, 100% of water treatment works, 100% waste water treatment facilities, and 100% electric system facilities are at risk from the 100-year storm event. Many of these structures are designed to traverse or be located within the floodplain due to unavoidable circumstances. Additionally, treated wastewater is typically discharged towards streams, which makes portions of wastewater treatment facilities likely to be located within the floodplain.

Summary Table 3.14

Hail	
Population	According to National Centers for Environmental Information (NCEI), no recorded injuries or fatalities have been recorded for hailstorm events. There are no personal losses expected from hailstorm events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Farmersville are expected at $871.43 per year however these values are underestimated due to lack of accurate reporting. All improved property is vulnerable to this hazard. Although some crops are susceptible to hail hazards, available historical data for the City of Farmersville indicates that there are no expected crop losses from this event.
Emergency Facilities	Because of the unpredictability of the geographical location of hailstorms, all emergency facilities in the City of Farmersville are vulnerable to this hazard.
Critical Facilities	Because of the unpredictability of the geographical location of hailstorms, all critical facilities in the City of Farmersville are vulnerable to this hazard.
Critical Infrastructure	Because of the unpredictability of the geographical location of hailstorms, all critical infrastructures in the City of Farmersville are vulnerable to this hazard.

Summary Table 3.15

High Wind	
Population	According to National Centers for Environmental Information (NCEI), there are three (3) recorded injuries and no recorded fatalities from high wind events. All the population of the City of Farmersville is vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Farmersville are expected at $16,642.86 per year however these values are underestimated due to lack of accurate reporting. No crop losses resulted from this hazard in the City of Farmersville.
Emergency Facilities	Because of the expected geographical widespread nature of high winds, all emergency facilities in the City of Farmersville are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of high winds, all critical facilities in the City of Farmersville are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of high winds, all critical infrastructures in the City of Farmersville are vulnerable to this hazard.

Summary Table 3.16

Lightning	
Population	According to National Centers for Environmental Information (NCEI), lightning events can be expected to cause no deaths or injuries the City of Farmersville. All the population of the City of Farmersville is vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Farmersville are expected but unknown due to lack of accurate reporting.
Emergency Facilities	Because of the expected geographical widespread nature of lightning, all emergency facilities in the City of Farmersville are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of lightning, all critical facilities in the City of Farmersville are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of lightning, all critical infrastructures in the City of Farmersville are vulnerable to this hazard.

Summary Table 3.17

Tornado	
Population	According to National Centers for Environmental Information (NCEI), there have been no recorded injuries or fatalities from tornado events in the City of Farmersville. All the population of the City of Farmersville is exposed and vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Farmersville are expected at $22,142.86 per year however these values are underestimated due to lack of accurate reporting. No crop losses resulted from this hazard in the City of Farmersville.
Emergency Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all emergency facilities in the City of Farmersville are exposed and vulnerable to this hazard.
Critical Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all critical facilities in the City of Farmersville are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the impossibility to predict the geographical area of impact for tornados, all critical infrastructures in the City of Farmersville are exposed and vulnerable to this hazard.

Summary Table 3.18

Wildfire	
Population	Based on geographical data, approximately 66.43%% of the City of Farmersville is vulnerable to wildfires. There have been no recorded injuries or fatalities due to wildfires.
Improved Property	Based on historical data, property losses in the City of Farmersville are expected but unknown due to lack of accurate reporting; therefore, percentage of the overall property improvement values across the City of Farmersville are also unknown..
Emergency Facilities	Based on geographic information there is one fire station in City of Farmersville at risk from wildfire events.
Critical Facilities	Based on geographic information there are four schools at risk from wildfire events.
Critical Infrastructure	Based on geographic information there are one bridge, three dams, one wastewater treatment facility, one water treatment facility, and one electric system at risk from wildfire events.

Summary Table 3.19

Winter Storm	
Population	According to National Centers for Environmental Information (NCEI), there was one (1) county-wide fatality recorded due to winter storms, none from the City of Farmersville. All the population of the City of Farmersville is exposed and vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Farmersville are expected but unknown due to lack of reporting however county-wide property loss is estimated at $116,250 per year. No crop losses are expected from this hazard in the City of Farmersville.
Emergency Facilities	Because of the expected geographical widespread nature of winter storms, all emergency facilities in the City of Farmersville are exposed and vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of winter storms, all critical facilities in the City of Farmersville are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of winter storms, all critical infrastructures in the City of Farmersville are exposed and vulnerable to this hazard.

4. Capability Assessment

The risk assessment and capabilities assessment serves as the foundation for the development of a meaningful hazard mitigation strategy. During the process of identifying specific mitigation actions to pursue, the City of Farmersville considered not only its level of hazard risk but also the existing capabilities to minimize or eliminate that risk.

Table 4.1 Legal and Regulatory Capability Summary

Legal and Regulatory Capabilities															
Jurisdiction	Building Code	Zoning Ordinance	Subdivision Ordinance or regulation	Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances wildfire ordinances, hazard setback requirements)	Growth management ordinances (also called "smart Growth" or anti-sprawl programs)	Site Plan review requirements	General or comprehensive plan	A capital improvements plan	An economic development plan	An emergency response plan	A post-disaster recovery plan	A post-disaster recovery ordinance	Real estate disclosure requirements	Other	% Yes per Jurisdiction
Farmersville	Y	Y	Y	Y	?	Y	Y	Y	Y	Y	Y	Y	N	N	**84%**
Average % Yes Capabilities – 84%															
Y- Yes N- No ?- Don't Know															

Table 4.2 Administrative and Technical Capability Summary

Administrative and Technical Capabilities											
Jurisdiction	Planner(s) or engineer(s) with knowledge of land development and land management	Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Planners or engineer(s) with an understanding of natural and/or human caused hazards	Floodplain manager	Surveyors	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in GIS	Scientists familiar with the hazards of the community	Emergency manager	Grant writers	% Yes
Farmersville	Y	Y	Y	Y	Y	Y	N	N	Y	Y	**80%**
Average % Yes Capabilities – 80%											
Y- Yes N- No ?- Don't Know											

Table 4.3 Fiscal Capability Summary

Fiscal Capabilities											
Jurisdiction	Community Development Block Grants (CDBG)	Capital improvements project funding	Authority to levy taxes for specific purposes	Fees for water, sewer, gas, or electric service	Impact fees for homebuyers or developers for new developments/homes	Incur debt through general obligation bonds	Incur debt through special tax bonds	Incur debt through private activity bonds	Withhold spending in hazard-prone areas	Other	% Yes
Farmersville	Y	Y	Y	Y	Y	Y	Y	N	Y		**90%**
Average % Yes Capabilities – 90%											
Y- Yes N- No ?- Don't Know											

To quantify Farmersville's legal and regulatory, administrative and technical, and fiscal capabilities, an overall rating system was administered for each category: limited (0-30%), moderate (31-70%), and strong (70-100%). Questionnaire responses indicated that on average, Farmersville has a strong level of identified legal and regulatory capabilities, a strong level of identified administrative and technical capabilities, and a strong level of identified fiscal capabilities.

Table 4.4 Administrative Information

Jurisdiction	Chief Administrative Officer	Ability to Implement Capabilities
City of Farmersville	City Manager	The city council, including the mayor, mayor pro-tem, and council members, along with the city manager, address the budget; pass laws, regulations, and codes; hire staff; approve plans; and determine the direction of the city overall. As the governing body, the ability to implement and approve mitigation actions, expand, and integrate mitigation into existing policies and programs is a function of this group.

Specific actions that can expand and improve existing capabilities, authorities, plans, policies, and resources for mitigation include: budgeting and passing policies and procedures, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates and additions to existing plans as new needs are recognized.

5. Mitigation Strategies

Based on the results of the risk and capability assessments, and reviews of the goals and objectives included in the 2016 HazMAP, the City of Farmersville Hazard Mitigation Planning Committee developed mitigation strategies for the plan update.

Goal 1 Reduce or eliminate loss of life, injuries and property damage resulting from severe weather events.

Objective 1-A Provide adequate warning and communication before, during, and after a hazard event.
Objective 1-B Expand and coordinate Early Warning Systems currently in use.
Objective 1-C Reduce or eliminate loss of life and property damage from tornados through the construction and use of safe rooms or shelter areas.

Goal 2 Protect existing and new properties from the effects of all natural hazards.

Objective 2-A Conduct studies to determine hazard and vulnerability threat assessment for all natural hazards.
Objective 2-B Rehabilitate or retrofit identified high hazard critical infrastructure.
Objective 2-C Enact and enforce regulatory measures that enforce hazard mitigation measures.
Objective 2-D Construct enhancements or additions to current and new facilities which mitigate the effects of natural hazards.
Objective 2-E Maintain NFIP compliance, storm water management, and implement drainage projects.

Goal 3 Reduce losses and repetitive damages for chronic hazard events.

Objective 3-A Conduct a hazard/vulnerability assessment of personal properties and structures located in flood zones.
Objective 3-B Develop and implement a buyout program for those personal properties and structures located in high hazard flood zones starting with those that are most vulnerable to life and property loss.
Objective 3-C Develop and execute new programs which identify and reduce threats from natural hazards.

Goal 4 Develop public education campaigns to disseminate information about actions to mitigate potential loss of life, injuries and property damage resulting from natural hazards.

Objective 4-A Educate the public on risks, threats, and vulnerability from all natural hazards.
Objective 4-B Educate the public on actions they can take to prevent or reduce the loss of life or property from all natural hazards.
Objective 4-C Develop and implement a community education campaign to heighten public awareness about chronic flooding and options for insurance coverage to protect their personal properties as well as long term benefits from a buyout program.

6. Action Items

Below is a list of action items identified for the HazMAP Update. Each of the actions in this section were prioritized based on FEMA's STAPLEE criteria, which includes considering the social, technical, administrative, political, legal, economic and environmental factors necessary for the implementation of each action. As part of the STAPLEE analysis, economic considerations were weighed for each action. The STAPLEE was used for the 2016 Plan along with the 2021 Update. Priority rankings are classified as indicated in the table below.

Priority	Description
High	Benefits of mitigating risk of death or severe bodily injury outweigh costs to implement actions rated as high priorities.
Medium	Reducing vulnerability to threats and the resulting improvement in quality of life and peace of mind are benefits for actions rated as medium priorities.
Low	Awareness of low risk/low impact hazards offer benefits of time to assess, plan and integrate low priority mitigation actions as time, need, and funding permit.

City of Farmersville Action Items: Deferred from 2016 Plan

City of Farmersville Action Item	Develop and Implement a Comprehensive Public Education Program to Mitigate the Impacts of Each Identified Hazard.
Hazard(s) Addressed	Tornado, Winter Storm, Drought, Extreme Heat, Flooding, Wildfire, Expansive Soils, Hail, Earthquake, High Winds, Lightning, Dam Failure
Goal/Objective	4-A, 4-B, 4-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	General Fund, HMGP
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Public education is extremely effective for low cost.
Discussion	Farmersville will develop a program for educating the public on our hazards and effective mitigation activities for each. Program will combine distributed written literature and social media to educate residents on hazards, their dangers, and how to mitigate against them to protect life and property.

Status	Receive supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021

City of Farmersville Action Item	Develop and implement water conservation measures
Hazard(s) Addressed	Drought
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Farmersville will develop stringent regulations/codes for water conservation.
Status	Deferred – will be included in 2021 Plan

City of Farmersville Action Item	Develop and Implement an Extreme Temperature Program
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	2-D
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM,
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	H.R. Dept.
Implementation Schedule	1-2 years
Effect on Old Buildings	Could require retrofit to accommodate required space and resources
Effect on New Buildings	May entail enhanced construction materials
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.

Discussion	Developing heating and cooling shelters as part of an extreme temperature program would allow threatened residents to reduce their vulnerability to extreme temperature hazards.
Status	Deferred – will be included in 2021 Plan

City of Farmersville Action Item	Implement Individual Tornado Safe Room Rebate Program
Hazard(s) Addressed	High Wind, Tornado
Goal/Objective	1-C, 2-D
Priority	High
Estimated Cost	$25,000
Potential Funding Sources	HMGP, PDM, Resident Match
Potential Matching Sources	Local Grants, FEMA
Lead Department	EMC
Implementation Schedule	2-3 years
Effect on Old Buildings	Enhance safety of existing residential structures through retrofit
Effect on New Buildings	Enhance safety of new residential structures
Cost Effectiveness	Residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind events.
Discussion	By implementing its own program separate of that run by the North Central Texas COG, Farmersville would be able to directly target its residents for storm shelter rebates, ensuring their lives and property are protected against High Winds, Tornado, and Hail
Status	Will be included in 2021, however, come residents were able to obtain funds through the NCTCOG Saferoom Rebate Program

City of Farmersville Action Item	Purchase and install outdoor warning sirens to increase coverage for new development areas.
Hazard(s) Addressed	Dam Failure, High Winds, Tornado, Wildfire, Hail, Lightning, Flooding
Goal/Objective	1-A
Priority	High
Estimated Cost	$25,000 per siren
Potential Funding Sources	General Fund, HMGP, PDM
Potential Matching Sources	Local funds, in-kind, user fees
Lead Department	EMC
Implementation Schedule	1-3 years
Effect on Old Buildings	Could entail tower construction on existing buildings

Effect on New Buildings	None
Cost Effectiveness	High. Early warning is a key element in outdoor safety
Discussion	Installing sirens in areas of new development, Farmersville can ensure long-term reduction of vulnerability to life and personal property.
Status	Deferred – will be included in 2021 Plan

City of Farmersville Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	3-A
Priority	Medium
Estimated Cost	$50,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Planning
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	Deferred – will be included in 2021 Plan

City of Farmersville Action Item	Develop a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$5,000
Potential Funding Sources	TFS Grants,
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Fire Dept.
Implementation Schedule	2-3 years
Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire

Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire
Cost Effectiveness	CWPPs show city officials where to redouble their efforts in preventing wildfire, saving time and money. Also work to establish urban wildfire interface around new development properties.
Discussion	A CWPP would identify locations in Farmersville that are vulnerable to wildfire. These locations might include critical facilities, critical infrastructure, or other properties that are vital to the interests of Farmersville. By identifying these locations, targeted preparedness and response measures can be implemented.
Status	Deferred – will be included in 2021 Plan

City of Farmersville Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Results would help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results would identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.
Status	Deferred – will be included in 2021 Plan

City of Farmersville Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds

Lead Department	Emergency management, Public works
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.
Status	Deferred – will be included in 2021 Plan

City of Farmersville Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as other emergency and hazard information
Status	Deferred – will be included in 2021 Plan

City of Farmersville Action Items: New

City of Farmersville Action Item	Public education can help educate the public to reduce personal and property damage during disasters. Program will include information about hazard mitigation of each identified hazard.
Hazard(s) Addressed	Tornado, Hail, Winter Storms, High Winds, Dam Failure, Lightning, Expansive Soils, Extreme Heat, Earthquake, Flooding, Wildfire, Drought
Goal/Objective	4-A, 4-B, 4-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	General Fund, HMGP
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Minimal compared to preservation of life safety
Discussion	Public education can help educate the public to reduce personal and property damage during disasters. Program will include information about hazard mitigation.

City of Farmersville Action Item	Develop and implement water conservation measures
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.

Discussion	Farmersville will develop stringent regulations/codes for water conservation. When water is conserved and not used for landscape during droughts, this would provide water for homeowners to use, through drip irrigation, to keep their foundations at a consistent saturation level, mitigating the impacts of drought and lack of water.

City of Farmersville Action Item	Develop and Implement an Extreme Temperature Program
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	2-D
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM,
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	H.R. Dept.
Implementation Schedule	1-2 years
Effect on Old Buildings	Could require retrofit to accommodate required space and resources
Effect on New Buildings	May entail enhanced construction materials
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.
Discussion	Developing heating and cooling shelters as part of an extreme temperature program would allow threatened residents to reduce their vulnerability to extreme temperature hazards.

City of Farmersville Action Item	Implement Individual Tornado Safe Room Rebate Program
Hazard(s) Addressed	High Wind, Tornado
Goal/Objective	1-C, 2-D
Priority	High
Estimated Cost	$25,000
Potential Funding Sources	HMGP, PDM, Resident Match
Potential Matching Sources	Local Grants, FEMA
Lead Department	EMC
Implementation Schedule	2-3 years
Effect on Old Buildings	Enhance safety of existing residential structures through retrofit
Effect on New Buildings	Enhance safety of new residential structures

Cost Effectiveness	Residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind events.
Discussion	By implementing its own program separate of that run by the North Central Texas COG, Farmersville would be able to directly target its residents for storm shelter rebates, ensuring their lives and property are protected against High Winds, Tornado, and Hail

City of Farmersville Action Item	Purchase and install outdoor warning sirens to increase coverage for new development areas.
Hazard(s) Addressed	Dam Failure, High Winds, Tornado, Wildfire, Hail, Lightning, Flooding, Earthquake
Goal/Objective	1-A
Priority	High
Estimated Cost	$25,000 per siren
Potential Funding Sources	General Fund, HMGP, PDM
Potential Matching Sources	Local funds, in-kind, user fees
Lead Department	EMC
Implementation Schedule	1-3 years
Effect on Old Buildings	Could entail tower construction on existing buildings
Effect on New Buildings	None
Cost Effectiveness	High. Early warning is a key element in outdoor safety
Discussion	Installing sirens in areas of new development, Farmersville can ensure long-term reduction of vulnerability to life and personal property. This action item would be specific to installation/placement of new OWS sirens in the jurisdiction.

City of Farmersville Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	3-A
Priority	Medium
Estimated Cost	$50,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Planning
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones

Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.

City of Farmersville Action Item	Develop a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$5,000
Potential Funding Sources	TFS Grants,
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Fire Dept.
Implementation Schedule	2-3 years
Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire
Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire
Cost Effectiveness	CWPPs show city officials where to redouble their efforts in preventing wildfire, saving time and money. Also work to establish urban wildfire interface around new development properties.
Discussion	A CWPP would identify locations in Farmersville that are vulnerable to wildfire. These locations might include critical facilities, critical infrastructure, or other properties that are vital to the interests of Farmersville. By identifying these locations, targeted preparedness and response measures can be implemented.

City of Farmersville Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	1-2 years

Effect on Old Buildings	Results would help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results would identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.

City of Farmersville Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.

City of Farmersville Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years

Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as other emergency and hazard information

National Flood Insurance Program (NFIP) Compliance

The City of Farmersville is participating in the National Flood Insurance Program and has identified their respective areas as vulnerable to flooding. This is incorporated into all current and future planning for dealing with repetitive loss vulnerabilities.

Table 6.1 NFIP Compliance

CID	Community Name	County	Initial FHBM Identified	Initial FIRM Identified	Curr Eff Map Date	Reg-Emer Date	Tribal
481627#	FARMERSVILLE, CITY OF	COLLIN COUNTY		4/2/1991	06/02/09(M)	4/2/1991	No

Source: http://www.fema.gov/cis/TX.html

Jurisdiction Activities

In order to maintain eligibility with NFIP, jurisdictions are required to maintain their list of properties that hold a policy with NFIP, along with up-to-date maps of the floodplains in the jurisdictions. Each jurisdiction participating in the Collin County Hazard Mitigation Action Plan completes this basic requirement and has the information on file with the jurisdiction's designated floodplain manager. Using this plan, participating jurisdictions will be able to continue their compliance with NFIP by implementing damage control measures and take action to minimize the effects of flooding in their respective jurisdictions.

Table 6.2 NIFP Activity

Jurisdiction	Community Floodplain Manager	NFIP Activity	Activity Description	Enforcement
City of Farmersville	City Secretary	Complete and maintain FEMA elevation certificates for pre-FIRM and or post-FIRM buildings	Permits are issued through the City Secretary. The City of Farmersville requires 2 feet of freeboard above the base flood elevation for the top of bottom floor on residential structures and non-residential structures that will be built on properties created or platted after the effective date of the Flood Damage Prevention Order	NFIP compliance is implemented and enforced through a process of floodplain identification using FEMA floodplain maps, permit issuance, building requirements, and compliance inspections pending approval. Failure to comply with City's flood damage prevention order shall result in fines up to $500
		Floodplain development permits	Permits are required for any new construction in a floodplain.	
		Participate with FEMA in identifying Special	The City of Farmersville participates in Risk Assessment, Mapping	

Jurisdiction	Community Floodplain Manager	NFIP Activity	Activity Description	Enforcement
		Flood Hazard Areas for future FIRM maps	and Planning Partners (RAMPP) meetings held by FEMA and/or their contractors to better identify areas that are flood prone that are not shown on current Flood Insurance Rate Maps.	per violation plus court costs.
		Take action to minimize the effects of flooding on people, property, and building contents through measures including flood warning, emergency response, and evacuation planning	County Road Operations department installs signs at low water crossings that indicate "When flooded turn around don't drown".	
		Future Mitigation Projects	The City of Farmersville will continue to monitor for new areas of flooding that have not been previously identified for mitigation.	

7. Plan Maintenance

Monitoring, Evaluating and Updating the Plan

In compliance with requirement § 201.6(c)(4)(i), the City of Farmersville has developed a plan maintenance process which is described in the following paragraphs. The City of Farmersville, along with participating jurisdictions are responsible for monitoring implementation of the plan, executing a yearly evaluation of its effectiveness, and updating the plan within a 5-year cycle.

Following formal adoption by the City of Farmersville, the county, and the city council of each participating jurisdiction, the actions outlined in the Collin County Hazard Mitigation Action Plan (HazMAP) will be implemented by participating jurisdictions as described throughout this document.

The City of Farmersville's Emergency Management Coordinator, working in conjunction with the respective jurisdictions, will be responsible for ensuring the mitigation plan is monitored, evaluated, and reviewed on an annual basis. This will be accomplished by calling an annual meeting of the planning committee, whose members will provide assistance and expertise for plan review, evaluating, updating, and monitoring. This meeting will be open to the public and public notices will encourage community participation. During this annual meeting, the City of Farmersville will provide information on the implementation status of each action included in the plan. As part of the evaluation, the planning committee will assess whether goals and objectives address current and expected conditions, whether the nature and/or magnitude of the risks have changed, if current resources are appropriate for implementing the plan, whether outcomes have occurred as expected, and if agencies and other partners participated as originally proposed. These activities will take place according to the timetable presented below:

Table 7.1 Plan Maintenance Timeline

Personnel	What	Time
City Manager	Monitoring Plan : Track implementation and action items, changes to risk assessment, changes to planning committee members, changes to capabilities, plan integrations	Biannually
External Stakeholders and Planning Committee	Evaluate Plan: Assess effectiveness by evaluating completed actions, implementation processes, responsible personnel and lessons learned.	Annually
City Council	Update Plan	Once every 5 years

At least once every five (5) years, or more frequently, if such a need is determined by the participating jurisdiction, the multi-jurisdictional plan will undergo a major update. During this process, all sections of the plan will be updated with current information, analyses done and new and/or modified mitigation action plans will be developed. The revised plan will be submitted for state and federal review and approval, and presented for approval to the Collin County Commissioner's Court and the respective councils of incorporated cities/towns included in the Collin County plan. Each participating jurisdiction will undertake the same process for reviewing, revising and updating their respective plans and submitting them for approval. The plans will be updated every five years in accordance with federal requirements.

Plan Incorporation into Existing Planning Mechanisms *(In compliance with 201.6(c)(4)(ii))*

Based on the requirements set forth in § *201.6(c)(4(ii)*, the State of Texas Mitigation Plan, the vulnerability and capabilities assessment for each jurisdiction was carefully reviewed and considered when developing the mitigation actions for this plan. The HMPT and committees will establish a process in

which the mitigation strategy, goals, objectives and actions outlined in this plan will be incorporated into the existing regional and local planning strategies.
Local and regional planning committees currently use comprehensive land use planning, capital improvements planning, and building code ordinances to guide development. The mitigation strategy, goals, objectives and actions outlined in this plan will be integrated into these existing mechanisms as applicable. Those mechanisms include the following:

Table 7.2 Plan Incorporation Mechanisms

Jurisdiction	Responsible Personnel	Jurisdictional Plans	Integration Schedule	Integration Plan
City of Farmersville	City Council	Budget Meetings	Annually	Integration of mitigation projects identified in HazMAP, grants, and other fiscal allowances for mitigation actions and related costs
	Emergency Management Coordinator	Emergency Action Plan updates	Once every five years	EAP Mitigation annex updates based on HazMAP HIRA; update preparedness, response and recovery actions related to identified hazards
	Designated Floodplain Manager	Floodplain ordinances	As needed	Enhance mitigation of flood hazards using HazMAP flood data for floodplain management and community development.
	City Council, Director of Planning	Capital improvement plans	Annually	Strengthen critical infrastructure and key resources based on HazMAP hazard analysis, incorporate vulnerability data and action items.
	Public Works Director, City Council	Drought Contingency plans	As needed	Integrate drought actions such as xeriscaping, water restrictions, and public education
	Planning Director, City Council	Natural Resource Conservation Plan	Annually	Integrate conservation measures by directing development away from hazard-prone areas identified in HazMAP.

Although it is recognized there are many possible benefits to integrating components of this HazMAP into other planning mechanisms, the Farmersville Hazard Mitigation Planning Committee considers this HazMAP, including development and maintenance, to be the primary vehicles to ensure implementation of local hazard mitigation actions.

The process described here is the same as was used since the last planning update.

Continued Public Involvement (In compliance with 201.6(c)(4)(iii))

As stated in requirement § *201.6(c)(4)(iii)* The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.

To address this requirement, ongoing public participation will be encouraged throughout the entire planning and implementation process. A copy of the plan will be provided on the Collin County website. The planning team and committees will continue meeting on a regular basis to ensure the successful implementation of the plan and to discuss any additional issues regarding the emergency management of Collin County. The annual meetings for monitoring, evaluating, and updating the plan will be open to the public and public notices will encourage community participation.

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Annex H: City of Frisco

1. Introduction

This annex was prepared in 2021 as part of an update to the Collin County Multi-Jurisdictional Hazard Mitigation Action Plan. This plan updates the Frisco hazard mitigation plan submitted to FEMA as part of the 2016 Collin County plan. The City of Frisco participated on the Collin County Hazard Mitigation Team (HMPT) for this update. In addition to the countywide hazards and strategies discussed in the main plan, this annex serves as a complete hazard mitigation planning tool for the City of Frisco. It contains capability assessment information, a specific vulnerability assessment, and a complete mitigation strategy. The methodology and process for developing this annex are explained throughout the following sections.

2. Plan Development and Adoption Process

In order to apply for federal aid for technical assistance and post-disaster funding, local jurisdictions must comply with Part 201.3 of the Disaster Mitigation Act of 2000 implemented in the Federal Code of Regulations 44 CRF Part 201.6. While the City of Frisco has historically implemented measures to reduce their vulnerability to hazards, passage of DMA 2000 helped the City of Frisco officials to recognize the benefits of a long-term approach to hazard mitigation, which achieves a gradual decrease of impacts associated through the implementation of a Hazard Mitigation Plan. Collin County's Hazard Mitigation Action Plan represents the collective efforts of all participating jurisdictions, the general public, and stakeholders.

Organizing the Planning Effort

A comprehensive county approach was taken in developing the plan. An open public involvement process was established for the public, neighboring communities, regional agencies, businesses, academia, etc. to provide opportunities for everyone to become involved in the planning process and to make their views known. The meetings were advertised with notices in public places and jurisdictional websites.

In accordance with Part 201.6(c)(5) of the Disaster Mitigation Act of 2000 (DMA 2000), Collin County developed this Hazard Mitigation Action Plan. This plan identifies hazards and mechanisms to minimize future damages associated with these hazards, which threaten Collin County and its jurisdictions.

Existing Data and Plans

Existing hazard mitigation information and other plans were reviewed during the development of the Hazard Mitigation Action Plan. GIS, statistical and qualitative data was gathered through numerous sources. The table below outlines the sources of data for the plan:

Table 2.1 Plan Source Data

Source	Data
City and County Appraisal Data 2012	Population and demographics
Regional Hazard Assessment Tool	Hazard occurrences
National Climatic Data Center (NCDC)	Hazard occurrences
Texas Forest Service/Texas Wildfire Risk Assessment Summary Report	Wildfire Threat and Wildland/Urban Interface analysis
National Inventory of Dams	Dam Information

Planning Committee

This Hazard Mitigation Action Plan was developed by the City of Frisco Hazard Mitigation Planning Committee, with support of the North Central Texas Council of Governments and the Collin County HMPT. Frisco planning committee representatives participated on the HMPT, with local efforts led by the City of Frisco Emergency Management Specialist.

The Planning Committee was assembled with representatives from participating planning committees, including city management, police and fire chiefs, engineers, public and private representatives. Collin County acted as the plan development consultant providing hazard mitigation planning services. The table below provides a list of the primary representatives on the Frisco planning committee.

Table 2.2 Hazard Mitigation Committee – Primary Representatives

Representing	Position	Role
City of Frisco	Deputy Emergency Management Coordinator	General Policy Guidance
City of Frisco	Emergency Management Analyst	Coordination / Information Gathering / Submittals
City of Frisco	Public Safety GIS	Information Support

Collin County served as the coordinator and lead agency for all jurisdictions by accomplishing the following activities through the planning process:

- Assigned the County's Assistant Emergency Management Coordinator to provide technical assistance and necessary data to the planning committee.
- Scheduled, coordinated, and facilitated community meetings with the assistance of the HMPT and the planning committees.
- Provided any necessary materials, handouts, etc. for public planning meetings.
- Worked with the HMPT and planning committees to collect and analyze data and develop goals and implementation strategies.
- Prepared, based on community input and planning team/committee direction, the first draft of the plan and provided technical writing assistance for review, editing and formatting.
- Coordinated with the stakeholders within the jurisdictions and the unincorporated areas of Collin County during plan development.

Each of the individual jurisdictions participated in accomplishing similar activities associated with development of the plan as follows:

- Coordinated input from representatives of neighborhood stakeholder groups and provided a representative to the County HMPT.
- Attended regular meetings of the planning team as coordinated by Collin County.
- Assisted Collin County staff with identifying hazards and estimating potential losses from future hazard events.
- Assisted Collin County in developing and prioritizing mitigation actions to address the identified risks.
- Assisted Collin County in coordinating public meetings to develop the plan.
- Identified the community resources available to support the planning effort.
- Worked for the support of neighborhood stakeholders for the recommendations resulting from the planning process.

- Submitted the proposed plan to all appropriate departments for review and comment and worked with Collin County to incorporate the resulting comments into the proposed plan.

External stakeholders emailed and involved in reviewing the Collin County Hazard Mitigation Action Plan:

Table 2.3 External Stakeholders

Representing	Position	Role
Frisco Independent School District	Director of Emergency Management	Review of plan
Centennial Medical Center	Director of Emergency Management	Review of plan
Baylor Medical Center of Frisco	Director of Emergency Management	Review of plan
American Red Cross	Collin County VOAD Member	Review of plan

Subsequent to the State of Texas and FEMA approval of the plan, each organization above is committed to accomplishing the following activities:

- Appoint members to a Coordinating Committee to monitor and work toward plan implementation.
- Publicize the plan to neighborhood interests and ensure that new community members are aware of the plan and its contents.
- Monitor progress in achieving the plan's goals through regular maintenance and implementation projects.

Planning Meetings

During the planning process, the planning committee met to obtain relevant information from the participating jurisdictions and to discuss the objectives and progress of the plan. The objectives of these meetings were to gather information and to provide guidance for each jurisdiction throughout the planning stages.

The following meetings were held by Collin County and included all jurisdictions' participation:

- Collin County Kickoff Meeting – August 12, 2020
- Collin County HazMAP Planning Meeting – Week of 11/05/2020
- Collin County HazMAP Public Meeting – 11/2/2021 at 2PM
- Collin County HazMAP Public Meeting – 01/12/2022

Public Involvement

Support from the community is vital for any successful hazard mitigation plan. The HMPT and planning committee provided opportunities, announced through public communication means, for public participation and input throughout the planning process prior to this draft and before approval of the finalized plan. Advertisement and sign in sheets for these meetings are located in Appendix A.

- The first public meeting was held on November 2, 2021 at 2PM, and advertised on the Collin County website along with other jurisdictional websites inviting the public, neighboring

communities, local business, academia, agencies, and nonprofits to comment. The meeting was held virtually via WebEX.

- A second public meeting was held on January 12, 2022 at 9AM. Announcements were placed on jurisdictions websites, including Collin County inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to view and comment on the HazMAP prior to plan submission.

There were no comments directly related to the mitigation plan received from citizens, non-profits, businesses, academia, or interested parties; therefore, no feedback was incorporated. An additional opportunity for the public to comment on the plan will be held prior to formal plan adoption.

This provided all citizens, stakeholders, neighboring communities, agencies, businesses, academia, non-profit organizations, and all interested parties an opportunity to be involved in the planning process and to take part in the decisions making process that affect the future of the communities that they live in.

3. Jurisdictional Hazard Identification and Risk Assessment

The Hazard Mitigation Planning Committee for the City of Frisco identified several natural hazards and man-made hazards that could affect the city. The committee decided to focus on the natural hazards identified in Chapter 3 of this update. This was done after reviewing the 2016 Collin County HazMAP, the State of Texas Hazard Mitigation Plan, as well as other sources such as federal and state agencies. The hazards were ranked using the Priority Risk Index.

Priority Risk Index

A Priority Risk Index (PRI) was developed with the purpose of categorizing potential hazards for the City of Frisco and ranks each hazard as high, moderate, low, or negligible to no risk. The hazard classification generated through the use of the PRI allows for the prioritization of those high hazard risks for mitigation planning purposes, and more specifically, the identification of hazard mitigation opportunities for Collin County jurisdictions to consider as part of their proposed mitigation strategy.

The PRI is used to assist all jurisdictions participating in the Collin County HazMAP in determining which hazards pose the most significant threat based on a variety of factors. The PRI is not scientifically based, but is rather meant to be utilized as an objective and systematic planning tool for classifying and prioritizing hazard risks in Collin County based on standardized criteria. The PRI results in numerical values that allow identified hazards to be ranked against one another. The sum of all four categories equals the final PRI value, as shown below:

PRI Value = (Probability x .30) + (Life Impact x .35) + (Property Impact x .25) + (Spatial Extent x .10)

The higher the PRI value, the greater the hazards risk. These values were obtained by assigning varying degrees of risk to four categories for each hazard: Probability, Life Impact, Property Impact, and Spatial Extent *(Table 3.1).* Each category has been assigned an Index Value (0 to 3) and a Weighing Factor (0 – 100%). These values may be adjusted during future plan updates. In order to evaluate the risk of each hazard, the assigned PRI Value for each category is multiplied by the weighing factor. Then, the PRI for each hazard is calculated by adding the product obtained in each category. According to the weighing scheme applied for Collin County, the highest possible PRI value is 3.0. The PRI calculations are presented in *Table 3.2*. Table 3.1 breaks down the value of each category.

Table 3.1 Priority Risk Index Value

Assigned Weighing Factor	PRI Category	Degree of Risk		
		Level	Criteria	Index Value
30%	Probability	Unlikely	Less than 1% annual probability	0
		Possible	Between 1 and 10% annual probability	1
		Likely	Between 10 and 100% annual probability	2
		Highly Likely	100% annual probability	3
35%	Life Impact	Minor	Very few injuries, if at all none	0
		Limited	Minor Injuries	1
		Critical	Multiple deaths/injuries	2
		Catastrophic	High number of deaths/injuries	3
25%	Property Impact	Minor	Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	0
		Limited	More than 10% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one day.	1
		Critical	More than 25% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one week.	2
		Catastrophic	More than 50% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for 30 days or more.	3
10%	Spatial Extent	Negligible	Less than 1% of area affected	0
		Small	Between 1 and 10% of area affected	1
		Moderate	Between 10 and 50% of area affected	2
		Large	Between 50 and 100% of area affected	3

Table 3.2 Priority Risk Index for the City of Frisco

Hazard	Category/Degree of Risk				
	Probability Index Value (0 - 3 30%)	Life Impact Index Value (0 - 3 35%)	Property Impact Index Value (0 - 3 25%)	Spatial Extent Index Value (0 - 3 10%)	PRI Value 2021
Dam Failure	0	1	0	0	0.35
Drought	2	0	0	3	0.9
Earthquake	0	1	0	1	0.45
Expansive Soils	3	0	0	2	1.1
Extreme Heat	2	0	0	3	0.9
Flooding	1	1	0	1	0.75
Hail	2	1	1	3	1.5
High Winds	2	1	1	3	1.5
Lightning	2	1	1	3	1.5
Tornado	2	1	1	3	1.5
Wildfire	1	0	0	0	0.3
Winter Storms	2	0	1	3	1.15

The conclusions drawn from the hazard profiling process for the City of Frisco, resulted in the classification of risk for each identified hazard according to four categories: High Risk, Moderate Risk, Low Risk, and Negligible to No Risk *(Table 3.3).* For purposes of these classifications, risk is expressed in relative terms according to the probability of occurrence and estimated impact that a hazard will have on human life and property in the City of Frisco.

Table 3.3 Hazard Rankings for the City of Frisco

High Risk (PRI 2 - 3)	
Moderate Risk (PRI 1.01 -1.9)	Hail High Winds Lightning Tornado Winter Storms Expansive Soils Earthquake
Low Risk (PRI 0.50 – 1)	Drought Extreme heat Flooding
Negligible to No Risk (PRI 0 – 0.49)	Dam Failure Wildfire

Changes in Development and Priorities (Requirement §201.6(d)(3))

Since 2011, the City of Frisco has seen tremendous growth both in population and development. The population in 2011 was 119,738; it is now 203,795. Frisco Independent School District grew from 37,300 students to over 60,000 students across 10 high school,17 middles schools and 42 elementary schools. Commercial permits issued each year continues to rise; in 2014 we issued 85 new permits and in 2020 we issued 82 permits. Housing permits are estimated to have increased 15% from 2019 with the city issuing 7,399 single family and multi family dwelling permits. The Fire Department has added an additional two stations within this timeframe. Frisco is home to five large capacity special event venues, which host a variety of sporting and special events including the NFL Dallas Cowboys Headquarters and Training facility, NCAA Division I Finals, Major League Soccer, Minor League Baseball, basketball, and hockey as well as a variety of concerts. Frisco will also be home to the Professional Golf Association (PGA) in the coming year. It is not uncommon to have events occurring simultaneously at all five venues, effectively bringing an additional 20,000 to 30,000 visitors into the city within a matter of hours. Yearly the City of Frisco hosts approximately 6.6 million visitors. These increases alter the city's vulnerabilities to natural hazards by not only adding more citizens, more visitors and more infrastructure but also major commercial development. The City of Frisco was a participating jurisdiction in the 2016 Collin County Hazard Mitigation Action Plan. Since then, Frisco has completed several of their original action items, in an effort to lower vulnerability on populations and property from natural hazards. The following actions, sorted by type of action, have had a direct impact on lowering vulnerability:

- Natural Systems Protection
  - Develop and implement system for ensuring maintenance of utility infrastructure in easement right-of-ways are clear of obstructions to include excessive tree/brush growth.
  - Establish water systems to handle increased rates and volumes of runoff from new developments.
- Local Rules and Regulations
  - Compliance with the NFIP through enforcement of local floodplain ordinances.
- Education and Awareness Projects
  - Expanding early warning sirens and local warning system to notify the public of impending severe weather and reduce the loss of life and mitigate the effects of the hazards.

The development and implementation of these projects have directly led to lower vulnerability for residents and property located in Frisco. It should be noted that, although these action items, have been completed, these action items may continue to be necessary to reduce vulnerability in the future.

New priorities are noted and ranked in each new action item, Section 6. Except for actions completes or cancelled, other priorities remain the same as in the previous version of this plan.

Vulnerability Narratives

This annex focuses on specific areas of vulnerability the City of Frisco faces with each hazard. The hazards identified in the main plan are all addressed in this annex, therefore the natural hazards rated negligible to no risk are included, described, and considered for mitigation.

Dam and Levee Failure This hazard was identified as having negligible to no risk to the City of Frisco, but as a participant in the county plan inundation studies will be considered.

Drought This hazard was identified as having low risk to the City of Frisco. Drought has the potential to impact the entire planning area equally; all improved property, emergency facilities, critical facilities, critical infrastructure, and the entire population of Frisco are vulnerable to this hazard. Foundations of all buildings are vulnerable; however, older structures, or those built under less stringent foundation code requirements are most vulnerable. Lake Lavon, Lake Texoma, Lake Tawakoni, Lake Fork and the Lake Chapman-Cooper reservoir system are water sources for the City of Frisco and are vulnerable to drought. In turn, the city's population, wildlife and vegetation are vulnerable. Lower income populations who may not have the resources to buy containerized water in the event of a shortage may be more vulnerable than other populations.

Earthquake This hazard was identified as having moderate risk to the City of Frisco. All populations and property have the potential to be vulnerable to earthquake. Buildings constructed under older building codes, aging underground infrastructure, and roads are most vulnerable to damages from seismic activity.

Expansive Soils The City of Frisco has building requirements for the design and engineering of foundations based on the soils. All populations and property have the potential to be vulnerable to expansive soils, especially those constructed under older building codes.

Extreme Heat This hazard was identified as having low risk to the City of Frisco. All geographic areas have the potential to be vulnerable to extreme heat. Extreme heat generally affects the entire population, but the homeless, very young, elderly, and populations without air conditioning are most vulnerable.

Flooding This hazard was identified as having low risk to the City of Frisco. Flood events often occur on neighborhood streets, and in one instance in 2007 the Collin County Health Department flooded.

Hail All geographic areas, property, and populations in the City of Frisco have the potential to be vulnerable to hail. Exposed populations, manufactured homes, and older properties are most vulnerable. It is common for roofs of houses and vehicles to suffer damage from the occasional hail storm. Most citizens carry insurance that covers these damages.

High Winds All geographic areas in the City of Frisco have the potential to be vulnerable to high winds; however, manufactured homes and exposed populations are most vulnerable. It is common for fences and trees to suffer damage from the occasional high wind storm. Most citizens carry insurance that covers these damages. The city participates in public education and public alerting for high wind scenarios. High Winds also contribute to debris removal. The city has a storm management plan that addresses debris removal.

Lightning All geographic areas, property, and populations in the planning area have the potential to be vulnerable to lightning. This hazard was identified as having moderate risk to the City of Frisco. Property without lightning protection and exposed populations are most vulnerable.

Tornado The City of Frisco is within "tornado alley." Although the city has not experienced a devastating tornado, there is the potential for one. The City of Frisco has one manufactured home park in the center of the City that would be severely impacted by a tornado.

Wildland Fire This hazard was identified as having low to no risk to the City of Frisco. 32.75% of the population is vulnerable to the WUI.

Winter Storms The city has three major highways, State Hwy 121, US 380, and the Dallas North Tollway. All of these can be impacted during winter storms. These highways give access to and from our critical infrastructure including our receiving hospital and fire and police stations. Winter storms also contribute to debris removal. The City has a storm management plan that addresses debris removal. The homeless, elderly, and populations without access to heat are most vulnerable.

Identification of Assets and Vulnerability Assessment

An inventory of the City of Frisco's geo-referenced assets was created in order to identify and characterize property and population potentially at risk to the identified hazards. By understanding the type and number of assets that exist and where they are located in relation to known hazard areas, the relative risk and vulnerability for such assets can be assessed. For this assessment, five categories of assets were evaluated using Geographic Information System and statistical analysis. The five categories of vulnerable assets include:

- **Population**: Includes the number of people residing in Collin County as delineated by U.S. Census 2010 block data provided by NCTCOG.
- **Improved property**: Includes all developed properties according to local parcel data from the Collin County Central Appraisal District. The information has been expressed in terms of the total assessed value of improvements that may be exposed to the identified hazards.
- **Emergency facilities**: Includes fire stations, police stations and hospitals, provided by the Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.
- **Critical facilities**: Includes schools and historic places provided by Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions. These are non-emergency facilities, but still provide critical services and functions for vulnerable sectors of the population.
- **Critical infrastructure**: Includes airports, natural gas facilities, wastewater facilities, potable water treatment facilities, wastewater treatment facilities, dams, and bridges. Data for all critical facilities

was obtained from Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.

The following tables provide a breakdown by municipal jurisdiction of the geo-referenced assets that were used for the vulnerability assessment.

Population

According to the 2020 NCTCOG Population Estimates and the US Census Bureau, the total population of Frisco in 2019 was 200,490 people, with 31,334 households. The count breakdown by municipal jurisdiction is provided in *Table 3.4.*

Table 3.4 Population Counts

Jurisdiction	Population			Households		
	Population	% of County Total**	Population Density (Sq. Mile)	Household	% of County Total**	Household Density (Sq. Mile)
Frisco	200,490	19.38%	2,897.67	31,334	10.71%	452.87

Source: US Census Bureau & Collin County Appraisal District

Table 3.5 summarizes population counts and population chance (absolute and percent predications for the City of Frisco).

Table 3.5 Population Predictions

Jurisdiction	Population 2010 Census	Population 2018 Estimate	Population 2019 Estimate	Absolute Change 2018-2019	Percent (%) Change 2018-2019
Frisco	116,989	171,960	182,580	10,620	6.18%

Source 2020 NCTCOG Population Estimate

Property

There are an estimated 40,956 parcels in the City of Frisco, making up $17,625,127,264 of the parcels in Collin County. *Table 3.6* lists the total number and percentage of parcels by jurisdiction.

Table 3.6 Parcel Counts and Improvements Value

Jurisdiction	Number of Parcels	% of County Total	Total Assessed Value of Improvements (Buildings)[1]
Frisco (Collin County)	40,956	10.46%	$17,625,127,264
Frisco (Denton County)	27,676	7.35%	$10,008,823,511
Frisco Total	68,632		$27,633,950,775

Table 3.6 Parcel Counts and Improvements Value

Source: Collin County Appraisal District

[1]Includes public buildings (residential, commercial, industrial, agricultural, religion, government, education)

Emergency Facilities

There are sixteen identified emergency facilities in the City of Frisco, including nine fire stations, one police station, and six hospitals.

Table 3.7 presents the distribution of emergency facilities by jurisdiction. Geographic coordinates were used to determine the location of each facility.

Table 3.7 Emergency Facilities

Jurisdiction	Fire Stations	Police Stations	Hospitals
Frisco	9	1	6

Source: Local data

Critical Facilities

There are 157 critical facilities, which are considered non-emergency in the City of Frisco. The critical facilities include 95 schools and twenty-nine (29) historical property sites (*Table 3.8*). Geographic coordinates (i.e., latitude and longitude) were used to determine the location of each facility.

Table 3.8 Critical Facilities

Jurisdiction	Number
Frisco ISD	89 (includes other FISD facilities)
Private Schools	6
Senior Living, Assisted Living, Nursing Homes	30
Dialysis Centers	3
Historic Sites	29

Source: Local jurisdictions

Critical Infrastructure

There are forty-one (41) identified critical infrastructure facilities in the City of Frisco, including, two (2) wastewater treatment facilities, two (2) dams, and thirty-eight (38) railway/highway bridges (*Table 3.9*).

Table 3.9 Critical Infrastructure

Jurisdiction	Airports	Natural Gas Facilities	Wastewater Treatment Facilities	Potable Water Treatment Facilities	Dams	Railway/ Highway Bridges
Frisco	0	0	2	0	2	38

Source: Local jurisdictions

Methodology

Based on the type of information available for analysis, the City of Frisco's vulnerability assessment was conducted using two distinct methodologies, a Geographic Information System-based analysis and a statistical risk assessment methodology. Each approach provides estimates for the potential impact of hazards by using a common, systematic framework for evaluation of historical occurrence information provided by National Centers for Environmental Information, the Texas Forest Service, and the FEMA Resilience and Planning Tool. The results of the vulnerability assessment are provided by jurisdiction for each hazard analyzed.

Of the 12 hazards evaluated for the City of Frisco, four were analyzed using a Geographic Information System-based analysis, five using a statistical risk assessment methodology, and the remaining three hazards using a qualitative analysis. Qualitative analysis was used due to lack of information, the inability to define specific areas of risk, and/or inexistence of historical records. Additional information regarding these hazards is unattainable at the present time; studies to address this data deficiency are noted as action items in this update. *Table 3.9* summarizes the methodology used for each hazard.

Table 3.10 Analysis used for Vulnerability Assessment

Hazard	Geographic Information System-based Analysis	Statistical Analysis	Qualitative Analysis
Dam Failure			x
Drought	x		
Earthquake			x
Expansive Soils			x
Extreme Heat		x	
Flooding	x		
Hail	x		
High Winds		x	
Lightning		x	
Tornado		x	
Wildfire	x		
Winter Storms		x	

Summary of Vulnerably Assessment

A summary of the vulnerability assessment for each hazard using geographic and statistical analysis is presented in the following pages. The detailed assessment is presented in the following sections.

Summary Table 3.11

Drought	
Population	According to National Centers for Environmental Information (NCEI) no recorded injuries or fatalities have been recorded for drought events. There are no personal losses expected from drought events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Frisco are expected but financially unknown due to lack of accurate reporting. Historical data indicates that crop losses in the City of Frisco are expected mostly during water shortages, financially unknown due to lack of accurate reporting.
Emergency Facilities	Because of the nature of this hazard, no losses are expected on emergency facilities but foundation issues could occur due to drought events.
Critical Facilities	Because of the nature of this hazard, no losses are expected on critical facilities but foundation issues could occur due to drought events.
Critical Infrastructure	Because of the nature of this hazard, no losses are expected on critical infrastructure but foundation issues and road degradation could occur due to drought events.

Summary Table 3.12

Extreme Heat	
Population	According to National Centers for Environmental Information (NCEI), there were no fatalities recorded due to extreme heat from the City of Frisco. The City of Frisco and its population are vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), there is zero (0) impact of extreme heat to developed areas and the improved property in the City of Frisco is not vulnerable to this hazard.
Emergency Facilities	According to National Centers for Environmental Information (NCEI), there is zero (0) impact of extreme heat to buildings and the emergency facilities in the City of Frisco are not vulnerable to this hazard.
Critical Facilities	According to National Centers for Environmental Information (NCEI), there is zero (0) impact of extreme heat to buildings, and the critical facilities in the City of Frisco are not vulnerable to this hazard.
Critical Infrastructure	According to National Centers for Environmental Information (NCEI) there is zero (0) impact of extreme heat to critical infrastructure, and vulnerability to this hazard is considered minimal in the City of Frisco.

Summary Table 3.13

Flooding	
Population	Flooding produces an expected annualized count of zero fatalities and injuries per year. Approximately 1.56% of the population of the City of Frisco is located within the 100-year floodplain.
Improved Property	There have been three (3) recorded flood events in the City of Frisco. Property losses are at $16,666.67 per year. No crop losses are expected or recorded county-wide. Approximately 0% of the total assessed value of improvements in the City of Frisco is at risk from the 100-year floodplain.
Emergency Facilities	There are 0 emergency facilities located within the 100-year floodplain.
Critical Facilities	There are 0 critical facilities located within the 100-year floodplain.
Critical Infrastructure	0 railways/highways and bridges, 0 dams, 1 water treatment plant and 1 water storage tank are at risk from the 100-year storm event.

Summary Table 3.14

Hail	
Population	According to National Centers for Environmental Information (NCEI), no recorded injuries or fatalities have been recorded for hailstorm events. There are no personal losses expected from hailstorm events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Frisco are expected at $89,914.28 per year however these values are underestimated due to lack of accurate reporting. All improved property is vulnerable to this hazard. Although some crops are susceptible to hail hazards, available historical data for the City of Frisco indicates that there are no expected crop losses from this event.
Emergency Facilities	Because of the unpredictability of the geographical location of hailstorms, all emergency facilities in the City of Frisco are vulnerable to this hazard.
Critical Facilities	Because of the unpredictability of the geographical location of hailstorms, all critical facilities in the City of Frisco are vulnerable to this hazard.
Critical Infrastructure	Because of the unpredictability of the geographical location of hailstorms, all critical infrastructures in the City of Frisco are vulnerable to this hazard.

Summary Table 3.15

High Wind	
Population	According to National Centers for Environmental Information (NCEI), there are no recorded injuries or fatalities from high wind events. All the population of the City of Frisco is vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Frisco are expected at $4,200 per year however these values are underestimated due to lack of accurate reporting. No crop losses resulted from this hazard in the City of Frisco.
Emergency Facilities	Because of the expected geographical widespread nature of high winds, all emergency facilities in the City of Frisco are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of high winds, all critical facilities in the City of Frisco are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of high winds, all critical infrastructures in the City of Frisco are vulnerable to this hazard.

Summary Table 3.16

Lightning	
Population	According to National Centers for Environmental Information (NCEI), lightning events can be expected to cause no deaths or injuries in the City of Frisco. All the population of the City of Frisco is vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Frisco are expected at $25,916.67 per year however these values are underestimated due to lack of accurate reporting.
Emergency Facilities	Because of the expected geographical widespread nature of lightning, all emergency facilities in the City of Frisco are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of lightning, all critical facilities in the City of Frisco are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of lightning, all critical infrastructures in the City of Frisco are vulnerable to this hazard.

Summary Table 3.17

Tornado	
Population	According to National Centers for Environmental Information (NCEI), there have been no recorded injuries or fatalities from tornado events in the City of Frisco. All the population of the City of Frisco is exposed and vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Frisco are expected but unknown due to lack of accurate reporting.
Emergency Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all emergency facilities in the City of Frisco are exposed and vulnerable to this hazard.
Critical Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all critical facilities in the City of Frisco are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the impossibility to predict the geographical area of impact for tornados, all critical infrastructures in the City of Frisco are exposed and vulnerable to this hazard.

Summary Table 3.18

Wildfire	
Population	Based on geographical data, approximately 32.75% of the City of Frisco is vulnerable to wildfires, with the City of Frisco and the unincorporated areas contributing with the majority of the exposed population. There have been no recorded injuries or fatalities due to wildfires.
Improved Property	Based on historical data, annual financial losses expected from property loss due to wildfires are expected but unknown due to lack of accurate reporting; therefore, percentage of the overall property improvement values across the City of Frisco are also unknown.
Emergency Facilities	Based on geographic information there are 0 fire stations in the City of Frisco at risk from wildfire events.
Critical Facilities	Based on geographic information there are 0 schools at risk from wildfire events.
Critical Infrastructure	Based on geographic information there are 0 bridges, 0 dams, 0 wastewater treatment facilities, and 0 water treatment facilities at risk from wildfire events.

Summary Table 3.19

Winter Storm	
Population	According to National Centers for Environmental Information (NCEI), there was one (1) county-wide fatality recorded due to winter storms, none from the City of Frisco. All the population of the City of Frisco is exposed and vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Frisco are expected but unknown due to lack of reporting however county-wide property loss is estimated at $116,250 per year. No crop losses are expected from this hazard in the City of Frisco County.
Emergency Facilities	Because of the expected geographical widespread nature of winter storms, all emergency facilities in the City of Frisco are exposed and vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of winter storms, all critical facilities in the City of Frisco are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of winter storms, all critical infrastructures in the City of Frisco are exposed and vulnerable to this hazard.

4. Capability Assessment

The risk assessment and capabilities assessment serves as the foundation for the development of a meaningful hazard mitigation strategy. During the process of identifying specific mitigation actions to pursue, the City of Frisco considered not only its level of hazard risk but also the existing capabilities to minimize or eliminate that risk.

Table 4.1 Legal and Regulatory Capability Summary

Legal and Regulatory Capabilities														
Jurisdiction	Building Code	Zoning Ordinance	Subdivision Ordinance or regulation	Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances wildfire ordinances, hazard setback requirements)	Growth management ordinances (also called "smart Growth" or anti-sprawl programs)	Site Plan review requirements	General or comprehensive plan	A capital improvements plan	An economic development plan	An emergency response plan	A post-disaster recovery plan	A post-disaster recovery ordinance	Real estate disclosure requirements	% Yes per Jurisdiction
City of Frisco	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	**93%**
Average % Yes Capabilities – 93%														
Y- Yes N- No ?- Don't Know														

Table 4.2 Administrative and Technical Capability Summary

Administrative and Technical Capabilities											
Jurisdiction	Planner(s) or engineer(s) with knowledge of land development and land management	Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Planners or engineer(s) with an understanding of natural and/or human caused hazards	Floodplain manager	Surveyors	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in GIS	Scientists familiar with the hazards of the community	Emergency manager	Grant writers	% Yes
City of Frisco	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	**100%**
Average % Yes Capabilities – 100%											
Y- Yes N- No ?- Don't Know											

Table 4.3 Fiscal Capability Summary

Fiscal Capabilities										
Jurisdiction	Community Development Block Grants (CDBG)	Capital improvements project funding	Authority to levy taxes for specific purposes	Fees for water, sewer, gas, or electric service	Impact fees for homebuyers or developers for new developments/homes	Incur debt through general obligation bonds	Incur debt through special tax bonds	Incur debt through private activity bonds	Withhold spending in hazard-prone areas Other	% Yes
City of Frisco	Y	Y	Y	Y	Y	Y	Y	Y	Y	**100%**
Average % Yes Capabilities – 100%										
Y- Yes N- No ?- Don't Know										

To quantify the city of Frisco's legal and regulatory, administrative and technical, and fiscal capabilities, an overall rating system was administered for each category: limited (0-30%), moderate (31-70%), and strong (70-100%). Questionnaire responses indicated that on average, the city of Frisco and its jurisdictions have 93% of identified legal and regulatory capabilities, 100% of identified administrative and technical capabilities, and 100% of identified fiscal capabilities.

Table 4.4 Administrative Information

Jurisdiction	Chief Administrative Officer	Ability to Implement Capabilities
City of Frisco	City Manager	The city council, including the mayor, mayor pro-tem, and council members, along with the city manager, address the budget; pass laws, regulations, and codes; hire staff; approve plans; and determine the direction of the city overall. As the governing body, the ability to implement and approve mitigation actions, expand, and integrate mitigation into existing policies and programs is a function of this group.

Specific actions that can expand and improve existing capabilities, authorities, plans, policies, and resources for mitigation include: budgeting and passing policies and procedures, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates and additions to existing plans as new needs are recognized.

5. Mitigation Strategies

Based on the results of the risk and capability assessments, and reviews of the goals and objectives included in the 2016 HazMAP, the City of Frisco Hazard Mitigation Planning Committee developed mitigation strategies for the plan update.

Goal 1 **Reduce or eliminate loss of life, injuries and property damage resulting from severe weather events.**

Objective 1-A Provide adequate warning and communication before, during, and after a hazard event.
Objective 1-B Expand and coordinate Early Warning Systems currently in use.
Objective 1-C Reduce or eliminate loss of life and property damage from tornados through the construction and use of safe rooms or shelter areas.

Goal 2 **Protect existing and new properties from the effects of all natural hazards.**

Objective 2-A Conduct studies to determine hazard and vulnerability threat assessment for all natural hazards.
Objective 2-B Rehabilitate or retrofit identified high hazard critical infrastructure.
Objective 2-C Enact and enforce regulatory measures that enforce hazard mitigation measures.
Objective 2-D Construct enhancements or additions to current and new facilities which mitigate the effects of natural hazards.
Objective 2-E Maintain NFIP compliance, storm water management, and implement drainage projects.

Goal 3 **Reduce losses and repetitive damages for chronic hazard events**.

Objective 3-A Conduct a hazard/vulnerability assessment of personal properties and structures located in flood zones within the City of Frisco.
Objective 3-B Develop and implement a buyout program for those personal properties and structures located in high hazard flood zones starting with those that are most vulnerable to life and property loss.
Objective 3-C Develop and execute new programs which identify and reduce threats from natural hazards.

Goal 4 **Develop public education campaigns to disseminate information about actions to mitigate potential loss of life, injuries and property damage resulting from natural hazards.**

Objective 4-A Educate the public on risks, threats, and vulnerability from all natural hazards.
Objective 4-B Educate the public on actions they can take to prevent or reduce the loss of life or property from all natural hazards.
Objective 4-C Develop and implement a community education campaign to heighten public awareness about chronic flooding and options for insurance coverage to protect their personal properties as well as long term benefits from a buyout program.

6. Action Items

Below is a list of the new and deferred action items identified for the HazMAP Update. Each of the actions in this section were prioritized based on FEMA's STAPLEE criteria, which includes considering the social, technical, administrative, political, legal, economic and environmental factors necessary for the implementation of each action. As part of the STAPLEE analysis economic considerations were weighed for each action. The STAPLEE was used for the 2016 Plan along with the 2021 Update. Priority rankings are classified as indicated in the table below.

Priority	Description
High	Benefits of mitigating risk of death or severe bodily injury outweigh costs to implement actions rated as high priorities.
Medium	Reducing vulnerability to threats and the resulting improvement in quality of life and peace of mind are benefits for actions rated as medium priorities.
Low	Awareness of low risk/low impact hazards offer benefits of time to assess, plan and integrate low priority mitigation actions as time, need, and funding permit.

City of Frisco Action Items: Deferred from 2016 Plan

City of Frisco Action Item	Expanding the Early Warning Sirens and Local Warning System to notify new populations of impending severe weather or imminent hazards to reduce the loss of life and mitigate the effects of the hazards.
Hazard(s) Addressed	Tornado, hail, high winds, lightning, wildfire
Goal/Objective	1-B
Priority	High
Estimated Cost	$40,000 - $50,000 each siren / total to be determined
Potential Funding Sources	City of Frisco annual budget, HMGP
Lead Department	Fire Department
Implementation Schedule	2-5 years
Effect on Old Buildings	Outdoor warning sirens do not have an impact on structures; they are designed to be heard outdoors only.
Effect on New Buildings	The outdoor warning sirens do not have an impact on structures; they are designed to be heard outdoors only.
Cost Effectiveness	The costs associated with maintaining an outdoor warning system are minimal and less expensive than total replacement of an outdoor warning system.
Discussion	The outdoor warning siren system is the most effective tool for outdoor notification, especially as relative to the fact that Frisco has many outdoor parks, trails, and nature areas that are used by citizens.

City of Frisco Action Item	Implement the Texas Individual Tornado Safe Room Rebate Program Locally

Hazard(s) Addressed	Tornado, High Winds
Goal/Objective	1-C
Priority	Medium
Estimated Cost	50% of cost (up to) $3,000 per shelter. Number of shelters to be determined
Potential Funding Sources	County Budget, HMGP, PDM, Homeowner, Work-in-kind
Lead Department	Building Inspections Department, Emergency Management, HMC
Implementation Schedule	2-5 years
Effect on Old Buildings	This action will improve the safety of existing homes with either in-ground or in-house shelters.
Effect on New Buildings	This action will improve the safety of new homes with either in-ground or in-house shelters.
Cost Effectiveness	The cost of this project is low compared to the potential benefits of reduction in personal injuries and/or deaths.
Discussion	Residential safe room sheltering can decrease potential personal injuries or deaths in the event of a tornado.

City of Frisco Action Items: New

City of Frisco Action Item	Emergency power generators to provide life safety due to power outages caused by natural hazards.
Hazard(s) Addressed	Tornado, Winter Storm, Drought, Extreme Heat, Flooding, Wildfire, Expansive Soils, Hail, Earthquake, High Winds, Lightning, Dam Failure
Goal/Objective	2-D
Priority	Medium
Estimated Cost	$100,000- $1.2M each
Potential Funding Sources	Local funds, Federal grants, state grants
Potential Matching Sources	Local funds, donations, in kind
Lead Department	Emergency Management, Facilities, Public Works
Implementation Schedule	0-5 years
Effect on Old Buildings	Any old buildings would meet building construction standards.
Effect on New Buildings	New structures would have standards for construction
Cost Effectiveness	Medium-High, Relative
Discussion	Frisco will install, upgrade, and/or replace generators for critical facilities, including fire stations, City Hall, the Police Department, Public Works, water/wastewater pump and lift stations, shelter sites, and any facility that is essential to maintain city services.

City of Frisco Action Item	Harden existing critical facilities to protect against natural hazard damage.

Hazard(s) Addressed	Tornado, Winter Storm, Drought, Extreme Heat, Flooding, Wildfire, Expansive Soils, Hail, Earthquake, High Winds, Lightning, Dam Failure
Goal/Objective	2-D
Priority	Medium
Estimated Cost	$20,000- $150,000 each
Potential Funding Sources	Local funds, Federal grants, state grants
Potential Matching Sources	Local funds, donations, in kind
Lead Department	Engineering
Implementation Schedule	2-5 years
Effect on Old Buildings	Old buildings protected against damage from natural hazards
Effect on New Buildings	New structures would have standards for construction
Cost Effectiveness	Medium-High, Relative
Discussion	Frisco will harden critical infrastructure through mitigation by use of tornado, wind, fire, hail, ground movement, and impact resistant materials (windows, doors, roofing, construction, siding, roof bracings); dry-proofing buildings; upgrading to higher standard insulation; installing lightning rods and grounding systems; retrofitting for low-flow plumbing; replacing landscaping with drought and fire resistant plants; implementing higher standards for foundations. This includes hail-resistant covered parking for city facilities.

City of Frisco Action Item	Identify and implement building standards to reduce or avert expansive-soils damages and losses to structures and infrastructure, with emphasis on critical facilities and utilities.
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-C
Priority	Medium
Estimated Cost	$10,000 - $15,000
Potential Funding Sources	Private
Potential Matching Sources	None
Lead Department	Engineering
Implementation Schedule	2-5 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	New standards for constructing buildings to defend against expansive soils
Cost Effectiveness	Relative

Discussion	Building standards will keep buildings from being built in expansive soil troubled areas.

City of Frisco Action Item	Public education can help educate the public to reduce personal and property damage during disasters. Program will include information about hazard mitigation.
Hazard(s) Addressed	Tornado, Hail, Winter Storms, High Winds, Dam Failure, Lightning, Expansive Soils, Extreme Heat, Earthquake, Flooding, Wildfire, Drought
Goal/Objective	4-A, 4-B
Priority	High
Estimated Cost	$5,000 - $10,000
Potential Funding Sources	General Fund
Potential Matching Sources	None
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Minimal compared to preservation of life safety
Discussion	Public education can help educate the public to reduce personal and property damage during disasters. Program will include information about hazard mitigation.

City of Frisco Action Item	Add all-directional sirens and solar panels to the outdoor warning system to notify the public of impending severe weather.
Hazard(s) Addressed	Tornado, High Winds, Hail, Lightning, Flooding
Goal/Objective	1-A, 1-B, 2-D
Priority	High
Estimated Cost	$200,000 - $300,000
Potential Funding Sources	General Fund
Potential Matching Sources	None
Lead Department	Emergency Management
Implementation Schedule	1-2 years
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	Cost is minimal compared to possibility of injury

Discussion	All directional sirens would multiply the area of effect for the outdoor warning system. Solar panels would add a level of resiliency by protecting the sirens against power outages that can accompany severe weather. This action item would be specific to installation/placement of new OWS sirens in the jurisdiction.

City of Frisco Action Item	Implement seasonal trimming/removal of trees along utility and road corridors, preventing potential winter storm damage.
Hazard(s) Addressed	Winter Storms
Goal/Objective	3-C
Priority	High
Estimated Cost	$10,000 - $15,000
Potential Funding Sources	General Fund
Potential Matching Sources	None
Lead Department	Public Works
Implementation Schedule	2-5 years
Effect on Old Buildings	Reduce potential for debris/limb damages during severe weather
Effect on New Buildings	Reduce potential for debris/limb damages during severe weather
Cost Effectiveness	Cost is minimal compared to possibility of injury
Discussion	Separate from regular maintenance, this program would identify high-hazard areas adjacent to roadways or utility areas and target those locations for abatement measures, including, but not limited to, tree trimming and/or removal.

City of Frisco Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	2-A, 3-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local Sponsors, In-Kind
Lead Department	Planning and Zoning/ NRCS
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones

Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Dam Failure data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.

City of Frisco Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.

City of Frisco Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.

Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.

City of Frisco Action Item	Update Frisco's Drought Contingency & Water Emergency Response Plan
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local funds; in-kind
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Will identify needs for retrofits, such as low flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing
Cost Effectiveness	Low cost for effective means of preserving water resources
Discussion	Develop a plan for conversing water based on the stages of drought. Plan would include strategies for soil movement abatement depending on drought stage. When water is conserved and not used for landscape during droughts, this would provide water for homeowners to use, through drip irrigation, to keep their foundations at a consistent saturation level, mitigating the impacts of drought and lack of water.

National Flood Insurance Program (NFIP) Compliance

Frisco is participating in the National Flood Insurance Program and has identified their respective areas as vulnerable to flooding. This is incorporated into all current and future planning for dealing with repetitive loss vulnerabilities.

Table 6.1 NFIP Compliance

Collin County							
Communities Participating in the National Flood Program							
CID	Community Name	County	Initial FHBM Identified	Initial FIRM Identified	Curr Eff Map Date	Reg-Emer Date	Tribal
480134#	FRISCO, CITY OF	DENTON COUNTY/COLLIN COUNTY	1/24/1975	6/18/1980	4/18/2011	6/18/1980	No

Source: http://www.fema.gov/cis/TX.html

Jurisdiction Activities

In order to maintain eligibility with NFIP, jurisdictions are required to maintain their list of properties that hold a policy with NFIP, along with up-to-date maps of the floodplains in the jurisdictions. Each jurisdiction participating in the Collin County Hazard Mitigation Action Plan completes this basic requirement and has the information on file with the jurisdiction's designated floodplain manager. Using this plan, participating jurisdictions will be able to continue their compliance with NFIP by implementing damage control measures and take action to minimize the effects of flooding in their respective jurisdictions.

Table 6.2 NIFP Activity

Community Floodplain Administrator	NFIP Activities	Activity Description	Enforcement
Senior Stormwater Engineer	Require permits for all proposed construction or other development in the community.	Permits are issued through the Development Services or Engineering Department.	NFIP compliance is implemented and enforced through a process of floodplain identification using FEMA floodplain maps, permit issuance, building requirements, and compliance inspections pending approval.
	Review proposed development to assure that all necessary permits have been received from those governmental agencies from which approval is required by Federal or State law.		
	Review all permit applications to determine whether proposed buildings site will be reasonably safe from flooding.		
	Review subdivision proposals and other proposed developments to determine whether such proposals will be reasonably safe from flooding.		

7. Plan Maintenance

Monitoring, Evaluating and Updating the Plan

In Compliance with requirement § 201.6(c)(4)(i), the City of Frisco has developed a plan maintenance process which is described in the following paragraphs. The City of Frisco, along with participating jurisdictions are responsible for monitoring implementation of the plan, executing a yearly evaluation of its effectiveness, and updating the plan within a 5-year cycle.

Following formal adoption by the City of Frisco, the county, and the city council of each participating jurisdiction, the actions outlined in the Collin County Hazard Mitigation Action Plan (HazMAP) will be implemented by participating jurisdictions as described throughout this document.

The City of Frisco Emergency Management Coordinator, working in conjunction with the respective jurisdictions, will be responsible for ensuring the mitigation plan is monitored, evaluated, and reviewed on an annual basis. This will be accomplished by calling an annual meeting of the planning committee, whose members will provide assistance and expertise for plan review, evaluating, updating, and monitoring. This meeting will be open to the public and public notices will encourage community participation. During this annual meeting, the City of Frisco will provide information on the implementation status of each action included in the plan. As part of the evaluation, the planning committee will assess whether goals and objectives address current and expected conditions, whether the nature and/or magnitude of the risks have changed, if current resources are appropriate for implementing the plan, whether outcomes have occurred as expected, and if agencies and other partners participated as originally proposed. These activities will take place according to the timetable presented below:

Table 7.1 Plan Maintenance Timeline

Personnel	Activity	Schedule
Emergency Management Analyst	Monitoring Plan : Track implementation and action items, changes to risk assessment, changes to planning team members, changes to capabilities, plan integrations	Biannually
	Evaluate Plan: Assess effectiveness by evaluating completed actions, implementation processes, responsible personnel and lessons learned.	Annually
	Update Plan	Once every 5 years

At least once every five (5) years, or more frequently, if such a need is determined by the participating jurisdictions, the multi-jurisdictional plan will undergo a major update. During this process, all sections of the plan will be updated with current information, analyses done and new and/or modified mitigation action plans will be developed. The revised plan will be submitted for state and federal review and approval, and presented for approval to the Collin County Commissioner's Court and the respective councils of incorporated cities/towns included in the Collin County plan. Each participating jurisdiction will undertake the same process for reviewing, revising and updating their respective plans and submitting them for approval. The plans will be updated every five years in accordance with federal requirements.

Plan Incorporation into Existing Planning Mechanisms *(In compliance with 201.6(c)(4)(ii))*

2011 Plan Incorporation: Collin County's 2011 mitigation plan was incorporated into Frisco's fire codes and building codes through code updates (2012), as appropriate and planned in the 2011 HazMAP.

2016 Plan Incorporation: The vulnerability and capabilities assessments for each jurisdiction were carefully reviewed and considered when developing the mitigation actions for this plan. The HMPT and committees will establish a process in which the mitigation strategy, goals, objectives and actions outlined in this plan will be incorporated into existing local planning strategies and mechanisms. Those mechanisms include the following:

Table 7.2 Plan Incorporation Mechanisms

Jurisdiction	Responsible Personnel	Jurisdictional Plans	Integration Schedule	Integration Plan
City of Frisco	Emergency Management Analyst	Budget Meetings	Annually	Integration of mitigation projects identified in HazMAP, grants, and other fiscal allowances for mitigation actions and related costs
		Emergency Operations Plan updates	Triennially	EAP Mitigation annex updates based on HazMAP HIRA; update preparedness, response and recovery actions related to identified hazards

Although it is recognized there are many possible benefits to integrating components of this HazMAP into other planning mechanisms, the Frisco Hazard Mitigation Planning Committee considers this HazMAP, including development and maintenance, to be the primary vehicle to ensure implementation of local hazard mitigation actions.

The process described here is the same as was used since the last planning update.

Continued Public Involvement (In compliance with 201.6(c)(4)(iii))

As stated in requirement § *201.6(c)(4)(iii)* The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.

To address this requirement, ongoing public participation will be encouraged throughout the entire planning and implementation process. A copy of the plan will be provided on the Collin County website. The planning team and committees will continue meeting on a regular basis to ensure the successful implementation of the plan and to discuss any additional issues regarding the emergency management of Collin County. The annual meetings for monitoring, evaluating, and updating the plan will be open to the public and public notices will encourage community participation.

Annex I: City of Josephine

1. Introduction

This annex was prepared in 2020 as part of an update to the Collin County Multi-Jurisdictional Hazard Mitigation Action Plan. The City of Josephine participated in the Collin County Hazard Mitigation Planning Team (HMPT). This is a new hazard mitigation plan and the first to be submitted to FEMA for the City of Josephine. In addition to the countywide hazards and strategies discussed in the main plan, this annex serves as a complete hazard mitigation planning tool for the City of Josephine. It contains capability assessment information, a specific vulnerability assessment, and a complete mitigation strategy. The methodology and process for developing this annex are explained throughout the following sections.

2. Plan Development and Adoption Process

In order to apply for federal aid for technical assistance and post-disaster funding, local jurisdictions must comply with Part 201.3 of the Disaster Mitigation Act of 2000 implemented in the Federal Code of Regulations 44 CRF Part 201.6. While the City of Josephine has historically implemented measures to reduce their vulnerability to hazards, passage of DMA 2000 helped Josephine officials recognize the benefits of a long-term approach to hazard mitigation, which achieves a gradual decrease of impacts associated through the implementation of a Hazard Mitigation Plan. Collin County's Hazard Mitigation Action Plan represents the collective efforts of all participating jurisdictions, the general public, and stakeholders.

Organizing the Planning Effort

A comprehensive county approach was taken in developing the plan. An open public involvement process was established for the public, neighboring communities, regional agencies, businesses, academia, etc. to provide opportunities for everyone to become involved in the planning process and to make their views known. The meetings were advertised with notices in public places and online.

In accordance with Part 201.6(c)(5) of the Disaster Mitigation Act of 2000 (DMA 2000), Collin County developed this Hazard Mitigation Action Plan. This plan identifies hazards and mechanisms to minimize future damages associated with these hazards, which threaten Collin County and its jurisdictions.

Existing Data and Plans

Existing hazard mitigation information and other plans were reviewed during the development of the Hazard Mitigation Action Plan. GIS, statistical and qualitative data was gathered through numerous sources. The table below outlines the sources of data for the plan:

Table 2.1 Plan Source Data

Source	Data
City and County Appraisal Data 2020	Population and demographics
Regional Hazard Assessment Tool	Hazard occurrences
Nationals Centers of Environmental Information (NCEI)	Hazard occurrences
Texas Forest Service/Texas Wildfire Risk Assessment Summary Report	Wildfire Threat and Urban Interface
National Inventory of Dams	Dam Information

Planning Committee

This Hazard Mitigation Action Plan was developed by the City of Josephine Hazard Mitigation Planning Committee, with support of the North Central Texas Council of Governments and in conjunction with the Collin County HMPT.

The Collin County HMPT was assembled in November 2020 with representatives from participating county jurisdiction planning committees, including mayors, police chiefs, fire chiefs, and the general public. Collin County acted as the plan development consultant providing hazard mitigation planning services. The efforts of the planning committees and the HMPT were led by the Collin County Assistant Emergency Management Coordinator. The table below provides a list of the primary representatives on the Josephine planning committee.

Table 2.2 Hazard Mitigation Committee – Primary Representatives

Representing	Position	Role
Josephine City Council	Mayor	Plan Development
Josephine Police Department	Police Chief	Plan Development
Josephine Fire Department	Assistant Fire Chief	Plan Development Coordinator
Engineering	City Engineer	Plan Development

Collin County served as the coordinator and lead agency for all jurisdictions by accomplishing the following activities through the planning process:

- Assigned the County's Assistant Emergency Management Coordinator to provide technical assistance and necessary data to the planning committee.
- Scheduled, coordinated, and facilitated community meetings with the assistance of the HMPT and the planning committees.
- Provided any necessary materials, handouts, etc. for public planning meetings.
- Worked with the HMPT and planning committees to collect and analyze data and develop goals and implementation strategies.
- Prepared, based on community input and planning team/committee direction, the first draft of the plan and provided technical writing assistance for review, editing and formatting.
- Coordinated with the stakeholders within the jurisdictions and the unincorporated areas of Collin County during plan development.

Each of the individual jurisdictions participated in accomplishing similar activities associated with development of the plan as follows:

- Coordinated input from representatives of neighborhood stakeholder groups and provided a representative to the County HMPT.
- Attended regular meetings of the planning team as coordinated by Collin County.
- Assisted Collin County staff with identifying hazards and estimating potential losses from future hazard events.
- Assisted Collin County in developing and prioritizing mitigation actions to address the identified risks.
- Assisted Collin County in coordinating public meetings to develop the plan.
- Identified the community resources available to support the planning effort.

- Worked for the support of neighborhood stakeholders for the recommendations resulting from the planning process.
- Submitted the proposed plan to all appropriate departments for review and comment and worked with Collin County to incorporate the resulting comments into the proposed plan.

External stakeholders emailed and involved in reviewing the Collin County Hazard Mitigation Action Plan:

Table 2.3 External Stakeholders

Representing	Position	Role
Josephine Economic Development Committee	Committee Secretary	Review of plan
Josephine Food Bank	Food Bank Coordinator	Review of plan

Subsequent to the State of Texas and FEMA approval of the plan, each organization above is committed to accomplishing the following activities:

- Appoint members to a coordinating committee to monitor and work toward plan implementation.
- Publicize the plan to neighborhood interests and ensure that new community members are aware of the plan and its contents.
- Monitor progress in achieving the plan's goals through regular maintenance and implementation projects.

Planning Meetings

During the planning process, the HMPT met to obtain relevant information from the participating jurisdictions and to discuss the objectives and progress of the plan. The objectives of these meetings were to gather information and to provide guidance for each jurisdiction throughout the planning stages.

The following meetings were held by Collin County and included all jurisdiction's participation:

- Collin County Kickoff Meeting – August 12, 2020
- Collin County HazMAP Planning Meeting – Week of 11/05/2020
- Collin County HazMAP Public Meeting – 11/2/2021 at 2PM
- Collin County HazMAP Public Meeting – 01/12/2022TBD at 9AM

Public Involvement

Support from the community is vital for any successful hazard mitigation plan. The HMPT and planning committee provided opportunities, announced through public communication means, for public participation and input throughout the planning process prior to this draft and before approval of the finalized plan. Advertisement and sign in sheets for these meetings are located in Appendix A.

- The first public meeting was held on November 2, 2021 at 2PM, and advertised on the Collin County website along with other jurisdictional websites inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to comment. The meeting was held virtually via WebEX.

- A second public meeting was held on January 12, 2022 at 9AM. Announcements were placed on jurisdictions websites, including Collin County inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to view and comment on the HazMAP prior to plan submission.

There were no comments directly related to the mitigation plan received from citizens, non-profits, businesses, academia, or interested parties; therefore, no feedback was incorporated. An additional opportunity for the public to comment on the plan will be held prior to formal plan adoption.

This provided all citizens, stakeholders, neighboring communities, agencies, businesses, academia, non-profit organizations, and all interested parties an opportunity to be involved in the planning process and to take part in the decisions making process that affect the future of the communities that they live in.

3. Jurisdictional Hazard Identification and Risk Assessment

The Hazard Mitigation Planning Committee for the City of Josephine identified several natural and man-made hazards that could affect the city. The committee decided to focus on the natural hazards identified in Section 5 of this update. This was done after reviewing the 2016 HazMAP, the State of Texas Hazard Mitigation Plan, as well as other sources such as federal and state agencies. The hazards were ranked using the Priority Risk Index.

Priority Risk Index

A Priority Risk Index (PRI) was developed with the purpose of categorizing potential hazards for the city of Josephine and ranks each hazard as high, moderate, low, or negligible to no risk. The hazard classification generated through the use of the PRI allows for the prioritization of those high hazard risks for mitigation planning purposes, and more specifically, the identification of hazard mitigation opportunities for Collin County jurisdictions to consider as part of their proposed mitigation strategy.

The PRI is used to assist all jurisdictions participating in the Collin County HazMAP in determining which hazards pose the most significant threat based on a variety of factors. The PRI is not scientifically based, but is rather meant to be utilized as an objective and systematic planning tool for classifying and prioritizing hazard risks in Collin County based on standardized criteria. The PRI results in numerical values that allow identified hazards to be ranked against one another. The sum of all four categories equals the final PRI value, as shown below:

PRI Value = (Probability x .30) + (Life Impact x .35) + (Property Impact x .25) + (Spatial Extent x .10)

The higher the PRI value, the greater the hazards risk. These values were obtained by assigning varying degrees of risk to four categories for each hazard: Probability, Life Impact, Property Impact, and Spatial Extent *(Table 3.1).* Each category has been assigned an Index Value (0 to 3) and a Weighing Factor (0 – 100%). These values may be adjusted during future plan updates. In order to evaluate the risk of each hazard, the assigned PRI Value for each category is multiplied by the weighing factor. Then, the PRI for each hazard is calculated by adding the product obtained in each category. According to the weighing scheme applied for Collin County, the highest possible PRI value is 3.0. The PRI calculations are presented in *Table 3.2*. Table 3.1 breaks down the value of each category.

Table 3.1 Priority Risk Index Value

Assigned Weighing Factor	PRI Category	Degree of Risk		
		Level	Criteria	Index Value
30%	Probability	Unlikely	Less than 1% annual probability	0
		Possible	Between 1 and 10% annual probability	1
		Likely	Between 10 and 100% annual probability	2
		Highly Likely	100% annual probability	3
35%		Minor	Very few injuries, if at all none	0

	Life Impact	Limited	Minor Injuries	1
		Critical	Multiple deaths/injuries	2
		Catastrophic	High number of deaths/injuries	3
25%	Property Impact	Minor	Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	0
		Limited	More than 10% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one day.	1
		Critical	More than 25% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one week.	2
		Catastrophic	More than 50% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for 30 days or more.	3
10%	Spatial Extent	Negligible	Less than 1% of area affected	0
		Small	Between 1 and 10% of area affected	1
		Moderate	Between 10 and 50% of area affected	2
		Large	Between 50 and 100% of area affected	3

Table 3.2 Priority Risk Index for the City of Josephine

Hazard	Category/Degree of Risk				
	Probability Index Value (0 - 3 30%)	Life Impact Index Value (0 - 3 35%)	Property Impact Index Value (0 - 3 25%)	Spatial Extent Index Value (0 - 3 10%)	PRI Value 2021
Dam Failure	0	0	0	0	0
Drought	2	0	1	3	1.15
Earthquake	0	1	0	1	0.45
Expansive Soils	2	0	0	1	0.7
Extreme Heat	1	1	0	2	0.85
Flooding	1	1	0	0	0.65
Hail	2	0	0	1	0.7
High Winds	1	0	1	1	0.65
Lightning	1	0	0	0	0.3
Tornado	2	1	1	2	1.4
Wildfire	1	2	0	1	1.1

Winter Storms	2	0	2	3	1.4

The conclusions drawn from the hazard profiling process for the City of Josephine, resulted in the classification of risk for each identified hazard according to four categories: High Risk, Moderate Risk, Low Risk, and Negligible to No Risk *(Table 3.3).* For purposes of these classifications, risk is expressed in relative terms according to the probability of occurrence and estimated impact that a hazard will have on human life and property in the City of Josephine.

Table 3.3 Hazard Ranking for the City of Josephine

High Risk (PRI 2 - 3)	
Moderate Risk (PRI 1.01 -1.9)	Tornado Winter Storms Drought Wildfire
Low Risk (PRI 0.50 – 1)	Extreme Heat Expansive Soils Hail High Winds
Negligible to No Risk (PRI 0 – 0.49)	Earthquake Flooding Lightning Dam Failure

Changes in Development and Priorities (Requirement §201.6(d) (3))

Our jurisdiction is in one of the fastest growing areas of the nation, hence development has increased and will continue to increase our vulnerability to hazards that may impact us.

Vulnerability Narratives

This annex focuses on specific areas of vulnerability the City of Josephine faces with each hazard. The hazards identified in the main plan are all addressed in this annex, therefore the natural hazards rated negligible to no risk are included, described, and considered for mitigation in this plan.

Dam and Levee Failure This hazard was identified as having negligible to no risk to the city of Josephine because there are no dams within the city Limits. There are dams to the north west of the city, therefore as a participant in the county plan inundation studies will be considered.

Drought Drought has the potential to impact the entire planning area equally; all improved property, emergency facilities, critical facilities, critical infrastructure, and the entire population of Josephine are vulnerable to this hazard. Foundations of all buildings are vulnerable; however, older structures, or those built under less stringent foundation code requirements are most vulnerable. Lake Lavon, Lake Texoma,

Lake Tawakoni, Lake Fork and the Lake Chapman-Cooper reservoir system are water sources for the City of Josephine and are vulnerable to drought. In turn, the city's population, wildlife and vegetation are vulnerable. Lower income populations who may not have the resources to buy containerized water in the event of a shortage may be more vulnerable than other populations.

Earthquake Earthquakes have the potential to occur anywhere in the geographic planning area, therefore all geographic areas are potentially vulnerable. Buildings constructed under older building codes, aging underground infrastructure, and roads are most vulnerable to damages from seismic activity.

Expansive Soils Although expansive soils are prevalent throughout Collin County, this hazard is considered a low risk to the City of Josephine. All property has the potential to be vulnerable to expansive soils, especially those constructed under older building codes.

Extreme Heat Extreme heat generally affects the entire population, but the homeless, very young, elderly, and populations without air conditioning are most vulnerable.

Flooding There is a history of minor flooding at FM 1777 and FM6 that obstructs the roadway. Flooding around city hall occurs during heavy rainfall events, roughly an estimated 1-2 times per year. Roadway at Main and Swanson is obstructed from minor flooding.

Hail All geographic areas, property, and populations in Josephine have the potential to be vulnerable to hail. Exposed populations, manufactured homes, and older properties are most vulnerable.

High Winds All geographic areas of Josephine have the potential to be vulnerable to high winds; however, due to Josephine's geography (flat, open area), manufactured homes and exposed populations are most vulnerable.

Lightning All geographic areas, property, and populations in Josephine have the potential to be vulnerable to lightning. Property without lightning protection and exposed populations are most vulnerable.

Tornado Residents on the northwest side of Josephine are most vulnerable to tornados. Many of the houses are manufactured homes whose residents, due to the secluded nature of the area, may be unable to reach shelter quickly.

Wildland Fire 51.41% of the city is in the WUI; therefore, most, if not all, areas, property, and population of Josephine are vulnerable to wildfire.

Winter Storms Winter storms are a significant threat to the City of Josephine. These winter storms have the potential to make roads impassable for days. Residents may be confined to their homes due to the storm and may be without basic services, such as water and electricity, for an extended period of time. Josephine residents live a distance from stores and may be unable to buy supplies in the event of a prolonged storm.

Identification of Assets and Vulnerability Assessment

An inventory of the City of Josephine geo-referenced assets was created in order to identify and characterize property and population potentially at risk to the identified hazards. By understanding the type and number of assets that exist and where they are located in relation to known hazard areas, the relative risk and vulnerability for such assets can be assessed. For this assessment, five categories of assets were evaluated using Geographic Information System and statistical analysis. The five categories of vulnerable assets include:

- **Population**: Includes the number of people residing in Collin County as delineated by U.S. Census 2020 block data provided by NCTCOG.
- **Improved property**: Includes all developed properties according to local parcel data from the Collin County Central Appraisal District. The information has been expressed in terms of the total assessed value of improvements that may be exposed to the identified hazards.
- **Emergency facilities**: Includes fire stations, police stations and hospitals, provided by the Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.
- **Critical facilities**: Includes schools and historic places provided by Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions. These are non-emergency facilities, but still provide critical services and functions for vulnerable sectors of the population.
  Critical infrastructure: Includes airports, natural gas facilities, wastewater facilities, potable water treatment facilities, wastewater treatment facilities, dams, and bridges. Data for all critical facilities was obtained from Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.

The following tables provide a breakdown by municipal jurisdiction of the geo-referenced assets that were used for the vulnerability assessment.

Population

According to the 2020 NCTCOG Population Estimates, the total population of the City of Josephine in 2020 was 1,966 people, with 695 households. The count breakdown by is provided in *Table 3.4.*

Table 3.4. The City of Josephine Population Counts

Jurisdiction	Population			Households		
	Population	% of County Total**	Population Density (Sq. Mile)	Household	% of County Total**	Household Density (Sq. Mile)
Josephine	1,966	0.18%	1127.68	702	0.24%	397.07

Source: 2020 NCTCOG Population Estimate & Collin County Appraisal District
***Includes totals from incorporated jurisdictions not participating in the plan*

Table 3.5 summarizes population counts and population chance (absolute and percent predications for the City of Josephine).

Table 3.5 Population Predictions

Jurisdiction	Population 2010 Census	Population 2018 Estimate	Population 2019 Estimate	Absolute Change 2018-2019	Percent (%) Change 2018-2019
Josephine	812	1450	1550	100	6.89%

Source: 2020 NCTCOG Population Estimate

Property

There are an estimated 993 parcels in the City of Josephine, with an estimated $102,041,382 in total assessed value of, *Table 3.6* lists the total number and percentage of parcels by jurisdiction.

Table 3.6 Parcel Counts and Improvements Value

Jurisdiction	Number of Parcels	% of County Total	Total Assessed Value of Improvements (Buildings)[1]
Josephine	993	0.20%	$102,041,382

Source: Collin County Appraisal District
[1]Includes public buildings (residential, commercial, industrial, agricultural, religion, government, education)

Emergency Facilities

There are 2 identified emergency facilities in the City of Josephine, including 1 fire station, 1 police station, and 0 hospitals. *Table 3.7* presents the distribution of emergency facilities by jurisdiction. Geographic coordinates were used to determine the location of each facility.

Table 3.7 Emergency Facilities

Jurisdiction	Fire Stations	Police Stations	Hospitals
Josephine	1	1	0

Source: County Data and Regional Hazard Assessment Tool

Critical Facilities

There are six critical facilities, which are considered non-emergency in the City of Josephine. The critical facilities include 0 schools and six historical property sites (*Table 3.8*). Geographic coordinates (i.e., latitude and longitude) were used to determine the location of each facility.

Table 3.8 Critical Facilities

Jurisdiction	Schools	Historical Property
Josephine	0	6

Source: Local jurisdictions

Critical Infrastructure

There are 5 identified critical infrastructure facilities in the City of Josephine, including 0 airports, 0 natural gas facilities, 1 water treatment facilities, 0 wastewater treatment facilities, 0 dams, and 4 railway/highway bridges (*Table 3.9*).

Table 3.9 Critical Infrastructure

Jurisdiction	Airports	Natural Gas Facilities	Wastewater Treatment Facilities	Potable Water Treatment Facilities	Dams	Railway/ Highway Bridges
Josephine	0	0	0	1	0	4

Source: Local jurisdictions

Methodology

Based on the type of information available for analysis, the City of Josephine's vulnerability assessment was conducted using two distinct methodologies, a Geographic Information System-based analysis and a statistical risk assessment methodology. Each approach provides estimates for the potential impact of hazards by using a common, systematic framework for evaluation of historical occurrence information provided by National Centers for Environmental Information, the Texas Forest Service, and the FEMA Resilience and Planning Tool. The results of the vulnerability assessment are provided by jurisdiction for each hazard analyzed.

Of the 12 hazards evaluated for the City of Josephine, four were analyzed using a Geographic Information System-based analysis, five using a statistical risk assessment methodology, and the remaining three hazards using a qualitative analysis. Qualitative analysis was used due to lack of information, the inability to define specific areas of risk, and/or inexistence of historical records. Additional information regarding these hazards is unattainable at the present time; studies to address this data deficiency are noted as action items in this update. *Table 3.10* summarizes the methodology used for each hazard.

Table 3.10 Analysis used for Vulnerability Assessment

Hazard	Geographic Information System-based Analysis	Statistical Analysis	Qualitative Analysis
Dam Failure			X
Drought	X		
Earthquake			X
Expansive Soils			X
Extreme Heat		X	
Flooding	X		
Hail	X		
High Winds		X	
Lightning		X	

Tornado		X	
Wildfire	X		
Winter Storms		X	

Summary of Vulnerably Assessment

A summary of the vulnerability assessment for each hazard using geographic and statistical analysis is presented in the following pages. The detailed assessment is presented in the following sections.

Summary Table 3.11

Drought	
Population	According to National Centers for Environmental Information (NCEI) no recorded injuries or fatalities have been recorded for drought events. There are no personal losses expected from drought events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Josephine are expected but financially unknown due to lack of accurate reporting. Historical data indicates that crop losses in the City of Josephine are expected mostly during water shortages, financially unknown due to lack of accurate reporting .
Emergency Facilities	Because of the nature of this hazard, no losses are expected on emergency facilities but foundation issues could occur due to drought events.
Critical Facilities	Because of the nature of this hazard, no losses are expected on critical facilities but foundation issues could occur due to drought events.
Critical Infrastructure	Because of the nature of this hazard, no losses are expected on critical infrastructure but foundation issues and road degradation could occur due to drought events.

Summary Table 3.12

Extreme Heat	
Population	According to National Centers for Environmental Information (NCEI), there were four (4) county-wide fatalities recorded due to extreme heat, none from the City of Josephine. The City of Josephine and its population are vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to developed areas and the improved property in the City of Josephine is not vulnerable to this hazard.
Emergency Facilities	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to buildings and the emergency facilities in the City of Josephine are not vulnerable to this hazard.

Critical Facilities	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to buildings, and the critical facilities in the City of Josephine are not vulnerable to this hazard.
Critical Infrastructure	According to National Centers for Environmental Information (NCEI) there is no impact of extreme heat to critical infrastructure, and vulnerability to this hazard is considered minimal in the City of Josephine.

Summary Table 3.13

Flooding	
Population	Flooding produces an expected annualized count of zero (0) fatalities and injuries per year. Approximately 92 residential parcels in the City of Josephine are located within the 100-year floodplain.
Improved Property	There have been zero (0) recorded flood events in the City of Josephine. Property losses are expected but unknown due to inaccurate reporting. No crop losses are expected or recorded county-wide. Approximately $4,467,551 of the total assessed value is at risk from the 100-year storm event.
Emergency Facilities	Emergency facilities have the potential to be as risk in the 100-year storm event.
Critical Facilities	Critical facilities have the potential to be as risk in the 100-year storm event.
Critical Infrastructure	Critical Infrastructure have the potential to be as risk in the 100-year storm event.

Summary Table 3.14

Hail	
Population	National Centers for Environmental Information (NCEI), no recorded injuries or fatalities have been recorded for hailstorm events. There are no personal losses expected from hailstorm events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Josephine are expected but unknown due to lack of accurate reporting. All improved property is vulnerable to this hazard. Although some crops are susceptible to hail hazards, available historical data for the City of Josephine indicates that there are no expected crop losses from this event.
Emergency Facilities	Because of the unpredictability of the geographical location of hailstorms, all emergency facilities in the City of Josephine are vulnerable to this hazard.
Critical Facilities	Because of the unpredictability of the geographical location of hailstorms, all critical facilities in the City of Josephine are vulnerable to this hazard.

Critical Infrastructure	Because of the unpredictability of the geographical location of hailstorms, all critical infrastructures in the City of Josephine are vulnerable to this hazard.

Summary Table 3.15

High Wind	
Population	According to National Centers for Environmental Information (NCEI), there are no recorded injuries or fatalities from high wind events. All the population in the City of Josephine are vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Josephine are expected but unknown due to lack of accurate reporting. No crop losses resulted from this hazard in the City of Josephine.
Emergency Facilities	Because of the expected geographical widespread nature of high winds, all emergency facilities in the City of Josephine are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of high winds, all critical facilities in the City of Josephine are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of high winds, all critical infrastructures in the City of Josephine are vulnerable to this hazard.

Summary Table 3.16

Lightning	
Population	According to National Centers for Environmental Information (NCEI), lightning events can be expected to cause no deaths or injuries in the City of Josephine. All the population in the City of Josephine are vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Josephine are expected but unknown due to lack of accurate reporting.
Emergency Facilities	Because of the expected geographical widespread nature of lightning, all emergency facilities in the City of Josephine are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of lightning, all critical facilities in the City of Josephine are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of lightning, all critical infrastructures in the City of Josephine are vulnerable to this hazard.

Summary Table 3.17

Tornado	
Population	According to National Centers for Environmental Information (NCEI), there have been no recorded injuries or fatalities from tornado events in the City of Josephine. All the population of Josephine is exposed and vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Josephine are expected but unknown due to lack of accurate reporting. No crop losses are expected from this hazard in the City of Josephine.
Emergency Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all emergency facilities in the City of Josephine are exposed and vulnerable to this hazard.
Critical Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all critical facilities in the City of Josephine are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the impossibility to predict the geographical area of impact for tornados, all critical infrastructures in the City of Josephine are exposed and vulnerable to this hazard.

Summary Table 3.18

Wildfire	
Population	Based on geographical data, approximately 51.41% of the City of Josephine is vulnerable to wildfires. There have been no recorded injuries or fatalities due to wildfires.
Improved Property	Based on historical data, annual financial losses expected from property loss due to wildfires are unknown due to lack of accurate reporting; therefore, percentage of the overall property improvement values across the City of Josephine are also unknown.
Emergency Facilities	Based on geographic information there are 0 fire stations at risk from wildfire events.
Critical Facilities	Based on geographic information there are no schools at risk from wildfire events.
Critical Infrastructure	Based on geographic information there are 0 bridges, 0 dams, 0 wastewater treatment facilities, and 0 water treatment facilities at risk from wildfire events.

Summary Table 3.19

Winter Storm	
Population	According to National Centers for Environmental Information (NCEI), there was one (1) county-wide fatality recorded due to winter storms, none from the City of Josephine. All the population of the City of Josephine are exposed and vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Josephine are expected but unknown due to lack of reporting however county-wide property loss is estimated at $116,250 per year. No crop losses are expected from this hazard in the City of Josephine.
Emergency Facilities	Because of the expected geographical widespread nature of winter storms, all emergency facilities in the City of Josephine are exposed and vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of winter storms, all critical facilities in the City of Josephine are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of winter storms, all critical infrastructures in the City of Josephine are exposed and vulnerable to this hazard.

4. Capability Assessment

The risk assessment and capabilities assessment serves as the foundation for the development of a meaningful hazard mitigation strategy. During the process of identifying specific mitigation actions to pursue, the City of Josephine considered not only its level of hazard risk but also the existing capabilities to minimize or eliminate that risk.

Table 4.1 Legal and Regulatory Capability Summary

Legal and Regulatory Capabilities															
Jurisdiction	Building Code	Zoning Ordinance	Subdivision Ordinance or regulation	Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances wildfire ordinances, hazard setback requirements)	Growth management ordinances (also called "smart Growth" or anti-sprawl programs)	Site Plan review requirements	General or comprehensive plan	A capital improvements plan	An economic development plan	An emergency response plan	A post-disaster recovery plan	A post-disaster recovery ordinance	Real estate disclosure requirements	Other	% Yes per Jurisdiction
City of Josephine	Y	Y	Y	Y	N	Y	Y	N	N	Y	N	N	Y	N	61%
Average % Yes Capabilities – 61%															
Y- Yes N- No ?- Don't Know															

Table 4.2 Administrative and Technical Capability Summary

Administrative and Technical Capabilities											
Jurisdiction	Planner(s) or engineer(s) with knowledge of land development and land management	Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Planners or engineer(s) with an understanding of natural and/or human caused hazards	Floodplain manager	Surveyors	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in GIS	Scientists familiar with the hazards of the community	Emergency manager	Grant writers	% Yes per Jurisdiction
City of Josephine	Y	Y	Y	Y	Y	Y	N	N	N	N	60%
Average % Yes Capabilities – %											
Y- Yes N- No ?- Don't Know											

Table 4.3 Fiscal Capability Summary

Fiscal Capabilities											
Jurisdiction	Community Development Block Grants (CDBG)	Capital improvements project funding	Authority to levy taxes for specific purposes	Fees for water, sewer, gas, or electric service	Impact fees for homebuyers or developers for new developments/homes	Incur debt through general obligation bonds	Incur debt through special tax bonds	Incur debt through private activity bonds	Withhold spending in hazard-prone areas	Other	% Yes per Jurisdiction
City of Josephine	Y	Y	Y	Y	Y	Y	Y	Y	N	N	90%
Average % Yes Capabilities – %											
Y- Yes N- No ?- Don't Know											

To quantify Josephine's legal and regulatory capabilities, administrative and technical, and fiscal capabilities, an overall rating system was administered for each category: limited (0-30%), moderate (31-70%), and strong (70-100%). Questionnaire responses indicated that on average, Josephine has 61% of identified legal and regulatory capabilities, 60% of identified administrative and technical capabilities, and 90% of identified fiscal capabilities.

Table 4.4 Administrative Information

Jurisdiction	Chief Administrative Officer	Ability to Implement Capabilities
City of Josephine	City Manager	The city council, including the mayor, mayor pro-tem, and council members, along with the city manager, address the budget; pass laws, regulations, and codes; hire staff; approve plans; and determine the direction of the city overall. Ability to implement and approve mitigation actions and integrate mitigation into existing policies and programs is a function of this group.

Specific actions that can expand and improve existing capabilities, authorities, plans, policies, and resources for mitigation include: budgeting and passing policies and procedures, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates and additions to existing plans as new needs are recognized.

5. Mitigation Strategies

Based on the results of the risk and capability assessments, and reviews of the goals and objectives included in the 2016 HazMAP, the City of Josephine Hazard Mitigation Planning Committee developed mitigation strategies for the plan update.

Goal 1 Reduce or eliminate loss of life, injuries and property damage resulting from severe weather events.

Objective 1-A Provide adequate warning and communication before, during, and after a hazard event.
Objective 1-B Expand and coordinate Early Warning Systems currently in use.
Objective 1-C Reduce or eliminate loss of life and property damage from tornados through the construction and use of safe rooms or shelter areas.

Goal 2 Protect existing and new properties from the effects of all natural hazards.

Objective 2-A Conduct studies to determine hazard and vulnerability threat assessment for all natural hazards.
Objective 2-B Rehabilitate or retrofit identified high hazard critical infrastructure.
Objective 2-C Enact and enforce regulatory measures that enforce hazard mitigation measures.
Objective 2-D Construct enhancements or additions to current and new facilities which mitigate the effects of natural hazards.
Objective 2-E Maintain NFIP compliance, storm water management, and implement drainage projects.

Goal 3 Reduce losses and repetitive damages for chronic hazard events while promoting insurance coverage for catastrophic hazards.

Objective 3-A Conduct a hazard/vulnerability assessment of personal properties and structures located in flood zones within City of Josephine.
Objective 3-B Develop and implement a buyout program for those personal properties and structures located in high hazard flood zones starting with those that are most vulnerable to life and property loss.
Objective 3-C Develop and execute new programs which identify and reduce threats from natural hazards.

Goal 4 Develop public education campaigns to disseminate information about actions to mitigate potential loss of life, injuries and property damage resulting from natural hazards.

Objective 4-A Educate the public on risks, threats, and vulnerability from all natural hazards.
Objective 4-B Educate the public on actions they can take to prevent or reduce the loss of life or property from all natural hazards.
Objective 4-C Develop and implement a community education campaign to heighten public awareness about chronic flooding and options for insurance coverage to protect their personal properties as well as long term benefits from a buyout program.

6. Action Items

Below is a list of action items identified for the HazMAP Update. Each of the actions in this section were prioritized based on FEMA's STAPLEE criteria, which includes considering the social, technical, administrative, political, legal, economic and environmental factors necessary for the implementation of each action. As part of the STAPLEE analysis, economic considerations were weighed for each action. The STAPLEE was used for the 2016 Plan along with the 2021 Update. Priority rankings are classified as indicated in the table below.

Priority	Description
High	Benefits of mitigating risk of death or severe bodily injury outweigh costs to implement actions rated as high priorities.
Medium	Reducing vulnerability to threats and the resulting improvement in quality of life and peace of mind are benefits for actions rated as medium priorities.
Low	Awareness of low risk/low impact hazards offer benefits of time to assess, plan and integrate low priority mitigation actions as time, need, and funding permit.

City of Josephine Action Items: Deferred from 2016 Plan

City of Josephine Action Item	Develop and implement a comprehensive public education program to mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Tornado, Winter Storm, Drought, Extreme Heat, Flooding, Wildfire, Expansive Soils, Hail, Earthquake, High Winds, Lightning, Dam Failure
Goal/Objective	4-A, 4-B, 4-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	General Fund, HMGP
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Public education is extremely effective for low cost.
Discussion	This public education program would be based on the hazards that the City of Josephine identified. The program would use a combination of distributed literature, social media, and civic

	presentations to educate residents on natural hazards and promote hazard mitigation.
Status	Receive supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021

City of Josephine Action Item	Identify and establish heating and cooling centers for vulnerable populations
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	2-D, 3-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM,
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	H.R. Dept.
Implementation Schedule	1-2 years
Effect on Old Buildings	Could require retrofit to accommodate required space and resources
Effect on New Buildings	May entail enhanced construction materials
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.
Discussion	Establishing heat and cooling shelters would allow special populations to reduce their vulnerability to extreme heat and cold
Status	Deferred – will be included in 2021 Plan

City of Josephine Action Item	Implement Individual Tornado Safe Room Rebate Program
Hazard(s) Addressed	High Wind, Tornado
Goal/Objective	1-C
Priority	High
Estimated Cost	Up to $3,000 per shelter
Potential Funding Sources	HMGP, PDM, Resident Match
Potential Matching Sources	Local Grants, FEMA
Lead Department	EMC
Implementation Schedule	2-3 years
Effect on Old Buildings	Enhance safety of existing residential structures through retrofit
Effect on New Buildings	Enhance safety of new residential structures
Cost Effectiveness	Residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind events.

Discussion	This program gives rebates to residents who purchase and install safe rooms in their homes or on their properties to protect against severe weather.
Status	Deferred – Residents did received funding through the NCTCOG Saferoom Rebate Program. The NCTCOG Program has been suspended

City of Josephine Action Item	Increase outdoor warning siren coverage for new development areas
Hazard(s) Addressed	Dam Failure, High Winds, Tornado, Wildfire, Hail, Flooding, Lightning
Goal/Objective	1-A, 1-B
Priority	High
Estimated Cost	$25,000 per siren. Number of sirens TBD.
Potential Funding Sources	General Fund, HMGP, PDM
Potential Matching Sources	Local funds, in-kind, donations
Lead Department	EMC
Implementation Schedule	1-2 years
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	Early warning is a key element in keeping citizens that are outdoors notified of hazards.
Discussion	This project will expand Josephine's siren coverage to new areas of development not currently protect by sirens.
Status	Deferred – will be included in 2021 Plan

City of Josephine Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	2-A, 3-A
Priority	Medium
Estimated Cost	$50,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Planning
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones

Cost Effectiveness	Low
Discussion	Data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	Deferred – will be included in 2021 Plan

City of Josephine Action Item	Develop and implement a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$5,000
Potential Funding Sources	TFS Grants
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Fire Dept.
Implementation Schedule	2-3 years
Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire
Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire
Cost Effectiveness	CWPPs show city officials where to redouble their efforts in preventing wildfire, saving time and money. Also work to establish urban wildfire interface around new development properties.
Discussion	A CWPP will Identify all structures and infrastructures that would be impacted by a potential wildfire, and identify potential targeted mitigation projects.
Status	Deferred – will be included in 2021 Plan

City of Josephine Action Item	Develop, adopt, and enforce water conservation measures
Hazard(s) Addressed	Drought
Goal/Objective	2-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Public Works
Implementation Schedule	1-3 years
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing

Effect on New Buildings	May require new codes for low-flow plumbing and foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	City of Josephine will develop, adopt, and enforce water conservation ordinances, codes, and other regulatory measures to conserve water during times of drought.
Status	Deferred – will be included in 2021 Plan

City of Josephine Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.
Status	Deferred – will be included in 2021 Plan

City of Josephine Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	TBD
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.

Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.
Status	Deferred – will be included in 2021 Plan

City of Josephine Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as other emergency and hazard information
Status	Deferred – will be included in 2021 Plan

City of Josephine Action Items: New

City of Josephine Action Item	Develop and implement a comprehensive public education program to educate on the actions to help mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Tornado, Hail, Winter Storms, High Winds, Lightning, Expansive Soils, Extreme Heat, Earthquake, Flooding, Wildfire, Drought
Goal/Objective	4-A, 4-B, 4-C
Priority	Medium

Estimated Cost	$10,000
Potential Funding Sources	General Fund, HMGP
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Minimal compared to preservation of life safety
Discussion	Public education can help educate the public to reduce personal and property damage during disasters. Program will include information about hazard mitigation.

City of Josephine Action Item	Identify and establish heating and cooling centers for vulnerable populations
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	2-D, 3-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM,
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	H.R. Dept.
Implementation Schedule	1-2 years
Effect on Old Buildings	Could require retrofit to accommodate required space and resources
Effect on New Buildings	May entail enhanced construction materials
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.
Discussion	Establishing heat and cooling shelters would allow special populations to reduce their vulnerability to extreme heat and cold

City of Josephine Action Item	Implement Individual Tornado Safe Room Rebate Program
Hazard(s) Addressed	High Wind, Tornado
Goal/Objective	1-C
Priority	High
Estimated Cost	Up to $3,000 per shelter

Potential Funding Sources	HMGP, PDM, Resident Match
Potential Matching Sources	Local Grants, FEMA
Lead Department	EMC
Implementation Schedule	2-3 years
Effect on Old Buildings	Enhance safety of existing residential structures through retrofit
Effect on New Buildings	Enhance safety of new residential structures
Cost Effectiveness	Residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind events.
Discussion	This program gives rebates to residents who purchase and install safe rooms in their homes or on their properties to protect against severe weather.

City of Josephine Action Item	Increase outdoor warning siren coverage for new development areas
Hazard(s) Addressed	High Winds, Tornado, Wildfire, Hail, Flooding, Lightning
Goal/Objective	1-A, 1-B
Priority	High
Estimated Cost	$25,000 per siren. Number of sirens TBD.
Potential Funding Sources	General Fund, HMGP, PDM
Potential Matching Sources	Local funds, in-kind, donations
Lead Department	EMC
Implementation Schedule	1-2 years
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	Early warning is a key element in keeping citizens that are outdoors notified of hazards.
Discussion	This project will expand Josephine's siren coverage to new areas of development not currently protect by sirens. This action item would be specific to installation/placement of new OWS sirens in the jurisdiction.

City of Josephine Action Item	Develop and implement a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$5,000
Potential Funding Sources	TFS Grants

Potential Matching Sources	Local sponsors, in-kind
Lead Department	Fire Dept.
Implementation Schedule	2-3 years
Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire
Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire
Cost Effectiveness	CWPPs show city officials where to redouble their efforts in preventing wildfire, saving time and money. Also work to establish urban wildfire interface around new development properties.
Discussion	A CWPP will Identify all structures and infrastructures that would be impacted by a potential wildfire, and identify potential targeted mitigation projects.

City of Josephine Action Item	Develop, adopt, and enforce water conservation measures
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	2-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Public Works
Implementation Schedule	1-3 years
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	City of Josephine will develop, adopt, and enforce water conservation ordinances, codes, and other regulatory measures to conserve water during times of drought. When water is conserved and not used for landscape during droughts, this would provide water for homeowners to use, through drip irrigation, to keep their foundations at a consistent saturation level, mitigating the impacts of drought and lack of water.

City of Josephine Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake

Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.

City of Josephine Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	TBD
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.

City of Josephine Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Drought, Earthquake, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High

Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as other emergency and hazard information

National Flood Insurance Program (NFIP) Compliance

Josephine is participating in the National Flood Insurance Program and has identified their respective areas as vulnerable to flooding. This is incorporated into all current and future planning for dealing with repetitive loss vulnerabilities.

Table 6.1 NFIP Compliance

CID	Community Name	County	Initial FHBM Identified	Initial FIRM Identified	Curr Eff Map Date	Reg-Emer Date	Tribal
480756#	JOSEPHINE, CITY OF	HUNT COUNTY/COLLIN COUNTY	05/28/76	01/02/80	01/06/12	12/15/95	No

Source: http://www.fema.gov/cis/TX.html

Jurisdiction Activities

In order to maintain eligibility with NFIP, jurisdictions are required to maintain their list of properties that hold a policy with NFIP, along with up-to-date maps of the floodplains in the jurisdictions. Each jurisdiction participating in the Collin County Hazard Mitigation Action Plan completes this basic requirement and has the information on file with the jurisdiction's designated floodplain manager. Using this plan, participating jurisdictions will be able to continue their compliance with NFIP by implementing damage control measures and take action to minimize the effects of flooding in their respective jurisdictions.

Table 6.2 NIFP Activity

Jurisdiction	Community Floodplain Manager	NFIP Activity	Activity Description	Enforcement
City of Josephine	City Secretary	Complete and maintain FEMA elevation certificates for pre-FIRM and or post-FIRM buildings	Permits are issued through City Hall. City of Josephine requires 2 feet of freeboard above the base flood elevation for the top of bottom floor on residential structures and non-residential structures that will be built on properties created or platted after the effective date of the Flood Damage Prevention Order	NFIP compliance is implemented and enforced through a process of floodplain identification using FEMA floodplain maps, permit issuance, building requirements, and compliance inspections pending approval. Any person who violates this article or fails to comply with any of its requirements shall upon conviction thereof be fined in accordance with the general penalty found in section 1.01.009 of this code per violation, and in addition shall pay all costs and expenses involved in the case. Each day a
		Floodplain development permits	Permits are required for any new construction in a floodplain.	
		Future Mitigation Projects	City of Josephine will continue to monitor for new areas of flooding that have not been previously identified for mitigation.	

				violation occurs is a separate offense.

7. Plan Maintenance

Monitoring, Evaluating and Updating the Plan

In Compliance with requirement § 201.6(c)(4)(i), Collin County has developed a plan maintenance process which is described in the following paragraphs. Collin County, along with participating jurisdictions are responsible for monitoring implementation of the plan, executing a yearly evaluation of its effectiveness, and updating the plan within a 5-year cycle.

Following formal adoption by the City of Josephine, the county, and the city council of each participating jurisdiction, the actions outlined in the Collin County Hazard Mitigation Action Plan (HazMAP) will be implemented by participating jurisdictions as described throughout this document.

The Collin County Emergency Management Coordinator, working in conjunction with the respective jurisdictions, will be responsible for ensuring the mitigation plan is monitored, evaluated, and reviewed on an annual basis. This will be accomplished by calling an annual meeting of the planning committee, whose members will provide assistance and expertise for plan review, evaluating, updating, and monitoring. This meeting will be open to the public and public notices will encourage community participation. During this annual meeting, Josephine will provide information on the implementation status of each action included in the plan. As part of the evaluation, the planning committee will assess whether goals and objectives address current and expected conditions, whether the nature and/or magnitude of the risks have changed, if current resources are appropriate for implementing the plan, whether outcomes have occurred as expected, and if agencies and other partners participated as originally proposed. These activities will take place according to the timetable presented below:

Table 7.1 Plan Maintenance Timeline

Personnel	Activity	Time
Police Chief	Monitoring Plan : Track implementation and action items, changes to risk assessment, changes to planning team members, changes to capabilities, plan integrations	Biannually
	Evaluate Plan: Assess effectiveness by evaluating completed actions, implementation processes, responsible personnel and lessons learned.	Annually
	Update Plan	Once every 5 years

At least once every five (5) years, or more frequently, if such a need is determined by the participating jurisdiction, the multi-jurisdictional plan will undergo a major update. During this process, all sections of the plan will be updated with current information, analyses done and new and/or modified mitigation

action plans will be developed. The revised plan will be submitted for state and federal review and approval, and presented for approval to the Collin County Commissioner's Court and the respective councils of incorporated cities/towns included in the Collin County plan. Each participating jurisdiction will undertake the same process for reviewing, revising and updating their respective plans and submitting them for approval. The plans will be updated every five years in accordance with federal requirements.

Plan Incorporation into Existing Planning Mechanisms *(In compliance with 201.6(c)(4)(ii))*

Based on the requirements set forth in § *201.6(c)(4(ii)*, the State of Texas Mitigation Plan, the vulnerability and capabilities assessment for each jurisdiction was carefully reviewed and considered when developing the mitigation actions for this plan. The HMPT and committees will establish a process in which the mitigation strategy, goals, objectives and actions outlined in this plan will be incorporated into the existing regional and local planning strategies.

Local and regional planning committees currently use comprehensive land use planning, capital improvements planning, and building code ordinances to guide development. The mitigation strategy, goals, objectives and actions outlined in this plan will be integrated into these existing mechanisms as applicable. Those mechanisms include the following:

Table 7.2 Plan Incorporation Mechanisms

Jurisdiction	Responsible Personnel	Jurisdictional Plans	Integration Schedule	Integration Plan
City of Josephine	City Council	Budget Meetings	Annually	Integration of mitigation projects identified in HazMAP, grants, and other fiscal allowances for mitigation actions and related costs
	Police Chief	Emergency Action Plan updates	Annually	EAP Mitigation annex updates based on HazMAP HIRA; update preparedness, response and recovery actions related to identified hazards
	Designated Floodplain Manager	Floodplain ordinances	As needed	Enhance mitigation of flood hazards using HazMAP flood data for floodplain management and community development.
	City Council, Director of Planning	Capital improvement plans	Annually	Strengthen critical infrastructure and key resources based on HazMAP hazard analysis, incorporate vulnerability data and action items.
	Public Works Director, City Council	Drought Contingency plans	As needed	Integrate drought actions such as xeriscaping, water restrictions, and public education

Jurisdiction	Responsible Personnel	Jurisdictional Plans	Integration Schedule	Integration Plan
	Planning Director, City Council	Natural Resource Conservation Plan	Annually	Integrate conservation measures by directing development away from hazard-prone areas identified in HazMAP.

Although it is recognized there are many possible benefits to integrating components of this HazMAP into other planning mechanisms, the Josephine Hazard Mitigation Planning Team considers this HazMAP, including development and maintenance, to be the primary vehicles to ensure implementation of local hazard mitigation actions.

The process described here is the same as was used since the last planning update.

Continued Public Involvement (In compliance with 201.6(c)(4)(iii))

As stated in requirement § *201.6(c)(4)(iii)* The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.

To address this requirement, ongoing public participation will be encouraged throughout the entire planning and implementation process. A copy of the plan will be provided on the Collin County website. The planning team and committees will continue meeting on a regular basis to ensure the successful implementation of the plan and to discuss any additional issues regarding the emergency management of Collin County. The annual meetings for monitoring, evaluating, and updating the plan will be open to the public and public notices will encourage community participation.

Annex J: City of Lavon

1. Introduction

This annex was prepared in 2020 as part of an update to the Collin County Multi-Jurisdictional Hazard Mitigation Action Plan. This plan updates the Lavon hazard mitigation plan submitted to FEMA as part of the 2016 Collin County plan. The City of Lavon participated on the Collin County Hazard Mitigation Planning Team (HMPT) for this update. In addition to the countywide hazards and strategies discussed in the main plan, this annex serves as a complete hazard mitigation planning tool for the City of Lavon. It contains capability assessment information, a specific vulnerability assessment, and a complete mitigation strategy. The methodology and process for developing this annex are explained throughout the following sections.

2. Plan Development and Adoption Process

In order to apply for federal aid for technical assistance and post-disaster funding, local jurisdictions must comply with Part 201.3 of the Disaster Mitigation Act of 2000 implemented in the Federal Code of Regulations 44 CRF Part 201.6. While the City of Lavon has historically implemented measures to reduce their vulnerability to hazards, passage of DMA 2000 helped Lavon officials recognize the benefits of a long-term approach to hazard mitigation, which achieves a gradual decrease of impacts associated through the implementation of a Hazard Mitigation Plan. Collin County's Hazard Mitigation Action Plan represents the collective efforts of all participating jurisdictions, the general public, and stakeholders.

Organizing the Planning Effort

A comprehensive county approach was taken in developing the plan. An open public involvement process was established for the public, neighboring communities, regional agencies, businesses, academia, etc. to provide opportunities for everyone to become involved in the planning process and to make their views known. The meetings were advertised with notices in public places and online.

In accordance with Part 201.6(c)(5) of the Disaster Mitigation Act of 2000 (DMA 2000), Collin County developed this Hazard Mitigation Action Plan. This plan identifies hazards and mechanisms to minimize future damages associated with these hazards, which threaten Collin County and its jurisdictions.

Existing Data and Plans

Existing hazard mitigation information and other plans were reviewed during the development of the Hazard Mitigation Action Plan. GIS, statistical and qualitative data was gathered through numerous sources. The table below outlines the sources of data for the plan:

Table 2.1 Plan Source Data

Source	Data
City and County Appraisal Data 2020	Population and demographics
Regional Hazard Assessment Tool	Hazard occurrences
National Climatic Data Center (NCDC)	Hazard occurrences
Texas Forest Service/Texas Wildfire Risk Assessment Summary Report	Wildfire Threat and Wildland/Urban Interface
National Inventory of Dams	Dam Information

Planning Committee

This Hazard Mitigation Action Plan was developed by the Lavon Hazard Mitigation Planning Committee, with support of the North Central Texas Council of Governments and in conjunction with the Collin County HMPT. The efforts of the planning committee were coordinated with the HMPT by the Collin County Assistant Emergency Management Coordinator; the City of Lavon acted as the plan development consultant providing hazard mitigation planning services.

The Collin County HMPT was assembled in 2020 with representatives from participating jurisdiction planning committees, including mayors, police chiefs, fire chiefs, and the general public. The table below provides a list of the primary representatives on the Lavon planning committee.

Table 2.2 Hazard Mitigation Committee – Primary Representatives

Representing	Position	Role
Fire Department	Fire Chief	Plan Development
City Council	Councilmember	Plan Development
City Council	Mayor	Plan Development
Police Department	Police Chief	Plan Development
Public Works	Director of Public Works	Plan Development

Collin County served as the coordinator and lead agency for all jurisdictions by accomplishing the following activities through the planning process:

- Assigned the County's Assistant Emergency Management Coordinator to provide technical assistance and necessary data to the planning committee.
- Scheduled, coordinated, and facilitated community meetings with the assistance of the HMPT and the planning committees.
- Provided any necessary materials, handouts, etc. for public planning meetings.
- Worked with the HMPT and planning committees to collect and analyze data and develop goals and implementation strategies.
- Prepared, based on community input and planning team/committee direction, the first draft of the plan and provided technical writing assistance for review, editing and formatting.
- Coordinated with the stakeholders within the jurisdictions and the unincorporated areas of Collin County during plan development.

Each of the individual jurisdictions participated in accomplishing similar activities associated with development of the plan as follows:

- Coordinated input from representatives of neighborhood stakeholder groups and provided a representative to the County HMPT.
- Attended regular meetings of the planning team as coordinated by Collin County.
- Assisted Collin County staff with identifying hazards and estimating potential losses from future hazard events.
- Assisted Collin County in developing and prioritizing mitigation actions to address the identified risks.
- Assisted Collin County in coordinating public meetings to develop the plan.

- Identified the community resources available to support the planning effort.
- Worked for the support of neighborhood stakeholders for the recommendations resulting from the planning process.
- Submitted the proposed plan to all appropriate departments for review and comment and worked with Collin County to incorporate the resulting comments into the proposed plan.

External stakeholders emailed and involved in reviewing the Collin County Hazard Mitigation Action Plan:

Table 2.3 External Stakeholders

Representing	Position	Role
Community ISD	School Board Member	Review of plan
North Texas Municipal Water District	Board Member	Review of plan

Subsequent to the State of Texas and FEMA approval of the plan, each organization above is committed to accomplishing the following activities:

- Appoint members to a coordinating committee to monitor and work toward plan implementation.
- Publicize the plan to neighborhood interests and ensure that new community members are aware of the plan and its contents.
- Monitor progress in achieving the plan's goals through regular maintenance and implementation projects.

Planning Meetings

During the planning process, the HMPT met to obtain relevant information from the participating jurisdictions and to discuss the objectives and progress of the plan. The objectives of these meetings were to gather information and to provide guidance for each jurisdiction throughout the planning stages.

The City of Lavon was provided the plan for update on 8/18/2020 and provided input and updates on April 30, 2021. The city provided updates that included information from multiple departments within the city including council and the fire department.

The following meetings were held by Collin County:

- Collin County Kickoff Meeting – August 12, 2020
- Collin County HazMAP Planning Meeting – Week of 11/05/2020
- Collin County HazMAP Public Meeting – 11/2/2021 at 2PM
- Collin County HazMAP Public Meeting – 01/12/2022

Public Involvement

Support from the community is vital for any successful hazard mitigation plan. The planning committee provided opportunities, announced through public communication means, for public participation and input throughout the planning process prior to this draft and before approval of the finalized plan. Advertisement and sign in sheets for these meetings are located in Appendix A.

- The first public meeting was held on November 2, 2021 at 2PM, and advertised on the Collin County website along with other jurisdictional websites inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to comment. The meeting was held virtually via WebEX.
- A second public meeting was held on January 12, 2022 at 9AM. Announcements were placed on jurisdictions websites, including Collin County inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to view and comment on the HazMAP prior to plan submission.

There were no comments directly related to the mitigation plan received from citizens, non-profits, businesses, academia, or interested parties; therefore, no feedback was incorporated. An additional opportunity for the public to comment on the plan will be held prior to formal plan adoption.

This provided all citizens, stakeholders, neighboring communities, agencies, businesses, academia, non-profit organizations, and all interested parties an opportunity to be involved in the planning process and to take part in the decisions making process that affect the future of the communities that they live in.

3. Jurisdictional Hazard Identification and Risk Assessment

The Hazard Mitigation Planning Committee for the City of Lavon identified several natural and man-made hazards that could affect the city. The committee decided to focus on the natural hazards identified in Section 5 of this update. This was done after reviewing the 2016 HazMAP, the State of Texas Hazard Mitigation Plan, as well as other sources such as federal and state agencies. The hazards were ranked using the Priority Risk Index.

Priority Risk Index

A Priority Risk Index (PRI) was developed with the purpose of categorizing potential hazards for the city of Lavon and ranks each hazard as high, moderate, low, or negligible to no risk. The hazard classification generated through the use of the PRI allows for the prioritization of those high hazard risks for mitigation planning purposes, and more specifically, the identification of hazard mitigation opportunities for Collin County jurisdictions to consider as part of their proposed mitigation strategy.

The PRI is used to assist all jurisdictions participating in the Collin County HazMAP in determining which hazards pose the most significant threat based on a variety of factors. The PRI is not scientifically based, but is rather meant to be utilized as an objective and systematic planning tool for classifying and prioritizing hazard risks in Collin County based on standardized criteria. The PRI results in numerical values that allow identified hazards to be ranked against one another. The sum of all four categories equals the final PRI value, as shown below:

PRI Value = (Probability x .30) + (Life Impact x .35) + (Property Impact x .25) + (Spatial Extent x .10)

The higher the PRI value, the greater the hazards risk. These values were obtained by assigning varying degrees of risk to four categories for each hazard: Probability, Life Impact, Property Impact, and Spatial Extent *(Table 3.1).* Each category has been assigned an Index Value (0 to 3) and a Weighing Factor (0 – 100%). These values may be adjusted during future plan updates. In order to evaluate the risk of each hazard, the assigned PRI Value for each category is multiplied by the weighing factor. Then, the PRI for each hazard is calculated by adding the product obtained in each category. According to the weighing scheme applied for Collin County, the highest possible PRI value is 3.0. The PRI calculations are presented in *Table 3.2*. Table 3.1 breaks down the value of each category.

Table 3.1 Priority Risk Index Value

Assigned Weighing Factor	PRI Category	Degree of Risk		
		Level	Criteria	Index Value
30%	Probability	Unlikely	Less than 1% annual probability	0
		Possible	Between 1 and 10% annual probability	1
		Likely	Between 10 and 100% annual probability	2
		Highly Likely	100% annual probability	3
35%	Life Impact	Minor	Very few injuries, if at all none	0
		Limited	Minor Injuries	1
		Critical	Multiple deaths/injuries	2
		Catastrophic	High number of deaths/injuries	3
25%	Property Impact	Minor	Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	0
		Limited	More than 10% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one day.	1
		Critical	More than 25% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one week.	2
		Catastrophic	More than 50% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for 30 days or more.	3
10%	Spatial Extent	Negligible	Less than 1% of area affected	0
		Small	Between 1 and 10% of area affected	1
		Moderate	Between 10 and 50% of area affected	2
		Large	Between 50 and 100% of area affected	3

Table 3.2 Priority Risk Index for the City of Lavon

Hazard	Category/Degree of Risk				
	Probability Index Value (0 - 3 30%)	Life Impact Index Value (0 - 3 35%)	Property Impact Index Value (0 - 3 25%)	Spatial Extent Index Value (0 - 3 10%)	PRI Value 2021
Dam Failure	0	0	1	0	0.25
Drought	2	0	0	3	0.9
Earthquake	0	1	0	1	0.45
Expansive Soils	2	0	0	1	0.7
Extreme Heat	2	1	0	2	1.15
Flooding	1	1	0	1	0.75
Hail	2	0	0	1	0.7
High Winds	2	0	0	2	0.8
Lightning	1	0	0	0	0.3
Tornado	2	2	2	2	2
Wildfire	2	1	2	2	1.65
Winter Storms	2	0	2	3	1.4

The conclusions drawn from the hazard profiling process for the City of Lavon, resulted in the classification of risk for each identified hazard according to four categories: High Risk, Moderate Risk, Low Risk, and Negligible to No Risk *(Table 3.3).* For purposes of these classifications, risk is expressed in relative terms according to the probability of occurrence and estimated impact that a hazard will have on human life and property in the City of Lavon.

Table 3.3 Hazard Rankings for City of Lavon

High Risk (PRI 2 - 3)	Tornado
Moderate Risk (PRI 1.01 -1.9)	Wildfire Winter Storms Extreme Heat
Low Risk (PRI 0.50 – 1)	High Winds Flooding Expansive Soils Hail Drought
Negligible to No Risk (PRI 0 – 0.49)	Earthquake Lightning Dam Failure

Changes in Development and Priorities (Requirement §201.6(d)(3))

In terms of physical development for the City of Lavon, based on 2020 Census estimates the population of Lavon increased 100%, from 2,219 to 4,469. Housing units increased from approximately 775 to 1500.

Vulnerability Narratives

This annex focuses on specific areas of vulnerability the City of Lavon faces with each hazard. The hazards identified in the main plan are all addressed in this annex, therefore the natural hazards rated negligible to no risk are included, described, and considered for mitigation in this plan.

Dam and Levee Failure The City of Lavon is not subject to dam failure because no Dams are located inside the city limits and the city is not vulnerable to a Dam failure that might occur outside the city limits, but as a participant in the county plan inundation studies will be considered.

Drought Drought has the potential to impact the entire planning area equally; all improved property, emergency facilities, critical facilities, critical infrastructure, and the entire population of Lavon are vulnerable to this hazard. Foundations of all buildings are vulnerable; however, older structures, or those built under less stringent foundation code requirements are most vulnerable. Lake Lavon, Lake Texoma, Lake Tawakoni, Lake Fork and the Lake Chapman-Cooper reservoir system are water sources for the City of Lavon and are vulnerable to drought. In turn, the city's population, wildlife and vegetation are vulnerable. Lower income populations who may not have the resources to buy containerized water in the event of a shortage may be more vulnerable than other populations.

Earthquake Earthquakes have the potential to occur anywhere in the geographic planning area, therefore all geographic areas are potentially vulnerable. Buildings constructed under older building codes, aging underground infrastructure, and roads are most vulnerable to damages from seismic activity. However, this hazard was identified as having negligible or no risk to the City of Lavon.

Expansive Soils All property has the potential to be affected by expansive soils, especially those constructed under older building codes.

Extreme Heat The entire population has the potential to be vulnerable to extreme heat. The homeless, very young, elderly, and populations without air conditioning are most vulnerable.

Flooding There are several undersized culverts that need to be upgraded. This makes the City of Lavon at risk for flooding.

Hail The entire geographic planning area, properties, and populations have the potential to be vulnerable to hail. Exposed populations, manufactured homes, and older properties are most vulnerable.

High Winds The entire geographic planning area has the potential to be vulnerable to high winds. Significant vegetative debris generated during high wind events requires removal to keep roads passable. Manufactured homes and exposed populations are most vulnerable.

Lightning All geographic areas, property, and populations in Josephine have the potential to be vulnerable to lightning. Direct strikes have the power to cause significant damage to buildings, critical facilities, infrastructure, and ignition of wildfires which can result in widespread damages to property. The

City of Lavon is at low risk for lightning. Property without lightning protection and exposed populations are most vulnerable.

Tornado The entire geographic planning area has the potential to be vulnerable to tornadoes, with manufactured home populations being most vulnerable.

Wildland Fire All geographic areas in Lavon are susceptible to wildfire, with the most vulnerable structures and populations located in the WUI. 52.46% of the city's population lives in the Wildland Urban Interface, and this area is at a high level of risk according to the Texas Forest Service Wildfire Risk Assessment Summary.

Winter Storms The entire geographic area of Lavon has the potential to be vulnerable to winter storms, with the homeless, elderly, and populations without access to heat being most vulnerable. These winter storms have the potential to make roads impassable for days. Residents may be confined to their homes due to the storm and may be without basic services, such as water and electricity, for an extended period of time.

Identification of Assets and Vulnerability Assessment

An inventory of the City of Lavon geo-referenced assets was created in order to identify and characterize property and population potentially at risk to the identified hazards. By understanding the type and number of assets that exist and where they are located in relation to known hazard areas, the relative risk and vulnerability for such assets can be assessed. For this assessment, five categories of assets were evaluated using Geographic Information System and statistical analysis. The five categories of vulnerable assets include:

- **Population**: Includes the number of people residing in Collin County jurisdictions as delineated by U.S. Census 2020 block data provided by NCTCOG.
- **Improved property**: Includes all developed properties according to local parcel data from the Collin County Central Appraisal District. The information has been expressed in terms of the total assessed value of improvements that may be exposed to the identified hazards.
- **Emergency facilities**: Includes fire stations, police stations and hospitals, provided by the Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.
- **Critical facilities**: Includes schools and historic places provided by Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions. These are non-emergency facilities, but still provide critical services and functions for vulnerable sectors of the population.
- **Critical infrastructure**: Includes airports, natural gas facilities, wastewater facilities, potable water treatment facilities, wastewater treatment facilities, dams, and bridges. Data for all critical facilities was obtained from Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.

The following tables provide a breakdown by municipal jurisdiction of the geo-referenced assets that were used for the vulnerability assessment.

Population

According to the 2020 NCTCOG Population Predictions, the total population of the City of Lavon in 2020 was 4,102 people, with 1,610 households. The count breakdown by municipal jurisdiction is provided in *Table 3.4.*

Table 3.4. Population Counts

Jurisdiction	Population			Households		
	Population	% of County Total	Population Density (Sq. Mile)	Household	% of County Total	Household Density (Sq. Mile)
City of Lavon	4,210	0.38%	1354.24	1,500	0.38%	454.55

Source: 2020 NCTCOG Population Estimate & Collin County Appraisal District

Table 3.5 summarizes population counts and population chance (absolute and percent predications for the City of Lavon).

Table 3.5 Population Predictions

Jurisdiction	Population 2010 Census	Population 2018 Estimate	Population 2019 Estimate	Absolute Change 2018-2019	Percent (%) Change 2018-2019
City of Lavon	2,219	3,750	4,090	340	9.07%

Source: 2020 NCTCOG Population Estimate

Property

There are an estimated 2,458 parcels in the City of Lavon, with an estimated $362,865,134 in total assessed value of, *Table 3.6* lists the total number and percentage of parcels by jurisdiction.

Table 3.6 Parcel Counts and Improvements Value

Jurisdiction	Number of Parcels	% of County Total	Total Assessed Value of Improvements (Buildings)[1]
City of Lavon	2,458	0.26%	$362,865,134

Source: Collin County Appraisal District 7-2021

Emergency Facilities

There is one identified emergency facility in the City of Lavon, including one fire station, one police station, and no hospitals. *Table 3.7* presents the distribution of emergency facilities by jurisdiction. Geographic coordinates were used to determine the location of each facility.

Table 3.7 Emergency Facilities

Jurisdiction	Number of Fire Stations	Number of Police Stations	Number of Hospitals
City of Lavon	1	1	0

Source: County Data and Regional Hazard Assessment Tool

Critical Facilities

There is one critical facility, which are considered non-emergency in the City of Lavon. The critical facilities include one school and two historical property sites (*Table 3.8*). Geographic coordinates (i.e., latitude and longitude) were used to determine the location of each facility.

Table 3.8 Critical Facilities

Jurisdiction	Schools	Historical Property
City of Lavon	1	2

Source: Local jurisdictions

Critical Infrastructure

There are 4 identified critical infrastructure facilities in the City of Lavon, including no airports, no natural gas facilities, no water treatment facilities, one wastewater treatment facilities, no dams, and 3 railway/highway bridges (*Table 3.9*).

Table 3.9 Critical Infrastructure

Jurisdiction	Airports	Natural Gas Facilities	Wastewater Treatment Facilities	Potable Water Treatment Facilities	Dams	Railway/ Highway Bridges
City of Lavon	0	0	1	0	0	3

Source: Local jurisdictions

Methodology

Based on the type of information available for analysis, the City of Lavon's vulnerability assessment was conducted using two distinct methodologies, a Geographic Information System-based analysis and a statistical risk assessment methodology. Each approach provides estimates for the potential impact of hazards by using a common, systematic framework for evaluation of historical occurrence information provided by National Centers for Environmental Information, the Texas Forest Service, and the FEMA Resilience and Planning Tool. The results of the vulnerability assessment are provided by jurisdiction for each hazard analyzed.

Of the 12 hazards evaluated for the City of Lavon, four were analyzed using a Geographic Information System-based analysis, five using a statistical risk assessment methodology, and the remaining three hazards using a qualitative analysis. Qualitative analysis was used due to lack of information, the inability to define specific areas of risk, and/or inexistence of historical records. Additional information regarding

these hazards is unattainable at the present time; studies to address this data deficiency are noted as action items in this update. *Table 3.10* summarizes the methodology used for each hazard.

Table 3.10 Analysis used for Vulnerability Assessment

Hazard	Geographic Information System-based Analysis	Statistical Analysis	Qualitative Analysis
Dam Failure			X
Drought	X		
Earthquake			X
Expansive Soils			X
Extreme Heat		X	
Flooding	X		
Hail	X		
High Winds		X	
Lightning		X	
Tornado		X	
Wildfire	X		
Winter Storms		X	

Summary of Vulnerably Assessment

A summary of the vulnerability assessment for each hazard using geographic and statistical analysis is presented in the following pages. The detailed assessment is presented in the following sections.

Summary Table 3.11

Drought	
Population	According to National Centers for Environmental Information (NCEI) zero (0) recorded injuries or fatalities have been recorded for drought events. There are no personal losses expected from drought events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Lavon are expected but financially unknown due to lack of accurate reporting. Historical data indicates that crop losses in the City of Lavon are expected mostly during water shortages, financially unknown due to lack of accurate reporting.
Emergency Facilities	Because of the nature of this hazard, no losses are expected on emergency facilities but foundation issues could occur due to drought events.

Critical Facilities	Because of the nature of this hazard, no losses are expected on critical facilities but foundation issues could occur due to drought events.
Critical Infrastructure	Because of the nature of this hazard, no losses are expected on critical infrastructure but foundation issues and road degradation could occur due to drought events.

Summary Table 3.12

Extreme Heat	
Population	According to National Centers for Environmental Information (NCEI), there were no fatalities recorded due to extreme heat from the City of Lavon. The City of Lavon and its population are vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), there is little impact of extreme heat to developed areas and the improved property in City of Lavon is not vulnerable to this hazard.
Emergency Facilities	According to National Centers for Environmental Information (NCEI), there is little impact of extreme heat to buildings and the emergency facilities in City of Lavon are not vulnerable to this hazard.
Critical Facilities	According to National Centers for Environmental Information (NCEI), there is little impact of extreme heat to buildings, and the critical facilities in City of Lavon are not vulnerable to this hazard.
Critical Infrastructure	According to National Centers for Environmental Information (NCEI) there is little impact of extreme heat to critical infrastructure, and vulnerability to this hazard is considered minimal in City of Lavon

Summary Table 3.13

Flooding	
Population	Flooding produces an expected annualized count of zero (0) fatalities and injuries per year. Approximately 14 residential parcels in the City of Lavon are located within the 100-year floodplain.
Improved Property	There have been four (4) recorded flood events in the City of Lavon. Property losses are expected but unknown due to inaccurate reporting. No crop losses are expected or recorded county-wide. Approximately $259,195 of the total assessed value is at risk from the 100-year storm event.
Emergency Facilities	Emergency facilities have the potential to be at risk in the 100-year storm event.
Critical Facilities	Critical facilities have the potential to be at risk in the 100-year storm event.

Critical Infrastructure	Critical Infrastructure have the potential to be at risk in the 100-year storm event.

Summary Table 3.14

Hail	
Population	According to National Centers for Environmental Information (NCEI), no recorded injuries or fatalities have been recorded for hailstorm events. There are no personal losses expected from hailstorm events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Lavon are expected at $7,142.86 per year however these values are underestimated due to lack of accurate reporting. All improved property is vulnerable to this hazard. Although some crops are susceptible to hail hazards, available historical data for City of Lavon indicates that there are no expected crop losses from this event.
Emergency Facilities	Because of the unpredictability of the geographical location of hailstorms, all emergency facilities in City of Lavon are vulnerable to this hazard.
Critical Facilities	Because of the unpredictability of the geographical location of hailstorms, all critical facilities in City of Lavon are vulnerable to this hazard.
Critical Infrastructure	Because of the unpredictability of the geographical location of hailstorms, all critical infrastructures in City of Lavon are vulnerable to this hazard.

Summary Table 3.15

High Wind	
Population	According to National Centers for Environmental Information (NCEI), there are one (1) recorded injury and no recorded fatalities from high wind events. All the population of City of Lavon is vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Lavon are expected at $628.57 per year however these values are underestimated due to lack of accurate reporting. No in crop losses resulted from this hazard in City of Lavon.
Emergency Facilities	Because of the expected geographical widespread nature of high winds, all emergency facilities in City of Lavon are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of high winds, all critical facilities in City of Lavon are vulnerable to this hazard.

Critical Infrastructure	Because of the expected geographical widespread nature of high winds, all critical infrastructures in City of Lavon are vulnerable to this hazard.

Summary Table 3.16

Lightning	
Population	According to National Centers for Environmental Information (NCEI), lightning events can be expected to cause no deaths or injuries in City of Lavon. All the population of City of Lavon is vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Lavon are expected at $2,083.33 per year however these values are underestimated due to lack of accurate reporting.
Emergency Facilities	Because of the expected geographical widespread nature of lightning, all emergency facilities in City of Lavon are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of lightning, all critical facilities in City of Lavon are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of lightning, all critical infrastructures in City of Lavon are vulnerable to this hazard.

Summary Table 3.17

Tornado	
Population	According to National Centers for Environmental Information (NCEI), there have been no recorded injuries or fatalities from tornado events in City of Lavon. All the population of City of Lavon is exposed and vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Lavon are expected but unknown due to lack of accurate reporting.
Emergency Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all emergency facilities in City of Lavon are exposed and vulnerable to this hazard.
Critical Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all critical facilities in City of Lavon are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the impossibility to predict the geographical area of impact for tornados, all critical infrastructures in City of Lavon are exposed and vulnerable to this hazard.

Summary Table 3.18

Wildfire	
Population	Based on geographical data, approximately 52.46% of City of Lavon is vulnerable to wildfires. There have been no recorded injuries or fatalities due to wildfires.
Improved Property	Based on historical data, annual financial losses expected from property loss due to wildfires are unknown due to lack of accurate reporting; therefore, percentage of the overall property improvement values across the City of Lavon are also unknown.
Emergency Facilities	Based on geographic information there are 1 fire stations at risk from wildfire events.
Critical Facilities	Based on geographic information there are no schools at risk from wildfire events.
Critical Infrastructure	Based on geographic information there are 0 bridges, 0 dams, 0 wastewater treatment facility, and 0 water treatment facility at risk from wildfire events.

Summary Table 3.19

Winter Storm	
Population	According to National Centers for Environmental Information (NCEI), there was one (1) county-wide fatality recorded due to winter storms, none from the City of Lavon. All the population of City of Lavon exposed and vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Lavon are expected but unknown due to lack of reporting however county-wide property loss is estimated at $116,250 per year. No crop losses are expected from this hazard in City of Lavon.
Emergency Facilities	Because of the expected geographical widespread nature of winter storms, all emergency facilities in City of Lavon are exposed and vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of winter storms, all critical facilities in City of Lavon are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of winter storms, all critical infrastructures in City of Lavon are exposed and vulnerable to this hazard.

4. Capability Assessment

The risk assessment and capabilities assessment serves as the foundation for the development of a meaningful hazard mitigation strategy. During the process of identifying specific mitigation actions to pursue, Lavon considered not only its level of hazard risk but also the existing capabilities to minimize or eliminate that risk.

Table 4.1 Legal and Regulatory Capability Summary

Legal and Regulatory Capabilities															
Jurisdiction	Building Code	Zoning Ordinance	Subdivision Ordinance or regulation	Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances wildfire ordinances, hazard setback requirements)	Growth management ordinances (also called "smart Growth" or anti-sprawl programs)	Site Plan review requirements	General or comprehensive plan	A capital improvements plan	An economic development plan	An emergency response plan	A post-disaster recovery plan	A post-disaster recovery ordinance	Real estate disclosure requirements	Other	% Yes per Jurisdiction
City of Lavon	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	N	?	**76%**
Average % Yes Capabilities – 76%															
Y- Yes N- No ?- Don't Know															

Table 4.2 Administrative and Technical Capability Summary

Administrative and Technical Capabilities											
Jurisdiction	Planner(s) or engineer(s) with knowledge of land development and land management	Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Planners or engineer(s) with an understanding of natural and/or human caused hazards	Floodplain manager	Surveyors	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in GIS	Scientists familiar with the hazards of the community	Emergency manager	Grant writers	% Yes
City of Lavon	Y	Y	Y	Y	N	N	N	N	Y	Y	**60%**
Average % Yes Capabilities – 60%											
Y- Yes N- No ?- Don't Know											

Table 4.3 Fiscal Capability Summary

Fiscal Capabilities											
Jurisdiction	Community Development Block Grants (CDBG)	Capital improvements project funding	Authority to levy taxes for specific purposes	Fees for water, sewer, gas, or electric service	Impact fees for homebuyers or developers for new developments/homes	Incur debt through general obligation bonds	Incur debt through special tax bonds	Incur debt through private activity bonds	Withhold spending in hazard-prone areas	Other	% Yes
City of Lavon	Y	Y	Y	Y	Y	Y	Y	N	N	?	**70%**
Average % Yes Capabilities – 70%											
Y- Yes N- No ?- Don't Know											

To quantify Lavon's legal and regulatory capabilities, administrative and technical, and fiscal capabilities, an overall rating system was administered for each category: limited (0-30%), moderate (31-70%), and strong (70-100%). Questionnaire responses indicated that on average, Lavon has 76% of identified legal and regulatory capabilities, 60% of identified administrative and technical capabilities, and 70% of identified fiscal capabilities.

Table 4.4 Administrative Information

Jurisdiction	Chief Administrative Officer	Ability to Implement Capabilities
City of Lavon	Mayor	The city council, including the mayor, mayor pro-tem, and council members, along with the department heads, address the budget; pass laws, regulations, and codes; hire staff; approve plans; and determine the direction of the city overall. As the governing body, the ability to implement and approve mitigation actions and integrate mitigation into existing policies and programs is a function of this group.

Specific actions that can expand and improve existing capabilities, authorities, plans, policies, and resources for mitigation include: budgeting and passing policies and procedures, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates and additions to existing plans as new needs are recognized.

5. Mitigation Strategies

Based on the results of the risk and capability assessments, and reviews of the goals and objectives included in the 2021 HazMAP, the City of Lavon Hazard Mitigation Planning Committee developed mitigation strategies for the plan update.

Goal 1 Reduce or eliminate loss of life, injuries and property damage resulting from severe weather events.

Objective 1-A Expand adequate warning and communication before, during, and after a hazard event.
Objective 1-B Expand and coordinate Early Warning Systems currently in use.
Objective 1-C Reduce or eliminate loss of life and property damage from tornados through the construction and use of safe rooms or shelter areas.

Goal 2 Protect existing and new properties from the effects of all natural hazards.

Objective 2-A Conduct studies to determine hazard and vulnerability threat assessment for all natural hazards.
Objective 2-B Rehabilitate or retrofit identified high hazard critical infrastructure.
Objective 2-C Enact and enforce regulatory measures that enforce hazard mitigation measures.
Objective 2-D Construct enhancements or additions to current and new facilities which mitigate the effects of natural hazards.
Objective 2-E Maintain NFIP compliance, storm water management, and implement drainage projects.

Goal 3 Reduce losses and repetitive damages for chronic hazard events.

Objective 3-A Conduct a hazard/vulnerability assessment of personal properties and structures located in flood zones within Lavon.
Objective 3-B Develop and implement a buyout program for those personal properties and structures located in high hazard flood zones starting with those that are most vulnerable to life and property loss.
Objective 3-C Develop and execute new programs which identify and reduce threats from natural hazards.

Goal 4 Develop public education campaigns to disseminate information about actions to mitigate potential loss of life, injuries and property damage resulting from natural hazards.

Objective 4-A Educate the public on risks, threats, and vulnerability from all natural hazards.
Objective 4-B Educate the public on actions they can take to prevent or reduce the loss of life or property from all natural hazards.
Objective 4-C Develop and implement a community education campaign to heighten public awareness about chronic flooding and options for insurance coverage to protect their personal properties as well as long term benefits from a buyout program.

6. Action Items

Below is a list of the new and deferred action items identified for the HazMAP Update. Each of the actions in this section were prioritized based on FEMA's STAPLEE criteria, which includes considering the social, technical, administrative, political, legal, economic and environmental factors necessary for the implementation of each action. As part of the STAPLEE analysis economic considerations were weighed for each action. The STAPLEE was used for the 2016 Plan along with the 2021 Update. Priority rankings are classified as indicated in the table below.

Priority	Description
High	Benefits of mitigating risk of death or severe bodily injury outweigh costs to implement actions rated as high priorities.
Medium	Reducing vulnerability to threats and the resulting improvement in quality of life and peace of mind are benefits for actions rated as medium priorities.
Low	Awareness of low risk/low impact hazards offer benefits of time to assess, plan and integrate low priority mitigation actions as time, need, and funding permit.

City of Lavon Action Items: Modified from 2016 Plan

Lavon Action Item	Employ an automated alert system to broadcast weather conditions, hazards and road closures. Also will allow for broadcast of watches, warnings, evacuation routes, shelter information, and mitigation information.
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$3,000
Potential Funding Sources	City Budget
Lead Department	City Manager's Office
Implementation Schedule	Done
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	This project's cost effectiveness is in the lives it saves by alerting citizens to take shelter during extreme weather conditions.
Discussion	The automated alert system will reduce the threats to the citizens by alerting them to impending severe weather and warn citizens to seek appropriate shelter inside.
Status	Completed

Lavon Action Item	Reduce the impact of Severe Heat by utilizing Green Landscaping Roofing on all new city construction.

Hazard(s) Addressed	Extreme Heat
Goal/Objective	2-B, 2-D
Priority	Medium
Estimated Cost	$50,000
Potential Funding Sources	Local funding, HMGP
Lead Department	Public Works
Implementation Schedule	1-5 years
Effect on Old Buildings	No effect
Effect on New Buildings	The green landscaping will reduce overall effect of extreme heat on buildings, making cooling more efficient and reducing the use of electricity as well as reducing the effects of extreme summer heat on the citizens.
Cost Effectiveness	This project is cost effective in the reduction of hazards to citizens as well as the reduced power and electricity requirements for cooling buildings in summer heat.
Discussion	By utilizing landscaping on the roofs several significant benefits will be utilized. Including, insulation in the facility reducing the need for electricity, reducing the impact of extreme heat on the residents.
Status	Deferred – included in 2021 Action Items

Lavon Action Item	Develop and implement a Master Storm Water Drainage Plan for the City.
Hazard(s) Addressed	Flooding
Goal/Objective	2-E
Priority	High
Estimated Cost	$50,000
Potential Funding Sources	City Budget, Grant Programs
Lead Department	Department of Public Works
Implementation Schedule	1-5 years
Effect on Old Buildings	Improved planning reduces potential flooding impacts
Effect on New Buildings	Mitigates flooding impacts
Cost Effectiveness	This project is extremely cost effective when compared to the property and agriculture/crop damage that will be avoided once the Master Storm Drainage plan enactment begins.
Discussion	There is a Storm Sewer Map currently, but no Master Storm Drainage Plan. By preparing and implementing this plan, it will reduce the occurrence of flash flooding and sudden inundation of areas. It will improve transportation during severe weather. Reduce vulnerabilities to those homeowners who are located in areas outside of flood zones but vulnerable to overflow flooding. And eliminate the rerouting of storm water to unattended areas.
Status	Deferred – included in 2021 Action Items

Lavon Action Item	Implement Building Codes requiring New Commercial Facilities to utilize Hail Resistant Roofing Materials to the extent allowed by State law..
Hazard(s) Addressed	Hail
Goal/Objective	2-C
Priority	Medium
Estimated Cost	$5,000-$10,000
Potential Funding Sources	HMGP, Local budget
Lead Department	Emergency Management
Implementation Schedule	1-5 years
Effect on Old Buildings	Hail resistant roofing and window coverings will significantly mitigate the potential hazards of property damage as well as possible personal injury due to severe storm and hail.
Effect on New Buildings	Reduce impacts of hail on new structures
Cost Effectiveness	The cost effectiveness of the project will be the reduction of damage to property as well as reducing the need for debris disposal after a storm.
Discussion	The City of Lavon will enact codes for new development and city construction by requiring developers to install hail resistant roofing and window coverings, thus reducing the effect of severe weather and damage.
Status	Deferred – included in 2021 Action Items

Lavon Action Item	Retrofit an existing structure or construct a new City Hall built to withstand an EF2 Tornado.
Hazard(s) Addressed	Tornado
Goal/Objective	1-C
Priority	High
Estimated Cost	$5,000,000
Potential Funding Sources	City Budget, Grant Programs
Lead Department	Department of Public Works
Implementation Schedule	5-10 years
Effect on Old Buildings	No effect on existing buildings unless retrofit
Effect on New Buildings	This would affect the new City Hall building, making it able to withstand an EF2 tornado, mitigating the loss of such critical infrastructure.
Cost Effectiveness	This project is cost effective because the current City Hall building is a renovated historic structure and will not withstand an EF2 tornado. City Hall houses many functions, documents, and records, and the potential loss of those greatly outweighs the cost of a new hardened structure.
Discussion	The current City Hall houses Administration and Finance, Development Services, Building Inspection and Permitting, , Municipal Court and City

	Council Chambers, PW, community meeting rooms, gymnasium and all the records are housed. The City Hall facility is a historic structure. The construction or retrofit of the new City Hall should include a hardened infrastructure to withstand known hazard extent levels.
Status	Deferred – included in 2021 Action Items

Lavon Action Item	Retrofit an existing structure or construct a new Public Works office and shop built to withstand a EF2 Tornado
Hazard(s) Addressed	Tornado
Goal/Objective	1-C
Priority	High
Estimated Cost	$1,000,000
Potential Funding Sources	City Budget, Grant Programs
Lead Department	Department of Public Works
Implementation Schedule	2-4 years
Effect on Old Buildings	No effect on existing buildings unless retrofit
Effect on New Buildings	This would affect the new Public Works office and shop buildings, making them able to withstand an EF2 tornado, mitigating the loss of such critical infrastructure and protecting critical equipment.
Cost Effectiveness	This project is cost effective because the current Public Works building will not withstand an EF2 tornado. The building houses many functions, documents, operations equipment, heavy equipment, and records, and the potential loss of those greatly outweighs the cost of a new hardened structure.
Discussion	The current Public Works building contain operations and heavy equipment. The building would not withstand an EF2 tornado. In order to mitigate the effects of that hazard, the retrofit or construction of the new Public Works office and shop should include a hardened infrastructure to withstand known hazard extent levels.
Status	Deferred – included in 2021 Action Items

Lavon Action Item	Implement a program to inspect and clear excessive brush along high-voltage power lines and surrounding land, reducing the vulnerability to citizens located in potential wildland fire areas.
Hazard(s) Addressed	Wildland Fire
Goal/Objective	2-C
Priority	High
Estimated Cost	$500,000/year
Potential Funding Sources	Local funding, HMGP
Lead Department	Public Works, Fire Department
Implementation Schedule	1-2 years

Effect on Old Buildings	This would mitigate the effects of wildland fire encroaching upon built up areas for existing construction.
Effect on New Buildings	This would mitigate the effects of wildland fire encroaching upon built up areas for new structures.
Cost Effectiveness	This project's cost effectiveness is seen in the management of wildland fire fuels to significantly reduce the damage or loss of buildings, structures, agriculture products, or homes to wildland fire.
Discussion	Currently the City of Lavon is susceptible to wildland fires due to the large amounts of family owned and un-maintained land along with the large farming industry. With the clearing of brush around high power voltage lines and surrounding land, this will create a fire break, greatly reducing the hazard and risks associated with possible ignition sources of wildland fire.
Status	Deferred – included in 2021 Action Items

Lavon Action Item	Develop and implement a community awareness program utilizing the City's existing communication outlets including the website, social media, and newsletter in order to mitigate the effects of wildland fire.
Hazard(s) Addressed	Wildland Fire
Goal/Objective	4-A, 4-B
Priority	High
Estimated Cost	$7,000-$10,000
Potential Funding Sources	City Budget
Lead Department	Development Services
Implementation Schedule	1-5 years
Effect on Old Buildings	This will greatly mitigate the effect of wildland fire on all buildings by increasing mitigation actions through public awareness and education campaigns, especially during periods of low rain and high heat.
Effect on New Buildings	This will greatly mitigate the effect of wildland fire on all buildings by increasing mitigation actions through public awareness and education campaigns, especially during periods of low rain and high heat.
Cost Effectiveness	This project is cost effective when compared to property damage, crop consumption, and potential loss of life that can be attributed to the hazards of wildland fire.
Discussion	The City of Lavon is highly susceptible to the dangers posed by wildland fire. By educating the public, they will be more aware of conditions, hazard assessment, and any applicable codes or burn ban enforcements applied by the city. This will mitigate the hazards associated with wildland fire.
Status	Receive supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021 Plan

City of Lavon Action Items: New

City of Lavon Action Item	Implement Hazard Mitigation Education Series to mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Tornado, Hail, Winter Storms, High Winds, Dam Failure, Lightning, Expansive Soils, Extreme Heat, Earthquake, Flooding, Wildfire, Drought
Goal/Objective	4-A, 4-B, 4-C
Priority	High
Estimated Cost	$10,000
Potential Funding Sources	General Fund, HMGP
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	9-12 months
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Minimal compared to preservation of life safety
Discussion	Public education can help educate the public to reduce personal and property damage during disasters. Program will include information about hazard mitigation

City of Lavon Action Item	Develop and implement an extreme temperature program that establishes heating and cooling centers for vulnerable residents
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	2-A, 2-D, 3-C
Priority	High
Estimated Cost	Current staffing project time/resources
Potential Funding Sources	HMGP, PDM,
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	H.R. Dept.
Implementation Schedule	12 months
Effect on Old Buildings	Could require retrofit to accommodate required space and resources
Effect on New Buildings	May entail enhanced construction materials
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.

Discussion	Cooling shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold

City of Lavon Action Item	Implement Individual Tornado Safe Room Rebate Program
Hazard(s) Addressed	High Wind, Tornado
Goal/Objective	1-C
Priority	High
Estimated Cost	Up to $3,000 per shelter
Potential Funding Sources	HMGP, PDM, Resident Match
Potential Matching Sources	Local Grants, FEMA
Lead Department	EMC
Implementation Schedule	2-3 years
Effect on Old Buildings	Enhance safety of existing residential structures through retrofit
Effect on New Buildings	Enhance safety of new residential structures
Cost Effectiveness	Residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind events.
Discussion	Program would give rebates to residents who purchase and install safe rooms for their homes or properties.

City of Lavon Action Item	Continue to increase outdoor warning siren coverage for new development areas.
Hazard(s) Addressed	Tornado, Wildfire, High Winds, Flooding, Hail, Lightning, Dam Failure
Goal/Objective	1-A, 1-B
Priority	High
Estimated Cost	$25,000
Potential Funding Sources	General Fund, HMGP, Developer cost
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	1-2 years
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	High. Cost to implement small compared to benefits
Discussion	Early warning is a key element in keeping citizens that are outdoors notified of hazards. This action item would be specific to installation/placement of new OWS sirens in the jurisdiction.

City of Lavon Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	2-A, 3-A
Priority	Medium
Estimated Cost	$50,000
Potential Funding Sources	HMPG, Watershed Authorities, Dam Sponsors
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Planning
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.

City of Lavon Action Item	Develop a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	2-A, 3-C
Priority	Medium
Estimated Cost	$5,000
Potential Funding Sources	TFS Grants,
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Fire Dept.
Implementation Schedule	1-3 years
Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire
Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire
Cost Effectiveness	CWPPs show city officials where to redouble their efforts in preventing wildfire, saving time and money. Also work to establish urban wildfire interface around new development properties.
Discussion	Identify all structures and infrastructures that would be impacted by a potential wildfire and measures to mitigate vulnerability.

City of Lavon Action Item	Adopt and enforce water conservation measures
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	2-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Adopt and enforce water restriction ordinances to limit water consumption to mitigate against drought. When water is conserved and not used for landscape during droughts, this would provide water for homeowners to use, through drip irrigation, to keep their foundations at a consistent saturation level, mitigating the impacts of drought and lack of water.

City of Lavon Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.

City of Lavon Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.

City of Lavon Action Item	Hardening of critical public buildings to include installation of generators and other measures necessary to ensure continuous operation.
Hazard(s) Addressed	Flood, Winter Storm, Thunderstorm, Wind, Earthquake
Goal/Objective	
Priority	High
Estimated Cost	$2,000,000
Potential Funding Sources	FEMA, HMGP, GLO
Potential Matching Sources	Local funds
Lead Department	City Administration, Approved Contractor
Implementation Schedule	1-2 years
Effect on Old Buildings	Significant protection for City Hall, Police Department, Fire Department and other critical public buildings throughout the City.
Effect on New Buildings	Improve effectiveness of new structures and infrastructure.
Cost Effectiveness	High. This reduces the risk to existing and future structures and interruption of critical services.

Discussion	Ensure continuous operation of critical facilities to reduce environmental impacts due to failure to function, reduce threat to public health and safety.

City of Lavon Action Item	Develop Cybersecurity and Response Plan
Hazard(s) Addressed	Critical information systems for emergency and public safety services, traffic signals, sanitary sewer operations
Goal/Objective	
Priority	High
Estimated Cost	$20,000
Potential Funding Sources	General Fund
Potential Matching Sources	Local funds
Lead Department	City Administration
Implementation Schedule	1-2 years
Effect on Old Buildings	NA.
Effect on New Buildings	NA
Cost Effectiveness	High. This Plan would provide additional training and resources to prevent cybersecurity incidents
Discussion	Plan would be used to identify vulnerabilities and improvements.

National Flood Insurance Program (NFIP) Compliance

Lavon is participating in the National Flood Insurance Program and has identified their respective areas as vulnerable to flooding. This is incorporated into all current and future planning for dealing with repetitive loss vulnerabilities.

Table 6.1 NFIP Compliance

CID	Community Name	County	Initial FHBM Identified	Initial FIRM Identified	Curr Eff Map Date	Reg-Emer Date	Tribal
481313#	LAVON, CITY OF	COLLIN COUNTY	5/23/1978	4/2/1991	06/02/09(M)	5/13/1991	No

Source: http://www.fema.gov/cis/TX.html

Jurisdiction Activities

In order to maintain eligibility with NFIP, jurisdictions are required to maintain their list of properties that hold a policy with NFIP, along with up-to-date maps of the floodplains in the jurisdictions. Each jurisdiction participating in the Collin County Hazard Mitigation Action Plan completes this basic requirement and has the information on file with the jurisdiction's designated floodplain manager. Using this plan, participating jurisdictions will be able to continue their compliance with NFIP by implementing damage control measures and take action to minimize the effects of flooding in their respective jurisdictions.

Table 6.2 NIFP Activity

Jurisdiction	Community Floodplain Administrator	NFIP Activity	Activity Description	Enforcement
City of Lavon	City Engineer	Complete and maintain FEMA elevation certificates for pre-FIRM and or post-FIRM buildings	Permits are issued through the City Services office. The City of Lavon requires 2 feet of freeboard above the base flood elevation for the top of bottom floor on residential structures and non-residential structures that will be built on properties created or platted after the effective date of the Flood Damage Prevention Ordinance.	NFIP compliance is implemented and enforced through a process of floodplain identification using FEMA floodplain maps, permit issuance, building requirements, and compliance inspections pending approval. Failure to comply with City's flood damage prevention order shall result in fines up to $500 per violation plus court costs.
		Floodplain development permits	Permits are required for any new construction in a floodplain.	
		Participate with FEMA in identifying Special Flood Hazard Areas for future FIRM maps	The City of Lavon participates in Risk Assessment, Mapping and Planning Partners (RAMPP) meetings held by FEMA and/or their contractors to better identify areas that are flood prone that are not shown on current Flood Insurance Rate Maps.	
		Take action to minimize the effects of flooding on people, property, and building contents through measures including flood warning, emergency response, and evacuation planning	City public works department installs signs at low water crossings.	
		Future Mitigation Projects	The City of Lavon will continue to monitor for new areas of flooding that have not been previously identified for mitigation.	

7. Plan Maintenance

Monitoring, Evaluating, and Updating the Plan

In Compliance with requirement § 201.6(c)(4)(i), the City of Lavon has developed a plan maintenance process which is described in the following paragraphs. Collin County, along with participating jurisdictions, is ultimately responsible for monitoring implementation of the plan, executing a yearly evaluation of its effectiveness, and updating the plan within a 5-year cycle.

Following formal adoption by the City of Lavon, the county, and the city council of each participating jurisdiction, the actions outlined in the Collin County Hazard Mitigation Action Plan (HazMAP) will be implemented by participating jurisdictions as described throughout this document.

The Collin County Emergency Management Coordinator, working in conjunction with the respective jurisdictions, will be responsible for ensuring the mitigation plan is monitored, evaluated, and reviewed on an annual basis. This will be accomplished by calling an annual meeting of the planning committee, whose members will provide assistance and expertise for plan review, evaluating, updating, and monitoring. This meeting will be open to the public and public notices will encourage community participation. During this annual meeting, the City of Lavon will provide information on the implementation status of each action included in the plan. As part of the evaluation, the planning committee will assess whether goals and objectives address current and expected conditions, whether the nature and/or magnitude of the risks have changed, if current resources are appropriate for implementing the plan, whether outcomes have occurred as expected, and if agencies and other partners participated as originally proposed. These activities will take place according to the timetable presented below:

Table 7.1 Plan Maintenance Timeline

Personnel	Activity	Schedule
City Administrator	Monitoring Plan : Track implementation and action items, changes to risk assessment, changes to planning team members, changes to capabilities, plan integrations	Biannually
Fire Chief	Evaluate Plan: Assess effectiveness by evaluating completed actions, implementation processes, responsible personnel and lessons learned.	Annually
	Update Plan	Once every 5 years

At least once every five (5) years, or more frequently, if such a need is determined by the participating jurisdiction, the multi-jurisdictional plan will undergo a major update. During this process, all sections of the plan will be updated with current information, analyses done and new and/or modified mitigation action plans will be developed. The revised plan will be submitted for state and federal review and approval, and presented for approval to the Collin County Commissioner's Court and the respective councils of incorporated cities/towns included in the Collin County plan. Likewise, each participating jurisdiction will undertake the same process for reviewing, revising and updating their respective plans and submitting same for approval by the state, FEMA and each local jurisdiction's governing body. The plan will be updated every five years in accordance with federal requirements.

Plan Incorporation into Existing Planning Mechanisms (In compliance with 201.6(c)(4)(ii))

2016 Plan Incorporation: The vulnerability and capabilities assessments for each jurisdiction were carefully reviewed and considered when developing the mitigation actions for this plan. The HMPT and committees will establish a process in which the mitigation strategy, goals, objectives and actions outlined in this plan will be incorporated into existing local planning strategies and mechanisms. Those mechanisms include the following:

Table 7.2 Plan Incorporation Mechanisms

Jurisdiction	Responsible Personnel	Jurisdictional Plans	Integration Schedule	Integration Plan
City of Lavon	City Council	Budget.	Annually	Integration of mitigation projects identified in HazMAP, grants, and other fiscal allowances for mitigation actions and related costs
	Fire Chief	Emergency Action Plan	Triennially	EAP Mitigation annex updates based on HazMAP HIRA; update preparedness, response and recovery actions related to identified hazards
	Designated Floodplain Manager	Floodplain Ordinances	As needed	Enhance mitigation of flood hazards using HazMAP flood data for floodplain management and community development.
	City Council, City Administrator	Capital Improvement Plan	Annually	Strengthen critical infrastructure and key resources based on HazMAP hazard analysis, incorporate vulnerability data and action items.
	Public Works Director, City Council	Drought Contingency Plans	As needed	Integrate drought actions such as xeriscaping, water restrictions, and public education
	Planning Director, City Council	Natural Resource Conservation Plan	As needed	Integrate conservation measures by directing development away from hazard-prone areas identified in HazMAP.

Although it is recognized there are many possible benefits to integrating components of this HazMAP into other planning mechanisms, the Lavon Hazard Mitigation Planning Committee considers this HazMAP, including development and maintenance, to be the primary vehicle to ensure implementation of local hazard mitigation actions.

The process described here is the same as was used since the last planning update.

Continued Public Involvement (In compliance with 201.6(c)(4)(iii))

As stated in requirement § *201.6(c)(4)(iii)* The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.

To address this requirement, ongoing public participation will be encouraged throughout the entire planning and implementation process. A copy of the plan will be provided on the Collin County website. The planning team and committees will continue meeting on a regular basis to ensure the successful implementation of the plan and to discuss any additional issues regarding the emergency management of Collin County. The annual meetings for monitoring, evaluating, and updating the plan will be open to the public and public notices will encourage community participation.

Annex K: City of Lowry Crossing

1. Introduction

This annex was prepared in 2020 as part of an update to the Collin County Multi-Jurisdictional Hazard Mitigation Action Plan. The City of Lowry Crossing participated on the Collin County Hazard Mitigation Planning Team (HMPT). This is a new hazard mitigation plan and the first to be submitted to FEMA for the main plan; this annex serves as a complete hazard mitigation planning tool for the City of Lowry Crossing. It contains capability assessment information, a specific vulnerability assessment, and a complete mitigation strategy. The methodology and process for developing this annex is explained throughout the following sections.

2. Plan Development and Adoption Process

In order to apply for federal aid for technical assistance and post-disaster funding, local jurisdictions must comply with Part 201.3 of the Disaster Mitigation Act of 2000 implemented in the Federal Code of Regulations 44 CRF Part 201.6. While Lowry Crossing has historically implemented measures to reduce their vulnerability to hazards, passage of DMA 2000 helped Lowry Crossing officials to recognize the benefits of a long-term approach to hazard mitigation, which achieves a gradual decrease of impacts associated through the implementation of a Hazard Mitigation Plan. Collin County's Hazard Mitigation Action Plan represents the collective efforts of all participating jurisdictions, the general public, and stakeholders.

Organizing the Planning Effort

A comprehensive county approach was taken in developing the plan. An open public involvement process was established for the public, neighboring communities, regional agencies, businesses, academia, etc. to provide opportunities for everyone to become involved in the planning process and to make their views known. The meetings were advertised with notices in public places and onlne.

In accordance with Part 201.6(c)(5) of the Disaster Mitigation Act of 2000 (DMA 2000), Collin County developed this Hazard Mitigation Action Plan. This plan identifies hazards and mechanisms to minimize future damages associated with these hazards, which threaten Collin County and its jurisdictions.

Existing Data and Plans

Existing hazard mitigation information and other plans were reviewed during the development of the Hazard Mitigation Action Plan. GIS, statistical and qualitative data was gathered through numerous sources. The table below outlines the sources of data for the plan:

Table 2.1 Plan Source Data

Source	Data
City and County Appraisal Data 2020	Population and demographics
Regional Hazard Assessment Tool	Hazard occurrences

Source	Data
National Climatic Data Center (NCDC)	Hazard occurrences
Texas Forest Service/Texas Wildfire Risk Assessment Summary Report	Wildfire Threat and Wildland/Urban Interface
National Inventory of Dams	Dam Information

Planning Committee

This Hazard Mitigation Action Plan was developed by the Lowry Crossing Hazard Mitigation Planning Committee, with support of the North Central Texas Council of Governments and in conjunction with the Collin County HMPT.

The Collin County HMPT was assembled in November 2020 with representatives from participating jurisdiction planning committees, including mayors, police chiefs, fire chiefs, and the general public. Collin County acted as the plan development consultant providing hazard mitigation planning services; the efforts of the planning committee were led by the Lowry Crossing Emergency Management Coordinator. The table below provides a list of the primary representatives on the Lowry Crossing planning committee.

Table 2.2 Hazard Mitigation Committee – Primary Representatives

Representing	Position	Role
Lowry Crossing City Council	Mayor Pro Tem	Plan Development
City of Lowry Crossing	City Secretary	Plan Development
Lowry Crossing Fire Dept.	Chief	Plan Development

Collin County served as the coordinator and lead agency for all jurisdictions by accomplishing the following activities through the planning process:

- Assigned the County's Assistant Emergency Management Coordinator to provide technical assistance and necessary data to the planning committee.
- Scheduled, coordinated, and facilitated community meetings with the assistance of the HMPT and the planning committees.
- Provided any necessary materials, handouts, etc. for public planning meetings.
- Worked with the HMPT and planning committees to collect and analyze data and develop goals and implementation strategies.
- Prepared, based on community input and planning team/committee direction, the first draft of the plan and provided technical writing assistance for review, editing and formatting.
- Coordinated with the stakeholders within the jurisdictions and the unincorporated areas of Collin County during plan development.

Each of the individual jurisdictions participated in accomplishing similar activities associated with development of the plan as follows:

- Coordinated input from representatives of neighborhood stakeholder groups and provided a representative to the County HMPT.
- Attended regular meetings of the planning team as coordinated by Collin County.
- Assisted Collin County staff with identifying hazards and estimating potential losses from future hazard events.
- Assisted Collin County in developing and prioritizing mitigation actions to address the identified

risks.

- Assisted Collin County in coordinating public meetings to develop the plan.
- Identified the community resources available to support the planning effort.
- Worked for the support of neighborhood stakeholders for the recommendations resulting from the planning process.
- Submitted the proposed plan to all appropriate departments for review and comment and worked with Collin County to incorporate the resulting comments into the proposed plan.

External stakeholders emailed and involved in reviewing the Collin County Hazard Mitigation Action Plan:

Table 2.3 External Stakeholders

Representing	Position	Role
Milligan Water Supply	General Manager	Review of plan

Subsequent to the State of Texas and FEMA approval of the plan, each organization above is committed to accomplishing the following activities:

- Appoint members to a coordinating committee to monitor and work toward plan implementation.
- Publicize the plan to neighborhood interests and ensure that new community members are aware of the plan and its contents.
- Monitor progress in achieving the plan's goals through regular maintenance and implementation projects.

Planning Meetings

During the planning process, the planning committee met to obtain relevant information from the participating jurisdictions and to discuss the objectives and progress of the plan. The objectives of these meetings were to gather information and to provide guidance for each jurisdiction throughout the planning stages.

The following meetings were held by Collin County and included all jurisdiction's participation:

- Mitigation Plan sent to Lowry Crossing for update – August 18, 2020
- Collin County HazMAP Public Meeting – 11/2/2021 at 2PM
- Collin County HazMAP Public Meeting – 01/12/2021 at 9AM

The City provided input back to the County after internal review an updates on March 23, 2020.

Public Involvement

Support from the community is vital for any successful hazard mitigation plan. The HMPT and planning committee provided opportunities, announced through public communication means, for public participation and input throughout the planning process prior to this draft and before approval of the finalized plan. Advertisement and sign in sheets for these meetings are located in Appendix A.

- The first public meeting was held on November 2, 2021 at 2PM, and advertised on the Collin County website along with other jurisdictional websites inviting the public, neighboring

communities, local business, academia, agencies, and nonprofits to comment. The meeting was held virtually via WebEX

- A second public meeting was held on January 12, 2022 at 9AM. Announcements were placed on jurisdictions websites, including Collin County inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to view and comment on the HazMAP prior to plan submission.

There were no comments directly related to the mitigation plan received from citizens, non-profits, businesses, academia, or interested parties; therefore, no feedback was incorporated. An additional opportunity for the public to comment on the plan will be held prior to formal plan adoption.

This provided all citizens, stakeholders, neighboring communities, agencies, businesses, academia, non-profit organizations, and all interested parties an opportunity to be involved in the planning process and to take part in the decisions making process that affect the future of the communities that they live in.

3. Jurisdictional Hazard Identification and Risk Assessment

The Hazard Mitigation Planning Committee for the City of Lowry Crossing identified several natural and man-made hazards that could affect the city. The committee decided to focus on the natural hazards identified in Section 5 of this update. This was done after reviewing the 2016 HazMAP, the State of Texas Hazard Mitigation Plan, as well as other sources such as federal and state agencies. The hazards were ranked using the Priority Risk Index.

Priority Risk Index

A Priority Risk Index (PRI) was developed with the purpose of categorizing potential hazards for Lowry Crossing and ranks each hazard as high, moderate, low, or negligible to no risk. The hazard classification generated through the use of the PRI allows for the prioritization of those high hazard risks for mitigation planning purposes, and more specifically, the identification of hazard mitigation opportunities for Collin County jurisdictions to consider as part of their proposed mitigation strategy.

The PRI is used to assist all jurisdictions participating in the Collin County HazMAP in determining which hazards pose the most significant threat based on a variety of factors. The PRI is not scientifically based, but is rather meant to be utilized as an objective and systematic planning tool for classifying and prioritizing hazard risks in Collin County based on standardized criteria. The PRI results in numerical values that allow identified hazards to be ranked against one another. The sum of all four categories equals the final PRI value, as shown below:

PRI Value = (Probability x .30) + (Life Impact x .35) + (Property Impact x .25) + (Spatial Extent x .10)

The higher the PRI value, the greater the hazards risk. These values were obtained by assigning varying degrees of risk to four categories for each hazard: Probability, Life Impact, Property Impact, and Spatial Extent *(Table 3.1).* Each category has been assigned an Index Value (0 to 3) and a Weighing Factor (0 – 100%). These values may be adjusted during future plan updates. In order to evaluate the risk of each hazard, the assigned PRI Value for each category is multiplied by the weighing factor. Then, the PRI for each hazard is calculated by adding the product obtained in each category. According to the weighing scheme applied for Collin County, the highest possible PRI value is 3.0. The PRI calculations are presented in *Table 3.2*. Table 3.1 breaks down the value of each category.

Table 3.1 Priority Risk Index Value

Assigned Weighing Factor	PRI Category	Degree of Risk		
			Criteria	Index Value
30%	Probability	Unlikely	Less than 1% annual probability	0
		Possible	Between 1 and 10% annual probability	1
		Likely	Between 10 and 100% annual probability	2
		Highly Likely	100% annual probability	3
35%		Minor	Very few injuries, if at all none	0

	Life Impact	Limited	Minor Injuries	1
		Critical	Multiple deaths/injuries	2
		Catastrophic	High number of deaths/injuries	3
25%	Property Impact	Minor	Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	0
		Limited	More than 10% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one day.	1
		Critical	More than 25% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one week.	2
		Catastrophic	More than 50% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for 30 days or more.	3
10%	Spatial Extent	Negligible	Less than 1% of area affected	0
		Small	Between 1 and 10% of area affected	1
		Moderate	Between 10 and 50% of area affected	2
		Large	Between 50 and 100% of area affected	3

Table 3.2 Priority Risk Index for Lowry Crossing

Hazard	Category/Degree of Risk				
	Probability Index Value (0 - 3 30%)	Life Impact Index Value (0 - 3 35%)	Property Impact Index Value (0 - 3 25%)	Spatial Extent Index Value (0 - 3 10%)	PRI Value 2021
Dam Failure	0	0	0	0	0
Drought	2	0	1	2	1.05
Earthquake	0	1	0	1	0.45
Expansive Soils	2	0	1	1	0.95
Extreme Heat	2	0	0	0	0.6
Flooding	1	0	1	0	0.55
Hail	2	0	0	1	0.7
High Winds	2	0	1	1	0.95
Lightning	1	0	0	0	0.3
Tornado	2	1	1	2	1.4
Wildfire	2	0	0	1	0.7
Winter Storms	2	0	2	2	1.3

The conclusions drawn from the hazard profiling process for Collin County jurisdictions, resulted in the classification of risk for each identified hazard according to four categories: High Risk, Moderate Risk, Low Risk, and Negligible to No Risk *(Table 3.3).* For purposes of these classifications, risk is expressed in relative terms according to the probability of occurrence and estimated impact that a hazard will have on human life and property in Lowry Crossing.

Table 3.3 Hazard Rankings for the City of Lowry Crossing

High Risk (PRI 2 - 3)	
Moderate Risk (PRI 1.01 -1.9)	Drought Tornado Winter Storm
Low Risk (PRI 0.50 – 1)	High Winds Expansive Soils Flooding Hail Wildfire Extreme Heat
Negligible to No Risk (PRI 0 – 0.49)	Dam Failure Earthquake Lightning

Changes in Development and Priorities (Requirement §201.6(d) (3))

Our jurisdiction is in one of the fastest growing areas of the nation, hence development has increased and will continue to increase our vulnerability to hazards that may impact us.

Vulnerability Narratives

This annex focuses on specific areas of vulnerability Lowry Crossing faces with each hazard. The hazards identified in the main plan are all addressed in this annex, therefore the natural hazards rated negligible to no risk are included in this plan.

Dam Failure the City of Lowry Crossing is not known to be subject to dam failure, but as a participant in the county plan inundation studies will be considered.

Drought has the potential to impact the entire planning area equally; all improved property, emergency facilities, critical facilities, critical infrastructure, and the entire population of Lowry Crossing are vulnerable to this hazard. Foundations of all buildings are vulnerable; however, older structures, or those built under less stringent foundation code requirements are most vulnerable. Lake Lavon, Lake Texoma, Lake Tawakoni, Lake Fork and the Lake Chapman-Cooper reservoir system are water sources for the City of Lowry Crossing and are vulnerable to drought. In turn, the city's population, wildlife and vegetation are vulnerable. Lower income populations who may not have the resources to buy containerized water in the event of a shortage may be more vulnerable than other populations.

Earthquake While there are no known reports of seismic activity in Lowry Crossing, there is always the possibility that it could happen. Buildings constructed under older building codes, aging underground infrastructure, and roads are most vulnerable to damages from seismic activity.

Expansive Soil Lowry Crossing is extremely vulnerable to the effects of expansive soil. Road failures are a common occurrence from this hazard. This can create driving conditions that may be dangerous for an experienced driver, let alone a new driver.

Extreme Heat Extreme Heat is a definite threat throughout all of Collin County, including Lowry Crossing. We have experienced rolling blackouts due to extreme heat through the years. Extreme heat generally affects the entire population, but it is especially dangerous to the homeless, elderly, the very young, those without air conditioning, and those who require refrigerated medications.

Flooding The City of Lowry Crossing has experienced some flash flooding in the past, specifically on Bridgefarmer Road in the 2200 block and the 1700 block area. FM 546 also has issues will flooding from Lake Lavon.

Hail As all other areas, populations and properties in Lowry Crossing have the potential to be vulnerable to hail and hail damage. Exposed populations, manufactured homes, and older properties are most vulnerable.

High Winds Lowry Crossing usually has at least one high wind event with damage each year. Most of these are roof and fence damage events with debris

Lightning is a threat to everyone. Lowry Crossing relies on the volunteer fire department to respond to any situation created by lightning. Direct strikes have the power to cause significant damage to buildings, critical facilities, infrastructure, and ignition of wildfires which can result in widespread damages to property. Property without lightning protection and exposed populations are most vulnerable.

Tornadoes The City of Lowry Crossing has several areas that are vulnerable to tornadoes. The City does not have storm sirens at this time. A few citizens have storm shelters or safe rooms. Exposed populations, manufactured homes, and older properties are most vulnerable.

Wildfires According to the Texas Forest Service Lowry Crossing is moderate risk for wildfires with 93.39% of the population in the WUI area. While we are primarily a bedroom community, there are still many open areas and borders Corps of Engineer land along the East Fork of the Trinity River. During times of drought, burn bans, and high fire threat, automatic mutual aid between the cities is enacted. The Lowry Crossing Volunteer Fire Department has a brush truck. They have supplied mutual aid to nearby cities and county areas for grass fires. We provide fire-wise education to the citizens on a regular basis.

Winter Storms Lowry Crossing has experienced winter storms and the winter of 2013 provided power outages for multiple days for many of our citizens. Travel was treacherous. Vulnerable populations include the elderly, homeless, and those without heat.

Identification of Assets and Vulnerability Assessment

An inventory of Lowry Crossing's geo-referenced assets was created in order to identify and characterize property and population potentially at risk to the identified hazards. By understanding the type and number of assets that exist and where they are located in relation to known hazard areas, the relative risk and vulnerability for such assets can be assessed. For this assessment, five categories of assets were evaluated using Geographic Information System and statistical analysis. The five categories of vulnerable assets include:

- **Population**: Includes the number of people residing in Collin County jurisdictions as delineated by U.S. Census 2020 block data provided by NCTCOG.
- **Improved property**: Includes all developed properties according to local parcel data from the Collin County Central Appraisal District. The information has been expressed in terms of the total assessed value of improvements that may be exposed to the identified hazards.
- **Emergency facilities**: Includes fire stations, police stations and hospitals, provided by the Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.
- **Critical facilities**: Includes schools and historic places provided by Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions. These are non-emergency facilities, but still provide critical services and functions for vulnerable sectors of the population.
- **Critical infrastructure**: Includes airports, natural gas facilities, wastewater facilities, potable water treatment facilities, wastewater treatment facilities, dams, and bridges. Data for all critical facilities was obtained from Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.

The following tables provide a breakdown by municipal jurisdiction of the geo-referenced assets that were used for the vulnerability assessment.

Population

According to the 2020 NCTCOG population estimates, the total population of the City of Lowry Crossing in 20202 was 1,756 people, with 607 households. The count breakdown by municipal jurisdiction is provided in *Table 3.4.*

Table 3.4. Population Counts

Jurisdiction	Population			Households		
	Population	% of County Total	Population Density (Sq. Mile)	Household	% of County Total	Household Density (Sq. Mile)
Lowry Crossing	1,756	0.16%	683.27	618	0.16%	240.59

Source: 2020 NCTCOG Population Estimate

Table 3.5 summarizes population counts and population chance (absolute and percent predications for Lowry Crossing).

Table 3.5 Population Predictions

Jurisdiction	Population 2010 Census	Population 2018 Estimate	Population 2019 Estimate	Absolute Change 2018-2019	Percent (%) Change 2018-2019
Lowry Crossing	1,711	1,710	1,710	0	0%

Source: 2020 NCTCOG Population Estimate

Property

There are an estimated 855 parcels in Lowry Crossing, with an estimated $127,734,063 in total assessed value of, *Table 3.6* lists the total number and percentage of parcels by jurisdiction.

Table 3.6 Parcel Counts and Improvements Value

Jurisdiction	Number of Parcels	% of County Total	Total Assessed Value of Improvements (Buildings)[1]
Lowry Crossing	855	0.10%	$127,734,063

Source: County Data and Regional Hazard Assessment Tool

Emergency Facilities

There is one identified emergency facilities in Lowry Crossing, a volunteer fire station located at 1407 S. Bridgefarmer Road. *Table 3.7* presents the distribution of emergency facilities by jurisdiction. Geographic coordinates were used to determine the location of each facility.

Table 3.7 Emergency Facilities

Jurisdiction	Fire Stations	Police Stations	Hospitals
Lowry Crossing	1	0	0

Source: County Data and Regional Hazard Assessment Tool

Critical Facilities

There are no critical facilities, which are considered non-emergency in Lowry Crossing.

Table 3.8 Critical Facilities

Jurisdiction	Schools	Historical Property
Lowry Crossing	0	0

Source: Local jurisdictions

Critical Infrastructure

There is one identified critical infrastructure facilities in Lowry Crossing, including one helipad, there are no natural gas facilities, no water treatment facilities, no wastewater treatment facilities, no dams, or railway/highway bridges (*Table 3.9*).

Table 3.9 Critical Infrastructure

Jurisdiction	Airports	Natural Gas Facilities	Wastewater Treatment Facilities	Potable Water Treatment Facilities	Dams	Railway/ Highway Bridges
Lowry Crossing	1	0	0	0	0	1

Source: Local jurisdictions

Methodology

Based on the type of information available for analysis, Lowry Crossing's vulnerability assessment was conducted using two distinct methodologies, a Geographic Information System-based analysis and a statistical risk assessment methodology. Each approach provides estimates for the potential impact of hazards by using a common, systematic framework for evaluation of historical occurrence information provided by National Centers for Environmental Information, the Texas Forest Service, and the FEMA Resilience and Planning Tool. The results of the vulnerability assessment are provided by jurisdiction for each hazard analyzed.

Of the 12 hazards evaluated for Lowry Crossing, four were analyzed using a Geographic Information System-based analysis, five using a statistical risk assessment methodology, and the remaining three hazards using qualitative analysis. Qualitative analysis was used due to lack of information, the inability to define specific areas of risk, and/or inexistence of historical records. Additional information regarding these hazards is unattainable at the present time; studies to address this data deficiency are noted as action items in this update. Table 3.10 summarizes the methodology used for each hazard.

Table 3.10 Analysis used for Vulnerability Assessment

Hazard	Geographic Information System-based Analysis	Statistical Analysis	Qualitative Analysis
Dam Failure			X
Drought	X		
Earthquake			X
Expansive Soils			X
Extreme Heat		X	
Flooding	X		
Hail	X		
High Winds		X	

Lightning		X	
Tornado		X	
Wildfire	X		
Winter Storms		X	

Summary of Vulnerability Assessment

A summary of the vulnerability assessment for each hazard using geographic and statistical analysis is presented in the following pages. The detailed assessment is presented in the following sections.

Summary Table 3.11

Drought	
Population	According to National Centers for Environmental Information (NCEI) zero (0) recorded injuries or fatalities have been recorded for drought events. There are no personal losses expected from drought events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Lowry Crossing are expected but financially unknown due to lack of accurate reporting. Historical data indicates that crop losses in the City of Lowry Crossing are expected mostly during water shortages, financially unknown due to lack of accurate reporting.
Emergency Facilities	Because of the nature of this hazard, no losses are expected on emergency facilities but foundation issues could occur due to drought events.
Critical Facilities	Because of the nature of this hazard, no losses are expected on critical facilities but foundation issues could occur due to drought events.
Critical Infrastructure	Because of the nature of this hazard, no losses are expected on critical infrastructure but foundation issues and road degradation could occur due to drought events.

Summary Table 3.12

Extreme Heat	
Population	According to National Centers for Environmental Information (NCEI), there were no fatalities recorded due to extreme heat from the City of Lowry Crossing. The City of Lowry Crossing and its population are vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), there is zero (0) impact of extreme heat to developed areas and the improved property in the City of Lowry Crossing is not vulnerable to this hazard.

Emergency Facilities	According to National Centers for Environmental Information (NCEI), there is zero (0) impact of extreme heat to buildings and the emergency facilities in City of Lowry Crossing are not vulnerable to this hazard.
Critical Facilities	According to National Climatic Data Center (NCDC), there is zero (0) impact of extreme heat to buildings, and the critical facilities in City of Lowry Crossing are not vulnerable to this hazard.
Critical Infrastructure	According to National Centers for Environmental Information (NCEI) there is zero (0) impact of extreme heat to critical infrastructure, and vulnerability to this hazard is considered minimal in City of Lowry Crossing .

Summary Table 3.13

Flooding	
Population	Flooding produces an expected annualized count of zero (0) fatalities and injuries per year. Approximately 19.70% of the population of City of Lowry Crossing is located within the 100-year floodplain.
Improved Property	There have been zero (0) recorded flood events in the City of Lowry Crossing. Property losses are expected but unknown due to inaccurate reporting however county-wide property loss is estimated at $15,166.67 per year. No crop losses are expected or recorded county-wide. Approximately $213,547,769 of the total assessed value is at risk from the 100-year storm event.
Emergency Facilities	There are zero (0) emergency facilities at imminent risk from the 100-year storm event.
Critical Facilities	There are zero (0) critical facilities located within the 100-year storm event.
Critical Infrastructure	10% of railways/highways and bridges, 0% of dams, 0% of water treatment works, and 0% waste water treatment facilities are at risk from the 100-year storm event. Many of these structures are designed to traverse or be located within the floodplain due to unavoidable circumstances. Additionally, treated wastewater is typically discharged towards streams, which makes portions of wastewater treatment facilities likely to be located within the floodplain.

Summary Table 3.14

Hail	
Population	According to National Centers for Environmental Information (NCEI), no recorded injuries or fatalities have been recorded for hailstorm events. There are no personal losses expected from hailstorm events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Lowry Crossing are expected but unknown due to lack of accurate reporting. All improved property is vulnerable to this hazard. Although some crops are susceptible to hail hazards,

	available historical data for Lowry Crossing indicates that there are no expected crop losses from this event.
Emergency Facilities	Because of the unpredictability of the geographical location of hailstorms, all emergency facilities in the City of Lowry Crossing are vulnerable to this hazard.
Critical Facilities	Because of the unpredictability of the geographical location of hailstorms, all critical facilities in the City of Lowry Crossing are vulnerable to this hazard.
Critical Infrastructure	Because of the unpredictability of the geographical location of hailstorms, all critical infrastructures in the City of Lowry Crossing are vulnerable to this hazard.

Summary Table 3.15

High Wind	
Population	According to National Centers for Environmental Information (NCEI), there are no recorded injuries or fatalities from high wind events. All the population of the City of Lowry Crossing is vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Lowry Crossing are expected but unknown due to lack of accurate reporting. No crop losses resulted from this hazard in the City of Lowry Crossing.
Emergency Facilities	Because of the expected geographical widespread nature of high winds, all emergency facilities in the City of Lowry Crossing are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of high winds, all critical facilities in the City of Lowry Crossing are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of high winds, all critical infrastructures in the City of Lowry Crossing are vulnerable to this hazard.

Summary Table 3.16

Lightning	
Population	According to National Centers for Environmental Information (NCEI), lightning events can be expected to cause no deaths or injuries in Lowry Crossing. All the population of the City of Lowry Crossing is vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Lowry Crossing are expected but unknown due to lack of accurate reporting.

Emergency Facilities	Because of the expected geographical widespread nature of lightning, all emergency facilities in the City of Lowry Crossing are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of lightning, all critical facilities in the City of Lowry Crossing are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of lightning, all critical infrastructures in the City of Lowry Crossing are vulnerable to this hazard.

Summary Table 3.17

Tornado	
Population	According to National Centers for Environmental Information (NCEI), there have been no recorded injuries or fatalities from tornado events in the City of Lowry Crossing. All the population of Lowry Crossing is exposed and vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI) property losses in the City of Lowry Crossing are expected but unknown due to lack of accurate reporting. No crop losses are expected from this hazard in the City of Lowry Crossing.
Emergency Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all emergency facilities in the City of Lowry Crossing are exposed and vulnerable to this hazard.
Critical Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all critical facilities in the City of Lowry Crossing are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the impossibility to predict the geographical area of impact for tornados, all critical infrastructures in the City of Lowry Crossing are exposed and vulnerable to this hazard.

Summary Table 3.18

Wildfire	
Population	Based on geographical data, approximately 93.39% of Lowry Crossing is vulnerable to wildfires, with the City of Lowry Crossing and the unincorporated areas contributing with the majority of the exposed population. There have been one (1) recorded injuries or fatalities due to wildfires.
Improved Property	Based on historical data, property losses in the City of Lowry Crossing are expected but unknown due to lack of accurate reporting; therefore, percentage of the overall property improvement values across the City of Lowry Crossing are also unknown.

Emergency Facilities	Based on geographic information there are one fire stations at risk from wildfire events.
Critical Facilities	Based on geographic information there are zero schools at risk from wildfire events.
Critical Infrastructure	Based on geographic information there are one helipad, one bridge, zero dams, zero wastewater treatment facility, and zero water treatment facility at risk from wildfire events.

Summary Table 3.19

Winter Storm	
Population	According to National Centers for Environmental Information (NCEI), there was one (1) county-wide fatality recorded due to winter storms, none from the City of Lowry Crossing. All the population of the City of Lowry Crossing are exposed and vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Lowry Crossing are expected but unknown due to lack of reporting however county-wide property loss is estimated at $116,250 per year. No crop losses are expected from this hazard in the City of Lowry Crossing.
Emergency Facilities	Because of the expected geographical widespread nature of winter storms, all emergency facilities in the City of Lowry Crossing are exposed and vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of winter storms, all critical facilities in the City of Lowry Crossing are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of winter storms, all critical infrastructures in the City of Lowry Crossing are exposed and vulnerable to this hazard.

4. Capability Assessment

The risk assessment and capabilities assessment serves as the foundation for the development of a meaningful hazard mitigation strategy. During the process of identifying specific mitigation actions to pursue, Lowry Crossing considered not only its level of hazard risk but also the existing capabilities to minimize or eliminate that risk.

Table 4.1 Legal and Regulatory Capability Summary

Legal and Regulatory Capabilities															
Jurisdiction	Building Code	Zoning Ordinance	Subdivision Ordinance or regulation	Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances wildfire ordinances, hazard setback requirements)	Growth management ordinances (also called "smart Growth" or anti-sprawl programs)	Site Plan review requirements	General or comprehensive plan	A capital improvements plan	An economic development plan	An emergency response plan	A post-disaster recovery plan	A post-disaster recovery ordinance	Real estate disclosure requirements	Other	% Yes per Jurisdiction
Lowry Crossing	Y	Y	Y	Y	N	Y	N	N	Y	Y	Y	N	N	N	**75%**
Average % Yes Capabilities – 75%															
Y- Yes N- No ?- Don't Know															

Table 4.2 Administrative and Technical Capability Summary

Administrative and Technical Capabilities											
Jurisdiction	Planner(s) or engineer(s) with knowledge of land development and land management	Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Planners or engineer(s) with an understanding of natural and/or human caused hazards	Floodplain manager	Surveyors	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in GIS	Scientists familiar with the hazards of the community	Emergency manager	Grant writers	% Yes
Lowry Crossing	Y	Y	Y	Y	N	Y	N	N	Y	Y	**70%**
Average % Yes Capabilities – 70%											
Y- Yes N- No ?- Don't Know											

Table 4.3 Fiscal Capability Summary

Fiscal Capabilities											
Jurisdiction	Community Development Block Grants (CDBG)	Capital improvements project funding	Authority to levy taxes for specific purposes	Fees for water, sewer, gas, or electric service	Impact fees for homebuyers or developers for new developments/homes	Incur debt through general obligation bonds	Incur debt through special tax bonds	Incur debt through private activity bonds	Withhold spending in hazard-prone areas	Other	% Yes
Lowry Crossing	N	N	N	N	N	Y	N	N	N	N	**10%**
Average % Yes Capabilities – 10%											
Y- Yes N- No ?- Don't Know											

To quantify Collin County's legal and regulatory capabilities, administrative and technical, and fiscal capabilities, an overall rating system was administered for each category: limited (0-30%), moderate (31-

70%), and strong (70-100%). Questionnaire responses indicated that on average, Collin County and its jurisdictions have 70% of identified legal and regulatory capabilities, 10% of identified administrative and technical capabilities, and 10% of identified fiscal capabilities.

Table 4.4 Administrative Information

Jurisdiction	Chief Administrative Officer	Ability to Implement Capabilities
Lowry Crossing	Mayor	The city council, including the mayor, mayor pro-tem, and council members, address the budget; pass laws, regulations, and codes; hire staff; approve plans; and determine the direction of the city overall. Ability to implement and approve mitigation actions and integrate mitigation into existing policies and programs is a function of this group.

Specific actions that can expand and improve existing capabilities, authorities, plans, policies, and resources for mitigation include: budgeting and passing policies and procedures, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates and additions to existing plans as new needs are recognized.

5. Mitigation Strategies

Based on the results of the risk and capability assessments, and reviews of the goals and objectives included in the 2016 HazMAP, the Town of Lowry Crossing Hazard Mitigation Planning Team developed mitigation strategies for the Plan update. The goals are similar to the goals identified in Section 6 by the Collin County Hazard Mitigation Action Plan Working Group.

Goal 1 **Reduce or eliminate loss of life, injuries and property damage resulting from severe weather events.**

Objective 1-A Provide adequate warning and communication before, during, and after a hazard event.
Objective 1-B Expand and coordinate Early Warning Systems currently in use.
Objective 1-C Reduce or eliminate loss of life and property damage from tornados through the construction and use of safe rooms or shelter areas.

Goal 2 **Protect existing and new properties from the effects of all natural hazards.**

Objective 2-A Conduct studies to determine hazard and vulnerability threat assessment for all natural hazards.
Objective 2-B Rehabilitate or retrofit identified high hazard critical infrastructure.
Objective 2-C Enact and enforce regulatory measures that enforce hazard mitigation measures.
Objective 2-D Construct enhancements or additions to current and new facilities which mitigate the effects of natural hazards.
Objective 2-E Maintain NFIP compliance, storm water management, and implement drainage projects.

Goal 3 **Reduce losses and repetitive damages for chronic hazard events**.

Objective 3-A Conduct a hazard/vulnerability assessment of personal properties and structures located in flood zones.
Objective 3-B Develop and implement a buyout program for those personal properties and structures located in high hazard flood zones starting with those that are most vulnerable to life and property loss.
Objective 3-C Develop and execute new programs which identify and reduce threats from natural hazards.

Goal 4 **Develop public education campaigns to disseminate information about actions to mitigate potential loss of life, injuries and property damage resulting from natural hazards.**

Objective 4-A Educate the public on risks, threats, and vulnerability from all natural hazards.
Objective 4-B Educate the public on actions they can take to prevent or reduce the loss of life or property from all natural hazards.
Objective 4-C Develop and implement a community education campaign to heighten public awareness about chronic flooding and options for insurance coverage to protect their personal properties as well as long term benefits from a buyout program.

6. Action Items

Below is a list of action items identified for the HazMAP Update. Each of the actions in this section were prioritized based on FEMA's STAPLEE criteria, which includes considering the social, technical, administrative, political, legal, economic and environmental factors necessary for the implementation of each action. As part of the STAPLEE analysis, economic considerations were weighed for each action. The STAPLEE was used for the 2016 Plan along with the 2021 Update. Priority rankings are classified as indicated in the table below.

Priority	Description
High	Benefits of mitigating risk of death or severe bodily injury outweigh costs to implement actions rated as high priorities.
Medium	Reducing vulnerability to threats and the resulting improvement in quality of life and peace of mind are benefits for actions rated as medium priorities.
Low	Awareness of low risk/low impact hazards offer benefits of time to assess, plan and integrate low priority mitigation actions as time, need, and funding permit.

City of Lowry Crossing Action Items: Deferred from 2016 Plan

Lowry Crossing Action Item	Implement Hazard Mitigation Education Series to mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Tornado, Wildfire, Winter Storm, Extreme Heat, High Winds, Flooding, Expansive Soils, Hail, Drought, Earthquake, Lightning, Dam Failure
Goal/Objective	2A, 2B, 2C
Priority	High
Estimated Cost	$5,000
Potential Funding Sources	FEMA
Potential Matching Sources	N/A
Lead Department	City Administration
Implementation Schedule	0 – 24 Months
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Will be instrumental in planning and correction.
Discussion	In FY2022 Lowry Crossing is partnering with NCTCOG on a flood study of 17 miles of tributary within the city.
Status	Continue - Received supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021

Lowry Crossing Action Item	Implement Storm Shelter/Safe Room Rebate Program
Hazard(s) Addressed	Tornado, High Winds
Goal/Objective	1B
Priority	High
Estimated Cost	$3000/safe room
Potential Funding Sources	Federal Grants
Potential Matching Sources	NCTCOG
Lead Department	City Administration
Implementation Schedule	1-3 years
Effect on Old Buildings	Existing construction could have safe room added
Effect on New Buildings	New building could be constructed with safe rooms
Cost Effectiveness	Residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind.
Discussion	Develop list of storm shelter and safe rooms for emergency personnel to check safety of inhabitants.
Status	Continue - Will be included in 2021, however, some residents were able to obtain funds through the NCTCOG Saferoom Rebate Program

Lowry Crossing Action Item	Develop and adopt a drought contingency plan.
Hazard(s) Addressed	Drought
Goal/Objective	3A, 3B, 3C
Priority	High
Estimated Cost	$5,000
Potential Funding Sources	Local Funds
Potential Matching Sources	
Lead Department	City Administration
Implementation Schedule	1-2 years
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and foundation integrity
Cost Effectiveness	Very low cost to ensure benefit of saving water for future generations.
Discussion	Drought contingency plan will limit water usage based on drought conditions.
Status	Deferred – will be included in 2021 Plan

Lowry Crossing Action Item	Develop and implement an extreme temperature program that establishes heating and cooling centers for vulnerable residents
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	2-A, 2-D, 3-C
Priority	Medium
Estimated Cost	$5,000-$15,000
Potential Funding Sources	HMGP, PDM
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	H.R. Dept.
Implementation Schedule	12 months
Effect on Old Buildings	Could require retrofit to accommodate required space and resources
Effect on New Buildings	May entail enhanced construction materials
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.
Discussion	Cooling shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold
Status	Deferred – will be included in 2021 Plan

Lowry Crossing Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	Protect existing and new properties from the effects of all natural hazards.
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local Sponsors, In-Kind
Lead Department	Planning and Zoning/ NRCS
Implementation Schedule	12-18 Months
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Dam Failure data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.

Status	Deferred – will be included in 2021 Plan

Lowry Crossing Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	4-B
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	6 months – 18 months
Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.
Status	Deferred – will be included in 2021 Plan

Lowry Crossing Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	4-A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	12-18 months
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.

Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.
Status	Deferred – will be included in 2021 Plan

Lowry Crossing Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as provide other emergency and hazard information
Status	Deferred – will be included in 2021 Plan

City of Lowry Crossing Action Items: New Items

Lowry Crossing Action Item	Encourage all residents to use weather alert apps on smart phones
Hazard(s) Addressed	Tornado, Wildfire, High Winds, Flooding, Hail, Lightning, Earthquake
Goal/Objective	1A
Priority	High
Estimated Cost	0
Potential Funding Sources	N/A
Potential Matching Sources	N/A
Lead Department	Department of City Administration
Implementation Schedule	12 – 36 months

Effect on Old Buildings	N/A
Effect on New Buildings	N/A
Cost Effectiveness	
Discussion	Lowry Crossing would encourage residents to utilize severe weather alerts on smart phones to warn about impending natural hazard events.

Lowry Crossing Action Item	Implement Hazard Mitigation Education Series to mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Tornado, Wildfire, Winter Storm, Extreme Heat, High Winds, Flooding, Expansive Soils, Hail, Drought, Earthquake, Lightning
Goal/Objective	2A, 2B, 2C
Priority	High
Estimated Cost	$75,000 (city portion)
Potential Funding Sources	FEMA
Potential Matching Sources	N/A
Lead Department	Department of City Administration
Implementation Schedule	0 – 24 Months
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Will be instrumental in planning and correction.
Discussion	In FY2022 Lowry Crossing is partnering with NCTCOG on a flood study of 17 miles of tributary within the city.

Lowry Crossing Action Item	Implement Storm Shelter/Safe Room Rebate Program
Hazard(s) Addressed	Tornado, High Winds
Goal/Objective	1B
Priority	High
Estimated Cost	$3000/safe room
Potential Funding Sources	Federal Grants
Potential Matching Sources	NCTCOG
Lead Department	Department of City Administration
Implementation Schedule	1-3 years
Effect on Old Buildings	Existing construction could have safe room added
Effect on New Buildings	New building could be constructed with safe rooms

Cost Effectiveness	Residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind.
Discussion	Develop list of storm shelter and safe rooms for emergency personnel to check safety of inhabitants.

Lowry Crossing Action Item	Develop and adopt a drought contingency plan.
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	3A, 3B, 3C
Priority	High
Estimated Cost	$5,000
Potential Funding Sources	Local Funds
Potential Matching Sources	
Lead Department	Department of City Administration
Implementation Schedule	1-2 years
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and foundation integrity
Cost Effectiveness	Very low cost to ensure benefit of saving water for future generations.
Discussion	Drought contingency plan will limit water usage based on drought conditions. When water is conserved and not used for landscape during droughts, this would provide water for homeowners to use, through drip irrigation, to keep their foundations at a consistent saturation level, mitigating the impacts of drought and lack of water.

Lowry Crossing Action Item	Develop and implement an extreme temperature program that establishes heating and cooling centers for vulnerable residents
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	2-A, 2-D, 3-C
Priority	Medium
Estimated Cost	$5,000-$15,000
Potential Funding Sources	HMGP, PDM
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	H.R. Dept.
Implementation Schedule	12 months
Effect on Old Buildings	Could require retrofit to accommodate required space and resources
Effect on New Buildings	May entail enhanced construction materials
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.

Discussion	Cooling shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold

Lowry Crossing Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	4-B
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	6 months – 18 months
Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.

Lowry Crossing Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	4-A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Department of City Administration
Implementation Schedule	12-18 months
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.

Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.

Lowry Crossing Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Department of City Administration
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as provide other emergency and hazard information

Lowry Crossing Action Item	Generator on City Hall
Hazard(s) Addressed	Winter Weather, Tornado, Severe Storms, Earthquake
Goal/Objective	2-B, 1-A
Priority	High
Estimated Cost	TBD
Potential Funding Sources	General Funds
Potential Matching Sources	General Funds
Lead Department	Department of City Administration
Implementation Schedule	FY 2022
Effect on Old Buildings	Provides backup power to current City Hall in the event of power loss from an all-hazards event
Effect on New Buildings	N/A (RetroFit)
Cost Effectiveness	Low

Discussion	This will provide backup power to the City Hall. This space could be used for multiple functions in the City in the event of power outages. It also would allow for City Functions to continue following a power outage.

National Flood Insurance Program (NFIP) Compliance

Lowry Crossing is participating in the National Flood Insurance Program and has identified their respective areas as vulnerable to flooding. This is incorporated into all current and future planning for dealing with repetitive loss vulnerabilities.

Table 6.1 NFIP Compliance

CID	Community Name	County	Initial FHBM Identified	Initial FIRM Identified	Curr Eff Map Date	Reg-Emer Date	Tribal
481631#	LOWRY CROSSING, CITY OF	COLLIN COUNTY	12/6/1977	3/16/1981	6/2/2009	8/22/1991	No

Source: http://www.fema.gov/cis/TX.html

Jurisdiction Compliance

Once the community applies for the NFIP, FEMA arranges for a study of the community to determine base flood elevations and flood risk zones. Consultation with the community occurs at the start of and during the study, and those communities with minimal flood risk are converted to the Regular Program without a study.

FEMA provides the studied community with a Flood Insurance Rate Map delineating base flood elevations and flood risk zones. The community is then given 6 months to adopt base flood elevations in its local zoning and building code ordinances. Once the community adopts more stringent ordinances, FEMA converts the community to the NFIP's Regular Program. FEMA then authorizes the sale of additional flood insurance in the community up to the Regular Program limits. The community must implement and enforce the adopted floodplain management measures. FEMA provides periodic community assistance visits with local officials to provide technical assistance regarding complying with NFIP floodplain management requirements.

Jurisdiction Activities

In order to maintain eligibility with NFIP, jurisdictions are required to maintain their list of properties that hold a policy with NFIP, along with up-to-date maps of the floodplains in the jurisdictions. Each jurisdiction participating in the Collin County Hazard Mitigation Action Plan completes this basic requirement and has the information on file with the jurisdiction's designated floodplain manager. Using this plan, participating jurisdictions will be able to continue their compliance with NFIP by implementing damage control measures and take action to minimize the effects of flooding in their respective jurisdictions.

Table 6.2 NIFP Activity

Jurisdiction	Community Floodplain Administrator	NFIP Activity	Activity Description	Enforcement
Lowry Crossing	City Secretary	Complete and maintain FEMA elevation certificates for pre-FIRM and or post-FIRM buildings	Permits are issued through the office of the City Secretary. Lowry Crossing requires 2 feet of freeboard above the base flood elevation for the top of bottom floor on residential structures and non-residential structures that will be built on properties created or platted after the effective date of the Flood Damage Prevention Order	NFIP compliance is implemented and enforced through a process of floodplain identification using FEMA floodplain maps, permit issuance, building requirements, and compliance inspections pending approval. Failure to comply with City's flood damage prevention order shall result in fines up to $2000 per violation plus court costs.
		Floodplain development permits	Permits are required for any new construction in a floodplain.	
		Participate with FEMA in identifying Special Flood Hazard Areas for future FIRM maps	Lowry Crossing works with Collin County in Risk Assessment, Mapping and Planning Partners (RAMPP) meetings held by FEMA and/or their contractors to better identify areas that are flood prone that are not shown on current Flood Insurance Rate Maps.	

7. Plan Maintenance

Monitoring, Evaluating and Updating the Plan

In Compliance with requirement § 201.6(c)(4)(i), Collin County has developed a plan maintenance process which is described in the following paragraphs. Collin County, along with participating jurisdictions are responsible for monitoring implementation of the plan, executing a yearly evaluation of its effectiveness, and updating the plan within a 5-year cycle.

Following formal adoption by the City of Lowry Crossing, the county, and the city council of each participating jurisdiction, the actions outlined in the Collin County Hazard Mitigation Action Plan (HazMAP) will be implemented by participating jurisdictions as described throughout this document.

The Collin County Emergency Management Coordinator, working in conjunction with the respective jurisdictions, will be responsible for ensuring the mitigation plan is monitored, evaluated, and reviewed on an annual basis. This will be accomplished by calling an annual meeting of the planning committee, whose members will provide assistance and expertise for plan review, evaluating, updating, and monitoring. This meeting will be open to the public and public notices will encourage community participation. During this annual meeting, Lowry Crossing will provide information on the implementation status of each action included in the plan. As part of the evaluation, the planning committee will assess whether goals and objectives address current and expected conditions, whether the nature and/or

magnitude of the risks have changed, if current resources are appropriate for implementing the plan, whether outcomes have occurred as expected, and if agencies and other partners participated as originally proposed. These activities will take place according to the timetable presented below:

Table 7.1 Plan Maintenance Timeline

Personnel	Activity	Schedule
City Secretary	Monitoring Plan : Track implementation and action items, changes to risk assessment, changes to planning team members, changes to capabilities, plan integrations	Biannually
	Evaluate Plan: Assess effectiveness by evaluating completed actions, implementation processes, responsible personnel and lessons learned.	Annually
	Update Plan	Once every 5 years

At least once every five (5) years, or more frequently, if such a need is determined by the participating jurisdiction, the multi-jurisdictional plan will undergo a major update. During this process, all sections of the plan will be updated with current information, analyses done and new and/or modified mitigation action plans will be developed. The revised plan will be submitted for state and federal review and approval, and presented for approval to the Collin County Commissioner's Court and the respective councils of incorporated cities/towns included in the Collin County plan. Each participating jurisdiction will undertake the same process for reviewing, revising and updating their respective plans and submitting them for approval. The plans will be updated every five years in accordance with federal requirements.

Plan Incorporation into Existing Planning Mechanisms *(In compliance with 201.6(c)(4)(ii))*

Based on the requirements set forth in § *201.6(c)(4(ii)*, the State of Texas Mitigation Plan, the vulnerability and capabilities assessment for each jurisdiction was carefully reviewed and considered when developing the mitigation actions for this plan. The HMPT and committees will establish a process in which the mitigation strategy, goals, objectives and actions outlined in this plan will be incorporated into the existing regional and local planning strategies.

Local and regional planning committees currently use comprehensive land use planning, capital improvements planning, and building code ordinances to guide development. The mitigation strategy, goals, objectives and actions outlined in this plan will be integrated into these existing mechanisms as applicable. Those mechanisms include the following:

Table 7.2 Plan Incorporation Mechanisms

Jurisdiction	Responsible Personnel	Jurisdictional Plans	Integration Schedule	Integration Plan
Lowry Crossing	City Secretary, City Council	Budget Meetings	Annually	Integration of mitigation projects identified in HazMAP, grants, and other fiscal allowances for mitigation actions and related costs

Jurisdiction	Responsible Personnel	Jurisdictional Plans	Integration Schedule	Integration Plan
		Emergency Action Plan updates	Triennially	EAP Mitigation annex updates based on HazMAP HIRA; update preparedness, response and recovery actions related to identified hazards
		Floodplain ordinances	As needed	Enhance mitigation of flood hazards using HazMAP flood data for floodplain management and community development.
		Capital improvement plans	Annually	Strengthen critical infrastructure and key resources based on HazMAP hazard analysis, incorporate vulnerability data and action items.
		Drought Contingency plans	As needed	Integrate drought actions such as xeriscaping, water restrictions, and public education
		Natural Resource Conservation Plan	Annually	Integrate conservation measures by directing development away from hazard-prone areas identified in HazMAP.

Although it is recognized there are many possible benefits to integrating components of this HazMAP into other planning mechanisms, the Lowry Crossing Hazard Mitigation Planning Team considers this HazMAP, including development and maintenance, to be the primary vehicles to ensure implementation of local hazard mitigation actions.

The process described here is the same as was used since the last planning update.

Continued Public Involvement (In compliance with 201.6(c)(4)(iii))

As stated in requirement § *201.6(c)(4)(iii)* The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.

To address this requirement, ongoing public participation will be encouraged throughout the entire planning and implementation process. A copy of the plan will be provided on the Collin County website. The planning team and committees will continue meeting on a regular basis to ensure the successful implementation of the plan and to discuss any additional issues regarding the emergency management of Collin County. The annual meetings for monitoring, evaluating, and updating the plan will be open to the public and public notices will encourage community participation.

Annex L: City of Lucas

1. Introduction

This annex was updated in 2021 as part of an update to the Collin County Multi-Jurisdictional Hazard Mitigation Action Plan. This plan updates the Lucas Hazard Mitigation Plan submitted to FEMA as part of the 2021 Collin County HazMAP. The City of Lucas participated on the Collin County Hazard Mitigation Planning Team (HMPT) for this update. In addition to the countywide hazards and strategies discussed in the main plan, this annex serves as a complete hazard mitigation planning tool for the City of Lucas. It contains capability assessment information, a specific vulnerability assessment, and a complete mitigation strategy. The methodology and process for developing this annex are explained throughout the following sections.

2. Plan Development and Adoption Process

In order to apply for federal aid for technical assistance and post-disaster funding, local jurisdictions must comply with Part 201.3 of the Disaster Mitigation Act of 2000 implemented in the Federal Code of Regulations 44 CRF Part 201.6. While the City of Lucas has historically implemented measures to reduce vulnerability to hazards, passage of the DMA 2000 helped city officials to recognize the benefits of a long-term approach to hazard mitigation, which seeks to achieve a gradual decrease of hazard impacts through the implementation of a Hazard Mitigation Plan. Collin County's Hazard Mitigation Action Plan represents the collective efforts and collaboration of all participating jurisdictions, the public, and stakeholders.

Organizing the Planning Effort

A comprehensive county approach was taken in developing the plan. An open public involvement process was established for members of the public, neighboring communities, regional agencies, businesses, academia, etc. to provide opportunities for everyone to become involved in the planning process and to make their views known. The meetings were advertised with notices in public places and the local newspaper.

In accordance with Part 201.6(c)(5) of the Disaster Mitigation Act of 2000 (DMA 2000), Collin County developed this Hazard Mitigation Action Plan. This plan identifies hazards and mechanisms to minimize future damages associated with these hazards, which threaten Collin County and its jurisdictions.

Existing Data and Plans

Existing hazard mitigation information and other plans were reviewed during the development of the Hazard Mitigation Action Plan. GIS, statistical and qualitative data was gathered through numerous sources. The table below outlines the sources of data for the plan:

Table 2.1 Plan Source Data

Source	Data
2020 Collin County Appraisal District; U.S. Census Bureau – QuickFacts: City of Lucas, TX; North Central Texas Council of Governments (NCTCOG) Regional Data Center	Population and demographics

Source	Data
Regional Hazard Assessment Tool; National Climatic Data Center (NCDC)	Hazard occurrences
Texas Forest Service – Texas Wildfire Risk Assessment Summary Report	Wildfire threat and Wildland Urban Interface data
National Inventory of Dams	Dam information

Planning Committee

This Hazard Mitigation Action Plan was developed by the City of Lucas Hazard Mitigation Planning Committee, with support of the North Central Texas Council of Governments and in conjunction with the Collin County HMPT.

The Collin County HMPT was assembled in November 2020 with representatives from participating jurisdictions' planning committees. Representatives included mayors, police chiefs, fire chiefs, and the general public. Collin County acted as the plan development consultant providing hazard mitigation planning services. The efforts of the planning committees and the HMPT were led by the Collin County Assistant Emergency Management Coordinator. The table below provides a list of the primary representatives on the City of Lucas Hazard Mitigation Planning Committee.

Table 2.2 City of Lucas Hazard Mitigation Planning Committee – Primary Representatives

Representing	Position	Role
Fire-Rescue/Emergency Management	Assistant Fire Chief/EMC	Plan Development and Update
Fire-Rescue/Emergency Management	Division Chief/Assistant EMC	Plan Development and Update
Emergency Management	Emergency Management Intern	Plan Development and Update
Fire-Rescue	Fire Chief	Plan Development and Update
Development Services	Development Services Director	Plan Feedback
Engineering/Public Works	City Engineer/Public Work Director	Plan Feedback
Public Works	Public Works Supervisor	Plan Feedback

Collin County served as the coordinator and lead agency for all jurisdictions by accomplishing the following activities through the planning process:

- Assigned the County's Assistant Emergency Management Coordinator to provide technical assistance and necessary data to the planning committee.
- Scheduled, coordinated, and facilitated community meetings with the assistance of the HMPT and the planning committees.
- Provided any necessary materials, handouts, etc. for public planning meetings.
- Worked with the HMPT and planning committees to collect and analyze data and develop goals and implementation strategies.
- Prepared, based on community input and planning team/committee direction, the first draft of the plan and provided technical writing assistance for review, editing, and formatting.

- Coordinated with the stakeholders within the jurisdictions and the unincorporated areas of Collin County during plan development.

Each of the individual jurisdictions participated in accomplishing similar activities associated with development of the plan as follows:

- Coordinated input from representatives of neighborhood stakeholder groups and provided a representative to the County HMPT.
- Attended regular meetings of the planning team as coordinated by Collin County.
- Assisted Collin County staff with identifying hazards and estimating potential losses from future hazard events.
- Assisted Collin County in developing and prioritizing mitigation actions to address the identified risks.
- Assisted Collin County in coordinating public meetings to develop the plan.
- Identified the community resources available to support the planning effort.
- Worked for the support of neighborhood stakeholders for the recommendations resulting from the planning process.
- Submitted the proposed plan to all appropriate departments for review and comment and worked with Collin County to incorporate the resulting comments into the proposed plan.

External stakeholders involved in reviewing the City of Lucas Annex:

PlanTable 2.3 External Stakeholders

Representing	Position	Role
Love Joy ISD	Facilities Supervisor	Plan review/comment

After State of Texas and FEMA approval of the plan, each organization is committed to accomplishing the following activities:

- Appoint members to a coordinating committee to monitor and work toward plan implementation.
- Publicize the plan to neighborhood interests and ensure that new community members are aware of the plan and its contents.
- Monitor progress in achieving the plan's goals through regular maintenance and implementation projects.

Planning Meetings

During the planning process, the HMPT met to obtain relevant information from the participating jurisdictions and to discuss the objectives and progress of the plan. The objectives of these meetings were to gather information and to provide guidance for each jurisdiction throughout the planning stages.

The following meetings were held by Collin County and the City of Lucas:

- Collin County 2021 Kickoff Meeting – August 12, 2020
- Collin County Hazard Mitigation Committee Meeting – November 5, 2020
- City of Lucas Hazard Mitigation Committee Meeting – January 10, 2021
- City of Lucas HazMAP Discussion and Update – February 10, 2021 and May 24, 2021

- Collin County 2021 HazMAP Update Meeting 2 – June 10, 2021
- Collin County HazMAP Public Meeting – 11/2/2021 at 2PM
- Collin County HazMAP Public Meeting – 01/12/2022 at 9AM

Public Involvement

Support from the community is vital for any successful hazard mitigation plan. The HMPT and planning committee provided opportunities, announced through public communication means, for public participation and input throughout the planning process prior to this draft and before approval of the finalized plan. Advertisement and sign in sheets for these meetings are located in Appendix A.

- The first public meeting was held on November 2, 2021 at 2PM, and advertised on the Collin County website along with other jurisdictional websites inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to comment. The meeting was held virtually via WebEX.
- A second public meeting was held on January 12, 2022 at 9AM. Announcements were placed on jurisdictions websites, including Collin County inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to view and comment on the HazMAP prior to plan submission.

As there were no comments directly related to the mitigation plan received from citizens, non-profits, businesses, academia, or interested parties, no feedback was incorporated.
Public meetings provided all citizens, stakeholders, neighboring communities, agencies, businesses, academia, non-profit organizations, and all interested parties an opportunity to be involved in the planning process and to take part in the decisions making process that affect the future of the communities that they live in.

3. Jurisdictional Hazard Identification and Risk Assessment

The Hazard Mitigation Planning Committee for the City of Lucas identified several natural and technological (man-made) hazards that could affect the city. The committee decided to focus on the natural hazards identified in Section 5 of this update. This was done after reviewing the 2016 HazMAP, the State of Texas Hazard Mitigation Plan, as well as other sources from federal and state agencies. The hazards were ranked using the Priority Risk Index.

Priority Risk Index

A Priority Risk Index (PRI) was developed with the purpose of categorizing potential hazards for Lucas and ranks each hazard as high, moderate, low, or negligible to no risk. The hazard classification generated through the PRI allows for the prioritization of identified high hazard risks for mitigation planning purposes and, more specifically, the identification of hazard mitigation opportunities for Collin County jurisdictions to consider as part of their proposed mitigation strategy.

The PRI is used to assist all jurisdictions participating in the Collin County HazMAP in determining which hazards pose the most significant threat based on a variety of factors. The PRI is not scientifically based, but, rather, is meant to be utilized as an objective and systematic planning tool for classifying and prioritizing hazard risks in the City of Lucas based on standardized criteria. The PRI results in numerical values that allow identified hazards to be ranked against one another. The sum of all four categories equals the final PRI value, as shown below:

PRI Value = (Probability x .30) + (Life Impact x .35) + (Property Impact x .25) + (Spatial Extent x .10)

The higher the PRI value, the greater the hazards risk. These values were determined by assigning varying degrees of risk to four categories for each hazard: Probability, Life Impact, Property Impact, and Spatial Extent *(Table 3.1).* Each category has been assigned an Index Value (0 to 3) and a Weighing Factor (0 – 100%) in decimal form. These values may be adjusted during future updates to this plan. In order to evaluate the risk of each hazard, the assigned Index Value for each category is multiplied by the Weighing Factor. Then, the PRI value for each hazard is calculated by adding the product obtained in each category. According to the weighing scheme applied for Collin County, the highest possible PRI value is 3.0. The PRI calculations are presented in *Table 3.2*. Table 3.1 breaks down the value of each category.

Table 3.1 Priority Risk Index Value

Assigned Weighing Factor	PRI Category	Degree of Risk		
			Criteria	Index Value
30%	Probability	Unlikely	Less than 1% annual probability	0
		Possible	Between 1 and 10% annual probability	1
		Likely	Between 10 and 100% annual probability	2
		Highly Likely	100% annual probability	3
35%	Life Impact	Minor	Very few injuries, if at all none	0
		Limited	Minor Injuries	1
		Critical	Multiple deaths/injuries	2
		Catastrophic	High number of deaths/injuries	3
25%	Property Impact	Minor	Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	0
		Limited	More than 10% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one day.	1
		Critical	More than 25% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one week.	2
		Catastrophic	More than 50% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for 30 days or more.	3
10%	Spatial Extent	Negligible	Less than 1% of area affected	0
		Small	Between 1 and 10% of area affected	1
		Moderate	Between 10 and 50% of area affected	2
		Large	Between 50 and 100% of area affected	3

Table 3.2 Priority Risk Index for City of Lucas

Hazard	Category/Degree of Risk				
	Probability Index Value (0 - 3 30%)	Life Impact Index Value (0 - 3 35%)	Property Impact Index Value (0 - 3 25%)	Spatial Extent Index Value (0 - 3 10%)	PRI Value 2021
Dam Failure	0	0	0	0	0
Drought	2	0	1	3	1.15
Earthquake	0	1	0	1	0.45
Expansive Soils	2	0	0	1	0.70
Extreme Heat	2	1	0	2	1.15
Flooding	2	1	1	0	1.2
Hail	2	0	1	1	0.95
High Winds	1	0	0	1	0.4
Lightning	3	0	2	0	1.40
Tornado	2	1	2	1	1.55
Wildfire	2	1	0	1	1.05
Winter Storms	2	0	2	3	1.40

The conclusions drawn from the hazard profiling process for the City of Lucas resulted in the classification of risk for each identified hazard according to four categories: High Risk, Moderate Risk, Low Risk, and Negligible to No Risk *(Table 3.3).* For classification purposes, risk is expressed in relative terms according to the probability of occurrence and estimated impact that a hazard will have on human life and property in Collin County.

Table 3.3 Hazard Rankings for City of Lucas

High Risk (PRI 2 - 3)	
Moderate Risk (PRI 1.01 -1.9)	Drought Tornado Winter Storm Extreme Heat Wildfire Lightning Flooding
Low Risk (PRI 0.50 – 1)	Expansive Soils Hail
Negligible to No Risk (PRI 0 – 0.49)	Earthquake High Winds Dam Failure

Changes in Development and Priorities (Requirement §201.6(d)(3))

The City of Lucas was a participating jurisdiction in the 2011 and 2016 Collin County Hazard Mitigation Action Plans (HazMAP) and this 2021 Collin County HazMAP update and will participate in future HazMAP updates.

According to U.S. Census and the North Central Texas Council of Governments (NCTCOG) data, projections estimate that the population of Lucas has grown from 5,166 (2010) to approximately 8,110 (2020), an increase of 67%. According to Collin County Appraisal District data, new housing developments have been established, increasing housing units from approximately 1,641 to 2,227. Structural and economic development (including Walmart, Wendy's, Starbucks, Chipotle, other fast food restaurants, Bank of America, 10 small business buildings, and several shopping centers) has taken place, with several other business buildings currently in development.

No new developments were built within a floodplain. To help mitigate the impacts of a disaster, Lucas has adopted storm water run-off regulations/ordinances and a design manual for retention ponds. To further mitigate impact of disaster, Lucas is committed to staying a certified Storm Ready and Firewise community.

New priorities are noted and ranked in each new action item, Section 6. Except for actions completed or cancelled, other priorities remain the same as in the previous version of this plan.

Vulnerability Narratives

This annex focuses on specific areas of vulnerability the City of Lucas faces with each hazard. The hazards identified in the main plan are all addressed in this annex, therefore the natural hazards rated negligible to no risk are included, described, and considered for mitigation in this plan.

Dam and Levee Failure – This hazard was identified as having negligible to no risk to the City of Lucas, but as a participant in the county plan inundation studies will be considered.

Drought – Drought is considered a moderate risk in Lucas. Drought has the potential to impact the entire planning area equally. All improved property, emergency facilities, critical facilities, and the entire population of Lucas are vulnerable to this hazard. Foundations of all buildings are vulnerable, however, older structures and those built under less stringent foundation code requirements are most vulnerable. Lake Lavon, Lake Texoma, Lake Tawakoni, Lake Fork and the Lake Chapma-Cooper reservoir system are water sources for City of Lucas and are vulnerable to drought. In turn, the city's population, wildlife, and vegetation are vulnerable. Lower income populations who may not have the resources to buy containerized water in the event of a shortage may be more vulnerable than other populations.

Earthquake – This hazard was identified as having negligible to no risk to the City of Lucas. Although considered negligible risk using the PRI, the hazard can occur anywhere in the geographic planning area. Buildings constructed under older building codes, aging underground infrastructure, and roads are most vulnerable to damages from seismic activity.

Expansive Soils – Although expansive soils are prevalent throughout Collin County, this hazard is considered a low risk to the City of Lucas based on the PRI. Structures with unmitigated foundations are at highest risk.

Extreme Heat – Extreme heat generally affects the entire population, but the homeless, children, elderly, and populations without air conditioning are most vulnerable. Extreme heat is considered a moderate risk in the City according to the PRI.

Flooding – The City of Lucas has two bridges that are occasionally affected by flash flooding and five roadways that are seldom affected by flash flooding, but are still a concern. These two bridges mentioned below are within the 1% (100-year) flood zone. As the City utilizes culverts instead of storm drains, multiple days of heavy rain can overwhelm culverts and cause flooding in residential areas. Flooding is considered a moderate risk in the City, according to the PRI.

The primary areas of flash flooding concern are the following bridges:

- The bridge at Stinson Road at Muddy Creek
- The bridge at Snider Lane at White Rock

During heavy rain events and when roadways are flooded, City staff from City of Lucas Fire-Rescue and City of Lucas Public Works barricade the roads to prevent vehicles from attempting to cross the flooded area. Access to the area is still available from other directions at both sites, however, direct access is temporarily disrupted. This temporary disruption could be averted if larger drainage structures could be built to manage storm water flow and retention. While the roadway is flooded, vehicles must drive three or four miles more in another direction to access the other roads into the area, therefore increasing the distance for emergency access into the area.

There are five other roadways that are seldom affected by flooding, but are still considered a concern by the City when flooding does occur. Those locations are:

- Winningkoff Road, ¼ mile south of Snider Lane
- Winningkoff Road, ¼ mile north of FM 3286
- Rock Ridge Road, ¼ mile north of FM 2170
- Rock Ridge Road, ¼ mile south of FM 1378
- The intersection of FM 1378 and FM 3286

Hail – All geographic areas of the City of Lucas are potentially vulnerable to hail. Based on the PRI, however, hail is considered a low risk in Lucas. Exposed populations, manufactured homes, and older properties are most vulnerable to hail.

High Winds – All geographic areas of the City of Lucas have the potential to be vulnerable to high winds. Based on the PRI, however, this hazard is rated as negligible to no risk in the City. Manufactured homes and exposed populations are most vulnerable.

Lightning – All geographic areas of the City of Lucas have the potential to be vulnerable to lightning. Based on the PRI, this hazard is rated as moderate risk in the City. Property without lightning protection and exposed populations are most vulnerable. A majority of the recent building fires in the City have been caused by lightning strikes, increasing the risk that lightning poses to the City.

Tornado – All geographic areas and populations of the City of Lucas have the potential to be vulnerable to tornadoes. Based on the PRI, tornadoes are rated as moderate risk in the City. Exposed populations, manufactured homes, and older properties are most vulnerable to damage from the high winds.

Wildfire – The City of Lucas is a diverse area of 12.6 square miles that is comprised of many small farms, ranch estates, and subdivisions. This creates a localized wildland fire issue. With so many existing farmhouses, ranch estates, and housing subdivisions intermixed and near each other, there are large open areas with a large number of houses and barns that are exposed to wildland fires. U.S. Army Corps of Engineers' property runs adjacent to parts of the City of Lucas. This puts the city within the Wildland Urban Interface. This area is an additional concern to the City as drought impacts Lake Lavon and the surrounding Corps property. There is currently no fuel management program or agreement with the Corps to manage fuel and this issue has been addressed in Chapter 4. However, the City of Lucas Fire-Rescue department is only responsible for response if wildfire were to occur in this area. There are no identified City of Lucas improved property, critical facilities, or critical infrastructure on the property. Lucas sits on the West side of Lake Lavon where there are vast areas of open spaces where campers and boaters use campfires for outdoor enjoyment and recreation. This has been the cause of a great majority of the wildland fires within the Lucas Fire District. There is a significant risk of wildland fire during the hot dry summers and dry winter conditions in Texas. Wildland fire is considered a moderate risk in the City according to the PRI.

Lucas Fire-Rescue currently has one (1) Type III Wildland Engine, funded by a cost-share from the Texas A&M Forest Service Emergency Services Grant. Lucas Fire-Rescue also has one (1) Type VI Wildland Engine. The long range plan for Lucas Fire-Rescue is to sustain Wildland Urban Interface (WUI) firefighting capability equipment, training, and response. This plan also provides for Lucas to answer on first alarms for any wildland fires in the southern part of Collin County. This project will support all other fire departments in Collin County through Collin County Mutual Aid. Lucas Fire-Rescue will also continue to be a part of the Texas Infrastructure Fire Mutual Aid System (TIFMAS), thus offering resources for the entire State of Texas.

Lucas is an NFPA Recognized Firewise USA Community and has been since 2012. Lucas holds an annual Firewise Educational Outreach program. Lucas, in cooperation with the Texas A&M Forest Service, will be conducting a Firewise Home Assessment training in the future to teach City residents how to do home assessments. To maintain Firewise status, residents of Lucas are encouraged to submit their volunteer hours for mitigation work they do around their homes and properties.

Additionally, in order to mitigate wildland fire affecting structures, updated building codes have been enacted requiring all new residential and new commercial structures to have fire suppression systems in the structures.

Lucas Fire-Rescue currently has 18 (out of 28 total) firefighters that have completed National Wildfire Coordinating Group (NWCG) training S130 and 190.

Lucas Fire-Rescue actively reports fires on the TFS Fire Reporting website and TXFIRS/NFIRS.

Winter Storms – Winter storms are considered a moderate risk threat to the City of Lucas according to the PRI. These winter storms have the potential to make roads impassable for days. Residents may be confined to their homes due to the storm and may be without basic utility services, such as water and electricity, for an extended period of time. The most vulnerable populations to this hazard are the homeless, the elderly, and those without access to heat. Structures at risk include critical facilities and emergency facilities.

Identification of Assets and Vulnerability Assessment

An inventory of Lucas geo-referenced assets was created in order to identify and characterize property and population potentially at risk to the identified hazards. By understanding the type and number of assets that exist and where they are located in relation to known hazard areas, the relative risk and vulnerability for such assets can be assessed. For this assessment, five categories of assets were evaluated using Geographic Information System and statistical analysis. The five categories of vulnerable assets include:

- **Population**: Includes the number of people residing in Collin County jurisdictions as delineated by U.S. Census 2020 block data provided by NCTCOG.
- **Improved property**: Includes all developed properties according to local parcel data from the Collin County Central Appraisal District. The information has been expressed in terms of the total assessed value of improvements that may be exposed to the identified hazards.
- **Emergency facilities**: Includes fire stations, police stations and hospitals, provided by the Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.
- **Critical facilities**: Includes schools and historic places provided by Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions. These are non-emergency facilities, but still provide critical services and functions for vulnerable sectors of the population.
- **Critical infrastructure**: Includes airports, natural gas facilities, wastewater facilities, potable water treatment facilities, wastewater treatment facilities, dams, and bridges. Data for all critical facilities was obtained from Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.

The following tables provide a breakdown by municipal jurisdiction of the geo-referenced assets that were used for the vulnerability assessment.

Population

According to the 2020 NCTCOG Population Estimates and the US Census Bureau, the total population of Lucas in 2020 was 8,553 people, with 2,227 households. The count breakdown by municipal jurisdiction is provided in *Table 3.4.*

Table 3.4. Lucas Population Counts

Jurisdiction	Population			Households		
	Population	% of County Total	Population Density (Sq. Mile)	Household	% of County Total	Household Density (Sq. Mile)
City of Lucas	8,553	0.61%	509.10	2,855	0.74%	179.26

Source: US Census Bureau, Collin County Appraisal District, NCTCOG Regional Data Center
***Includes totals from incorporated jurisdictions not participating in the plan*

Table 3.5 summarizes population counts and population chance (absolute and percent predications for City of Lucas).

Table 3.5 Population Predictions

Jurisdiction	Population 2010 Census	Population 2019 Estimate	Population 2020 Estimate	Absolute Change 2019-2020	Percent (%) Change 2019-2020
City of Lucas	5,166	7,960	8,110	150	1.88%

Source: NCTCOG Regional Data Center

Improved Property

There are an estimated 3,446 parcels in Collin County, with an estimated $1,172,028,807 in total assessed value of building improvements. *Table 3.6* lists the total number and percentage of parcels by jurisdiction.

Table 3.6 Parcel Counts and Improvements Value

Jurisdiction	Number of Parcels	% of County Total	Total Assessed Value of Improvements (Buildings)[1]
City of Lucas	3,446	0.96%	$1,172,028,807

Source: Collin County Appraisal District
[1] *Includes public buildings (residential, commercial, industrial, agricultural, religious, government, education)*

Emergency Facilities

There are three identified emergency facilities in the City of Lucas: City of Lucas Fire-Rescue station, City of Lucas City Hall, and City of Lucas Public Works building. *Table 3.7* presents the distribution of emergency facilities by jurisdiction. Geographic coordinates were used to determine the location of each facility.

Table 3.7 Emergency Facilities

Jurisdiction	Fire Stations	Police Stations	Hospitals	Government Buildings
City of Lucas	1	0	0	2

Source: County Data and Regional Hazard Assessment Tool

Critical Facilities

There are eight critical facilities, which are considered non-emergency in the City of Lucas. The critical facilities include six schools, two water pump stations, two water towers, and one sewer lift station. (*Table 3.8*). Geographic coordinates (i.e., latitude and longitude) were used to determine the location of each facility.

Table 3.8 Critical Facilities

Jurisdiction	Schools	Water Pump Station	Water Tower	Sewer Lift Station
City of Lucas	6	2	2	1

Source: City of Lucas

Critical Infrastructure

There are two identified critical infrastructure facilities in City of Lucas. Two bridges are used for access to residential areas. The bridges are especially important should residents ever need to make a hasty evacuation of the area. There are no other critical infrastructure facilities in the City. There are no airports, no natural gas facilities, no water treatment facilities, zero wastewater treatment facilities, and zero dams. (*Table 3.9*).

Table 3.9 Critical Infrastructure

Jurisdiction	Airports	Natural Gas Facilities	Wastewater Treatment Facilities	Potable Water Treatment Facilities	Dams	Railway/ Highway Bridges
City of Lucas	0	0	0	0	0	2

Source: City of Lucas

Methodology

Based on the type of information available for analysis, the City of Lucas' vulnerability assessment was conducted using two distinct methodologies, a Geographic Information System-based analysis and a statistical risk assessment methodology. Each approach provides estimates for the potential impact of hazards by using a common, systematic framework for evaluation of historical occurrence information provided by National Centers for Environmental Information, the Texas Forest Service, and the FEMA Resilience and Planning Tool. The results of the vulnerability assessment are provided by jurisdiction for each hazard analyzed.

Of the 12 hazards evaluated for the City of Lucas, four were analyzed using a Geographic Information System-based analysis, five using a statistical risk assessment methodology, and the remaining three hazards using a qualitative analysis. Qualitative analysis was used due to lack of information, the inability to define specific areas of risk, and/or inexistence of historical records. Additional information regarding these hazards is unattainable at the present time; studies to address this data deficiency are noted as action items in this update. *Table 3.10* summarizes the methodology used for each hazard.

Table 3.10 Analysis used for Vulnerability Assessment

Hazard	Geographic Information System-based Analysis	Statistical Analysis	Qualitative Analysis
Dam Failure			X

Drought	X		
Earthquake			X
Expansive Soils			X
Extreme Heat		X	
Flooding	X		
Hail	X		
High Winds		X	
Lightning		X	
Tornado		X	
Wildfire	X		
Winter Storms		X	

Summary of Vulnerably Assessment

A summary of the vulnerability assessment for each hazard using geographic and statistical analysis is presented in the following pages. The detailed assessment is presented in the following sections.

Summary Table 3.11

Drought	
Population	According to the National Centers for Environmental Information (NCEI), zero (0) recorded injuries or fatalities have been recorded for drought events. There are no personal losses expected from drought events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Lucas are expected, but financially unknown due to the lack of accurate reporting. Historical data indicates that crop losses in the City of Lucas are expected mostly during water shortages, but this is financially unknown due to the lack of accurate reporting.
Emergency Facilities	Foundation issues could occur to emergency facilities due to drought events.
Critical Facilities	Foundation issues could occur to critical facilities due to drought events.
Critical Infrastructure	Foundation issues and road degradation could occur to critical infrastructure due to drought events.

Summary Table 3.12

Extreme Heat	
Population	According to the National Centers for Environmental Information (NCEI), there are no fatalities recorded due to extreme heat in the City of Lucas. The City of Lucas and its population are vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), there is no impact of extreme heat to developed areas. The improved property in the City of Lucas is not vulnerable to this hazard.
Emergency Facilities	According to the National Centers for Environmental Information (NCEI), there is no impact of extreme heat to buildings. The emergency facilities in the City of Lucas are not vulnerable to this hazard.
Critical Facilities	According to the National Centers for Environmental Information (NCEI), there is no impact of extreme heat to buildings. The critical facilities in the City of Lucas are not vulnerable to this hazard.
Critical Infrastructure	According to the National Centers for Environmental Information (NCEI), there is no impact of extreme heat to critical infrastructure. Vulnerability to this hazard is considered minimal in the City of Lucas.

Summary Table 3.13

Flooding	
Population	Flooding produces an expected annualized count of zero (0) fatalities and injuries per year. Approximately 335 residential parcels in the City of Lucas are located within the 100-year (1% annual chance) floodplain.
Improved Property	There have been zero (0) recorded flood events in the City of Lucas. Property losses are expected but unknown due to inaccurate reporting. No crop losses are expected or recorded county-wide. Approximately $521,154,047 of the total assessed value is at risk from a 100-year (1% annual chance) storm event. As the City utilizes culverts instead of storm drains, multiple days of heavy rain can overwhelm the culverts and result in flooding in residential areas.
Emergency Facilities	Emergency facilities are potentially at risk during a 100-year (1% annual chance) storm event.
Critical Facilities	Critical facilities are potentially at risk during a 100-year (1% annual chance) storm event.
Critical Infrastructure	Critical infrastructure are potentially at risk during a 100-year (1% annual chance) storm event.

Summary Table 3.14

Hail	
Population	According to the National Centers for Environmental Information (NCEI), no recorded injuries or fatalities have been recorded for hailstorm events. There are no personal losses expected from this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Lucas are expected to be $9,428.57 per year from hail, however, these values are potentially underestimated due to the lack of accurate reporting. All improved property is vulnerable to this hazard. Although some crops can be damaged by hail events, available historical data for the City of Lucas indicates that there are no expected crop losses from this event.
Emergency Facilities	Because of the unpredictable geographical nature of hailstorms, all emergency facilities in the City of Lucas are vulnerable to this hazard.
Critical Facilities	Because of the unpredictable geographical nature of hailstorms, all critical facilities in the City of Lucas are vulnerable to this hazard.
Critical Infrastructure	Because of the unpredictable geographical nature of hailstorms, all critical infrastructure in the City of Lucas are vulnerable to this hazard.

Summary Table 3.15

High Wind	
Population	According to the National Centers for Environmental Information (NCEI), there are no recorded injuries or fatalities from high wind events. The entire population of the City of Lucas is vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Lucas are expected at $14.28 per year due to high wind events, however, these values are potentially underestimated due to the lack of accurate reporting. No crop losses have resulted from this hazard in Collin County.
Emergency Facilities	Because of the extensive geographical nature of high wind events, all emergency facilities in the City of Lucas are vulnerable to this hazard.
Critical Facilities	Because of the extensive geographical nature of high wind events, all critical facilities in the City of Lucas are vulnerable to this hazard.
Critical Infrastructure	Because of the extensive geographical nature of high wind events, all critical infrastructure in the City of Lucas are vulnerable to this hazard.

Summary Table 3.16

Lightning	
Population	According to the National Centers for Environmental Information (NCEI), lightning events are not expected to cause any deaths or injuries in Collin County. However, the entire population of the City of Lucas is vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Lucas are expected at $16,875 per year however these values are underestimated due to lack of accurate reporting. A majority of recent building fires in the City have been started by lightning. This has elevated the risk that lightning poses to the City.
Emergency Facilities	Because of the extensive geographical nature of lightning, all emergency facilities in the City of Lucas are vulnerable to this hazard.
Critical Facilities	Because of the extensive geographical nature of lightning, all critical facilities in the City of Lucas are vulnerable to this hazard.
Critical Infrastructure	Because of the extensive geographical nature of lightning, all critical infrastructures in the City of Lucas are vulnerable to this hazard.

Summary Table 3.17

Tornado	
Population	According to National Centers for Environmental Information (NCEI), there have been no recorded injuries or fatalities from tornado events in the City of Lucas. The entire population of the City of Lucas is exposed and vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), property losses in the City of Lucas are expected but unknown due to the lack of accurate reporting. No crop losses are expected from this hazard in the City of Lucas.
Emergency Facilities	Because of the unpredictable geographical impact of tornados, all emergency facilities in the City of Lucas are exposed and vulnerable to this hazard.
Critical Facilities	Because of the unpredictable geographical impact of tornados, all critical facilities in the City of Lucas are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of unpredictable geographical impact of tornados, all critical infrastructure in the City of Lucas are exposed and vulnerable to this hazard.

Summary Table 3.18

Wildfire	
Population	Based on geographical data, approximately 75.27% of the City of Lucas is vulnerable to wildfires. This includes both the City proper as well as the unincorporated areas that the City of Lucas Fire-Rescue services. There are no recorded injuries or fatalities due to wildfires in the City.
Improved Property	Annual financial losses expected from property loss due to wildfires are unknown due to lack of accurate reporting. Because of this, the percentage of the overall property improvement values impacted by wildfire across the City of Lucas are also unknown.
Emergency Facilities	Based on geographic location, there is one (1) fire station at risk from wildfire events.
Critical Facilities	Based on geographic location, there are four (4) schools at risk from wildfire events.
Critical Infrastructure	Based on geographic location, there are two (2) bridges, zero (0) dams, zero (0) wastewater treatment facilities, and zero (0) water treatment facilities at risk from wildfire events.

Summary Table 3.19

Winter Storm	
Population	According to the National Centers for Environmental Information (NCEI), there was one (1) county-wide fatality recorded due to winter storms. It was not from the City of Lucas. The entire population of the City of Lucas is exposed and vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Lucas are expected but unknown due to the lack of reporting. However, data indicates that county-wide property loss is expected to be $116,250 per year from this hazard. No crop losses are expected from this hazard in the City of Lucas.
Emergency Facilities	Because of the extensive geographical nature of winter storms, all emergency facilities in the City of Lucas are exposed and vulnerable to this hazard.
Critical Facilities	Because of the extensive geographical nature of winter storms, all critical facilities in the City of Lucas are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of extensive geographical nature of winter storms, all critical infrastructure in the City of Lucas are exposed and vulnerable to this hazard.

4. Capability Assessment

The risk assessment and capabilities assessment serve as the foundation for the development of a meaningful hazard mitigation strategy. During the process of identifying specific mitigation actions to pursue, the City of Lucas considered the level of hazard risk as well as the City's existing capabilities that can be used to minimize or eliminate that risk.

Table 4.1 Legal and Regulatory Capability Summary

Legal and Regulatory Capabilities															
Jurisdiction	**Building Code**	**Zoning Ordinance**	**Subdivision Ordinance or regulation**	**Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances wildfire ordinances, hazard setback requirements)**	**Growth management ordinances (also called "smart Growth" or anti-sprawl programs)**	**Site Plan review requirements**	**General or comprehensive plan**	**A capital improvements plan**	**An economic development plan**	**An emergency response plan**	**A post-disaster recovery plan**	**A post-disaster recovery ordinance**	**Real estate disclosure requirements**	**Other**	**% Yes per Jurisdiction**
City of Lucas	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	N	?	?	**64.3%**
Average % Yes Capabilities – 64.29%															
Y- Yes N- No ?- Don't Know															

Table 4.2 Administrative and Technical Capability Summary

Administrative and Technical Capabilities											
Jurisdiction	Planner(s) or engineer(s) with knowledge of land development and land management	Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Planners or engineer(s) with an understanding of natural and/or human caused hazards	Floodplain manager	Surveyors	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in GIS	Scientists familiar with the hazards of the community	Emergency manager	Grant writers	% Yes
City of Lucas	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	**90%**
Average % Yes Capabilities – 90%											
Y- Yes N- No ?- Don't Know											

Table 4.3 Fiscal Capability Summary

Fiscal Capabilities											
Jurisdiction	Community Development Block Grants (CDBG)	Capital improvements project funding	Authority to levy taxes for specific purposes	Fees for water, sewer, gas, or electric service	Impact fees for homebuyers or developers for new developments/homes	Incur debt through general obligation bonds	Incur debt through special tax bonds	Incur debt through private activity bonds	Withhold spending in hazard-prone areas	Other	% Yes
City of Lucas	N	Y	Y	Y	Y	Y	Y	?	N	?	**60%**
Average % Yes Capabilities – 22.2%											
Y- Yes N- No ?- Don't Know											

To quantify Collin County's legal and regulatory capabilities, administrative and technical, and fiscal capabilities, an overall rating system was administered for each category: limited (0-30%), moderate (31-70%),

and strong (70-100%). Questionnaire responses indicated that on average, Lucas has 62.49% of identified legal and regulatory capabilities, 90% of identified administrative and technical capabilities, and 60% of identified fiscal capabilities.

Table 4.4 Administrative Information

Jurisdiction	Chief Administrative Officer	Ability to Implement Capabilities
City of Lucas	City Manager	The city council, including the mayor, mayor pro-tem, and council members, along with the city manager, address the budget; pass laws, regulations, and codes; hire staff; approve plans; and determine the direction of the city overall. As the governing body, the ability to implement and approve mitigation actions, expand, and integrate mitigation into existing policies and programs is a function of this group.

Specific actions that can expand and improve existing capabilities, authorities, plans, policies, and resources for mitigation include budgeting and passing policies and procedures, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates and additions to existing plans as new needs are recognized.

5. Mitigation Strategies

Based on the results of the risk and capability assessments, the Collin County Hazard Mitigation Planning Team developed a mitigation strategy for the Plan update, utilizing the results of both assessments as well as reviewing the goals and objectives that were included in the 2009 HazMAP. These strategies were similar to the goals identified in Section 6 by the Collin County Hazard Mitigation Action Plan Working Group.

Goal 1 **Reduce or eliminate loss of life, injuries and property damage resulting from severe weather events.**

Objective 1-A Provide adequate warning and communication before, during, and after a hazard event.
Objective 1-B Expand and coordinate Early Warning Systems currently in use.
Objective 1-C Reduce or eliminate loss of life and property damage from tornados through the construction and use of safe rooms or shelter areas.

Goal 2 **Protect existing and new properties from the effects of natural hazards.**

Objective 2-A Conduct studies to determine hazard and vulnerability threat assessment for natural hazards.
Objective 2-B Rehabilitate or retrofit identified high hazard critical infrastructure.
Objective 2-C Enact and enforce regulatory measures that enforce hazard mitigation measures.
Objective 2-D Construct enhancements or additions to current and new facilities which mitigate the effects of natural hazards.
Objective 2-E Maintain NFIP compliance, storm water management, and implement drainage projects.

Goal 3 **Reduce losses and repetitive damages for chronic hazard events while promoting insurance coverage for catastrophic hazards**.

Objective 3-A Conduct a hazard/vulnerability assessment of personal properties and structures located in flood zones within Lucas.
Objective 3-B Develop and implement a buyout program for those personal properties and structures located in high hazard flood zones starting with those that are most vulnerable to life and property loss.
Objective 3-C Develop and execute new programs which identify and reduce threats from natural hazards.

Goal 4 **Develop public education campaigns to disseminate information about actions to mitigate potential loss of life, injuries and property damage resulting from natural hazards.**

Objective 4-A Educate the public on risks, threats, and vulnerability from all natural hazards.
Objective 4-B Educate the public on actions they can take to prevent or reduce the loss of life or property from all natural hazards.
Objective 4-C Develop and implement a community education campaign to heighten public awareness about chronic flooding and options for insurance coverage to protect their personal properties as well as long term benefits from a buyout program.

6. Action Items

Below is a list of the new and deferred action items identified for the HazMAP update. Each of the actions in this section were prioritized based on FEMA's STAPLEE criteria, which includes considering the social, technical, administrative, political, legal, economic, and environmental factors necessary for the implementation of each action. As part of the STAPLEE analysis economic considerations were weighed for each action. The STAPLEE was used for the 2016 Plan along with the 2021 Update. Priority rankings are classified as indicated in the table below.

Priority	Description
High	Benefits of mitigating risk of death or severe bodily injury outweigh costs to implement actions rated as high priorities.
Medium	Reducing vulnerability to threats and the resulting improvement in quality of life and peace of mind are benefits for actions rated as medium priorities.
Low	Awareness of low risk/low impact hazards offer benefits of time to assess, plan and integrate low priority mitigation actions as time, need, and funding permit.

City of Lucas: Action Items Deferred from 2016 Plan

City of Lucas Action Item	Develop a Community Wildfire Protection Plan (CWPP).
Hazard(s) Addressed	Wildfire
Goal/Objective	2-A
Priority	Medium
Estimated Cost	$20,000
Potential Funding Sources	HMGP, PDM, and/or General Fund
Potential Matching Sources	Local funds, donations, in-kind, and/or grants
Lead Department	Fire-Rescue and Emergency Management with assistance from Collin County and the Texas A&M Forest Service.
Implementation Schedule	18-36 Months
Effect on Old Buildings	Will reduce vulnerability of existing structures to damages or loss from wildfire.
Effect on New Buildings	Will reduce vulnerability of new structures to damages or loss from wildfire.
Cost Effectiveness	CWPPs show officials where to focus their efforts in preventing wildfire. Saving lives and protecting property is cost effective in the long-run.
Discussion	This project will become needed as the population in the Wildland Urban Interface area increases. This plan will protect life and property.
Status	Not yet started.

City of Lucas Action Item	Develop a wildfire and drought education program for residents.
Hazard(s) Addressed	Wildfire, Drought

Goal/Objective	4-A, 4-B
Priority	Medium
Estimated Cost	$5,000.00
Potential Funding Sources	HMGP, PDM, and/or General Fund
Potential Matching Sources	Local funds, in-kind, and/or grants
Lead Department	Fire-Rescue and Emergency Management with assistance from the Texas A&M Forest Service
Implementation Schedule	0-12 months
Effect on Old Buildings	Will reduce vulnerability of existing buildings to wildfire and drought through resident education and behavior.
Effect on New Buildings	Will reduce vulnerability of new buildings to wildfire and drought through resident education and behavior.
Cost Effectiveness	Public education is extremely effective with a low cost.
Discussion	Residents will be educated on mitigation actions to protect their lives and property from wildfire and drought. Residents will be provided with supplies and materials from the NCTCOG KnoWhat2Do Program.
Status	Not yet started. The City will request supplies and materials from the NCTCOG when a plan for education and distribution has been determined.

City of Lucas Action Item	Develop an extreme heat education program for residents.
Hazard(s) Addressed	Extreme Heat
Goal/Objective	4-A, 4-B
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, and/or General Fund
Potential Matching Sources	Local funds, in-kind, and/or grants
Lead Department	Fire-Rescue and Emergency Management
Implementation Schedule	2 years
Effect on Old Buildings	Will reduce vulnerability of existing buildings to extreme heat through resident education and behavior.
Effect on New Buildings	Will reduce vulnerability of new buildings to extreme heat through resident education and behavior.
Cost Effectiveness	Public education is extremely effective with a low cost.
Discussion	Residents will be educated on mitigation actions to protect their lives and property from extreme heat. Residents will be provided with supplies and materials from the NCTCOG KnoWhat2Do Program.
Status	Not yet started. The City will request supplies and materials from the NCTCOG when a plan for education and distribution has been determined.

City of Lucas Action Item	Develop a winter weather/storm education program for residents.
Hazard(s) Addressed	Winter Storms
Goal/Objective	4-A, 4-B
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HGMP, PDM, and/or General Fund
Potential Matching Sources	Local funds, in-kind, and/or grants
Lead Department	Fire-Rescue and Emergency Management
Implementation Schedule	2 years
Effect on Old Buildings	Will reduce vulnerability of existing buildings to winter weather/storms through resident education and behavior.
Effect on New Buildings	Will reduce vulnerability of new buildings to winter weather/storms through resident education and behavior.
Cost Effectiveness	Public education is extremely effective with a low cost.
Discussion	Residents will be educated on mitigation actions to protect their lives and property from winter weather/storms. Residents will be provided with supplies and materials from the NCTCOG KnoWhat2Do Program
Status	Not yet started. The City will request supplies and materials from the NCTCOG when a plan for education and distribution has been determined.

City of Lucas Action Item	Develop a Large Animal Rescue Plan and educate residents on actions to mitigate impact to large animals from severe weather and natural disasters.
Hazard(s) Addressed	Flood, Tornado, Winter Storm, Wildfire
Goal/Objective	4-B
Priority	Medium
Estimated Cost	$25,000
Potential Funding Sources	HMGP, PDM, and/or General Fund
Potential Matching Sources	Local funds, in-kind, and/or grants
Lead Department	Fire-Rescue
Implementation Schedule	18-36 months
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	Public education is extremely effective with a low cost.
Discussion	This project will help Lucas Fire-Rescue educate owners of large animals about how to mitigate impact to their large animals from severe weather and natural disasters. This plan will also give Lucas Fire-Rescue the

	plans and directions on rescuing large animals around the City during disaster.
Status	Not yet started.

City of Lucas Action Item	Implement stricter building codes and standards to mitigate the impacts of hazards to buildings around the City.
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, High Winds, Lightning, Tornado, Wildfire, Winter Storm
Goal/Objective	2-C
Priority	Medium
Estimated Cost	$10,000 - $15,000
Potential Funding Sources	Local
Potential Matching Sources	None
Lead Department	Planning and Zoning, Code Enforcement, Engineering
Implementation Schedule	1-2 years
Effect on Old Buildings	Old buildings would be retrofitted to meet current or updated building code standards.
Effect on New Buildings	New buildings would be constructed to meet current or updated building code standards.
Cost Effectiveness	This is cost effective because it will protect life and property from future disasters.
Discussion	Updated and current building code standards will be continuously implemented in the City through retrofits to old buildings and initial construction to new buildings.
Status	The City of Lucas has adopted current building code and will continue to adopt the most current building codes. This action item will be included in future HazMAP updates.

City of Lucas Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	Earthquake
Goal/Objective	2-A
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local funds
Lead Department	Public Works, Planning Zoning
Implementation Schedule	1-2 years

Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce the vulnerability to earthquakes
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low.
Discussion	Study results will identify information to determine mitigation projects
Status	No longer a relevant action item to the City of Lucas. This item will not be included as a 2021 Action Item.

City of Lucas Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils.
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants and/or state grants
Potential Matching Sources	Local funds
Lead Department	Emergency Management, Public Works, Planning and Zoning
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	This study would lead to targeted mitigation projects to lower vulnerability to expansive soils. This soil analysis will protect life and property.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.
Status	Not yet started.

City of Lucas Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	3-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local Sponsors, In-Kind
Lead Department	Emergency Management, Planning and Zoning

Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Dam Failure data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	No longer a relevant action item to the City of Lucas. This item will not be included as a 2021 Action Item.

City of Lucas: 2021 Action Items

City of Lucas Action Item	Develop a Community Wildfire Protection Plan (CWPP).
Hazard(s) Addressed	Wildfire
Goal/Objective	2-A
Priority	Medium
Estimated Cost	$20,000
Potential Funding Sources	HMGP, PDM, and/or General Fund
Potential Matching Sources	Local funds, donations, in-kind, and/or grants
Lead Department	Fire-Rescue and Emergency Management with assistance from Collin County and the Texas A&M Forest Service.
Implementation Schedule	18-36 Months
Effect on Old Buildings	Will reduce vulnerability of existing structures to damages or loss from wildfire.
Effect on New Buildings	Will reduce vulnerability of new structures to damages or loss from wildfire.
Cost Effectiveness	CWPPs show officials where to focus their efforts in preventing wildfire. Saving lives and protecting property is cost effective in the long-run.
Discussion	This project will become needed as the population in the Wildland Urban Interface area increases. This plan will protect life and property.

City of Lucas Action Item	Develop a wildfire and drought education program for residents.
Hazard(s) Addressed	Wildfire, Drought, Expansive Soils
Goal/Objective	4-A, $-B
Priority	Medium
Estimated Cost	$5,000.00
Potential Funding Sources	HMGP, PDM, and/or General Fund
Potential Matching Sources	Local funds, in-kind, and/or grants

Lead Department	Fire-Rescue and Emergency Management with assistance from the Texas A&M Forest Service
Implementation Schedule	2 years
Effect on Old Buildings	Will reduce vulnerability of existing buildings to wildfire and drought through resident education and behavior.
Effect on New Buildings	Will reduce vulnerability of new buildings to wildfire and drought through resident education and behavior.
Cost Effectiveness	Public education is extremely effective with a low cost.
Discussion	Residents will be educated on mitigation actions to protect their lives and property from wildfire and drought. Residents will be provided with supplies and materials from the NCTCOG KnoWhat2Do Program. When water is conserved and not used for landscape during droughts, this would provide water for homeowners to use, through drip irrigation, to keep their foundations at a consistent saturation level, mitigating the impacts of drought and lack of water.

City of Lucas Action Item	Develop an extreme heat education program for residents.
Hazard(s) Addressed	Extreme Heat
Goal/Objective	4-A, 4-B
Priority	Medium
Estimated Cost	$5,000
Potential Funding Sources	HMGP, PDM, and/or General Fund
Potential Matching Sources	Local funds, in-kind, and/or grants
Lead Department	Fire-Rescue and Emergency Management
Implementation Schedule	2 years
Effect on Old Buildings	Will reduce vulnerability of existing buildings to extreme heat through resident education and behavior.
Effect on New Buildings	Will reduce vulnerability of new buildings to extreme heat through resident education and behavior.
Cost Effectiveness	Public education is extremely effective with a low cost.
Discussion	Residents will be educated on mitigation actions to protect their lives and property from extreme heat. Residents will be provided with supplies and materials from the NCTCOG KnoWhat2Do Program.

City of Lucas Action Item	Develop a winter weather/storm education program for residents.
Hazard(s) Addressed	Winter Storms
Goal/Objective	4-A, 4-B
Priority	Medium
Estimated Cost	$5,000

Potential Funding Sources	HGMP, PDM, and/or General Fund
Potential Matching Sources	Local funds, in-kind, and/or grants
Lead Department	Fire-Rescue and Emergency Management
Implementation Schedule	2 years
Effect on Old Buildings	Will reduce vulnerability of existing buildings to winter weather/storms through resident education and behavior.
Effect on New Buildings	Will reduce vulnerability of new buildings to winter weather/storms through resident education and behavior.
Cost Effectiveness	Public education is extremely effective with a low cost.
Discussion	Residents will be educated on mitigation actions to protect their lives and property from winter weather/storms. Residents will be provided with supplies and materials from the NCTCOG KnoWhat2Do Program

City of Lucas Action Item	Develop a Large Animal Rescue Plan and educate residents on actions to mitigate impact to large animals from severe weather and natural disasters.
Hazard(s) Addressed	Flood, Tornado, Winter Storm, Wildfire
Goal/Objective	4-B
Priority	Medium
Estimated Cost	$25,000
Potential Funding Sources	HMGP, PDM, and/or General Fund
Potential Matching Sources	Local funds, in-kind, and/or grants
Lead Department	Fire-Rescue
Implementation Schedule	18-36 months
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	Public education is extremely effective with a low cost.
Discussion	This project will help Lucas Fire-Rescue educate owners of large animals about how to mitigate impact to their large animals from severe weather and natural disasters. This plan will also give Lucas Fire-Rescue the plans and directions on rescuing large animals around the City during disaster.

City of Lucas Action Item	Implement stricter building codes and standards to mitigate the impacts of hazards to buildings around the City.
Hazard(s) Addressed	Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, High Winds, Lightning, Tornado, Wildfire, Winter Storm
Goal/Objective	2-C
Priority	Medium

Estimated Cost	$10,000 - $15,000
Potential Funding Sources	Local
Potential Matching Sources	None
Lead Department	Planning and Zoning, Code Enforcement, Engineering
Implementation Schedule	1-2 years
Effect on Old Buildings	Old buildings would be retrofitted to meet current or updated building code standards.
Effect on New Buildings	New buildings would be constructed to meet current or updated building code standards.
Cost Effectiveness	This is cost effective because it will protect life and property from future disasters.
Discussion	Updated and current building code standards will be continuously implemented in the City through retrofits to old buildings and initial construction to new buildings.

City of Lucas Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils.
Hazard(s) Addressed	Expansive Soils, Drought
Goal/Objective	2-A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants and/or state grants
Potential Matching Sources	Local funds
Lead Department	Emergency Management, Public Works, Planning and Zoning
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	This study would lead to targeted mitigation projects to lower vulnerability to expansive soils. This soil analysis will protect life and property.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.

City of Lucas Action Item	Develop a tornado education program for residents.
Hazard(s) Addressed	Tornado
Goal/Objective	4-A, 4-B
Priority	Medium
Estimated Cost	$5,000

Potential Funding Sources	HMGP, PDM, and/or General Fund
Potential Matching Sources	Local funds, in-kind, and/or grants
Lead Department	Fire-Rescue and Emergency Management
Implementation Schedule	2 years
Effect on Old Buildings	Will reduce vulnerability of existing buildings to tornados through resident education and behavior.
Effect on New Buildings	Will reduce vulnerability of new buildings to tornados through resident education and behavior.
Cost Effectiveness	Public education is extremely effective with a low cost.
Discussion	Residents will be educated on mitigation actions to protect their lives and property from tornados. Residents will be provided with supplies and materials from the NCTCOG KnoWhat2Do Program.

City of Lucas Action Item	Develop a Debris Management Plan
Hazard(s) Addressed	High Winds, Tornado, Wildfire, Flooding
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$20,000
Potential Funding Sources	HMGP, PDM, and/or General Fund
Potential Matching Sources	Local funds, donations, in-kind, and/or grants
Lead Department	Fire-Rescue and Emergency Management with assistance from Collin County, the Texas A&M Forest Service, and a private consulting firm.
Implementation Schedule	18-36 Months
Effect on Old Buildings	Will ensure that debris from older buildings and neighborhoods is properly managed and cleared before and after disaster.
Effect on New Buildings	Will ensure that debris from newer buildings and neighborhoods is properly managed and cleared before and after disaster.
Cost Effectiveness	Debris management is cost effective if done right. A Debris Management Plan will guide the City's debris management before and after disaster.
Discussion	This project is needed to ensure that the City has a clear plan for keeping debris minimal before disaster and cleaning/clearing debris effectively after disaster.

City of Lucas Action Item	Develop a flood education program for residents.
Hazard(s) Addressed	Flooding
Goal/Objective	4-A, 4-B, 4-C
Priority	Medium
Estimated Cost	$5,000
Potential Funding Sources	HMGP, PDM, and/or General Fund

Potential Matching Sources	Local funds, in-kind, and/or grants
Lead Department	Fire-Rescue and Emergency Management
Implementation Schedule	2 years
Effect on Old Buildings	Will reduce vulnerability of existing buildings to floods through resident education and behavior.
Effect on New Buildings	Will reduce vulnerability of new buildings to floods through resident education and behavior.
Cost Effectiveness	Public education is extremely effective with a low cost.
Discussion	Residents will be educated on mitigation actions to protect their lives and property from floods. Residents will be provided with supplies and materials from the NCTCOG KnoWhat2Do Program.

City of Lucas Action Item	Build three carports: one at Fire-Rescue station for personal vehicles and two at City Hall, one for personal vehicles and one for City vehicles.
Hazard(s) Addressed	Hail
Goal/Objective	2-D
Priority	Medium
Estimated Cost	$35,000
Potential Funding Sources	HMGP, PDM, and/or General Fund
Potential Matching Sources	Local funds, in-kind, and/or grants
Lead Department	Engineering and Development Services
Implementation Schedule	2 years
Effect on Old Buildings	No effect on existing buildings.
Effect on New Buildings	No effect on new buildings.
Cost Effectiveness	Protecting both employee and City vehicles from hail damage will save the City money in the long run.
Discussion	Carports will protect both City employees' personal vehicles as well as City vehicles from hail damage.

City of Lucas Action Item	Develop and implement a comprehensive public education program to educate on the actions to help mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Drought, Earthquakes, Hail, Winds, Expansive Soils, and Lightning
Goal/Objective	4-A, 4-B, 4-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	General Fund, HMGP
Potential Matching Sources	Local funds, in-kind

Lead Department	EMC
Implementation Schedule	9-12 months
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Minimal compared to preservation of life safety
Discussion	Public education can help educate the public to reduce personal and property damage during disasters. Program will include information about hazard mitigation.be taken to reduce impacts on people and property.

National Flood Insurance Program (NFIP) Compliance

The City of Lucas is participating in the National Flood Insurance Program and has identified areas vulnerable to flooding. This is incorporated into all current and future planning for flood mitigation measures.

Table 6.1 NFIP Compliance

CID	Community Name	County	Initial FHBM Identified	Initial FIRM Identified	Current Effective Map Date	Reg-Emer Date	Tribal
481545#	LUCAS, CITY OF	COLLIN COUNTY	07/25/75	04/02/91	06/02/09	07/03/79	No

Source: http://www.fema.gov/cis/TX.html

Jurisdiction Compliance

Once the community applies for the NFIP, FEMA arranges for a study of the community to determine base flood elevations and flood risk zones. Consultation with the community occurs at the start of and during the study, and those communities with minimal flood risk are converted to the Regular Program without a study.

FEMA provides the studied community with a Flood Insurance Rate Map delineating base flood elevations and flood risk zones. The community is then given 6 months to adopt base flood elevations in its local zoning and building code ordinances. Once the community adopts more stringent ordinances, FEMA converts the community to the NFIP's Regular Program. FEMA then authorizes the sale of additional flood insurance in the community up to the Regular Program limits. The community must implement and enforce the adopted floodplain management measures. FEMA provides periodic community assistance visits with local officials to provide technical assistance regarding complying with NFIP floodplain management requirements.

The purchase of flood insurance is mandatory as a condition of receipt of federal or federally-related financial assistance for acquisition and/or construction of buildings in SFHAs of any participating community. Those communities notified as flood-prone which do not apply for participation in the NFIP within 1 year of notification are ineligible for federal or federally-related financial assistance for acquisition, construction, or reconstruction of insurable buildings in the SFHA.

Jurisdiction Activities

In order to maintain eligibility with NFIP, jurisdictions are required to create and maintain a list of properties that hold a policy with NFIP along with up-to-date maps of the floodplains in the jurisdictions. Each jurisdiction participating in the Collin County Hazard Mitigation Action Plan completes this basic requirement and has the information on file with the jurisdiction's designated floodplain manager. Using this plan, participating jurisdictions will be able to continue their compliance with NFIP by implementing damage control measures and take action to minimize the effects of flooding in their respective jurisdictions.

Table 6.2 NIFP Activity

Jurisdiction	Community Floodplain Administrator	NFIP Activity	Enforcement
City of Lucas	City Manager	Restrict or prohibit uses that are dangerous to health, safety or property in times of flooding, or cause excessive increases in flooding heights or velocities	NFIP compliance is implemented and enforced through a process of floodplain identification using FEMA floodplain maps, permit issuance, building requirements, and compliance inspections pending approval.
		Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction	
		Control the alteration of natural floodplains, stream channels, and natural protective barriers, which are involved in the accommodation of floodwaters	
		Control filling, grading, dredging and other development which may increase flood damage	
		Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands.	

7. Plan Maintenance

Monitoring, Evaluating and Updating the Plan

In compliance with requirement § 201.6(c)(4)(i), Collin County has developed a plan maintenance process which is described in the following paragraphs. Collin County, along with participating jurisdictions, are responsible for monitoring implementation of their plan, executing a yearly evaluation of its effectiveness, and updating the plan within a 5-year cycle.

Following formal adoption by the City of Lucas, the county, and the city council of each participating jurisdiction, the actions outlined in the Collin County Hazard Mitigation Action Plan (HazMAP) will be implemented by participating jurisdictions as described throughout this document.

The Collin County Emergency Management Coordinator, working in conjunction with the respective jurisdictions, will be responsible for ensuring the mitigation plan is monitored, evaluated, and reviewed on an annual basis. This will be accomplished by calling an annual meeting of the planning committee, whose members will provide assistance and expertise for plan review, evaluating, updating, and monitoring. This meeting will be open to the public and public notices will encourage community participation. During this annual meeting, Lucas will provide information on the implementation status of each action included in the plan. As part of the evaluation, the planning committee will assess whether goals and objectives address current and expected conditions, whether the nature and/or magnitude of the risks have changed, if current resources are appropriate for implementing the plan, whether outcomes have occurred as expected, and if agencies and other partners participated as originally proposed. These activities will take place according to the timetable presented below:

Table 7.1 Plan Maintenance Timeline

Personnel	Activity	Schedule
Emergency Management Coordinator, Emergency Management Intern	Monitoring Plan: Track implementation and action items, changes to risk assessment, changes to planning team members, changes to capabilities, plan integrations.	Biannually
	Evaluate Plan: Assess effectiveness by evaluating completed actions, implementation processes, responsible personnel and lessons learned.	Annually
	Update Plan	Once every 5 years

At least once every five (5) years, or more frequently if such a need is determined by the participating jurisdiction, the multi-jurisdictional plan will undergo a major update. During this process, all sections of the plan will be updated with current information, analyses done and new and/or modified mitigation action plans will be developed. The revised plan will be submitted for state and federal review and approval and then presented for approval to the Collin County Commissioner's Court and the respective councils of incorporated cities/towns included in the Collin County plan. Each participating jurisdiction will undertake the same process for reviewing, revising, and updating their respective plans and submitting them for approval. The plans will be updated every five (5) years in accordance with federal requirements.

Plan Incorporation into Existing Planning Mechanisms *(In compliance with 201.6(c)(4)(ii))*

2016 Plan Incorporation: The vulnerability and capabilities assessments for each jurisdiction were carefully reviewed and considered when developing the mitigation actions for this plan. The HMPT and committees will establish a process in which the mitigation strategy, goals, objectives and actions outlined in this plan will be incorporated into existing local planning strategies and mechanisms, as appropriate. Those mechanisms include the following:

Table 7.2 Plan Incorporation Mechanisms

Jurisdiction	Responsible Personnel	Jurisdictional Plans	Integration Schedule	Integration Plan
City of Lucas	City Council	Budget	Annually	Integration of mitigation projects identified in HazMAP, grants, and other fiscal allowances for mitigation actions and related costs
	Fire Chief, Emergency Management Coordinator	Emergency Action Plan	Every Five Year	EAP Mitigation annex updates based on HazMAP HIRA; update preparedness, response and recovery actions related to identified hazards
	Designated Floodplain Manager	Floodplain Ordinances	As needed	Enhance mitigation of flood hazards using HazMAP flood data for floodplain management and community development.
	City Council, Planning Director	Capital Improvement Plan	Annually	Strengthen critical infrastructure and key resources based on HazMAP hazard analysis, incorporate vulnerability data and action items.
	Public Works Director, City Council	Drought Contingency Plan	Assessed annually and updated as needed.	Integrate drought actions such as xeriscaping, water restrictions, and public education
	Planning Director, City Council	Natural Resource Conservation Plan	Assessed annually and updated as needed.	Integrate conservation measures by directing development away from hazard-prone areas identified in HazMAP.

Although it is recognized there are many possible benefits to integrating components of this HazMAP into other planning mechanisms, the Lucas Hazard Mitigation Planning Committee considers this HazMAP, including development and maintenance, to be the primary vehicle to ensure implementation of local hazard mitigation actions.

The process described here is the same as was used since the last planning update.

Continued Public Involvement (In compliance with 201.6(c)(4)(iii))

As stated in requirement § *201.6(c)(4)(iii)* The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.

To address this requirement, ongoing public participation will be encouraged throughout the entire planning and implementation process. A copy of the plan will be provided on the Collin County website. The planning team and committee will continue meeting on a regular basis to ensure the successful implementation of the plan and to discuss any additional issues regarding the emergency management of Collin County. The annual meetings for monitoring, evaluating, and updating the plan will be open to the public and public notices will encourage community participation.

Annex M: City of Melissa

1. Introduction

This annex was prepared in 2020 as part of an update to the City of Melissa County Multi-Jurisdictional Hazard Mitigation Action Plan. The City of Melissa participated on the Collin County Hazard Mitigation Planning Team (HMPT). This is a new hazard mitigation plan and the first to be submitted to FEMA for the City of Melissa. In addition to the countywide hazards and strategies discussed in the main plan, this annex serves as a complete hazard mitigation planning tool for the City of Melissa. It contains capability assessment information, a specific vulnerability assessment, and a complete mitigation strategy. The methodologyand process for developing this annex are explained throughout the following sections.

2. Plan Development and Adoption Process

In order to apply for federal aid for technical assistance and post-disaster funding, local jurisdictions must comply with Part 201.3 of the Disaster Mitigation Act of 2000 implemented in the Federal Code of Regulations 44 CRF Part 201.6. While the City of Melissa has historically implemented measures to reduce their vulnerability to hazards, passage of DMA 2000 helped City of Melissa officials to recognize the benefits of a long-term approach to hazard mitigation, which achieves a gradual decrease of impacts associated through the implementation of a Hazard Mitigation Plan. City of Melissa's Hazard Mitigation Action Plan represents the collective efforts of all participating jurisdictions, the general public, and stakeholders.

Organizing the Planning Effort

A comprehensive county approach was taken in developing the plan. An open public involvement process was established for the public, neighboring communities, regional agencies, businesses, academia, etc. to provide opportunities for everyone to become involved in the planning process and to make their views known. The meetings were advertised with notices in public places and online.

In accordance with Part 201.6(c)(5) of the Disaster Mitigation Act of 2000 the City of Melissa developed this Hazard Mitigation Action Plan. This plan identifies hazards and mechanisms to minimize future damages associated with these hazards, which threaten the City of Melissa and its jurisdictions.

Existing Data and Plans

Existing hazard mitigation information and other plans were reviewed during the development of the Hazard Mitigation Action Plan. GIS, statistical and qualitative data was gathered through numerous sources. The table below outlines the sources of data for the plan:

Table 2.1 Plan Source Data

Source	Data
City and County Appraisal Data 2020	Population and demographics
Regional Hazard Assessment Tool	Hazard occurrences
National Centers for Environmental Information (NCEI)	Hazard occurrences
Texas Forest Service/Texas Wildfire Risk Assessment Summary Report	Wildfire Threat and Wildland/Urban Interface
National Inventory of Dams	Dam Information

Planning Committee

This Hazard Mitigation Action Plan was developed by the City of Melissa Hazard Mitigation Planning Committee, with support of the North Central Texas Council of Governments and in conjunction with the Collin County HMPT. The efforts of the planning committee were led by the City of Melissa Emergency Management Coordinator.

The Collin County HMPT was assembled in November 2020 with representatives from participating jurisdiction planning committees, including mayors, police chiefs, fire chiefs, and the general public. The City of Melissa acted as the plan development consultant providing hazard mitigation planning services. The table below provides a list of the primary representatives on the Melissa planning committee.

Table 2.2 Hazard Mitigation Committee – Primary Representatives

Representing	Position	Role
Fire Department	Fire Chief	Plan Development
Police Department	Police Chief	Plan Development
City Administration	City Manager	Plan Development
City Council	Councilmember	Plan Development
City Council	Mayor	Plan Development

Collin County served as the coordinator and lead agency for all jurisdictions by accomplishing the following activities through the planning process:

- Assigned the county's Assistant Emergency Management Coordinator to provide technical assistance and necessary data to the planning committee.
- Scheduled, coordinated, and facilitated community meetings with the assistance of the HMPT and the planning committees.
- Provided any necessary materials, handouts, etc. for public planning meetings.
- Worked with the HMPT and planning committees to collect and analyze data and develop goals and implementation strategies.
- Prepared, based on community input and planning team/committee direction, the first draft of the plan and provided technical writing assistance for review, editing and formatting.
- Coordinated with the stakeholders within the jurisdictions and the unincorporated areas of Collin County during plan development.

Each of the individual jurisdictions participated in accomplishing similar activities associated with development of the plan as follows:

- Coordinated input from representatives of neighborhood stakeholder groups and provided a representative to the County HMPT.
- Attended regular meetings of the planning team as coordinated by Collin County.
- Assisted Collin County staff with identifying hazards and estimating potential losses from future hazard events.
- Assisted Collin County in developing and prioritizing mitigation actions to address the identified risks.
- Assisted Collin County in coordinating public meetings to develop the plan.
- Identified the community resources available to support the planning effort.
- Worked for the support of neighborhood stakeholders for the recommendations resulting from the planning process.
- Submitted the proposed plan to all appropriate departments for review and comment and worked with Collin County to incorporate the resulting comments into the proposed plan.

Subsequent to the State of Texas and FEMA approval of the plan, each organization is committed to accomplishing the following activities:

- Appoint members to a coordinating committee to monitor and work toward plan implementation.
- Publicize the plan to neighborhood interests and ensure that new community members are aware of the plan and its contents.
- Monitor progress in achieving the plan's goals through regular maintenance and implementation projects.

External stakeholders involved in reviewing the Collin County Hazard Mitigation Action Plan:

Table 2.3 External Stakeholders

Representing	Position	Role
Collin County	Assistant EMC	Review of plan

Planning Meetings

During the planning process, the HMPT met to obtain relevant information from the participating jurisdictions and to discuss the objectives and progress of the plan. The objectives of these meetings were to gather information and to provide guidance for each jurisdiction throughout the planning stages.

The following meetings were held by City of Melissa and included all jurisdiction's participation:

- Melissa was provided with the Plan on August 12, 2020
- Meeting with Melissa and Collin County 8/24/2021
- Collin County HazMAP Public Meeting – 11/2/2021 at 2PM
- Collin County HazMAP Public Meeting – 01/12/2022 at 9AM

Public Involvement

Support from the community is vital for any successful hazard mitigation plan. The HMPT and planning committee provided opportunities, announced through public communication means, for public participation and input throughout the planning process prior to this draft and before approval of the finalized plan. Advertisement and sign in sheets for these meetings are located in Appendix A.

- The first public meeting was held on November 2, 2021 at 2PM, and advertised on the Collin County website along with other jurisdictional websites inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to comment. The meeting was held virtually via WebEX.
- A second public meeting was held on January 12, 2022 at 9AM. Announcements were placed on jurisdictions websites, including Collin County inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to view and comment on the HazMAP prior to plan submission.

There were no comments directly related to the mitigation plan received from citizens, non-profits, businesses, academia, or interested parties; therefore, no feedback was incorporated. An additional opportunity for the public to comment on the plan will be held prior to formal plan adoption.

This provided all citizens, stakeholders, neighboring communities, agencies, businesses, academia, non-profit organizations, and all interested parties an opportunity to be involved in the planning process and to take part in the decisions making process that affect the future of the communities that they live in.

3. Jurisdictional Hazard Identification and Risk Assessment

The Hazard Mitigation Planning Committee for the City of Melissa identified several natural and man-made hazards that could affect the city. The committee decided to focus on the natural hazards identified in Section 5of this update. This was done after reviewing the 2016 HazMAP, the State of Texas Hazard Mitigation Plan, as well as other sources such as federal and state agencies. The hazards were ranked using the Priority Risk Index.

Priority Risk Index

A Priority Risk Index (PRI) was developed with the purpose of categorizing potential hazards for Melissa and ranks each hazard as high, moderate, low, or negligible to no risk. The hazard classification generated through the use of the PRI allows for the prioritization of those high hazard risks for mitigation planning purposes, and more specifically, the identification of hazard mitigation opportunities for Melissa jurisdictions to consider as part of their proposed mitigation strategy.

The PRI is used to assist all jurisdictions participating in the Melissa HazMAP in determining which hazards pose the most significant threat based on a variety of factors. The PRI is not scientifically based, but is rather meant to be utilized as an objective and systematic planning tool for classifying and prioritizing hazard risks in Melissa based on standardized criteria. The PRI results in numerical values that allow identified hazards to be ranked against one another. The sum of all four categories equals the final PRI value, as shown below:

PRI Value = (Probability x .30) + (Life Impact x .35) + (Property Impact x .25) + (Spatial Extent x .10)

The higher the PRI value, the greater the hazards risk. These values were obtained by assigning varying degrees of risk to four categories for each hazard: Probability, Life Impact, Property Impact, and Spatial Extent *(Table 3.1).* Each category has been assigned an Index Value (0 to 3) and a Weighing Factor (0 – 100%). These values may be adjusted during future plan updates. In order to evaluate the risk of each hazard, the assigned PRI Value for each category is multiplied by the weighing factor. Then, the PRI for each hazard is calculated by adding the product obtained in each category. According to the weighing scheme applied for Melissa, the highest possible PRI value is 3.0. The PRI calculations are presented in *Table 3.2*. Table 3.1 breaks down the value of each category.

Table 3.1 Priority Risk Index Value

Assigned Weighing Factor	PRI Category	Degree of Risk		
			Criteria	Index Value
30%	Probability	Unlikely	Less than 1% annual probability	0
		Possible	Between 1 and 10% annual probability	1
		Likely	Between 10 and 100% annual probability	2
		Highly Likely	100% annual probability	3
		Minor	Very few injuries, if at all none	0

35%	Life Impact	Limited	Minor Injuries	1
		Critical	Multiple deaths/injuries	2
		Catastrophic	High number of deaths/injuries	3
25%	Property Impact	Minor	Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	0
		Limited	More than 10% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one day.	1
		Critical	More than 25% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one week.	2
		Catastrophic	More than 50% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for 30 days or more.	3
10%	Spatial Extent	Negligible	Less than 1% of area affected	0
		Small	Between 1 and 10% of area affected	1
		Moderate	Between 10 and 50% of area affected	2
		Large	Between 50 and 100% of area affected	3

Table 3.2 Priority Risk Index for City of Melissa

Hazard	Category/Degree of Risk				
	Probability Index Value (0 - 3 30%)	Life Impact Index Value (0 - 3 35%)	Property Impact Index Value (0 - 3 25%)	Spatial Extent Index Value (0 - 3 10%)	PRI Value 2021
Dam Failure	0	0	1	0	0.25
Drought	1	2	1	0	1.25
Earthquake	0	1	0	1	0.45
Expansive Soils	2	0	0	1	0.7
Extreme Heat	1	1	0	2	0.85
Flooding	1	1	0	0	0.65
Hail	2	0	0	1	0.7

High Winds	1	0	0	1	0.4
Lightning	1	0	0	0	0.3
Tornado	2	1	1	1	1.3
Wildfire	1	2	0	1	1.1
Winter Storms	2	0	2	3	1.4

The conclusions drawn from the hazard profiling process for Collin County Jurisdictions, resulted in the classification of risk for each identified hazard according to four categories: High Risk, Moderate Risk, Low Risk, and Negligible to No Risk *(Table 3.3).* For purposes of these classifications, risk is expressed in relative terms according to the probability of occurrence and estimated impact that a hazard will have on human life and property in Melissa.

Table 3.3 Hazard Rankings for the City of Melissa

High Risk (PRI 2 - 3)	
Moderate Risk (PRI 1.01 -1.9)	Tornado Winter Storms Wildfire Drought
Low Risk (PRI 0.50 – 1)	Extreme Heat Expansive Soils Hail Flooding
Negligible to No Risk (PRI 0 – 0.49)	Earthquake High Winds Lightning Dam Failure

Changes in Development and Priorities (Requirement §201.6(d) (3))

Our jurisdiction is in one of the fastest growing areas of the nation, hence development has increased and will continue to increase our vulnerability to hazards that may impact us.

Vulnerability Narratives

This annex focuses on specific areas of vulnerability the City of Melissa faces with each hazard. The hazards identified in the main plan are all addressed in this annex, therefore the natural hazards rated negligible to no risk are included, described, and considered for mitigation.

Dam and Levee Failure At this time City of Melissa does not appear to be vulnerable to a dam failure,but as a participant in the county plan inundation studies will be considered.

Drought Drought has the potential to impact the entire planning area equally; all improved property, emergency facilities, critical facilities, critical infrastructure, and the entire population of Melissa are vulnerable to this hazard. Foundations of all buildings are vulnerable; however, older structures, or those built under less stringent foundation code requirements are most vulnerable. Lake Lavon, Lake Texoma, Lake Tawakoni, Lake Fork and the Lake Chapman-Cooper reservoir system are water sources for City of Melissa and are vulnerable to drought. In turn, the city's population, wildlife and vegetation are vulnerable. Lower income populations who may not have the resources to buy containerized water in the event of a shortage may be more vulnerable than other populations. Likewise the extent to how and when water is used from water sources does have a potential effect on revenues for the City of Melissa.

Earthquake Although the City of Melissa does not sit directly on a fault zone it located near the BalconesFault. Should an earthquake of medium/high magnitude occur along this fault, the City of Melissa would see damage to roadways, water/sewer lines, gas lines, buildings, and critical infrastructure. All propertiesand populations have the potential to be vulnerable to earthquakes.

Expansive Soils The City of Melissa has expansive soils in its jurisdiction. While great care is and has been taken to prevent the effects of soil expansion, should drought occur or periods of low rainfall occur residents, commercial, and industrial properties could see adverse effects to the structural integrity of their respective buildings. Expansive soils also have an effect on infrastructure causing pipes to crack andbreak. All properties and populations have the potential to be vulnerable to expansive soils.

Extreme Heat The City of Melissa can be subject to high or extreme heat from late April to early October.The highest recorded temperature in the Dallas/Ft. Worth area was 113 F. While most of the time city is not exposed to temperatures above 110 it is still possible. Temperatures of 95 F or above coupled with high humidity can have detrimental effects to not only the residential population, but also commercial andindustrial operations. High heat can cause roving black outs, drying out of vegetation in undeveloped areas (increasing fire risk), and the need for cooling centers for residents. High heat also has an effect on public works and public safety due to working in these temperatures and the damage to infrastructure.

Equipment in the water pump house often malfunctions during times of extreme heat. Extreme heat generally affects the entire population, but the homeless, very young, elderly, and populations without air conditioning are most vulnerable.

Flooding The City of Melissa could be subject to flooding due to the various infrastructure and development projects which are currently taking place. Highways and roadways are currently under development which could cause water to be inadvertently channeled to an unanticipated located. These same effects could occur as areas of the city are developed

Hail Severe thunderstorms are frequent in the Metroplex area, of which the City of Melissa is included. Severe thunderstorms have the potential to spawn tornados, high winds, hail, flooding, and lightning. All of these can result in damage to residential, commercial, and industrial properties. Damage to power lines and vegetation can occur as well. Roadways can be blocked due to low visibility and debris. Public Works and Public Safety departments are often taxed due to the calls for service. All properties and populations have the potential to be vulnerable to hail

High Winds Severe thunderstorms are frequent in the Metroplex area, of which the City of Melissa is included. Severe thunderstorms have the potential to spawn tornados, high winds, hail, flooding, and lightning. All of these can result in damage to residential, commercial, and industrial properties. Damage to power lines and vegetation can occur as well. Power outages are frequent and it may take anywhere from 30 minutes to 30 days to restore power. Roadways can be blocked due to low visibility and debris.

Public Works and Public Safety departments are often taxed due to the calls for service. All properties and populations have the potential to be vulnerable to high winds.

Lightning Severe thunderstorms are frequent in the Metroplex area, of which the City of Melissa is included. Severe thunderstorms have the potential to spawn tornados, high winds, hail, flooding, and lightning. All of these can result in damage to residential, commercial, and industrial properties. Damage to power lines and vegetation can occur as well. Power outages are frequent and it may take anywhere from 30 minutes to 30 days to restore power. Roadways can be blocked due to low visibility and debris. Public Works and Public Safety departments are often taxed due to the calls for service. Lightning also has the potential to start fires in structures as well as in open pastures. All properties and populations have the potential to be vulnerable to lightning.

Tornado Severe thunderstorms are frequent in the Metroplex area, of which the City of Melissa is included. Severe thunderstorms have the potential to spawn tornados. These can result in damage to residential, commercial, and industrial properties. Damage to power lines and vegetation can occur as well. Power outages are frequent and it may take anywhere from 30 minutes to 30 days to restore power. Roadways can be blocked due to low visibility and debris. Public Works and Public Safety departments are often taxed due to the calls for service. Tornados also have the capacity to leave many homeless and injured. It may take days, weeks, months, or even years to return to normal operations should a tornado occur in the City of Melissa. All properties and populations have the potential to be vulnerable.

Wildland Fire The City of Melissa is in the middle of the Wildland Urban Interface (WUI). The WUI has the potential to not only effect crops but also residential structures as fire swiftly burns across vegetation.Large wildfires have the potential to restrict traffic through roadways due to low visibility and the need to use all lanes for evacuation. At greatest risk are structures and populations located within the WUI. According to the Texas Forest Service, 60.25% of the population of Melissa lives within in the Wildland/Urban Interface.

Winter Storms The City of Melissa is subject to winter storms. Ice and snow can accumulate on roadways trapping drivers on the road and increasing the likelihood of accidents. Residents can be ill prepared for storms and may even be in their homes without electricity, heat, or running water.

Commercial and industrial business see adverse effects as potential customers remain in doors and workers are unable to report for their jobs. All of which negative impacts on the City of Melissa economy.All properties and populations have the potential to be vulnerable to winter storms.

Identification of Assets and Vulnerability Assessment

An inventory of Melissa geo-referenced assets was created in order to identify and characterize property and population potentially at risk to the identified hazards. By understanding the type and number of assets that exist and where they are located in relation to known hazard areas, the relative risk and vulnerability for such assets can be assessed. For this assessment, five categories of assets were evaluated using Geographic Information System and statistical analysis. The five categories of vulnerable assets include:

- **Population**: Includes the number of people residing in Collin County jurisdictions as delineated by the 2020 NCTCOG population estimates.
- **Improved property**: Includes all developed properties according to local parcel data from the Melissa. The information has been expressed in terms of the total assessed value of improvements

that may be exposed to the identified hazards.

- **Emergency facilities**: Includes fire stations, police stations and hospitals, provided by the Regional Hazard Assessment Tool, Melissa Emergency Management Coordinator, and participating jurisdictions.
- **Critical facilities**: Includes schools and historic places provided by Regional Hazard Assessment Tool, and Melissa. These are non-emergency facilities, but still provide critical services and functions for vulnerable sectors of the population.
- **Critical infrastructure**: Includes airports, natural gas facilities, wastewater facilities, potable water treatment facilities, wastewater treatment facilities, dams, and bridges. Data for all critical facilities was obtained from Regional Hazard Assessment Tool, Melissa Emergency Management Coordinator, and participating jurisdictions.

The following tables provide a breakdown by municipal jurisdiction of the geo-referenced assets that were used for the vulnerability assessment.

Population

According to the 2020 NCTCOG Population Estimates and the US Census Bureau, the total population of Melissa in 2020 was 12,381 people, with 4,589 households. The count breakdown by municipal jurisdiction is provided in *Table 3.4.*

Table 3.4. Population Counts

Jurisdiction	Population			Households		
	Population	% of County Total	Population Density (Sq. Mile)	Household	% of County Total	Household Density (Sq. Mile)
Melissa	19,161	1.13%	1,044.81	5,813	1.13%	367.89

Source: US Census Bureau & Collin County Appraisal District

Table 3.5 summarizes population counts and population chance (absolute and percent predications for Melissa).

Table 3.5 Population Predictions

Jurisdiction	Population 2010 Census	Population 2018 Estimate	Population 2019 Estimate	Absolute Change 2018-2019	Percent (%) Change 2018-2019
Melissa	4,695	11,927	13,980	2,053	12.94%

Source: 2020 NCTCOG Population Estimate

Property

There are an estimated 6,466 parcels in Melissa, with an estimated $1,014,828,346 in total assessed value of, *Table 3.6* lists the total number and percentage of parcels by jurisdiction.

Table 3.6 Parcel Counts and Improvements Value

Jurisdiction	Number of Parcels	% of County Total	Total Assessed Value of Improvements (Buildings)[1]
Melissa	6,466	1.34%	$1,014,828,346

Source: Collin County Appraisal District

Emergency Facilities

There are 2 identified emergency facilities in the City of Melissa, including 1 fire station and 1 police station, and zero hospitals. *Table 3.7* presents the distribution of emergency facilities by jurisdiction. Geographiccoordinates were used to determine the location of each facility.

Table 3.7 Emergency Facilities

Jurisdiction	Fire Stations	Police Stations	Hospitals
Melissa	1	1	0

Source: County Data and Regional Hazard Assessment Tool

Critical Facilities

There are 5 critical facilities, which are considered non-emergency in Melissa. The critical facilities include five schools and zero historical property sites. *Table 3.8*. Geographic coordinates (i.e., latitude and longitude) were used to determine the location of each facility.

Table 3.8 Critical Facilities

Jurisdiction	Schools	Historical Property
Melissa	6	3

Source: Local jurisdictions

Critical Infrastructure

There are 30 identified critical infrastructure facilities in Melissa, including 0 airports, 2 natural gas facilities, no water treatment facilities, 0 wastewater treatment facilities, 0 dams, and 28 railway/highway bridges. (*Table 3.9*).

Table 3.8 Critical Infrastructure

Jurisdiction	Airports	Natural Gas Facilities	Wastewater Treatment Facilities	Potable Water Treatment Facilities	Dams	Railway/ Highway Bridges
Melissa	0	2	0	0	1	28

Source: Local jurisdictions

Methodology

Based on the type of information available for analysis, the City of Melissa vulnerability assessment was conducted using two distinct methodologies, a Geographic Information System-based analysis and a statistical risk assessment methodology. Each approach provides estimates for the potential impact of hazards by using a common, systematic framework for evaluation of historical occurrence information provided by National Centers for Environmental Information, the Texas Forest Service, and the FEMA Resilience and Planning Tool. The results of the vulnerability assessment are provided by jurisdiction for each hazard analyzed.

Of the 12 hazards evaluated for the City of Melissa, four were analyzed using a Geographic Information System-based analysis, five using a statistical risk assessment methodology, and the remaining three hazards using a qualitative analysis. Qualitative analysis was used due to lack of information, the inability to define specific areas of risk, and/or inexistence of historical records. Additional information regarding these hazards is unattainable at the present time; studies to address this data deficiency are noted as action items in this update. *Table 3.10* summarizes the methodology used for each hazard.

Table 3.10 Analysis used for Vulnerability Assessment

Hazard	Geographic Information System-based Analysis	Statistical Analysis	Qualitative Analysis
Dam Failure			X
Drought	X		
Earthquake			X
Expansive Soils			X
Extreme Heat		X	
Flooding	X		
Hail	X		
High Winds		X	

Lightning		X	
Tornado		X	
Wildfire	X		
Winter Storms		X	

Summary of Vulnerably Assessment

A summary of the vulnerability assessment for each hazard using geographic and statistical analysis is presented in the following pages. The detailed assessment is presented in the following sections.

Summary Table 3.11

Drought	
Population	According to National Centers for Environmental Information (NCEI) no recorded injuries or fatalities have been recorded for drought events. There are no personal losses expected from drought events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Melissa are expected but financially unknown due to lack of accurate reporting. Historical data indicates that crop losses in the City of Melissa are expected mostly during water shortages, financially unknown due to lack of accurate reporting.
Emergency Facilities	Because of the nature of this hazard, no losses are expected on emergency facilities but foundation issues could occur due to drought events.
Critical Facilities	Because of the nature of this hazard, no losses are expected on critical facilities but foundation issues could occur due to drought events.
Critical Infrastructure	Because of the nature of this hazard, no losses are expected on critical infrastructure but foundation issues and road degradation could occur due to drought events.

Summary Table 3.12

Extreme Heat	
Population	According to National Centers for Environmental Information (NCEI), there were one (1) fatality recorded due to extreme heat from the City of Melissa. All of the City of Melissa and its population are vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to developed areas and the improved property in the City of Melissa is not vulnerable to this hazard.

Emergency Facilities	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to buildings and the emergency facilities in the City of Melissa are not vulnerable to this hazard.
Critical Facilities	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to buildings, and the critical facilities in the City of Melissa are not vulnerable to this hazard.
Critical Infrastructure	Extreme heat has had an impact on equipment at the water pump house causing it to malfunction and become inoperable. However, overall vulnerability to this hazard is considered minimal in the City of Melissa.

Summary Table 3.13

Flooding	
Population	Flooding produces an expected annualized count of zero (0) fatalities and injuries per year. Approximately 54 residential parcels in the City of Melissa are located within the 100-year floodplain.
Improved Property	There have been five (5) recorded flood events in the City of Melissa. Property losses are expected at $7,400 per year however these values are underestimated due to lack of accurate reporting. No crop losses are expected or recorded county-wide. Approximately $6,742,366 of the total assessed value is at risk from the 100-year storm event.
Emergency Facilities	Emergency facilities have the potential to be as risk in the 100-year storm event.
Critical Facilities	Critical facilities have the potential to be as risk in the 100-year storm event.
Critical Infrastructure	Critical Infrastructure have the potential to be as risk in the 100-year storm event.

Summary Table 3.14

Hail	
Population	According to National Centers for Environmental Information (NCEI), no recorded injuries or fatalities have been recorded for hailstorm events. There are no personal losses expected from hailstorm events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Melissa are expected at $342.86 per year however these values are underestimated due to lack of accurate reporting. All improved property is vulnerable to this hazard. Although some crops are susceptible to hail hazards, available historical data for the City of Melissa indicates that there are no expected crop losses from this event.

Emergency Facilities	Because of the unpredictability of the geographical location of hailstorms, all emergency facilities in the City of Melissa are vulnerable to this hazard.
Critical Facilities	Because of the unpredictability of the geographical location of hailstorms, all critical facilities in the City of Melissa are vulnerable to this hazard.
Critical Infrastructure	Because of the unpredictability of the geographical location of hailstorms, all critical infrastructures in the City of Melissa are vulnerable to this hazard.

Summary Table 3.15

High Wind	
Population	According to National Centers for Environmental Information (NCEI), there are no recorded injuries or fatalities from high wind events. All the population of the City of Melissa is vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Melissa are expected at $3,514.29 per year however these values are underestimated due to lack of accurate reporting. No crop losses resulted from this hazard in the City of Melissa.
Emergency Facilities	Because of the expected geographical widespread nature of high winds, all emergency facilities in the City of Melissa are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of high winds, all critical facilities in the City of Melissa are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of high winds, all critical infrastructures in the City of Melissa are vulnerable to this hazard.

Summary Table 3.16

Lightning	
Population	According to National Centers for Environmental Information (NCEI), lightning events can be expected to cause no deaths or injuries in the City of Melissa. All the population of the City of Melissa is vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Melissa are expected but unknown due to lack of accurate reporting

Emergency Facilities	Because of the expected geographical widespread nature of lightning, all emergency facilities in the City of Melissa are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of lightning, all critical facilities in the City of Melissa are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of lightning, all critical infrastructures in the City of Melissa are vulnerable to this hazard.

Summary Table 3.17

Tornado	
Population	According to National Centers for Environmental Information (NCEI), there have been no recorded injuries or fatalities from tornado events in the City of Melissa. All the population of the City of Melissa is exposed and vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), property losses in the City of Melissa are expected but unknown due to lack of accurate reporting. No crop losses are expected from this hazard in the City of Melissa.
Emergency Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all emergency facilities in the City of Melissa are exposed and vulnerable to this hazard.
Critical Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all critical facilities in the City of Melissa are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the impossibility to predict the geographical area of impact for tornados, all critical infrastructures in the City of Melissa are exposed and vulnerable to this hazard.

Summary Table 3.18

Wildfire	
Population	Based on geographical data, approximately 60.25% of Melissa is vulnerable to wildfires. There have been no recorded injuries or fatalities due to wildfires.
Improved Property	Based on historical data, annual financial losses expected from property loss due to wildfires are unknown due to lack of accurate reporting; therefore, percentage of the overall property improvement values across the City of Melissa are also unknown.
Emergency Facilities	Based on geographic information there is 1 fire station and 1 police station at risk from wildfire events.
Critical Facilities	Based on geographic information there are 6 schools at risk from wildfire events.

Critical Infrastructure	Based on geographic information there are 4 natural gas facilities and 28 railway/highway bridges at risk from wildfire events.

Summary Table 3.19

Winter Storm	
Population	According to National Centers for Environmental Information (NCEI), there was one (1) county-wide fatality recorded due to winter storms, none from the City of Melissa. All the population of the City of Melissa are exposed and vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Melissa are expected but unknown due to lack of reporting however county-wide property loss is estimated at $116,250 per year. No crop losses are expected from this hazard in the City of Melissa.
Emergency Facilities	Because of the expected geographical widespread nature of winter storms, all emergency facilities in the City of Melissa are exposed and vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of winter storms, all critical facilities in the City of Melissa are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of winter storms, all critical infrastructures in the City of Melissa are exposed and vulnerable to this hazard.

4. Capability Assessment

The risk assessment and capabilities assessment serves as the foundation for the development of a meaningful hazard mitigation strategy. During the process of identifying specific mitigation actions to pursue, Melissa considered not only its level of hazard risk but also the existing capabilities to minimize or eliminate that risk.

Table 4.1 Legal and Regulatory Capability Summary

Legal and Regulatory Capabilities															
Jurisdiction	Building Code	Zoning Ordinance	Subdivision Ordinance or regulation	Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances wildfire ordinances, hazard setback requirements)	Growth management ordinances (also called "smart Growth" or anti-sprawl programs)	Site Plan review requirements	General or comprehensive plan	A capital improvements plan	An economic development plan	An emergency response plan	A post-disaster recovery plan	A post-disaster recovery ordinance	Real estate disclosure requirements	Other	% Yes per Jurisdiction
City of Melissa	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	?	**92%**
Average % Yes Capabilities – 92.86%															
Y- Yes N- No ?- Don't Know															

Administrative and Technical Capabilities											
Jurisdiction	Planner(s) or engineer(s) with knowledge of land development and land management	Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Planners or engineer(s) with an understanding of natural and/or human caused hazards	Floodplain manager	Surveyors	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in GIS	Scientists familiar with the hazards of the community	Emergency manager	Grant writers	% Yes
City of Melissar	Y	Y	Y	Y	Y	Y	N	N	Y	N	**70%**
Average % Yes Capabilities – 70%											
Y- Yes N- No ?- Don't Know											

Fiscal Capabilities											
Jurisdiction	**Community Development Block Grants (CDBG)**	**Capital improvements project funding**	**Authority to levy taxes for specific purposes**	**Fees for water, sewer, gas, or electric service**	**Impact fees for homebuyers or developers for new developments/homes**	**Incur debt through general obligation bonds**	**Incur debt through special tax bonds**	**Incur debt through private activity bonds**	**Withhold spending in hazard-prone areas**	**Other**	**% Yes per Jurisdiction**
City of Melissa	Y	Y	Y	Y	Y	Y	Y	N	Y	?	**70%**
Average % Yes Capabilities – 70%											
Y- Yes N- No ?- Don't Know											

To quantify Mellissa's legal and regulatory capabilities, administrative and technical, and fiscal capabilities, an overall rating system was administered for each category: limited (0-30%), moderate (31-70%), and strong (70-100%). Questionnaire response indicated that Melissa has 92.86% of identified legal and regulatory capabilities, 70% of identified administrative and technical capabilities, and 70% of identified fiscal capabilities.

Table 4.4 Administrative Information

Jurisdiction	Chief Administrative Officer	Ability to Implement Capabilities
City of Melissa	City Manager	The city council, including the mayor, mayor pro-tem, and council members, along with the city manager, address the budget; pass laws, regulations, and codes; hire staff; approve plans; and determine the direction of the city overall. Ability to implement and approve mitigation actions and integrate mitigation into existing policies and programs is a function of this group.

Specific actions that can expand and improve existing capabilities, authorities, plans, policies, and resources for mitigation include: budgeting and passing policies and procedures, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates and additions to existing plans as new needs are recognized.

5. Mitigation Strategies

Based on the results of the risk and capability assessments, and reviews of the goals and objectives included in the 2016 HazMAP, the City of Melissa Hazard Mitigation Planning Committee developed mitigation strategies for the Plan update.

Goal 1 Reduce or eliminate loss of life, injuries and property damage resulting from severeweather events.

Objective 1-A Provide adequate warning and communication before, during, and after a hazard event.

Objective 1-B Expand and coordinate Early Warning Systems currently in use.

Objective 1-C Reduce or eliminate loss of life and property damage from tornados through the construction and use of safe rooms or shelter areas.

Goal 2 Protect existing and new properties from the effects of all natural hazards.

Objective 2-A Conduct studies to determine hazard and vulnerability threat assessment for all natural hazards.

Objective 2-B Rehabilitate or retrofit identified high hazard critical infrastructure.

Objective 2-C Enact and enforce regulatory measures that enforce hazard mitigation measures.
Objective 2-D Construct enhancements or additions to current and new facilities which mitigate the effects of natural hazards.

Objective 2-E Maintain NFIP compliance, storm water management, and implement drainage projects.

Goal 3 Reduce losses and repetitive damages for chronic hazard events.

Objective 3-A Conduct a hazard/vulnerability assessment of personal properties and structures located in flood zones within the City of Melissa.

Objective 3-B Develop and implement a buyout program for those personal properties and structures located in high hazard flood zones starting with those that are most vulnerable to life and property loss.

Objective 3-C Develop and execute new programs which identify and reduce threats from natural hazards.

Goal 4 Develop public education campaigns to disseminate information about actions to mitigatepotential loss of life, injuries and property damage resulting from natural hazards.

Objective 4-A Educate the public on risks, threats, and vulnerability from all natural hazards.
Objective 4-B Educate the public on actions they can take to prevent or reduce the loss of life or property from all natural hazards.

Objective 4-C Develop and implement a community education campaign to heighten public awareness about chronic flooding and options for insurance coverage to protect their personal properties as well as long term benefits from a buyout program.

6. Action Items

Below is a list of action items identified for the HazMAP Update. Each of the actions in this section were prioritized based on FEMA's STAPLEE criteria, which includes considering the social, technical, administrative, political, legal, economic and environmental factors necessary for the implementation of each action. As part of the STAPLEE analysis, economic considerations were weighed for each action. The STAPLEE was used for the 2016 Plan along with the 2021 Update. Priority rankings are classified as indicated in the table below.

Priority	Description
High	Benefits of mitigating risk of death or severe bodily injury outweigh costs to implement actions rated as high priorities.
Medium	Reducing vulnerability to threats and the resulting improvement in quality of life and peace of mind are benefits for actions rated as medium priorities.
Low	Awareness of low risk/low impact hazards offer benefits of time to assess, plan and integrate low priority mitigation actions as time, need, and funding permit.

City of Melissa Action Items: Deferred from 2016 Plan

City of Melissa Action Item	Adopt and promote public education program to mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Tornado, Wildfire, Winter Storm, Extreme Heat, High Winds, Flooding, Expansive Soils, Hail, Drought, Earthquake, Lightning, Dam Failure
Goal/Objective	4-A, 4-B, 4-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	General Fund, HMGP
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	9-12 months
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages

Cost Effectiveness	Public education is extremely effective for low cost.
Discussion	Program will include information on hazard mitigation and what actions can be taken to reduce impacts on people and property.
Status	Receive supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021

City of Melissa Action Item	Increase outdoor warning siren coverage for new development areas.
Hazard(s) Addressed	Tornado, Wildfire, High Winds, Flooding, Hail, Lightning, Dam Failure
Goal/Objective	1-A
Priority	High
Estimated Cost	$25,000
Potential Funding Sources	General Fund, HMGP, Developer cost
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	9-12 months
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	Early warning is a key element in the safety of citizens who are outdoors
Discussion	Outdoor warning sirens help prevent loss of life during severe storms.
Status	Deferred – will be included in 2021 Plan

City of Melissa Action Item	Develop and implement an extreme temperature program that identifiesboth safe locations for vulnerable residents to go to during periods of extreme temperatures.
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	2-A
Priority	Medium
Estimated Cost	Current staffing project time/resources
Potential Funding Sources	HMGP, PDM,
Potential Matching Sources	Local funds, donations, in-kind

Lead Department	H.R. Dept.
Implementation Schedule	12 months
Effect on Old Buildings	May require retrofit
Effect on New Buildings	None
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.
Discussion	Cooling shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold
Status	Deferred – will be included in 2021 Plan

City of Melissa Action Item	Implement Individual Tornado Safe Room Rebate Program
Hazard(s) Addressed	Tornado, High Winds
Goal/Objective	1-C
Priority	High
Estimated Cost	Up to $3,000 per shelter
Potential Funding Sources	HMGP, PDM, Resident Match
Potential Matching Sources	Local Grants, FEMA
Lead Department	EMC
Implementation Schedule	12 to 24 months
Effect on Old Buildings	Retrofit will increase life safety
Effect on New Buildings	Will add additional protection to reduce injury and loss of life
Cost Effectiveness	Residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind events.
Discussion	Residential safe room programs help prevent loss of life during tornado or severe storm.
Status	Deferred – Residents did received funding through the NCTCOG Saferoom Rebate Program. The NCTCOG Program has been suspended

City of Melissa Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms

Goal/Objective	1-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens andprovide information about severe weather as well as provide other emergency and hazard information
Status	Deferred – will be included in 2021 Plan

City of Melissa Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	3-A
Priority	Medium
Estimated Cost	$50,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Planning
Implementation Schedule	12 - 18 months
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones

Cost Effectiveness	Low
Discussion	Data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	Deferred – will be included in 2021 Plan

City of Melissa Action Item	Develop a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	3-A
Priority	Medium
Estimated Cost	$5,000
Potential Funding Sources	TFS Grants,
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Fire Dept.
Implementation Schedule	18 – 36 months
Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire
Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire
Cost Effectiveness	CWPPs show city officials where to redouble their efforts in preventing wildfire, saving time and money. Also work to establish urban wildfireinterface around new development properties.
Discussion	Identify all structures and infrastructures that would be impacted by a potential wildfire.
Status	Deferred – will be included in 2021 Plan

City of Melissa Action Item	Develop and implement mandatory water conservation measures
Hazard(s) Addressed	Drought
Goal/Objective	3-A
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Public Works

Implementation Schedule	12 - 18 months
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Promote water conservation throughout the county and work with localwater supplies to increase public education on drought. Develop and implement mandatory water restrictions for water conservation.
Status	Deferred – will be included in 2021 Plan

City of Melissa Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works, Planning Zoning
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.
Status	Deferred – will be included in 2021 Plan

City of Melissa Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low

Estimated Cost	TBD
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works, Planning Zoning
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.
Status	

City of Melissa Action Items: New

City of Melissa Action Item	Develop and implement a comprehensive public education program to educate on the actions to help mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Tornado, Hail, Winter Storms, High Winds, Dam Failure, Lightning, Expansive Soils, Extreme Heat, Earthquake, Flooding, Wildfire, Drought
Goal/Objective	4-A, 4-B, 4-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	General Fund, HMGP
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	9-12 months
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Minimal compared to preservation of life safety

Discussion	Public education can help educate the public to reduce personal and property damage during disasters. Program will include information about hazard mitigation.be taken to reduce impacts on people and property.

City of Melissa Action Item	Increase outdoor warning siren coverage for new development areas.
Hazard(s) Addressed	Tornado, Wildfire, High Winds, Flooding, Hail, Lightning, Dam Failure
Goal/Objective	1-A
Priority	High
Estimated Cost	$25,000
Potential Funding Sources	General Fund, HMGP, Developer cost
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	9-12 months
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	Early warning is a key element in the safety of citizens who are outdoors
Discussion	Outdoor warning sirens help prevent loss of life during severe storms. This action item would be specific to installation/placement of new OWS sirens in the jurisdiction.

City of Melissa Action Item	Develop and implement an extreme temperature program that identifiesboth safe locations for vulnerable residents to go to during periods of extreme temperatures.
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	2-A
Priority	Medium
Estimated Cost	Current staffing project time/resources
Potential Funding Sources	HMGP, PDM,
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	H.R. Dept.
Implementation Schedule	12 months
Effect on Old Buildings	May require retrofit

Effect on New Buildings	None
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.
Discussion	Cooling shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold

City of Melissa Action Item	Implement Individual Tornado Safe Room Rebate Program
Hazard(s) Addressed	Tornado, High Winds
Goal/Objective	1-C
Priority	High
Estimated Cost	Up to $3,000 per shelter
Potential Funding Sources	HMGP, PDM, Resident Match
Potential Matching Sources	Local Grants, FEMA
Lead Department	EMC
Implementation Schedule	12 to 24 months
Effect on Old Buildings	Retrofit will increase life safety
Effect on New Buildings	Will add additional protection to reduce injury and loss of life
Cost Effectiveness	Residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind events.
Discussion	Residential safe room programs help prevent loss of life during tornado or severe storm.

City of Melissa Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management

Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as provide other emergency and hazard information

City of Melissa Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	3-A
Priority	Medium
Estimated Cost	$50,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Planning
Implementation Schedule	12 - 18 months
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.

City of Melissa Action Item	Develop a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	3-A
Priority	Medium

Estimated Cost	$5,000
Potential Funding Sources	TFS Grants,
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Fire Dept.
Implementation Schedule	18 – 36 months
Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire
Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire
Cost Effectiveness	CWPPs show city officials where to redouble their efforts in preventingwildfire, saving time and money. Also work to establish urban wildfire interface around new development properties.
Discussion	Identify all structures and infrastructures that would be impacted by a potential wildfire.

City of Melissa Action Item	Develop and implement mandatory water conservation measures
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	3-A
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Public Works
Implementation Schedule	12 - 18 months
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Promote water conservation throughout the county and work with localwater supplies to increase public education on drought. Develop and implement mandatory water restrictions for water conservation. When water is conserved and not used for landscape during droughts, this would provide water for homeowners to use, through drip irrigation, to keep their foundations at a consistent saturation level, mitigating the impacts of drought and lack of water.

City of Melissa Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works, Planning Zoning
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.

City of Melissa Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	TBD
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works, Planning Zoning
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.

Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.

National Flood Insurance Program (NFIP) Compliance

Melissa is participating in the National Flood Insurance Program and has identified their respective areas as vulnerable to flooding. This is incorporated into all current and future planning for dealing with repetitive loss vulnerabilities.

Table 6.1 NFIP Compliance

CID	Community Name	County	Initial FHBM Identified	Initial FIRM Identified	Curr Eff Map Date	Reg-Emer Date	Tribal
481626#	MELISSA, CITY OF	COLLIN COUNTY	-	4/2/1991	06/02/09(M)	4/9/2009	No

Source: http://www.fema.gov/cis/TX.html

Jurisdiction Activities

In order to maintain eligibility with NFIP, jurisdictions are required to maintain their list of properties that hold a policy with NFIP, along with up-to-date maps of the floodplains in the jurisdictions. Each jurisdiction participating in the Collin County Hazard Mitigation Action Plan completes this basic requirement and has the information on file with the jurisdiction's designated floodplain manager. Using this plan, participating jurisdictions will be able to continue their compliance with NFIP by implementing damage control measures and take action to minimize the effects of flooding in their respective jurisdictions

.

Table 6.2 NIFP Activity

Jurisdiction	Community Floodplain Administrator	NFIP Activity	Activity Description	Enforcement
City of Melissa	City Engineer	Complete and maintain FEMA elevation certificates for pre-FIRM and orpost-FIRM buildings	Permits are issued through the City Engineer. The City of Melissa requires 2 feet of freeboard above the base flood elevation forthe top of bottom floor on residential structures and non-residential structures that will be built on properties created or platted after the effective date of theFlood Damage Prevention Order	NFIP complianceis implemented and enforced through a process of floodplain identification using FEMA floodplain maps, permit issuance, building requirements, and compliance inspections pending approval.
		Floodplain developmentpermits	Permits are required forany new construction ina floodplain.	
		Future Mitigation Projects	The City of Melissa willcontinue to monitor for new areas of flooding that have not been previously identified for mitigation.	

7. Plan Maintenance

Monitoring, Evaluating and Updating the Plan

In Compliance with requirement § 201.6(c)(4)(i), Collin County has developed a plan maintenance process which is described in the following paragraphs. Collin County, along with participating jurisdictions are responsible for monitoring implementation of the plan, executing a yearly evaluation of its effectiveness, and updating the plan within a 5-year cycle.

Following formal adoption by the City of Melissa, the county, and the city council of each participating jurisdiction, the actions outlined in the Collin County Hazard Mitigation Action Plan (HazMAP) will be implemented by participating jurisdictions as described throughout this document.

The Collin County Emergency Management Coordinator, working in conjunction with the respective jurisdictions, will be responsible for ensuring the mitigation plan is monitored, evaluated, and reviewed on an annual basis. This will be accomplished by calling an annual meeting of the planning committee, whose members will provide assistance and expertise for plan review, evaluating, updating, and monitoring. This meeting will be open to the public and public notices will encourage community participation. During this annual meeting, the City of Melissa will provide information on the implementation status of each action included in the plan. As part of the evaluation, the planning committee will assess whether goals and objectives address current and expected conditions, whether the nature and/or magnitude of the risks have changed, if current resources are appropriate for implementing the plan, whether outcomes have occurred as expected, and if agencies and other partners participated as originally proposed. These activities will take place according to the timetable presented below:

Table 7.1 Plan Maintenance Timeline

Personnel	Activity	Schedule
Fire Chief	Monitoring Plan : Track implementation and action items, changes to risk assessment, changes to planning team members, changes to capabilities, plan integrations	Biannually
	Evaluate Plan: Assess effectiveness by evaluating completed actions, implementation processes, responsible personnel and lessons learned.	Annually
	Update Plan	Once every 5 years

At least once every five (5) years, or more frequently, if such a need is determined by the participating jurisdiction, the multi-jurisdictional plan will undergo a major update. During this process, all sections of the plan will be updated with current information, analyses done and new and/or modified mitigation action plans will be developed. The revised plan will be submitted for state and federal review and approval, and presented for approval to the Collin County Commissioner's Court and the respective

councils of incorporated cities/towns included in the Collin County plan. Each participating jurisdiction will undertake the same process for reviewing, revising and updating their respective plans and submitting them for approval. The plans will be updated every five years in accordance with federal requirements.

Plan Incorporation into Existing Planning Mechanisms *(In compliance with 201.6(c)(4)(ii))*

Based on the requirements set forth in § *201.6(c)(4(ii)*, the State of Texas Mitigation Plan, the vulnerability and capabilities assessment for each jurisdiction was carefully reviewed and considered when developing the mitigation actions for this plan. The HMPT and committees will establish a process in which the mitigation strategy, goals, objectives and actions outlined in this plan will be incorporated into the existing regional and local planning strategies.

Local and regional planning committees currently use comprehensive land use planning, capital improvements planning, and building code ordinances to guide development. The mitigation strategy, goals, objectives and actions outlined in this plan will be integrated into these existing mechanisms as applicable. Those mechanisms include the following:

Table 7.2 Plan Incorporation Mechanisms

Jurisdiction	Responsible Personnel	Jurisdictional Plans	Integration Schedule	Integration Plan
City of Melissa	City Council	Budget Meetings	Annually	Integration of mitigation projects identified in HazMAP, grants, and other fiscal allowances for mitigation actions and related costs
	Fire Chief	Emergency Action Plan updates	Every Five Year	EAP Mitigation annex updates based on HazMAP HIRA; update preparedness, response and recovery actions related to identified hazards
	Designated Floodplain Manager	Floodplain ordinances	As needed	Enhance mitigation of flood hazards using HazMAP flood data for floodplain management and community development.
	City Council, Director of Planning	Capital improvement plans	Annually	Strengthen critical infrastructure and key resources based on HazMAP hazard analysis, incorporate vulnerability data and action items.
	Public Works Director, City Council	Drought Contingency plans	Assessed annually and updated as needed.	Integrate drought actions such as xeriscaping, water restrictions, and public education

	Planning Director, City Council	Natural Resource Conservation Plan	Assessed annually and updated as needed.	Integrate conservation measures by directing development away from hazard-prone areas identified in HazMAP.

Although it is recognized there are many possible benefits to integrating components of this HazMAP into other planning mechanisms, the Melissa Hazard Mitigation Planning Team considers this HazMAP, including development and maintenance, to be the primary vehicles to ensure implementation of local hazard mitigation actions.

The process described here is the same as was used since the last planning update.

Continued Public Involvement (In compliance with 201.6(c)(4)(iii))

As stated in requirement § *201.6(c)(4)(iii)* The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.

To address this requirement, ongoing public participation will be encouraged throughout the entire planning and implementation process. A copy of the plan will be provided on the Collin County website. The planning team and committees will continue meeting on a regular basis to ensure the successful implementation of the plan and to discuss any additional issues regarding the emergency management of Collin County. The annual meetings for monitoring, evaluating, and updating the plan will be open to the public and public notices will encourage community participation.

Annex N: City of Murphy

1. Introduction

This annex was prepared in 2020 as part of an update to the Collin County Multi-Jurisdictional Hazard Mitigation Action Plan. The City of Murphy participated on the Collin County Hazard Mitigation Planning Team (HMPT). This is a new hazard mitigation plan and the first to be submitted to FEMA for the City of Murphy. In addition to the countywide hazards and strategies discussed in the main plan, this annex serves as a complete hazard mitigation planning tool for the City of Murphy. It contains capability assessment information, a specific vulnerability assessment, and a complete mitigation strategy. The methodology and process for developing this annex are explained throughout the following sections.

2. Plan Development and Adoption Process

In order to apply for federal aid for technical assistance and post-disaster funding, local jurisdictions must comply with Part 201.3 of the Disaster Mitigation Act of 2000 implemented in the Federal Code of Regulations 44 CRF Part 201.6. While the City of Murphy has historically implemented measures to reduce their vulnerability to hazards, passage of DMA 2000 helped Murphy officials recognize the benefits of a long-term approach to hazard mitigation, which achieves a gradual decrease of impacts associated through the implementation of a Hazard Mitigation Plan. Collin County's Hazard Mitigation Action Plan represents the collective efforts of all participating jurisdictions, the general public, and stakeholders.

Organizing the Planning Effort

A comprehensive county approach was taken in developing the plan. An open public involvement process was established for the public, neighboring communities, regional agencies, businesses, academia, etc. to provide opportunities for everyone to become involved in the planning process and to make their views known. The meetings were advertised with notices in public places and online.

In accordance with Part 201.6(c)(5) of the Disaster Mitigation Act of 2000 (DMA 2000), Collin County developed this Hazard Mitigation Action Plan. This plan identifies hazards and mechanisms to minimize future damages associated with these hazards, which threaten Collin County and its jurisdictions.

Existing Data and Plans

Existing hazard mitigation information and other plans were reviewed during the development of the Hazard Mitigation Action Plan. GIS, statistical and qualitative data was gathered through numerous sources. The table below outlines the sources of data for the plan:

Table 2.1 Plan Source Data

Source	Data
City and County Appraisal Data 2020	Population and demographics
Regional Hazard Assessment Tool	Hazard occurrences
National Climatic Data Center (NCDC)	Hazard occurrences
Texas Forest Service/Texas Wildfire Risk Assessment Summary Report	Wildfire Threat and Wildland/Urban Interface
National Resource Conservation Services	Dam information
National Inventory of Dams	Dam information

Planning Committee

This Hazard Mitigation Action Plan was developed by the City of Murphy Hazard Mitigation Planning Committee, with support of the North Central Texas Council of Governments and in conjunction with the HMPT.

The Collin County HMPT was assembled in November 2020 with representatives from participating jurisdiction planning committees, including mayors, police chiefs, fire chiefs, and the general public. The City of Murphy acted as the plan development consultant providing hazard mitigation planning services; the efforts of the planning committees and the HMPT were led by the Collin County Assistant Emergency Management Coordinator. The table below provides a list of the primary representatives on the Murphy planning committee.

Table 2.2 Hazard Mitigation Committee – Primary Representatives

Representing	Position	Role
Murphy Fire Rescue	Fire Chief/Emergency Management Coordinator	Facilitator/Plan Development
Murphy Fire Rescue	Fire Marshal/Emergency Management Specialist	Plan Development/Data Research
Murphy City Management	City Manager	Provided Data/Mapping
Murphy Public Works	Public Works Director	Provide Data/Flood Plain
Murphy Police Department	Police Chief	Plan Development
Murphy Community Development	Building Official	Plan Development

Collin County served as the coordinator and lead agency for all jurisdictions by accomplishing the following activities through the planning process:

- Assigned the County's Assistant Emergency Management Coordinator to provide technical assistance and necessary data to the planning committee.
- Scheduled, coordinated, and facilitated community meetings with the assistance of the HMPT and the planning committees.
- Provided any necessary materials, handouts, etc. for public planning meetings.
- Worked with the HMPT and planning committees to collect and analyze data and develop goals and implementation strategies.
- Prepared, based on community input and planning team/committee direction, the first draft of the plan and provided technical writing assistance for review, editing and formatting.
- Coordinated with the stakeholders within the jurisdictions and the unincorporated areas of Collin County during plan development.

Each of the individual jurisdictions participated in accomplishing similar activities associated with development of the plan as follows:

- Coordinated input from representatives of neighborhood stakeholder groups and provided a representative to the County HMPT.
- Attended regular meetings of the planning team as coordinated by Collin County.

- Assisted Collin County staff with identifying hazards and estimating potential losses from future hazard events.
- Assisted Collin County in developing and prioritizing mitigation actions to address the identified risks.
- Assisted Collin County in coordinating public meetings to develop the plan.
- Identified the community resources available to support the planning effort.
- Worked for the support of neighborhood stakeholders for the recommendations resulting from the planning process.
- Submitted the proposed plan to all appropriate departments for review and comment and worked with Collin County to incorporate the resulting comments into the proposed plan.

External stakeholders involved in reviewing the Collin County Hazard Mitigation Action Plan:

Table 2.3 External Stakeholders

Representing	Position	Role
Community ISD	School Board Member	Review of plan
North Texas Municipal Water District	Board Member	Review of plan

Subsequent to the State of Texas and FEMA approval of the plan, each jurisdiction also is committed to accomplishing the following activities:

- Appoint members to a coordinating committee to monitor and work toward plan implementation.
- Publicize the plan to neighborhood interests and ensure that new community members are aware of the plan and its contents.
- Monitor progress in achieving the plan's goals through regular maintenance and implementation projects.

Planning Meetings

During the planning process, the HMPT met to obtain relevant information from the participating jurisdictions and to discuss the objectives and progress of the plan. The objectives of these meetings were to gather information and to provide guidance for each jurisdiction throughout the planning stages.

The following meetings were held by Collin County and included all jurisdiction's participation:

- Collin County HazMAP Kickoff Meeting – August 12, 2020
- Collin County Planning Meeting – November 5, 2020
- Collin County Planning Meeting – June 12, 2021
- Murphy and Collin Planning Meeting/Discussion – July 21, 2021
- Collin County HazMAP Public Meeting – 11/2/2021 at 2PM
- Collin County HazMAP Public Meeting – 01/12/2022 at 9AM

Public Involvement

Support from the community is vital for any successful hazard mitigation plan. The HMPT and planning committees provided opportunities, announced through public communication means, for public

participation and input throughout the planning process prior to this draft and before approval of the finalized plan. Advertisement and sign in sheets for these meetings are located in Appendix A.

- The first public meeting was held on November 2, 2021 at 2PM, and advertised on the Collin County website along with other jurisdictional websites inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to comment. The meeting was held virtually via WebEX.
- A second public meeting was held on January 12, 2022 at 9AM. Announcements were placed on jurisdictions websites, including Collin County inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to view and comment on the HazMAP prior to plan submission.

There were no comments directly related to the mitigation plan received from citizens, non-profits, businesses, academia, or interested parties; therefore, no feedback was incorporated. An additional opportunity for the public to comment on the plan will be held prior to formal plan adoption.
This provided all citizens, stakeholders, neighboring communities, agencies, businesses, academia, non-profit organizations, and all interested parties an opportunity to be involved in the planning process and to take part in the decisions making process that affect the future of the communities that they live in.

3. Jurisdictional Hazard Identification and Risk Assessment

The Hazard Mitigation Planning Team Committee for the City of Murphy identified several natural hazards and man-made hazards that could affect the city. The committee decided to focus on the natural hazards identified in Section 5 of this update. This was done after reviewing the 2016 HazMAP, the State of Texas Hazard Mitigation Plan, as well as other sources such as federal and state agencies. The hazards were ranked using the Priority Risk Index.

Priority Risk Index

A Priority Risk Index (PRI) was developed with the purpose of categorizing potential hazards for the City of Murphy and ranks each hazard as high, moderate, low, or negligible to no risk. The hazard classification generated through the use of the PRI allows for the prioritization of those high hazard risks for mitigation planning purposes, and more specifically, the identification of hazard mitigation opportunities for Collin County jurisdictions to consider as part of their proposed mitigation strategy.

The PRI is used to assist all jurisdictions participating in the Collin County HazMAP in determining which hazards pose the most significant threat based on a variety of factors. The PRI is not scientifically based, but is rather meant to be utilized as an objective and systematic planning tool for classifying and prioritizing hazard risks in Collin County based on standardized criteria. The PRI results in numerical values that allow identified hazards to be ranked against one another. The sum of all four categories equals the final PRI value, as shown below:

PRI Value = (Probability x .30) + (Life Impact x .35) + (Property Impact x .25) + (Spatial Extent x .10)

The higher the PRI value, the greater the hazards risk. These values were obtained by assigning varying degrees of risk to four categories for each hazard: Probability, Life Impact, Property Impact, and Spatial Extent *(Table 3.1).* Each category has been assigned an Index Value (0 to 3) and a Weighing Factor (0 – 100%). These values may be adjusted during future plan updates. In order to evaluate the risk of each hazard, the assigned PRI Value for each category is multiplied by the weighing factor. Then, the PRI for each hazard is calculated by adding the product obtained in each category. According to the weighing scheme applied for Collin County, the highest possible PRI value is 3.0. The PRI calculations are presented in *Table 3.2*. Table 3.1 breaks down the value of each category.

Table 3.1 Priority Risk Index Value

Assigned Weighing Factor	PRI Category	Degree of Risk		
			Criteria	Index Value
30%	Probability	Unlikely	Less than 1% annual probability	0
		Possible	Between 1 and 10% annual probability	1
		Likely	Between 10 and 100% annual probability	2
		Highly Likely	100% annual probability	3
35%	Life Impact	Minor	Very few injuries, if at all none	0
		Limited	Minor Injuries	1
		Critical	Multiple deaths/injuries	2
		Catastrophic	High number of deaths/injuries	3
25%	Property Impact	Minor	Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	0
		Limited	More than 10% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one day.	1
		Critical	More than 25% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one week.	2
		Catastrophic	More than 50% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for 30 days or more.	3
10%	Spatial Extent	Negligible	Less than 1% of area affected	0
		Small	Between 1 and 10% of area affected	1
		Moderate	Between 10 and 50% of area affected	2
		Large	Between 50 and 100% of area affected	3

Table 3.2 Priority Risk Index for the City of Murphy

Hazard	Category/Degree of Risk				
	Probability Index Value (0 - 3 30%)	Life Impact Index Value (0 - 3 35%)	Property Impact Index Value (0 - 3 25%)	Spatial Extent Index Value (0 - 3 10%)	PRI Value 2021
Dam Failure	0	0	0	0	0
Drought	2	0	1	3	1.15
Earthquake	0	1	0	1	0.45
Expansive Soils	2	0	0	1	0.7
Extreme Heat	2	1	0	2	1.15
Flooding	1	1	0	2	0.85
Hail	1	0	0	2	0.5
High Winds	1	0	1	2	0.75
Lightning	2	0	2	1	1.2
Tornado	1	0	0	1	0.4
Wildfire	1	0	0	1	0.4
Winter Storms	2	0	1.5	3	1.28

The conclusions drawn from the hazard profiling process for the City of Murphy, resulted in the classification of risk for each identified hazard according to four categories: High Risk, Moderate Risk, Low Risk, and Negligible to No Risk *(Table 3.3).* For purposes of these classifications, risk is expressed in relative terms according to the probability of occurrence and estimated impact that a hazard will have on human life and property in the City of Murphy.

Table 3.3 Hazard Ranking for the City of Murphy

High Risk (PRI 2 - 3)	
Moderate Risk (PRI 1.01 -1.9)	Extreme Heat Drought Winter Storms Lightning
Low Risk (PRI 0.50 – 1)	Expansive Soils Flooding Hail High Winds
Negligible to No Risk (PRI 0 – 0.49)	Wildfire Earthquake Dam Failure Tornado

Changes in Development and Priorities (Requirement §201.6(d) (3))

Our jurisdiction is in one of the fastest growing areas of the nation, hence development has increased and will continue to increase our vulnerability to hazards that may impact us.

Vulnerability Narratives

The natural hazards identified that were rated of negligible to no risk were not included in this plan. This annex therefore focuses on specific areas of vulnerability the City of Murphy faces with each hazard. The hazards identified earlier in the plan are all addressed in this annex.

Dam and Levee Failure A dam is defined as a barrier constructed across a watercourse for the purpose of storage, control, or diversion of water. Dams typically are constructed of earth, rock, concrete, or mine tailings. A dam failure is an accidental or unintentional collapse, breach, or other failure of an impoundment structure that results in downstream flooding. Because dams are man-made structures, dam failures are usually considered technological hazards. However, since most dam failures result from prolonged periods of rainfall, they are often cited as secondary or cascading effects of natural flooding disasters and are not named as the primary hazard that causes disaster declarations. The City of Murphy is not subject to dam failure because no Dams are located inside the city limits and the city is not vulnerable to a dam failure that might occur outside the city limits. As a participant in the county plan inundation studies will be considered.

Drought The City of Murphy is a moderate risk for drought Drought has the potential to impact the entire planning area equally; all improved property, emergency facilities, critical facilities, critical infrastructure, and the entire population of Murphy are vulnerable to this hazard. Foundations of all buildings are vulnerable; however, older structures, or those built under less stringent foundation code requirements are most vulnerable. The City of Murphy receives its water supply from the North Texas Municipal Water District (NTMWD). Restrictions sanctioned on the City of Murphy by the NTMWD caused by a drought affect local revenues significantly. The lack of water can also impact emergency responder capabilities in the form of firefighting efforts (not facilities). Lower income populations who may not have the resources to buy containerized water in the event of a shortage may be more vulnerable than other populations.

Earthquake An earthquake is a sudden motion or trembling caused by an abrupt release of accumulated strain on the tectonic plates that comprise the Earth's crust. The theory of plate tectonics holds that the Earth's crust is broken into several major plates. These rigid, 50- to 60- mile thick plates move slowly and continuously over the interior of the earth, meeting in some areas and separating in others. As the tectonic plates move together they bump, slide, catch, and hold. Eventually, faults along or near plate boundaries slip abruptly when the stress exceeds the elastic limit of the rock, and an earthquake occurs. The ensuing seismic activity and ground motion provoke secondary hazards: surface faulting, ground failure, and tsunamis. The vibration or shaking of the ground during an earthquake is referred to as ground motion. In general, the severity of ground motion increases with the amount of energy released and decreases with distance from the causative fault or epicenter. When a fault ruptures, seismic waves are propagated in all directions, causing the ground to vibrate at frequencies ranging from 0.1 to 30 Hz. Seismic waves are referred to as P waves, S waves, and surface waves. Due to the risk being associated to a distant quake, earthquakes may affect the entire planning area equally. Buildings constructed under older building codes, aging underground infrastructure, and roads are most vulnerable to damages from seismic activity.

There is no history of earthquakes occurring within the City of Murphy; however, there have been six (6) earthquake activity events between1997 – 2008. Those ranged from 27.3 miles to 96.7 miles away from the city center. There have also been hundreds of small earthquakes recently in North Texas possibly from the gas and oil industry drilling and disposal known as fracking. Venture companies continue to look for new drill sites in this general area.

The City of Murphy is a low risk for an earthquake. The most likely risk to a significant earthquake event is associated to either a distant larger quake which might occur in Missouri, Tennessee, or Oklahoma, though these earthquakes are probable to occur only once every 500 years.

Expansive Soils Expansive soils contain minerals such as “smectite” clays that are capable of absorbing water. When they absorb water they increase in volume. The more water they absorb the more their volume increases. Expansions of ten percent or more are not uncommon. This change in volume can exert enough force on a building or other structure to cause damage. Expansive soils will also shrink when they dry out. This shrinkage can remove support from buildings or other structures and result in damaging foundations. Fissures in the soil can also develop. These fissures can facilitate the deep penetration of water when moist conditions or runoff occurs. This produces a cycle of shrinkage and swelling that places repetitive stress on structures, especially those constructed under older building codes. The City of Murphy is a low risk for expansive soils.

Extreme Heat Extreme heat is characterized by a combination of a very high temperatures and exceptionally humid conditions. When persisting over a period of time, it is called a heat wave. Extreme heat can also be a factor that drastically impacts drought conditions as high temperatures lead to an increased rate of evaporation. Extreme heat can also lead to heat stroke and even death in vulnerable populations such as the homeless, elderly, very young, and populations without air conditioning if exposed to the high temperatures for an extended period of time. Extreme heat may affect the entire population equally.

The City of Murphy is a moderate risk of extreme heat. The City of Murphy has the potential during heat emergencies to exceed capabilities of our local hospitals and Emergency Medical System. Extreme heat happens regularly and often for extended periods of time during the June through September timeframe.

Flooding Flooding is defined as the accumulation of water within a water body and the overflow of excess water onto adjacent floodplain lands. The floodplain is the land adjoining the channel of a river, stream, ocean, lake, or other watercourse or water body that is susceptible to flooding. The statistical meaning of terms like “25-year storm” and “100-year flood” can be confusing. Simply stated, a floodplain can be located anywhere; it just depends on how large and how often a flood event occurs. Floodplains are those areas that are subject to inundation from flooding. Floods and the floodplains associated with them are often described in terms of the percent chance of a flood event happening in any given year. As a community management or planning term, “floodplain” most often refers to an area that is subject to inundation by a flood that has a one percent chance of occurring in any given year (commonly and incorrectly referred to as the 100-year floodplain). Common flooding hazards within the planning area include flood hazards from flash flooding and from new development.

A flash flood is a rapid flood that inundates low-lying areas in less than six hours. This is caused by intense rainfall from a thunderstorm or several thunderstorms. Flash floods can also occur from the

collapse of a man-made structure or ice dam. Construction and development can change the natural drainage and create brand new flood risks as new buildings, parking lots, and roads create less land that can absorb excess precipitation from heavy rains, hurricanes, and tropical storms. Flash floods are a high risk hazard since they can roll boulders, tear out trees, and destroy buildings and bridges.

The City of Murphy is a low risk for flooding. There are a few homes currently lying within a flood plain within the City of Murphy. A large creek system dissects the city basically in half and abuts approximately 30% of all neighborhood subdivisions. The city only houses one fire station. Emergency responses may be severely impacted when attempting to respond to the other side of the creek with flooding present.

Hail Hail occurs when, at the outgrowth of a severe thunderstorm, balls or irregularly shaped lumps of ice greater than 0.75 inches in diameter fall with rain. Early in the developmental stages of a hailstorm, ice crystals form within a low-pressure front due to warm air rising rapidly into the upper atmosphere and the subsequent cooling of the air mass. Frozen droplets gradually accumulate on the ice crystals until, having developed sufficient weight, they fall as precipitation. Hail may affect the entire planning area equally. Exposed populations, manufactured homes, and older properties are most vulnerable.

The City of Murphy is a low risk for hail. The City of Murphy covers a small area with a higher population ratio than the more rural areas in Collin County. All areas of the city are susceptible to hail damage. Damage in the city due to hail could result in a much higher loss due to density.

High Winds Wind is defined as the motion of air relative to the earth's surface. The horizontal component of the three-dimensional flow and the near-surface wind phenomenon are the most significant aspects of the hazard. Straight-line winds are often responsible for the wind damage associated with a thunderstorm. These winds are often confused with tornadoes because of similar damage and wind speeds. However, the strong and gusty winds associated with straight-line winds blow roughly in a straight line unlike the rotating winds of a tornado. Downbursts or micro-bursts are examples of damaging straight-line winds. A downburst is a small area of rapidly descending rain and rain-cooled air beneath a thunderstorm that produces a violent, localized downdraft covering 2.5 miles or less. Wind speeds in some of the stronger downbursts can reach 100 to 150 miles per hour, which is similar to that of a strong tornado. The winds produced from a downburst often occur in one direction, and the worst damage is usually on the forward side of the downburst. High winds may affect the entire planning area equally.

The City of Murphy typically has power outages, fires, damage to roofs, cars, out buildings, and electrical utilities due to high winds. These events create significant planning and recovery issues. The City of Murphy is a low risk for high winds. The City of Murphy has and encourages a high density of trees with the city limits. High winds create a lot of power outages due to tree limbs compromising such power lines and also creates a Significant vegetative debris is generated during high wind events that requires removal to keep roads passable.

Lightning Lightning results from the buildup and discharge of electrical energy between positively and negatively charged areas within thunderstorms. A "bolt" or brilliant flash of light is created when the buildup becomes strong enough. These bolts of lightning can be seen in cloud-to-cloud or cloud-to-ground strikes.

Bolts of lightning can reach temperatures approaching 50,000° Fahrenheit. While lightning is mostly affiliated with thunderstorms, lightning often strikes outside of these storms, as far as 10 miles away from any rainfall. Federal Emergency Management Agency states that an average of 300 people are injured

and 80 people are killed in the United States each year by lightning. Direct strikes have the power to cause significant damage to buildings, critical facilities, infrastructure, and ignition of wildfires which can result in widespread damages to property. Property without lightning protection and exposed populations are most vulnerable. The City of Murphy is a low risk for lightning.

Tornado A tornado is a violently rotating column of air, in contact with the ground, both pendant from a cumuliform cloud or underneath a cumuliform cloud, and often (but not always) visible as a condensation funnel. Tornadoes may affect the entire planning area equally, manufactured homes and exposed populations are most vulnerable.

The City of Murphy is a low risk for tornado activity. Tornados are likely to occur within the City of Murphy as they are within any other area in Collin County. Special issues concerning a tornado incident within the City are due to a population density of 3,596 per square mile. An additional concern is the vast numbers of large trees in the residential areas that could impact power lines and the restriction into areas needing assistance due to trees and limbs blocking roadways.

Wildland Fire Wildland fire is any fire occurring on grassland, forest, or prairie, regardless of ignition source, damages or benefits. Wildland fires are fueled almost exclusively by natural vegetation. They typically occur in national forests and parks, where federal agencies are responsible for fire management and suppression. Interface or intermix fires are urban/wildland fires in which vegetation and the built-environment provide fuel. Firestorms are events of such extreme intensity that effective suppression is virtually impossible. Firestorms occur during extreme weather and generally burn until conditions change or the available fuel is exhausted. Wildland fires affect the entire planning area equally. For the purposes of this hazard analysis, wildland fires are assessed under what is known as the Wildland Urban Interface (WUI). The WUI is an area of development that is susceptible to wildland fires due to the amount of structures located in an area with vegetation that can act a fuel for a wildland fire.

The City of Murphy is a low to moderate risk for wildland fire. 47.54% of Murphy's population lives in the Wildland Urban Interface which is predominately in the north and east sides of the city, according to the Texas Forest Service Wildfire Risk Assessment Summary.

Winter Storms Winter storms originate as mid-latitude depressions or cyclonic weather systems, sometimes following the path of the jet stream. A winter storm or blizzard combines heavy snowfall, high winds, extreme cold and ice storms. Many winter depressions give rise to exceptionally heavy rain and widespread flooding and conditions worsen if the precipitation falls in the form of snow. The winter storm season varies widely, depending on latitude, altitude and proximity to moderating influences. Winter storms affect the entire planning area equally. Cold snaps in which temperatures fall below the freezing point of 32° Fahrenheit do happen on an annual basis in the planning area and can lead to issues with infrastructure, especially frozen roads and bridges.

Winter storms affect the entire City of Murphy when they occur and have multiple impacts including, but not limited to travel, power, and exposure for the homeless, elderly, and populations without access to heat. With the potential for freezing precipitation, icing of roadways are of an utmost concern. These winter storms have the potential to make roads impassable for days. Residents may be confined to their homes due to the storm and may be without basic services, such as water and electricity, for an extended period of time. The city has two state highways, FM 544 and FM 2551 that can be impacted during winter storms. Areas impacted include local commerce, exceeding the capabilities of our local hospital, over

extending local capabilities to shelter stranded motorist. The City of Murphy serves as a cross connection point between IH 30 and US Highway 75 and is a major thoroughfare. The vehicle count for FM 544 alone is approximately 50,000 cars per day. With a very high tree population within the city; public works, fire and police departments are overwhelmed with the impacts caused by the loss of limbs associated with severe weather.

Identification of Assets and Vulnerability Assessment

An inventory of the City of Murphy geo-referenced assets was created in order to identify and characterize property and population potentially at risk to the identified hazards. By understanding the type and number of assets that exist and where they are located in relation to known hazard areas, the relative risk and vulnerability for such assets can be assessed. For this assessment, five categories of assets were evaluated using Geographic Information System and statistical analysis. The five categories of vulnerable assets include:

- **Population**: Includes the number of people residing in Collin County jurisdictions as delineated by the 2020 NCTCOG Population Estimates.
- **Improved property**: Includes all developed properties according to local parcel data from the Collin County Central Appraisal District. The information has been expressed in terms of the total assessed value of improvements that may be exposed to the identified hazards.
- **Emergency facilities**: Includes fire stations, police stations and hospitals, provided by the Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.
- **Critical facilities**: Includes schools and historic places provided by Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions. These are non-emergency facilities, but still provide critical services and functions for vulnerable sectors of the population.
- **Critical infrastructure**: Includes airports, natural gas facilities, wastewater facilities, potable water treatment facilities, wastewater treatment facilities, dams, and bridges. Data for all critical facilities was obtained from Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.

The following tables provide a breakdown by municipal jurisdiction of the geo-referenced assets that were used for the vulnerability assessment.

Population

According to the 2020 NCTCOG Population Estimates, the total population of the City of Murphy in 2020 was 20,500 people, with 6,179 households. The count breakdown by municipal jurisdiction is provided in *Table 3.4.*

Table 3.4 Population Counts

Jurisdiction	Population			Households		
	Population	% of County Total	Population Density (Sq. Mile)	Household	% of County Total	Household Density (Sq. Mile)
City of Murphy	20,500	1.98%	3,605.63	7,211	1.88%	1,269.59

Source: US Census Bureau & Collin County Appraisal District

Table 3.5 summarizes population counts and population chance (absolute and percent predications for the City of Murphy).

Table 3.5 Population Predictions

Jurisdiction	Population 2010 Census	Population 2018 Estimate	Population 2019 Estimate	Absolute Change 2013-2014	Percent (%) Change 2013-2014
City of Murphy	17,708	20,060	20,080	20	0.09%

Source: 2020 North Central Texas Council of Governments Population Estimate

Property

There are an estimated 7,077 parcels in the City of Murphy, with an estimated $2,065,761,767 in total assessed value of, *Table 3.6* lists the total number and percentage of parcels by jurisdiction.

Table 3.6 Parcel Counts and Improvements Value

Jurisdiction	Number of Parcels	% of County Total	Total Assessed Value of Improvements (Buildings)[1]
City of Murphy	7,077	1.68%	$2,065,761,767

Source: Collin County Appraisal District

Emergency Facilities

There are three identified emergency facilities in the City of Murphy, including one fire station, one police station, and no hospitals. *Table 3.7* presents the distribution of emergency facilities by jurisdiction. Geographic coordinates were used to determine the location of each facility.

Table 3.7 Emergency Facilities

Jurisdiction	Fire Stations	Police Stations	Hospitals
City of Murphy	1	1	1

Source: County Data and Regional Hazard Assessment Tool

Critical Facilities

There are five critical facilities, which are considered non-emergency in the City of Murphy. The critical facilities include five schools and zero historical property sites (*Table 3.8*). Geographic coordinates (i.e., latitude and longitude) were used to determine the location of each facility.

Table 3.8 Critical Facilities

Jurisdiction	Schools	Historical Property
City of Murphy	5	0

Source: Local jurisdictions

Critical Infrastructure

There are five identified critical infrastructure facilities in the City of Murphy, including no airports, no natural gas facilities, no water treatment facilities, no wastewater treatment facilities, no dams, and five railway/highway bridges (*Table 3.9*).

Table 3.9 Critical Infrastructure

Jurisdiction	Airports	Natural Gas Facilities	Wastewater Treatment Facilities	Potable Water Treatment Facilities	Dams	Railway/ Highway Bridges
City of Murphy	0	0	0	0	0	5

Source: Local jurisdictions

Methodology

Based on the type of information available for analysis, the City of Murphy's vulnerability assessment was conducted using two distinct methodologies, a Geographic Information System-based analysis and a statistical risk assessment methodology. Each approach provides estimates for the potential impact of hazards by using a common, systematic framework for evaluation of historical occurrence information provided by National Centers for Environmental Information, the Texas Forest Service, and the FEMA Resilience and Planning Tool. The results of the vulnerability assessment are provided by jurisdiction for each hazard analyzed.

Of the 12 hazards evaluated for the City of Murphy, four were analyzed using a Geographic Information System-based analysis, five using a statistical risk assessment methodology, and the remaining three hazards using a qualitative analysis. Qualitative analysis was used due to lack of information, the inability to define specific areas of risk, and/or inexistence of historical records. Additional information regarding these hazards is unattainable at the present time; studies to address this data deficiency are noted as action items in this update. *Table 3.10* summarizes the methodology used for each hazard.

Table 3.10 Analysis used for Vulnerability Assessment

Hazard	Geographic Information System-based Analysis	Statistical Analysis	Qualitative Analysis
Dam Failure			X
Drought	X		
Earthquake			X
Expansive Soils			X
Extreme Heat		X	

Flooding	X		
Hail	X		
High Winds		X	
Lightning		X	
Tornado		X	
Wildfire	X		
Winter Storms		X	

Summary of Vulnerably Assessment

A summary of the vulnerability assessment for each hazard using geographic and statistical analysis is presented in the following pages. The detailed assessment is presented in the following sections.

Summary Table 3.11

Drought	
Population	According to National Centers for Environmental Information (NCEI) zero (0) recorded injuries or fatalities have been recorded for drought events. There are no personal losses expected from drought events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Murphy are expected but financially unknown due to lack of accurate reporting. Historical data indicates that crop losses in the City of Murphy are expected mostly during water shortages, financially unknown due to lack of accurate reporting.
Emergency Facilities	Because of the nature of this hazard, no losses are expected on emergency facilities but foundation issues could occur due to drought events.
Critical Facilities	Because of the nature of this hazard, no losses are expected on critical facilities but foundation issues could occur due to drought events.
Critical Infrastructure	Because of the nature of this hazard, no losses are expected on critical infrastructure but foundation issues and road degradation could occur due to drought events.

Summary Table 3.12

Extreme Heat	
Population	According to National Centers for Environmental Information (NCEI), there were no fatalities recorded due to extreme heat from the City of Murphy. The City of Murphy and its population are vulnerable to this hazard.

Improved Property	According to National Centers for Environmental Information (NCEI), there is zero (0) impact of extreme heat to developed areas and the improved property in the City of Murphy; predominantly a residential community, is vulnerable to this hazard.
Emergency Facilities	According to National Centers for Environmental Information (NCEI), there is zero (0) impact of extreme heat to emergency facilities; however, there are two standalone emergency room facilities, one fire station, one police station and one animal shelter in the City of Murphy which are vulnerable to this hazard.
Critical Facilities	According to National Centers for Environmental Information (NCEI), there are zero (0) critical facilities; however, there are five school facilities in the City of Murphy which are vulnerable to this hazard.
Critical Infrastructure	According to National Centers for Environmental Information (NCEI) there is zero (0) impact of extreme heat to critical infrastructure, and exposure; however, there are four bridges within the City of Murphy and the risk is considered minimal..

Summary Table 3.13

Flooding	
Population	Flooding produces an expected annualized count of zero (0) fatalities and injuries per year. Approximately 185 residential parcels in the City of Murphy are located within the 100-year floodplain.
Improved Property	There have been six (6) recorded flood events in the City of Murphy. Property losses are expected at $23,573.70 per year however these values are underestimated due to lack of accurate reporting. No crop losses are expected or recorded county-wide. Approximately $65,866,390 of the total assessed value is at risk from the 100-year storm event.
Emergency Facilities	Emergency facilities have the potential to be as risk in the 100-year storm event.
Critical Facilities	Critical facilities have the potential to be as risk in the 100-year storm event.
Critical Infrastructure	Critical Infrastructure have the potential to be as risk in the 100-year storm event.

Summary Table 3.14

Hail	
Population	According to National Centers for Environmental Information (NCEI), no recorded injuries or fatalities have been recorded for hailstorm events. There are no personal losses expected from hailstorm events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Murphy are expected at $2,028.57 per year however these values are underestimated due to lack of accurate reporting. All improved property is vulnerable to this hazard. Although

	some crops are susceptible to hail hazards, available historical data for the City of Murphy indicates that there are no expected crop losses from this event.
Emergency Facilities	Because of the unpredictability of the geographical location of hailstorms, all emergency facilities in the City of Murphy are vulnerable to this hazard.
Critical Facilities	Because of the unpredictability of the geographical location of hailstorms, all critical facilities in the City of Murphy are vulnerable to this hazard.
Critical Infrastructure	Because of the unpredictability of the geographical location of hailstorms, all critical infrastructures in the City of Murphy are vulnerable to this hazard.

Summary Table 3.15

High Wind	
Population	According to National Centers for Environmental Information (NCEI), there are no recorded injuries or fatalities from high wind events. All the population of the City of Murphy is vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Murphy are expected at $785.71 per year however these values are underestimated due to lack of accurate reporting. No crop losses resulted from this hazard in the City of Murphy.
Emergency Facilities	Because of the expected geographical widespread nature of high winds, all emergency facilities in the City of Murphy are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of high winds, all critical facilities in the City of Murphy are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of high winds, all critical infrastructures in the City of Murphy are vulnerable to this hazard.

Summary Table 3.16

Lightning	
Population	According to National Centers for Environmental Information (NCEI), lightning events can be expected to cause no fatalities or injuries in City of Murphy. All the population of the City of Murphy is vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Murphy are expected at $14,791.67 per year

	however these values are underestimated due to lack of accurate reporting. Murphy is exposed to this hazard.
Emergency Facilities	Because of the expected geographical widespread nature of lightning, all emergency facilities in the City of Murphy are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of lightning, all critical facilities in the City of Murphy are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of lightning, all critical infrastructures in the City of Murphy are vulnerable to this hazard.

Summary Table 3.17

Tornado	
Population	According to National Centers for Environmental Information (NCEI), there have been no recorded injuries or fatalities from tornado events in the City of Murphy. All the population of the City of Murphy is exposed and vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), property losses in the City of Murphy are expected but unknown due to lack of accurate reporting. No crop losses are expected from this hazard in the City of Murphy.
Emergency Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all emergency facilities in the City of Murphy are exposed and vulnerable to this hazard.
Critical Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all critical facilities in the City of Murphy are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the impossibility to predict the geographical area of impact for tornados, all critical infrastructures in the City of Murphy are exposed and vulnerable to this hazard.

Summary Table 3.18

Wildfire	
Population	Based on geographical data, approximately 47.54% of the City of Murphy is vulnerable to wildfires. There have been no recorded injuries or fatalities due to wildfires.
Improved Property	Based on historical data, annual financial losses expected from property loss due to wildfires are unknown due to lack of accurate reporting; therefore, percentage of the overall property improvement values across the City of Murphy are also unknown.

Emergency Facilities	Based on geographic information there are 0 fire stations at risk from wildfire events.
Critical Facilities	Based on geographic information there are no schools at risk from wildfire events.
Critical Infrastructure	Based on geographic information there are 0 bridges, 0 dams, 0 wastewater treatment facility, and 0 water treatment facility at risk from wildfire events.

Summary Table 3.19

Winter Storm	
Population	According to National Centers for Environmental Information (NCEI), there was one (1) county-wide fatality recorded due to winter storms, none from the City of Murphy. All the population of the City of Murphy is exposed and vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Allen are expected but unknown due to lack of reporting however county-wide property loss is estimated at $116,250 per year. No crop losses are expected from this hazard in the City of Murphy. With significant ice storms for this area the City of Murphy is exposed and vulnerable to this hazard.
Emergency Facilities	Because of the expected geographical widespread nature of winter storms, all emergency facilities in the City of Murphy are exposed and vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of winter storms, all critical facilities in the City of Murphy are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of winter storms, all critical infrastructures in the City of Murphy are exposed and vulnerable to this hazard.

4. Capability Assessment

The risk assessment and capabilities assessment serves as the foundation for the development of a meaningful hazard mitigation strategy. During the process of identifying specific mitigation actions to pursue, the City of Murphy considered not only its level of hazard risk but also the existing capabilities to minimize or eliminate that risk.

Table 4.1 Legal and Regulatory Capability Summary

Legal and Regulatory Capabilities															
Jurisdiction	Building Code	Zoning Ordinance	Subdivision Ordinance or regulation	Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances wildfire ordinances, hazard setback requirements)	Growth management ordinances (also called "smart Growth" or anti-sprawl programs)	Site Plan review requirements	General or comprehensive plan	A capital improvements plan	An economic development plan	An emergency response plan	A post-disaster recovery plan	A post-disaster recovery ordinance	Real estate disclosure requirements	Other	% Yes per Jurisdiction
City of Murphy	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N	N	N	N	**64%**
Average % Yes Capabilities – 64%															
Y- Yes N- No ?- Don't Know															

Table 4.2 Administrative and Technical Capability Summary

Administrative and Technical Capabilities											
Jurisdiction	Planner(s) or engineer(s) with knowledge of land development and land management	Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Planners or engineer(s) with an understanding of natural and/or human caused hazards	Floodplain manager	Surveyors	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in GIS	Scientists familiar with the hazards of the community	Emergency manager	Grant writers	% Yes
City of Murphy	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	90%
Average % Yes Capabilities – 90%											
Y- Yes N- No ?- Don't Know											

Table 4.3 Fiscal Capability Summary

Fiscal Capabilities											
Jurisdiction	Community Development Block Grants (CDBG)	Capital improvements project funding	Authority to levy taxes for specific purposes	Fees for water, sewer, gas, or electric service	Impact fees for homebuyers or developers for new developments/homes	Incur debt through general obligation bonds	Incur debt through special tax bonds	Incur debt through private activity bonds	Withhold spending in hazard-prone areas	Other	% Yes
City of Murphy	N	Y	Y	Y	Y	Y	Y	N	N	N	**60%**
Average % Yes Capabilities – 60%											
Y- Yes N- No ?- Don't Know											

To quantify Collin County's legal and regulatory capabilities, administrative and technical, and fiscal capabilities, an overall rating system was administered for each category: limited (0-30%), moderate (31-70%), and strong (70-100%). Questionnaire responses indicated that on average, the City of Murphy has 64% of identified legal and regulatory capabilities, 90% of identified administrative and technical capabilities, and 60% of identified fiscal capabilities.

Table 4.4 Administrative Information

Jurisdiction	Chief Administrative Officer	Ability to Implement Capabilities
City of Murphy	City Manager	The city council, including the mayor, mayor pro-tem, and council members, along with the city manager, address the budget; pass laws, regulations, and codes; hire staff; approve plans; and determine the direction of the city overall. Ability to implement and approve mitigation actions and integrate mitigation into existing policies and programs is a function of this group.

Specific actions that can expand and improve existing capabilities, authorities, plans, policies, and resources for mitigation include: budgeting and passing policies and procedures, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates and additions to existing plans as new needs are recognized.

5. Mitigation Strategies

Based on the results of the risk and capability assessments, and reviews of the goals and objectives included in the 2021 HazMAP, the City of Murphy Hazard Mitigation Planning Committee developed mitigation strategies for the plan update.

Goal 1 **Reduce or eliminate loss of life, injuries and property damage resulting from severe weather events.**

Objective 1-A Provide adequate warning and communication before, during, and after a hazard event.
Objective 1-B Expand and coordinate Early Warning Systems currently in use.
Objective 1-C Reduce or eliminate loss of life and property damage from tornados through the construction and use of safe rooms or shelter areas.
Objective 1-D Reduce or eliminate loss of life and property damage from tornado, ice events, power outages and high winds through tree pruning practices.
Objective 1-E Reduce or eliminate loss of life and property damage from drought through urban interface practice due to wildfires.

Goal 2 **Protect existing and new properties from the effects of all natural hazards.**

Objective 2-A Conduct studies to determine hazard and vulnerability threat assessment for all natural hazards.
Objective 2-B Rehabilitate or retrofit identified high hazard critical infrastructure.
Objective 2-C Enact and enforce regulatory measures that enforce hazard mitigation measures.
Objective 2-D Construct enhancements or additions to current and new facilities which mitigate the effects of natural hazards.
Objective 2-E Maintain NFIP compliance, storm water management, and implement drainage projects.
Objective 2-F Provide ample supply of fuel for all city vehicles and public safety vehicles for emergency responses.

Goal 3 **Reduce losses and repetitive damages for chronic hazard events**.

Objective 3-A Conduct a hazard/vulnerability assessment of personal properties and structures located in flood zones within the City of Murphy.
Objective 3-B Develop and implement a buyout program for those personal properties and structures located in high hazard flood zones starting with those that are most vulnerable to life and property loss.
Objective 3-C Develop and execute new programs which identify and reduce threats from natural hazards.

Goal 4 **Develop public education campaigns to disseminate information about actions to mitigate potential loss of life, injuries and property damage resulting from natural hazards.**

Objective 4-A Educate the public on risks, threats, and vulnerability from all natural hazards.
Objective 4-B Educate the public on actions they can take to prevent or reduce the loss of life or property from all natural hazards.

Objective 4-C Develop and implement a community education campaign to heighten public awareness about chronic flooding and options for insurance coverage to protect their personal properties as well as long term benefits from a buyout program.

6. Action Items

Below is a list of action items identified for the HazMAP Update. Each of the actions in this section were prioritized based on FEMA's STAPLEE criteria, which includes considering the social, technical, administrative, political, legal, economic and environmental factors necessary for the implementation of each action. As part of the STAPLEE analysis, economic considerations were weighed for each action. The STAPLEE was used for the 2016 Plan along with the 2021 Update. Priority rankings are classified as indicated in the table below.

Priority	Description
High	Benefits of mitigating risk of death or severe bodily injury outweigh costs to implement actions rated as high priorities.
Medium	Reducing vulnerability to threats and the resulting improvement in quality of life and peace of mind are benefits for actions rated as medium priorities.
Low	Awareness of low risk/low impact hazards offer benefits of time to assess, plan and integrate low priority mitigation actions as time, need, and funding permit.

City of Murphy Deferred Items from 2016 Plan

City of Murphy Action Item	Increase the percentage of population covered by Outdoor Warning Sirens by relocating one siren and purchasing and installing an additional siren.
Hazard(s) Addressed	Tornado, High Winds, Hail
Goal/Objective	1-B
Priority	High
Estimated Cost	$38,000
Potential Funding Sources	HGMP, PDM, General Fund
Potential Matching Sources	Local funds, in-kind
Lead Department	Fire/OEM
Implementation Schedule	6-18 months
Effect on Old Buildings	N/A
Effect on New Buildings	N/A
Cost Effectiveness	Very cost effective. Quantifying the value of a human life is extremely difficult at best.
Discussion	The city has four tower sites currently, but has a gap in coverage in some areas. Relocating an existing site and adding one site would allow full coverage for the city and its residents.

Status	100% Complete

City of Murphy Action Item	Obtain portable generators to ensure continuity of operations at critical facilities.
Hazard(s) Addressed	Tornado, Wildfire, Winter Storm, Extreme Heat, High Winds, Flooding, Hail, Earthquake, Lightning, Dam Failure
Goal/Objective	1-E
Priority	High
Estimated Cost	$7,500 each
Potential Funding Sources	HGMP, HMA, General Fund
Potential Matching Sources	Local, In-kind
Lead Department	Fire
Implementation Schedule	3-6 Months
Effect on Old Buildings	Would require retrofit for generator hookups
Effect on New Buildings	N/A
Cost Effectiveness	Very cost effective
Discussion	Natural hazards can create power outages for extended periods of time.
Status	Not started and no longer a viable action item. Will be removed from Plan

City of Murphy Action Item	Purchase and Install CASA-WX Weather Radar
Hazard(s) Addressed	Tornado, High Winds, Hail
Goal/Objective	1-A, 1-B
Priority	High
Estimated Cost	$2.5 Million
Potential Funding Sources	HGMP, PDM, General Fund
Potential Matching Sources	Local funds, in-kind
Lead Department	Fire/OEM
Implementation Schedule	3-6 months
Effect on Old Buildings	N/A
Effect on New Buildings	N/A
Cost Effectiveness	Very cost effective. Quantifying the value of a human life is extremely difficult at best.
Discussion	The Collaborative Adaptive Sensing of the Atmosphere (CASA WX) project is a multi-sector partnership dedicated to engineering revolutionary weather-sensing networks. The more accurate data will

	also provide a better means to analyze severe weather post event which can also help in the assessment of damage after a severe weather event.
Status	No longer a viable project for Murphy, will be removed from Plan in 2021

City of Murphy Action Item	Implement the Residential Safe Room Rebate Program locally
Hazard(s) Addressed	Tornado, High Winds
Goal/Objective	1-C
Priority	Medium
Estimated Cost	$3,000 per safe room
Potential Funding Sources	HGMP, PDM, General Fund
Potential Matching Sources	Local funds, in-kind
Lead Department	City Council – City Manager
Implementation Schedule	1-3 years
Effect on Old Buildings	Some buildings may be modified for shelter retrofit
Effect on New Buildings	New home construction would result in safer houses
Cost Effectiveness	Moderate: Residential safe room shelters potentially decrease personal injuries and death during severe weather, tornados or high winds events.
Discussion	Support the existing active FEMA 320 safe room rebate program for North Central Texas by helping offset the cost to the resident.
Status	With the ending of the NCTCOG Saferoom Rebate Program this program is no longer a viable action item. Will be removed from Plan.

City of Murphy Action Item	Develop and implement seasonal program for identifying and removing tree limbs that threaten infrastructure.
Hazard(s) Addressed	Tornado, Wildfire, Winter Storm, High Winds, Lightning
Goal/Objective	1-D
Priority	Medium
Estimated Cost	$25,000
Potential Funding Sources	HGMP, General Fund
Potential Matching Sources	Local funds, in-kind
Lead Department	Parks
Implementation Schedule	3-6 Months

Effect on Old Buildings	Reduce potential for power line/debris/limb damage to existing buildings during extreme weather
Effect on New Buildings	Reduce potential for power line/debris/limb damage to new construction during extreme weather
Cost Effectiveness	Very cost effective in mitigating tree limbs prior to severe weather events.
Discussion	Severe storms, winter storms, and wildfires damage tree limbs and power lines that damage homes, buildings, vehicles and create power outages when they fall. Roads become impassable due to the obstructions created by the falling limbs and charged power lines as well. The ability to mitigate these overgrowth items and strategically located limbs will lessen the effects of the hazards.
Status	Completed

City of Murphy Action Item	Retrofit the existing Emergency Operations Center to harden it against multiple hazards
Hazard(s) Addressed	Tornado, Wildfire, Winter Storm, Extreme Heat, High Winds, Flooding, Expansive Soils, Hail, Drought, Earthquake, Lightning, Dam Failure
Goal/Objective	2-B
Priority	High
Estimated Cost	$30,000-$150,000
Potential Funding Sources	HGMP, PDM, HMA, General Fund
Potential Matching Sources	Local, In-kind, Bond
Lead Department	Public Works
Implementation Schedule	12 – 24 months
Effect on Old Buildings	Existing building would be retrofitted to mitigate against structure-impacting hazards.
Effect on New Buildings	N/A
Cost Effectiveness	Low cost effectiveness for construction, but very cost effective for 'command structure' to remain intact to operate through emergency events
Discussion	Dry floodproofing ground floor; reinforcing doors and windows; installing flame-retardant, hail and wind resistant external materials (window coatings, roofing); roof bracing; higher grade insulation; foundations stabilizers; lightning rods; soil stabilizing plants, and low-flow plumbing.
Status	Partially completed and will continue to perform enhancements. Will be included in 2021 Plan.

City of Murphy Action Item	Replace undersized culverts at five locations.

Hazard(s) Addressed	Flooding
Goal/Objective	2-A, 2-E
Priority	Moderate
Estimated Cost	$620,000
Potential Funding Sources	HGMP, PDM, HMA, General Fund
Potential Matching Sources	Local, in-kind, Bonds
Lead Department	Engineering
Implementation Schedule	1-2 years
Effect on Old Buildings	Reduce flooding for existing structures in area
Effect on New Buildings	Reduce flooding for planned construction in area
Cost Effectiveness	Very effective for the long term results gained
Discussion	Providing proper water flow and drainage during times of excessive rains is imperative. Improper water flow results in damage to roads, bridges and property; which may lead to injuries and deaths. These replacements will be for 5 separate projects that have been identified as insufficient.
Status	Mostly completed and will be included in 2021 Update

City of Murphy Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages

Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as provide other emergency and hazard information
Status	No longer a viable project for Murphy, will be removed from Plan in 2021

City of Murphy Action Item	Drainage channel improvements and additions.
Hazard(s) Addressed	Flooding
Goal/Objective	2-A, 2-E
Priority	Moderate
Estimated Cost	$3.11 Million
Potential Funding Sources	HGMP, PDM, HMA, General Fund
Potential Matching Sources	Local, in-kind, Bonds
Lead Department	Engineering
Implementation Schedule	12 – 18 Months
Effect on Old Buildings	Reduce flooding for existing structures in area
Effect on New Buildings	Reduce flooding for planned construction in area
Cost Effectiveness	Very effective for the long term results gained
Discussion	Providing proper water flow and drainage during times of excessive rains is imperative. Improper water flow results in damage to roads, bridges and property; which may lead to injuries and deaths. These replacements will be for 4 separate projects that have been identified as insufficient.
Status	Mostly completed and will be included in 2021 Update

City of Murphy Action Item	Purchase and install lightning detection equipment for city parks
Hazard(s) Addressed	Lightning
Goal/Objective	1-A
Priority	Moderate
Estimated Cost	$10,000
Potential Funding Sources	HGMP, PDM, General Fund
Potential Matching Sources	Local, in-kind
Lead Department	Public works
Implementation Schedule	12 months

Effect on Old Buildings	N/A
Effect on New Buildings	N/A
Cost Effectiveness	Very cost effective. Quantifying the value of a human life is extremely difficult at best.
Discussion	The city has two major parks with outdoor sporting event capabilities, pavilions and an amphitheater where multiple events are held throughout the year. Providing a secondary source of severe weather information such as lightning indication could prevent injury or death to one or more of our citizens or guests
Status	No longer a viable project. Will not be included in the 2021 Plan

City of Murphy Action Item	Develop and implement a water conservation plan
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	3-A
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Public Works
Implementation Schedule	12 - 18 months
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and protection of foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Promote water conservation and work with local water supplies to increase mitigation measures for drought. Develop and implement mandatory water restrictions/codes for water conservation measures that address soil stabilization.
Status	100% Completed

City of Murphy New 2021 Action Items

City of Murphy Action Item	Retrofit the existing Emergency Operations Center to harden it against multiple hazards
Hazard(s) Addressed	Tornado, Wildfire, Winter Storm, Extreme Heat, High Winds, Flooding, Expansive Soils, Hail, Drought, Earthquake, Lightning
Goal/Objective	2-B
Priority	High

Estimated Cost	$30,000-$150,000
Potential Funding Sources	HGMP, PDM, HMA, General Fund
Potential Matching Sources	Local, In-kind, Bond
Lead Department	Public Works
Implementation Schedule	12 – 24 months
Effect on Old Buildings	Existing building would be retrofitted to mitigate against structure-impacting hazards.
Effect on New Buildings	N/A
Cost Effectiveness	Low cost effectiveness for construction, but very cost effective for 'command structure' to remain intact to operate through emergency events
Discussion	Dry floodproofing ground floor; reinforcing doors and windows; installing flame-retardant, hail and wind resistant external materials (window coatings, roofing); roof bracing; higher grade insulation; foundations stabilizers; lightning rods; soil stabilizing plants, and low-flow plumbing.

City of Murphy Action Item	Replace undersized culverts at five locations.
Hazard(s) Addressed	Flooding
Goal/Objective	2-A, 2-E
Priority	Moderate
Estimated Cost	$620,000
Potential Funding Sources	HGMP, PDM, HMA, General Fund
Potential Matching Sources	Local, in-kind, Bonds
Lead Department	Engineering
Implementation Schedule	1-2 years
Effect on Old Buildings	Reduce flooding for existing structures in area
Effect on New Buildings	Reduce flooding for planned construction in area
Cost Effectiveness	Very effective for the long term results gained
Discussion	Providing proper water flow and drainage during times of excessive rains is imperative. Improper water flow results in damage to roads, bridges and property; which may lead to injuries and deaths. These replacements will be for 5 separate projects that have been identified as insufficient.

City of Murphy Action Item	Drainage channel improvements and additions.
Hazard(s) Addressed	Flooding
Goal/Objective	2-A, 2-E
Priority	Moderate
Estimated Cost	$2.91 Million
Potential Funding Sources	HGMP, PDM, HMA, General Fund
Potential Matching Sources	Local, in-kind, Bonds
Lead Department	Engineering
Implementation Schedule	12 – 18 Months
Effect on Old Buildings	Reduce flooding for existing structures in area
Effect on New Buildings	Reduce flooding for planned construction in area
Cost Effectiveness	Very effective for the long term results gained
Discussion	Providing proper water flow and drainage during times of excessive rains is imperative. Improper water flow results in damage to roads, bridges and property; which may lead to injuries and deaths. These replacements will be for 4 separate projects that have been identified as insufficient.
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Promote water conservation and work with local water supplies to increase mitigation measures for drought. Develop and implement mandatory water restrictions/codes for water conservation measures that address soil stabilization.

City of Murphy Action Item	Obtain fixed emergency building generators and complete the electrical wiring to retrofit the existing buildings for critical infrastructure buildings
Hazard(s) Addressed	Tornado, Wildfire, Winter Storm, Extreme Heat, High Winds, Flooding, Expansive Soils, Hail, Drought, Earthquake, Lightning
Goal/Objective	2-B, 2-D
Priority	High
Estimated Cost	$20,000
Potential Funding Sources	HGMP, PDM, HMA, General Fund
Potential Matching Sources	Local, in-kind
Lead Department	Public Works
Implementation Schedule	12-18 months
Effect on Old Buildings	Existing building would be retrofitted to prevent shutdown of building
Effect on New Buildings	N/A
Cost Effectiveness	Moderate
Discussion	Tornados, High winds, extreme heat and ice (winter storm) create power outages for extended periods of time. People become trapped in their

	homes without power for heating and cooling needs and other necessities for extended periods of time. These elements will provide electricity to the buildings and it will allow the critical components of the building to still operate. These structures would allow for them to serve as warming and cooling shelters

City of Murphy Action Item	Install fuel tanks, fuel pumps, roadway, and all appurtenances for city vehicle refueling needs during emergency responses.
Hazard(s) Addressed	Tornado, Wildfire, Winter Storm, Extreme Heat, High Winds, Flooding, Hail, Drought, Earthquake, Lightning
Goal/Objective	2-F
Priority	Moderate
Estimated Cost	$1.75 Million
Potential Funding Sources	HGMP, PDM, HMA, General Fund
Potential Matching Sources	Local, In-kind, Bond
Lead Department	Public Works
Implementation Schedule	12 – 24 months
Effect on Old Buildings	N/A
Effect on New Buildings	N/A
Cost Effectiveness	Very effective for the long-term results gained
Discussion	When fuel shortages result from local, state, or national events, we lose our may lose our ability to quickly respond to events. This would include not just traditional first responders, but also Public Works and others. Ensuring we maintain our own fuel and ability to fill up vehicles will help ensure we can mitigation events here in Murphy due to us having the ability to respond at all times.

City of Murphy Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	TBD
Potential Funding Sources	HGMP, PDM, HMA, General Fund
Potential Matching Sources	Local funds, in-kind, citizen cost share
Lead Department	Economic Development, Public Works
Implementation Schedule	2-4 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage

Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage
Cost Effectiveness	Moderate. This study could lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout the jurisdiction.

City of Murphy Action Item	Research and develop an urban interface wildfire program for residents
Hazard(s) Addressed	Drought
Goal/Objective	1-E
Priority	Moderate
Estimated Cost	$1000 - $5000
Potential Funding Sources	HGMP, PDM, HMA, General Fund
Potential Matching Sources	Local funds, in-kind, citizen cost share
Lead Department	Parks & Fire Department
Implementation Schedule	1-2 years
Effect on Old Buildings	Reduce property damage due to increased wildfire risk
Effect on New Buildings	Reduce property damage due to increased wildfire risk
Cost Effectiveness	Low-moderate cost for effective means to reduce wildfire risk
Discussion	Drought in general leads to an increased chance of wildfire. With most wildfire loss occurring in open undeveloped wildlands there is still a moderate chance of wildfire in smaller areas of developed urban areas of high population. Specific clearing of underbrush and debris near homes and businesses will reduce the property damages due to wildfire.

City of Murphy Action Item	Implement all-hazards community education program, including information on mitigation activities.
Hazard(s) Addressed	Tornado, Wildfire, Winter Storm, Extreme Heat, High Winds, Flooding, Expansive Soils, Hail, Drought, Earthquake, Lightning
Goal/Objective	4A- 4B
Priority	High
Estimated Cost	$1000 - $5000
Potential Funding Sources	HGMP, PDM, HMA, General Fund
Potential Matching Sources	Local funds, in-kind
Lead Department	Emergency Management
Implementation Schedule	2-4 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing buildings safer, stronger, and less vulnerable to damages by providing a qualitative understanding of hazards and how to mitigate them.
Effect on New Buildings	Depending on mitigation actions taken for structures, can make existing buildings safer, stronger, and less vulnerable to damages by

	providing a qualitative understanding of hazards and how to mitigate them.
Cost Effectiveness	Low-cost effectiveness for providing information to citizens to make good sound decisions based on current practices for mitigation.
Discussion	Community education is important for reducing loss of life and property.

City of Murphy Action Item	Continue to enhance mandatory water conservation measures
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	3-A
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Public Works
Implementation Schedule	12 - 18 months
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Promote water conservation throughout the county and work with localwater supplies to increase public education on drought. Develop and implement mandatory water restrictions for water conservation. When water is conserved and not used for landscape during droughts, this would provide water for homeowners to use, through drip irrigation, to keep their foundations at a consistent saturation level, mitigating the impacts of drought and lack of water.

National Flood Insurance Program (NFIP) Compliance

The City of Murphy is participating in the National Flood Insurance Program and has identified their respective areas as vulnerable to flooding. This is incorporated into all current and future planning for dealing with repetitive loss vulnerabilities.

Table 6.1 NFIP Compliance

CID	Community Name	County	Initial FHBM Identified	Initial FIRM Identified	Curr Eff Map Date	Reg-Emer Date	Tribal
480137#	MURPHY, CITY OF	COLLIN COUNTY	12/7/1973	4/1/1980	6/2/2009	4/1/1980	No

Source: http://www.fema.gov/cis/TX.html

Jurisdiction Compliance

Once the community applies for the NFIP, FEMA arranges for a study of the community to determine base flood elevations and flood risk zones. Consultation with the community occurs at the start of and during the study, and those communities with minimal flood risk are converted to the Regular Program without a study.

FEMA provides the studied community with a Flood Insurance Rate Map delineating base flood elevations and flood risk zones. The community is then given 6 months to adopt base flood elevations in its local zoning and building code ordinances. Once the community adopts more stringent ordinances, FEMA converts the community to the NFIP's Regular Program. FEMA then authorizes the sale of additional flood insurance in the community up to the Regular Program limits. The community must implement and enforce the adopted floodplain management measures. FEMA provides periodic community assistance visits with local officials to provide technical assistance regarding complying with NFIP floodplain management requirements.

Jurisdiction Activities

In order to maintain eligibility with NFIP, jurisdictions are required to maintain their list of properties that hold a policy with NFIP, along with up-to-date maps of the floodplains in the jurisdictions. Each jurisdiction participating in the Collin County Hazard Mitigation Action Plan completes this basic requirement and has the information on file with the jurisdiction's designated floodplain manager. Using this plan, participating jurisdictions will be able to continue their compliance with NFIP by implementing damage control measures and take action to minimize the effects of flooding in their respective jurisdictions.

Table 6.2 NIFP Activity

Jurisdiction	Community Floodplain Administrator	NFIP Activity	Activity Description	Enforcement
City of Murphy	City Manager	Maintain FEMA elevation certificates for pre-FIRM and or post-FIRM buildings	Permits are issued through the City Manager's Office. City of Murphy requires 2 feet of freeboard above the base flood elevation for the top of bottom floor on residential structures and non-residential structures that will be built on properties created or platted after the effective date of the Flood Damage Prevention Order	NFIP compliance is implemented and enforced through a process of floodplain identification using FEMA floodplain maps, permit issuance, building requirements, and compliance inspections pending approval. Failure to comply with City's flood damage prevention order shall result in fines up to $500 per violation plus court costs.
		Floodplain development permits	Permits are required for any construction in a floodplain.	
		Take action to minimize the effects of flooding on people, property, and building contents through measures including flood warning, emergency response, and evacuation planning	City of Murphy Street Department distributes barricades during times of flooding events.	
		Future Mitigation Projects	City of Murphy will continue to monitor for new areas of flooding that have not been previously identified for mitigation.	

7. Plan Maintenance

Monitoring, Evaluating and Updating the Plan

In Compliance with requirement § 201.6(c)(4)(i), Collin County has developed a plan maintenance process which is described in the following paragraphs. Collin County, along with participating jurisdictions are responsible for monitoring implementation of the plan, executing a yearly evaluation of its effectiveness, and updating the plan within a 5-year cycle.

Following formal adoption by the City of Murphy, the county, and the city council of each participating jurisdiction, the actions outlined in the Collin County Hazard Mitigation Action Plan (HazMAP) will be implemented by participating jurisdictions as described throughout this document.

The Collin County Emergency Management Coordinator, working in conjunction with the respective jurisdictions, will be responsible for ensuring the mitigation plan is monitored, evaluated, and reviewed on an annual basis. This will be accomplished by calling an annual meeting of the planning committee, whose members will provide assistance and expertise for plan review, evaluating, updating, and monitoring. This meeting will be open to the public and public notices will encourage community participation. During this annual meeting, The City of Murphy will provide information on the implementation status of each action included in the plan. As part of the evaluation, the planning committee will assess whether goals and objectives address current and expected conditions, whether the nature and/or magnitude of the risks have changed, if current resources are appropriate for implementing the plan, whether outcomes have occurred as expected, and if agencies and other partners participated as originally proposed. These activities will take place according to the timetable presented below:

Table 7.1 Plan Maintenance Timeline

Jurisdiction	Personnel	Activity	Time
City of Murphy	Fire Marshal	Monitoring Plan : Track implementation and action items, changes to risk assessment, changes to planning team members, changes to capabilities, plan integrations	Biannually
		Evaluate Plan: Assess effectiveness by evaluating completed actions, implementation processes, responsible personnel and lessons learned.	Annually
		Update Plan	Once every 5 years

At least once every five (5) years, or more frequently, if such a need is determined by the participating jurisdiction, the multi-jurisdictional plan will undergo a major update. During this process, all sections of the plan will be updated with current information, analyses done and new and/or modified mitigation action plans will be developed. The revised plan will be submitted for state and federal review and approval, and presented for approval to the Collin County Commissioner's Court and the respective councils of incorporated cities/towns included in the Collin County plan. Each participating jurisdiction will

undertake the same process for reviewing, revising and updating their respective plans and submitting them for approval. The plans will be updated every five years in accordance with federal requirements.

Plan Incorporation into Existing Planning Mechanisms *(In compliance with 201.6(c)(4)(ii))*

Based on the requirements set forth in § *201.6(c)(4(ii)*, the State of Texas Mitigation Plan, the vulnerability and capabilities assessment for each jurisdiction was carefully reviewed and considered when developing the mitigation actions for this plan. The HMPT and planning committees will establish a process in which the mitigation strategy, goals, objectives and actions outlined in this plan will be incorporated into the existing regional and local planning strategies.

Local and regional planning committees currently use comprehensive land use planning, capital improvements planning, and building code ordinances to guide development. The mitigation strategy, goals, objectives and actions outlined in this plan will be integrated into these existing mechanisms as applicable. Those mechanisms include the following:

Table 7.2 Plan Incorporation Mechanisms

Jurisdiction	Responsible Personnel	Jurisdictional Plans	Integration Schedule	Integration Plan
City of Murphy	City Council	Budget Meetings	Annually	Integration of mitigation projects identified in HazMAP, grants, and other fiscal allowances for mitigation actions and related costs
	Emergency Management Specialist	Emergency Action Plan updates	Every Five Year	EAP Mitigation annex updates based on HazMAP HIRA; update preparedness, response and recovery actions related to identified hazards
	Designated Floodplain Manager	Floodplain ordinances	As needed	Enhance mitigation of flood hazards using HazMAP flood data for floodplain management and community development.
	City Council, Director of Planning	Capital improvement plans	Annually	Strengthen critical infrastructure and key resources based on HazMAP hazard analysis, incorporate vulnerability data and action items.
	Public Works Director, City Council	Drought Contingency plans	Assessed annually and updated as needed.	Integrate drought actions such as xeriscaping, water restrictions, and public education
	Planning Director, City Council	Natural Resource Conservation Plan	Assessed annually and updated as needed.	Integrate conservation measures by directing development away from hazard-prone areas identified in HazMAP.

Although it is recognized there are many possible benefits to integrating components of this HazMAP into other planning mechanisms, the Murphy Hazard Mitigation Planning Team considers this HazMAP, including development and maintenance, to be the primary vehicles to ensure implementation of local hazard mitigation actions.

The process described here is the same as was used since the last planning update.

Continued Public Involvement (In compliance with 201.6(c)(4)(iii))

As stated in requirement § *201.6(c)(4)(iii)* The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.

To address this requirement, ongoing public participation will be encouraged throughout the entire planning and implementation process. A copy of the plan will be provided on the Collin County website. The planning team and committee will continue meeting on a regular basis to ensure the successful implementation of the plan and to discuss any additional issues regarding the emergency management of Collin County. The annual meetings for monitoring, evaluating, and updating the plan will be open to the public and public notices will encourage community participation.

Annex O: Town of New Hope

1. Introduction

This annex was prepared in 2020-2021 as part of an update to the Collin County Multi-Jurisdictional Hazard Mitigation Action Plan. The Town of New Hope participated on the Collin County Hazard Mitigation Planning Team (HMPT). The New Hope annex contains information specific to the town, including capability assessment information, vulnerability assessments, and a complete mitigation strategy. The methodology and process for developing this annex are explained throughout the following sections.

2. Plan Development and Adoption Process

In order to apply for federal aid for technical assistance and post-disaster funding, local jurisdictions must comply with Part 201.3 of the Disaster Mitigation Act of 2000 implemented in the Federal Code of Regulations 44 CRF Part 201.6. While the Town of New Hope has historically implemented measures to reduce their vulnerability to hazards, passage of DMA 2000 helped New Hope officials recognize the benefits of a long-term approach to hazard mitigation, which achieves a gradual decrease of impacts associated through the implementation of a Hazard Mitigation Plan. Collin County's Hazard Mitigation Action Plan represents the collective efforts of all participating jurisdictions, the general public, and stakeholders.

Organizing the Planning Effort

A comprehensive county approach was taken in developing the plan. An open public involvement process was established for the public, neighboring communities, regional agencies, businesses, academia, etc. to provide opportunities for everyone to become involved in the planning process and to make their views known. The meetings were advertised with notices in public places and the local newspaper.

In accordance with Part 201.6(c)(5) of the Disaster Mitigation Act of 2000 (DMA 2000), the Town of New Hope developed this Hazard Mitigation Action Plan. This plan identifies hazards and mechanisms to minimize future damages associated with these hazards, which threaten Collin County and its jurisdictions.

Existing Data and Plans

Existing hazard mitigation information and other plans were reviewed during the development of the Hazard Mitigation Action Plan. GIS, statistical and qualitative data was gathered through numerous sources. The table below outlines the sources of data for the plan:

Table 2.1 Plan Source Data

Source	Data
City and County Appraisal Data 2020	Population and demographics
Regional Hazard Assessment Tool	Hazard occurrences
National Climatic Data Center (NCDC)	Hazard occurrences
Texas Forest Service/Texas Wildfire Risk Assessment Summary Report	Wildfire Threat and Urban Interface

National Inventory of Dams	Dam Information

Planning Committee

This Hazard Mitigation Action Plan was developed by the Town of New Hope Hazard Mitigation Planning Committee, with support of the North Central Texas Council of Governments and in conjunction with the Collin County HMPT. The efforts of the Planning Committee were led by the Mayor.

The Collin County HMPT was assembled in June 2020 with representatives from participating jurisdiction planning committees, including mayors, police chiefs, fire chiefs, and the general public. Collin County acted as the plan development consultant providing hazard mitigation planning services. The efforts of the planning committee were led by the mayor of New Hope. The table below provides a list of the primary representatives on the New Hope planning committee.

Table 2.2 Hazard Mitigation Committee – Primary Representatives

Representing	Position	Role
Town Council	Mayor	Plan Development
Town Council	Council Members	Plan Development

Collin County served as the coordinator and lead agency for all jurisdictions by accomplishing the following activities through the planning process:

- Assigned the County's Assistant Emergency Management Coordinator to provide technical assistance and necessary data to the planning committee.
- Scheduled, coordinated, and facilitated community meetings with the assistance of the HMPT and the planning committees.
- Provided any necessary materials, handouts, etc. for public planning meetings.
- Worked with the HMPT and planning committees to collect and analyze data and develop goals and implementation strategies.
- Prepared, based on community input and planning team/committee direction, the first draft of the plan and provided technical writing assistance for review, editing and formatting.
- Coordinated with the stakeholders within the jurisdictions and the unincorporated areas of Collin County during plan development.

Each of the individual jurisdictions participated in accomplishing similar activities associated with development of the plan as follows:

- Coordinated input from representatives of neighborhood stakeholder groups and provided a representative to the County HMPT.
- Attended regular meetings of the planning team as coordinated by Collin County.
- Assisted Collin County staff with identifying hazards and estimating potential losses from future hazard events.
- Assisted Collin County in developing and prioritizing mitigation actions to address the identified risks.
- Assisted Collin County in coordinating public meetings to develop the plan.
- Identified the community resources available to support the planning effort.
- Worked for the support of neighborhood stakeholders for the recommendations resulting from the planning process.

- Submitted the proposed plan to all appropriate departments for review and comment and worked with Collin County to incorporate the resulting comments into the proposed plan.

External stakeholders involved in reviewing the Collin County Hazard Mitigation Action Plan:

Table 2.3 External Stakeholders

Representing	Position	Role
Collin County	Assistant Emergency Management Coordinator	General Assistance

Subsequent to the State of Texas and FEMA approval of the plan, each jurisdiction also is committed to accomplishing the following activities:

- Appoint members to a coordinating committee to monitor and work toward plan implementation.
- Publicize the plan to neighborhood interests and ensure that new community members are aware of the plan and its contents.
- Monitor progress in achieving the plan's goals through regular maintenance and implementation projects.

Planning Meetings

During the planning process, the HMPT met to obtain relevant information from the participating jurisdictions and to discuss the objectives and progress of the plan. The objectives of these meetings were to gather information and to provide guidance for each jurisdiction throughout the planning stages.

The following meetings were held by Collin County:

- Collin County HazMAP Kickoff Meeting – November 5, 2020
- Collin County HazMAP Public Meeting – 11/2/2021 at 2PM
- Collin County HazMAP Public Meeting – 01/12/2022 at 9AM

Public Involvement

Support from the community is vital for any successful hazard mitigation plan. The HMPT and planning committee provided opportunities, announced through public communication means, for public participation and input throughout the planning process prior to this draft and before approval of the finalized plan. Advertisement and sign in sheets for these meetings are located in Appendix A.

- The first public meeting was held on November 2, 2021 at 2PM, and advertised on the Collin County website along with other jurisdictional websites inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to comment. The meeting was held virtually via WebEX.
- A second public meeting was held on January 12, 2022 at 9AM. Announcements were placed on jurisdictions websites, including Collin County inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to view and comment on the HazMAP prior to plan submission.

There were no comments directly related to the mitigation plan received from citizens, non-profits, businesses, academia, or interested parties; therefore, no feedback was incorporated. An additional opportunity for the public to comment on the plan will be held prior to formal plan adoption. This provided all citizens, stakeholders, neighboring communities, agencies, businesses, academia, non-profit organizations, and all interested parties an opportunity to be involved in the planning process and to take part in the decisions making process that affect the future of the communities that they live in.

3. Jurisdictional Hazard Identification and Risk Assessment

The Hazard Mitigation Planning Committee for the Town of New Hope identified several hazards that could affect the town. The committee decided to focus on the natural hazards identified on pages O-9 through O-10 of this update. This was done after reviewing the 2016 HazMAP, the State of Texas Hazard Mitigation Plan, as well as other sources such as federal and state agencies. The hazards were ranked using the Priority Risk Index.

Priority Risk Index

A Priority Risk Index (PRI) was developed with the purpose of categorizing potential hazards for the Town of New Hope and ranks each hazard as high, moderate, low, or negligible to no risk. The hazard classification generated through the use of the PRI allows for the prioritization of those high hazard risks for mitigation planning purposes, and more specifically, the identification of hazard mitigation opportunities for Collin County jurisdictions to consider as part of their proposed mitigation strategy.

The PRI is used to assist all jurisdictions participating in the Collin County HazMAP in determining which hazards pose the most significant threat based on a variety of factors. The PRI is not scientifically based, but is rather meant to be utilized as an objective and systematic planning tool for classifying and prioritizing hazard risks in Collin County based on standardized criteria. The PRI results in numerical values that allow identified hazards to be ranked against one another. The sum of all four categories equals the final PRI value, as shown below:

PRI Value = (Probability x .30) + (Life Impact x .35) + (Property Impact x .25) + (Spatial Extent x .10)

The higher the PRI value, the greater the hazards risk. These values were obtained by assigning varying degrees of risk to four categories for each hazard: Probability, Life Impact, Property Impact, and Spatial Extent *(Table 3.1).* Each category has been assigned an Index Value (0 to 3) and a Weighing Factor (0 – 100%). These values may be adjusted during future plan updates. In order to evaluate the risk of each hazard, the assigned PRI Value for each category is multiplied by the weighing factor. Then, the PRI for each hazard is calculated by adding the product obtained in each category. According to the weighing scheme applied for Collin County, the highest possible PRI value is 3.0. The PRI calculations are presented in *Table 3.2*. Table 3.1 breaks down the value of each category.

Table 3.1 Priority Risk Index Value

Assigned Weighing Factor	PRI Category	Degree of Risk		
			Criteria	Index Value
30%	Probability	Unlikely	Less than 1% annual probability	0
		Possible	Between 1 and 10% annual probability	1
		Likely	Between 10 and 100% annual probability	2
		Highly Likely	100% annual probability	3
35%	Life Impact	Minor	Very few injuries, if at all none	0
		Limited	Minor Injuries	1
		Critical	Multiple deaths/injuries	2
		Catastrophic	High number of deaths/injuries	3
25%	Property Impact	Minor	Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	0
		Limited	More than 10% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one day.	1
		Critical	More than 25% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one week.	2
		Catastrophic	More than 50% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for 30 days or more.	3
10%	Spatial Extent	Negligible	Less than 1% of area affected	0
		Small	Between 1 and 10% of area affected	1
		Moderate	Between 10 and 50% of area affected	2
		Large	Between 50 and 100% of area affected	3

Table 3.2 Priority Risk Index for the Town of New Hope

Hazard	Category/Degree of Risk				
	Probability Index Value (0 - 3 30%)	Life Impact Index Value (0 - 3 35%)	Property Impact Index Value (0 - 3 25%)	Spatial Extent Index Value (0 - 3 10%)	PRI Value 2021
Dam Failure	0	1	0	0	0.35
Drought	1	0	0	0	0.3
Earthquake	0	0	0	2	0.2
Expansive Soils	1	0	0	1	0.4
Extreme Heat	2	1	0	2	1.15
Flooding	1	0	0	1	0.4
Hail	2	1	0	2	1.15
High Winds	2	0	0	1	0.7
Lightning	2	0	0	0	0.6
Tornado	2	2	2	1	1.9
Wildfire	1	1	1	1	1
Winter Storms	2	1	2	3	1.75

The conclusions drawn from the hazard profiling process for Collin County jurisdictions, resulted in the classification of risk for each identified hazard according to four categories: High Risk, Moderate Risk, Low Risk, and Negligible to No Risk *(Table 3.3).* For purposes of these classifications, risk is expressed in relative terms according to the probability of occurrence and estimated impact that a hazard will have on human life and property in Collin County.

Table 3.3 Hazard Rankings for the Town of New Hope

High Risk (PRI 2 - 3)	
Moderate Risk (PRI 1.01 -1.9)	Tornado Winter Storms Extreme Heat Hail
Low Risk (PRI 0.50 – 1)	High Winds Lightning Wildfire
Negligible to No Risk (PRI 0 – 0.49)	Earthquake Dam Failure Drought Expansive Soils Flooding

Changes in Development and Priorities (Requirement §201.6(d) (3))

Our jurisdiction is in one of the fastest growing areas of the nation, hence development has increased and will continue to increase our vulnerability to hazards that may impact us.

Vulnerability Narratives

This annex focuses on specific areas of vulnerability the Town of New Hope faces with each hazard. The hazards identified in the main plan are all addressed in this annex, therefore the natural hazards rated negligible to no risk are included, described, and considered for mitigation.

Dam and Levee Failure As a participant in the county plan inundation studies will be considered. There are currently no dams in or immediately surrounding New Hope.

Drought Droughts have the potential to impact the entire planning area equally: all improved property and the entire population of New Hope are vulnerable to this hazard. Foundations of all buildings are vulnerable; however, older structures, or those built under less stringent foundation code requirements are most vulnerable. North Texas Municipal Water District (NTMWD) is the source of water for the Town of New Hope, and NTMWD's water sources and reservoirs are vulnerable to drought. In turn, the city's population, wildlife and vegetation are vulnerable. Lower income populations who may not have the resources to buy containerized water in the event of a shortage may be more vulnerable than other populations.

Earthquake Earthquakes have the potential to occur anywhere in the geographic planning area, therefore all geographic areas are potentially vulnerable. Buildings constructed under older building codes, aging underground infrastructure, and roads are most vulnerable to damages from seismic activity.

Expansive Soils All the geographic areas and properties in the Town of New Hope have the potential to be vulnerable to expansive soils, especially properties constructed under older building codes. Expansive soils are not a prevalent hazard in New Hope.

Extreme Heat Extreme heat generally affects the entire population, but the homeless, very young, elderly, and populations without air conditioning are most vulnerable.

Flooding Geographic areas, properties, and populations in the Town of New Hope have the potential to be vulnerable to flooding. Areas around Big Branch Creek are vulnerable to flooding and roadways with poor drainage are vulnerable to flash flooding.

Hail All the geographic areas, properties, and populations in the Town of New Hope have the potential to be vulnerable to hail. Exposed populations, manufactured homes, and older properties are most vulnerable.

High Winds High winds have the potential to damage trees in the Town of New Hope. Because roads and houses in New Hope are surrounded by large trees, high winds have the potential to block roads and damage houses. Manufactured homes and exposed populations are most vulnerable.

Lightning All the geographic areas, properties, and populations in the Town of New Hope have the potential to be vulnerable to lightning. Buildings without lightning protection and exposed populations are most vulnerable.

Tornado All the geographic areas, properties, and populations in the Town of New Hope have the potential to be vulnerable to tornados. Manufactured homes and exposed populations are most vulnerable.

Wildland Fire 91.43% of the population of the Town of New Hope lives in the Wildland/Urban Interface. Both the east and west side of New Hope are vulnerable to wildland fires because of their WUI and because of their distance from a main highway (Hwy 380).

Winter Storms Winter storms are a significant threat to the Town of New Hope. These winter storms have the potential to make roads impassable for days. Residents may be confined to their homes due to the storm and may be without basic services, such as water and electricity, for an extended period of time. New Hope residents live a distance from major stores and may be unable to buy supplies in the event of a prolonged storm or power outage.

Identification of Assets and Vulnerability Assessment

An inventory of unincorporated Collin County geo-referenced assets was created in order to identify and characterize property and population potentially at risk to the identified hazards. By understanding the type and number of assets that exist and where they are located in relation to known hazard areas, the relative risk and vulnerability for such assets can be assessed. For this assessment, five categories of assets were evaluated using Geographic Information System and statistical analysis. The five categories of vulnerable assets include:

- **Population**: Includes the number of people residing in Collin County jurisdictions as delineated by U.S. Census Bureau Annual Estimates of the Resident Population for Incorporated Places: April 1, 2010 to July 1, 2019.
- **Improved property**: Includes all developed properties according to local parcel data from the Collin County Central Appraisal District. The information has been expressed in terms of the total assessed value of improvements that may be exposed to the identified hazards.
- **Emergency facilities**: Includes fire stations, police stations and hospitals, provided by the Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.
- **Critical facilities**: Includes schools, Town Halls, and historic places provided by Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions. These are non-emergency facilities, but still provide critical services and functions for vulnerable sectors of the population. The New Hope Town Hall could act as an Emergency Operations Center (EOC) in the event of a major emergency or disaster.
- **Critical infrastructure**: Includes airports, natural gas facilities, wastewater facilities, potable water treatment facilities, wastewater treatment facilities, dams, and bridges. Data for all critical infrastructure was obtained from Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.

The following tables provide a breakdown by municipal jurisdiction of the geo-referenced assets that were used for the vulnerability assessment.

Population

According to the *US Census Bureau Annual Estimates of the Resident Population for Incorporated Places: April 1, 2010 to July 1, 2019*, the total population of the Town of New Hope in 2019 was 628 people, with 276 households. The count breakdown by municipal jurisdiction is provided in *Table 3.4.*

Table 3.4. New Hope Population Counts

Jurisdiction	Population			Households		
	Population	% of County Total	Population Density (Sq. Mile)	Household	% of County Total	Household Density (Sq. Mile)
Town of New Hope	628	0.06	436.11	276	0.09	191.67

Source: 2020 NCTCOG Population Estimate and US Census Bureau Annual Estimates of the Resident Population for Incorporated Places: April 1, 2010 to July 1, 2019 & Collin County Appraisal District

Table 3.5 summarizes population counts and population chance (absolute and percent predications for the Town of New Hope).

Table 3.5 Population Predictions

Jurisdiction	Population 2010 Census	Population 2018 Estimate	Population 2019 Estimate	Absolute Change 2018-2019	Percent (%) Change 2018-2019
Town of New Hope	614	633	628	-5	-0.79%

Source: 2010 Census Data & US Census Bureau Annual Estimates of the Resident Population for Incorporated Places: April 1, 2010 to July 1, 2019

Property

There are an estimated 380 parcels in the Town of New Hope, with an estimated $55,290,291 in total assessed value of, *Table 3.6* lists the total number and percentage of parcels by jurisdiction.

Table 3.6 Parcel Counts and Improvements Value

Jurisdiction	Number of Parcels	% of County Total	Total Assessed Value of Improvements (Buildings)[1]
Town of New Hope	380	0.10%	$55,290,291

Source: Collin County Appraisal District

Emergency Facilities

There are zero identified emergency facilities in the Town of New Hope*(Table 3.*7).

Table 3.7 Emergency Facilities

Jurisdiction	Fire Stations	Police Stations	Hospitals
Town of New Hope	0	0	0

Source: FEMA Resilience and Planning Tool

Critical Facilities

There is one identified critical facility in the Town of New Hope *(Table 3.8)*.

Table 3.8 Critical Facilities

Jurisdiction	Schools	Town Hall	Historical Property
Town of New Hope	0	1	0

Source: FEMA Resilience and Planning Tool & Local jurisdictions

Critical Infrastructure

There are zero identified critical infrastructure facilities in the Town of New Hope (*Table 3.9*).

Table 3.9 Critical Infrastructure

Jurisdiction	Airports	Natural Gas Facilities	Wastewater Treatment Facilities	Potable Water Treatment Facilities	Dams	Railway/ Highway Bridges
Town of New Hope	0	0	0	0	0	0

Source: Local jurisdictions

Methodology

Based on the type of information available for analysis, the Town of New Hope's vulnerability assessment was conducted using two distinct methodologies, a Geographic Information System-based analysis and a statistical risk assessment methodology. Each approach provides estimates for the potential impact of hazards by using a common, systematic framework for evaluation of historical occurrence information provided by National Centers for Environmental Information, the Texas Forest Service, and the FEMA Resilience and Planning Tool. The results of the vulnerability assessment are provided by jurisdiction for each hazard analyzed.

Of the 12 hazards evaluated for the Town of New Hope, four were analyzed using a Geographic Information System-based analysis, five using a statistical risk assessment methodology, and the remaining three hazards using a qualitative analysis. Qualitative analysis was used due to lack of information, the inability to define specific areas of risk, and/or inexistence of historical records. Additional information regarding these hazards is unattainable at the present time; studies to address this data deficiency are noted as action items in this update. Table 3.10 summarizes the methodology used for each hazard.

Table 3.10 Analysis used for Vulnerability Assessment

Hazard	Geographic Information System-based Analysis	Statistical Analysis	Qualitative Analysis
Dam Failure			X
Drought	X		
Earthquake			X
Expansive Soils			X
Extreme Heat		X	
Flooding	X		
Hail	X		
High Winds		X	
Lightning		X	
Tornado		X	
Wildfire	X		
Winter Storms		X	

Summary of Vulnerably Assessment

A summary of the vulnerability assessment for each hazard using geographic and statistical analysis is presented in the following pages. The detailed assessment is presented in the following sections.

Summary Table 3.11

Drought	
Population	According to National Centers for Environmental Information (NCEI) no recorded injuries or fatalities have been recorded for drought events. There are no personal losses expected from drought events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the Town of New Hope are expected but financially unknown due to lack of accurate reporting. Historical data indicates that crop losses in the Town of New Hope are expected mostly during water shortages, financially unknown due to lack of accurate reporting.
Emergency Facilities	There are no emergency facilities located within the Town of New Hope. Therefore, no emergency facilities are at risk.

Critical Facilities	Because of the nature of this hazard, no losses are expected on critical facilities, but foundation issues could occur due to drought events.
Critical Infrastructure	There is no critical infrastructure located within the Town of New Hope. Therefore, no critical infrastructure is at risk.

Summary Table 3.12

Extreme Heat	
Population	According to National Centers for Environmental Information (NCEI), there were no fatalities recorded due to extreme heat from the Town of New Hope. The Town of New Hope and its population are vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to developed areas and the improved property in the Town of New Hope is not vulnerable to this hazard.
Emergency Facilities	There are no emergency facilities located within the Town of New Hope. Therefore, no emergency facilities are at risk.
Critical Facilities	According to the National Centers for Environmental Information (NCEI), there is no impact of extreme heat to buildings, and the critical facilities in the Town of New Hope are not vulnerable to this hazard.
Critical Infrastructure	There is no critical infrastructure located within the Town of New Hope. Therefore, no critical infrastructure is at risk.

Summary Table 3.13

Flooding	
Population	Flooding produces an expected annualized count of zero (0) fatalities and injuries per year. Portions of two (2) residential parcels in the Town of New Hope are located within the 100-year floodplain.
Improved Property	Property losses in the Town of New Hope are expected but financially unknown due to lack of accurate reporting. No crop losses are expected or recorded county-wide. Approximately $194,858 of the total assessed value is at risk from the 100-year storm event
Emergency Facilities	There are no emergency facilities located within the Town of New Hope. Therefore, no emergency facilities are at risk.
Critical Facilities	Critical facilities have the potential to be at risk in a 100 year storm event.

Critical Infrastructure	There is no critical infrastructure located within the Town of New Hope. Therefore, no critical infrastructure is at risk.

Summary Table 3.14

Hail	
Population	According to National Centers for Environmental Information (NCEI), no recorded injuries or fatalities have been recorded for hailstorm events. There are no personal losses expected from hailstorm events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the Town of New Hope are expected but unknown due to lack of accurate reporting. All improved property is vulnerable to this hazard. Although some crops are susceptible to hail hazards, available historical data indicates that there are no expected crop losses from this event.
Emergency Facilities	There are no emergency facilities located within the Town of New Hope. Therefore, no emergency facilities are at risk.
Critical Facilities	Because of the unpredictability of the geographical location of hailstorms, all critical facilities in the Town of New Hope are vulnerable to this hazard.
Critical Infrastructure	There is no critical infrastructure located within the Town of New Hope. Therefore, no critical infrastructure is at risk.

Summary Table 3.15

High Wind	
Population	According to National Centers for Environmental Information (NCEI), there are no recorded injuries or fatalities from high wind events county-wide. All the population of the Town of New Hope is vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the Town of New Hope are expected but unknown due to lack of accurate reporting. Minimal crop losses resulted from this hazard county-wide with none reported from the Town of New Hope.
Emergency Facilities	There are no emergency facilities located within the Town of New Hope. Therefore, no emergency facilities are at risk.
Critical Facilities	Because of the expected geographical widespread nature of high winds, all critical facilities in the Town of New Hope are vulnerable to this hazard.
Critical Infrastructure	There is no critical infrastructure located within the Town of New Hope. Therefore, no critical infrastructure is at risk.

Summary Table 3.16

Lightning	
Population	According to National Centers for Environmental Information (NCEI), lightning events can be expected to cause no fatalities or injuries. All the population of the Town of New Hope is vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the Town of New Hope are expected but unknown due to lack of reporting. No crop losses resulted from this hazard county-wide with none reported from the Town of New Hope.
Emergency Facilities	There are no emergency facilities located within the Town of New Hope. Therefore, no emergency facilities are at risk.
Critical Facilities	Because of the expected geographical widespread nature of lightning, all critical facilities in the Town of New Hope are vulnerable to this hazard.
Critical Infrastructure	There is no critical infrastructure located within the Town of New Hope. Therefore, no critical infrastructure is at risk.

Summary Table 3.17

Tornado	
Population	According to National Centers for Environmental Information (NCEI), there have been no recorded injuries or fatalities from tornado events in the Town of New Hope. All the population of the Town of New Hope is exposed and vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the Town of New Hope are expected but financially unknown due to lack of reporting. No crop losses resulted from this hazard county-wide with none reported from the Town of New Hope.
Emergency Facilities	There are no emergency facilities located within the Town of New Hope. Therefore, no emergency facilities are at risk.
Critical Facilities	Because of the impossibility to predict the geographical area of impact for tornadoes, all critical facilities in the Town of New Hope are exposed and vulnerable to this hazard.
Critical Infrastructure	There is no critical infrastructure located within the Town of New Hope. Therefore, no critical infrastructure is at risk.

Summary Table 3.18

Wildfire	
Population	According to National Centers for Environmental Information (NCEI), there have been no recorded injuries or fatalities from wildfires in the Town of New Hope. Based on geographical data, approximately 91.43% of New Hope is vulnerable to wildfires.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the Town of New Hope are expected but financially unknown due to lack of reporting. No crop loss reported from the Town of New Hope. Therefore, percentage of the overall property improvement values across the Town of New Hope are also unknown.
Emergency Facilities	There are no emergency facilities located within the Town of New Hope. Therefore, no emergency facilities are at risk.
Critical Facilities	Based on geographic information, there is one critical facility at risk from wildfire events.
Critical Infrastructure	There is no critical infrastructure located within the Town of New Hope. Therefore, no critical infrastructure is at risk.

Summary Table 3.19

Winter Storm	
Population	According to National Centers for Environmental Information (NCEI), there was one (1) county-wide fatality recorded due to winter storms, none from the Town of New Hope. All the population of the Town of New Hope are exposed and vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the Town of New Hope are expected but unknown due to lack of reporting however county-wide property loss is estimated at $116,250 per year. No crop losses are expected from this hazard in the Town of New Hope.
Emergency Facilities	There are no emergency facilities located within the Town of New Hope. Therefore, no emergency facilities are at risk
Critical Facilities	Because of the expected geographical widespread nature of winter storms, all critical facilities in the Town of New Hope are exposed and vulnerable to this hazard.
Critical Infrastructure	There is no critical infrastructure located within the Town of New Hope. Therefore, no critical infrastructure is at risk.

4. Capability Assessment

The risk assessment and capabilities assessment serves as the foundation for the development of a meaningful hazard mitigation strategy. During the process of identifying specific mitigation actions to pursue, New Hope considered not only its level of hazard risk but also the existing capabilities to minimize or eliminate that risk.

Table 4.1 Legal and Regulatory Capability Summary

Legal and Regulatory Capabilities															
Jurisdiction	**Building Code**	**Zoning Ordinance**	**Subdivision Ordinance or regulation**	**Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances wildfire ordinances, hazard setback requirements)**	**Growth management ordinances (also called "smart Growth" or anti-sprawl programs)**	**Site Plan review requirements**	**General or comprehensive plan**	**A capital improvements plan**	**An economic development plan**	**An emergency response plan**	**A post-disaster recovery plan**	**A post-disaster recovery ordinance**	**Real estate disclosure requirements**	**Other**	**% Yes per Jurisdiction**
Town of New Hope	Y	Y	Y	N	N	Y	Y	N	N	Y	Y	N	N	?	**50%**
Average % Yes Capabilities – 50%															
Y- Yes N- No ?- Don't Know															

Table 4.2 Administrative and Technical Capability Summary

Administrative and Technical Capabilities											
Jurisdiction	Planner(s) or engineer(s) with knowledge of land development and land management	Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Planners or engineer(s) with an understanding of natural and/or human caused hazards	Floodplain manager	Surveyors	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in GIS	Scientists familiar with the hazards of the community	Emergency manager	Grant writers	% Yes
Town of New Hope	N	N	N	N	N	N	N	N	N	Y	**10%**
Average % Yes Capabilities – 20%											
Y- Yes N- No ?- Don't Know											

Table 4.3 Fiscal Capability Summary

Fiscal Capabilities											
Jurisdiction	Community Development Block Grants (CDBG)	Capital improvements project funding	Authority to levy taxes for specific purposes	Fees for water, sewer, gas, or electric service	Impact fees for homebuyers or developers for new developments/homes	Incur debt through general obligation bonds	Incur debt through special tax bonds	Incur debt through private activity bonds	Withhold spending in hazard-prone areas	Other	% Yes
Town of New Hope	N	N	Y	N	N	N	N	N	N	?	**10%**
Average % Yes Capabilities – 10%											
Y- Yes N- No ?- Don't Know											

To quantify New Hope's legal and regulatory capabilities, administrative and technical, and fiscal capabilities, an overall rating system was administered for each category: limited (0-30%), moderate (31-70%), and strong (70-100%). Questionnaire responses indicated that on average, New Hope's and its jurisdictions have 50% of identified legal and regulatory capabilities, 10% of identified administrative and technical capabilities, and 10% of identified fiscal capabilities.

Table 4.4 Administrative Information

Jurisdiction	Chief Administrative Officer	Ability to Implement Capabilities
Town of New Hope	Mayor	The Town Council, including the Mayor, Mayor Pro-Tem, and Town Council members, address the budget; pass laws, regulations, and codes; hire staff; approve plans; and determine the overall direction of the Town.

Specific actions that can expand and improve existing capabilities, authorities, plans, policies, and resources for mitigation include: budgeting and passing policies and procedures, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates and additions to existing plans as new needs are recognized.

5. Mitigation Strategies

Based on the results of the risk and capability assessments, and reviews of the goals and objectives included in the 2011 HazMAP, the Town of New Hope Hazard Mitigation Planning Committee developed mitigation strategies for the Plan update.

Goal 1 Reduce or eliminate loss of life, injuries and property damage resulting from severe weather events.

Objective 1-A Provide adequate warning and communication before, during, and after a hazard event.
Objective 1-B Expand and coordinate Early Warning Systems currently in use.
Objective 1-C Reduce or eliminate loss of life and property damage from tornados through the construction and use of safe rooms or shelter areas.

Goal 2 Protect existing and new properties from the effects of all natural hazards.

Objective 2-A Conduct studies to determine hazard and vulnerability threat assessment for all natural hazards.
Objective 2-B Rehabilitate or retrofit identified high hazard critical infrastructure.
Objective 2-C Enact and enforce regulatory measures that enforce hazard mitigation measures.
Objective 2-D Construct enhancements or additions to current and new facilities which mitigate the effects of natural hazards.
Objective 2-E Maintain NFIP compliance, storm water management, and implement drainage projects.

Goal 3 Reduce losses and repetitive damages for chronic hazard events while promoting insurance coverage for catastrophic hazards.

Objective 3-A Conduct a hazard/vulnerability assessment of personal properties and structures located in flood zones within New Hope.
Objective 3-B Develop and implement a buyout program for those personal properties and structures located in high hazard flood zones starting with those that are most vulnerable to life and property loss.
Objective 3-C Develop and execute new programs which identify and reduce threats from natural hazards.

Goal 4 Develop public education campaigns to disseminate information about actions to mitigate potential loss of life, injuries and property damage resulting from natural hazards.

Objective 4-A Educate the public on risks, threats, and vulnerability from all natural hazards.
Objective 4-B Educate the public on actions they can take to prevent or reduce the loss of life or property from all natural hazards.
Objective 4-C Develop and implement a community education campaign to heighten public awareness about chronic flooding and options for insurance coverage to protect their personal properties as well as long term benefits from a buyout program.

6. Action Items

Below is a list of action items identified for the HazMAP Update. Each of the actions in this section were prioritized based on FEMA's STAPLEE criteria, which includes considering the social, technical, administrative, political, legal, economic and environmental factors necessary for the implementation of each action. As part of the STAPLEE analysis, economic considerations were weighed for each action. The STAPLEE was used for the 2016 Plan along with the 2021 Update. Priority rankings are classified as indicated in the table below.

Priority	Description
High	Benefits of mitigating risk of death or severe bodily injury outweigh costs to implement actions rated as high priorities.
Medium	Reducing vulnerability to threats and the resulting improvement in quality of life and peace of mind are benefits for actions rated as medium priorities.
Low	Awareness of low risk/low impact hazards offer benefits of time to assess, plan and integrate low priority mitigation actions as time, need, and funding permit.

Town of New Hope Deferred Items from 2016 Plan

Town of New Hope Action Item	Adopt and promote public education program to mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Tornado, Wildfire, Winter Storm, Extreme Heat, High Winds, Flooding, Expansive Soils, Hail, Drought, Earthquake, Lightning, Dam Failure
Goal/Objective	4-A, 4-B, 4-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local funds General fund
Lead Department	Town Council
Implementation Schedule	Yearly effort
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Public education is extremely effective for low cost.
Discussion	The utilization of social media will be key in this program. Program will include educational information about hazard awareness and mitigation.

Status	Receive supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021 Plan

Town of New Hope Action Item	Implement Individual Tornado Safe Room Rebate Program
Hazard(s) Addressed	Tornado/High Winds
Goal/Objective	1-C
Priority	High
Estimated Cost	Up to $3,000 per shelter
Potential Funding Sources	HMGP, PDM, Resident Match
Potential Matching Sources	Residents receiving grant
Lead Department	N/A
Implementation Schedule	1-3 Years
Effect on Old Buildings	Enhance Safety of existing residential structures through retrofit
Effect on New Buildings	Enhance safety of new residential structures
Cost Effectiveness	Residential safe room shelter potentially decrease personal injuries and death during severe weather, tornados, or high wind events
Discussion	
Status	Will be included in 2021, however, come residents were able to obtain funds through the NCTCOG Saferoom Rebate Program

Town of New Hope Action Item	Develop and Implement an extreme temperature program that identifies both locations for vulnerable residents to go to during periods of extreme temperatures.
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	2-A, 2D
Priority	Medium
Estimated Cost	$5,000-$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local funds, General fund
Lead Department	Town Council
Implementation Schedule	12 months
Effect on Old Buildings	Could require retrofit to accommodate required space and resources, including but not limited to emergency generators.
Effect on New Buildings	May entail enhanced construction materials
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.

Discussion	Cooling shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold
Status	Deferred – will be included in 2021 Plan

Town of New Hope Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	Low
Estimated Cost	$75,000
Potential Funding Sources	HMPG, Partial payment by receiving party
Potential Matching Sources	Local funds, General Fund, citizen cost-share
Lead Department	Town Council
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios could be especially useful to provide information about severe weather as well as provide other emergency and hazard information to residents without use of their cell phones or access to Internet.
Status	Deferred – will be included in 2021 Plan

Town of New Hope Action Item	Increase outdoor warning siren coverage for new development areas.
Hazard(s) Addressed	Tornado, Wildfire, High Winds, Flooding, Hail, Lightning, Dam Failure
Goal/Objective	1-A
Priority	Medium
Estimated Cost	$25,000 per siren
Potential Funding Sources	HMGP
Potential Matching Sources	Local funds, General Fund, Developer cost
Lead Department	Town Council

Implementation Schedule	9-12 months
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	Early warning is a key element in keeping citizens notified of hazards.
Discussion	Obtaining grants will be key to implementation of outdoor warning siren coverage due to high costs and New Hope's ow fiscal capability assessment scores.
Status	Deferred – will be included in 2021 Plan

Town of New Hope Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the County.
Hazard(s) Addressed	Dam Failure, Flooding
Goal/Objective	2-A, 3-A
Priority	Low
Estimated Cost	$50,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local sponsors, General Fund
Lead Department	Town Council
Implementation Schedule	12 - 18 months
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Identify all structures and infrastructures that would be impacted by a potential dam failure. There are currently no dams located in or immediately surrounding New Hope.
Status	Deferred – will be included in 2021 Plan

Town of New Hope Action Item	Develop a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	1-A, 3-C
Priority	Medium
Estimated Cost	$5,000
Potential Funding Sources	HMGP, PDM

Potential Matching Sources	Local, General Fund
Lead Department	Town Council
Implementation Schedule	18 – 36 months
Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire
Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire
Cost Effectiveness	CWPPs show town officials where to redouble their efforts in preventing wildfire, saving time and money. Also work to establish urban wildfire interface around new development properties.
Discussion	With assistance from Collin County Fire Marshall, identify mitigation strategies for all structures and infrastructures that would be impacted by a potential wildfire.
Status	Deferred – will be included in 2021 Plan

Town of New Hope Action Item	Develop a drought contingency plan
Hazard(s) Addressed	Drought
Goal/Objective	3-C, 4-B
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local, General Fund
Lead Department	Town Council
Implementation Schedule	12 - 18 months
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and preservation of foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Develop a plan for conserving water based on North Collin Special Utility District recommendations. Use of social media will be key in implementing this plan.
Status	Deferred – will be included in 2021 Plan

Town of New Hope Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	4-B
Goal/Objective	Earthquake

Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	6 – 18 months
Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects
Status	Deferred – will be included in 2021 Plan

Town of New Hope Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils.
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2A,
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local, General Funds
Lead Department	Town Council
Implementation Schedule	12-18 months
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction. Expansive soils are not prevalent in New Hope.
Status	Deferred – will be included in 2021 Plan

Town of New Hope Action Item	Develop and implement a comprehensive public education program to educate on the actions to help mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Tornado, Hail, Winter Storms, High Winds, Dam Failure, Lightning, Expansive Soils, Extreme Heat, Earthquake, Flooding, Wildfire, Drought
Goal/Objective	4-A, 4-B, 4-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local funds General fund
Lead Department	Town Council
Implementation Schedule	Yearly effort
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Minimal compared to preservation of life safety
Discussion	The utilization of social media will be key in this program. Program will include educational information about hazard awareness and mitigation.

Town of New Hope New 2021 Action Items

Town of New Hope Action Item	Develop and implement storm water management
Hazard(s) Addressed	Flooding
Goal/Objective	2-D, 2-E,3-C
Priority	Low
Estimated Cost	$75,000
Potential Funding Sources	HMGP PDM
Potential Matching Sources	Local Grants, General Fund
Lead Department	Town Council
Implementation Schedule	1-3 years
Effect on Old Buildings	May prevent flooding of existing structures
Effect on New Buildings	May prevent flooding of new development.
Cost Effectiveness	Low compared to life safety events.
Discussion	Project would prevent erosion

Town of New Hope Action Item	Develop and Implement an extreme temperature program that identifies both locations for vulnerable residents to go to during periods of extreme temperatures.
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	2-A, 2D
Priority	Medium
Estimated Cost	$5,000-$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local funds, General fund
Lead Department	Town Council
Implementation Schedule	12 months
Effect on Old Buildings	Could require retrofit to accommodate required space and resources, including but not limited to emergency generators.
Effect on New Buildings	May entail enhanced construction materials
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.
Discussion	Cooling shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold

Town of New Hope Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	HMPG, Partial payment by receiving party
Potential Matching Sources	Local funds, General Fund, citizen cost-share
Lead Department	Town Council
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.

Discussion	Weather Alert Radios could be especially useful to provide information about severe weather as well as provide other emergency and hazard information to residents without use of their cell phones or access to Internet.

Town of New Hope Action Item	Increase outdoor warning siren coverage for new development areas.
Hazard(s) Addressed	Tornado, Wildfire, High Winds, Flooding, Hail, Lightning, Dam Failure
Goal/Objective	1-A
Priority	Medium
Estimated Cost	$25,000 per siren
Potential Funding Sources	HMGP
Potential Matching Sources	Local funds, General Fund, Developer cost
Lead Department	Town Council
Implementation Schedule	9-12 months
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	Early warning is a key element in keeping citizens notified of hazards. This action item would be specific to installation/placement of new OWS sirens in the jurisdiction.
Discussion	Obtaining grants will be key to implementation of outdoor warning siren coverage due to high costs and New Hope's ow fiscal capability assessment scores.

Town of New Hope Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the County.
Hazard(s) Addressed	Dam Failure, Flooding
Goal/Objective	2-A, 3-A
Priority	Low
Estimated Cost	$50,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local sponsors, General Fund
Lead Department	Town Council
Implementation Schedule	12 - 18 months
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones

Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Identify all structures and infrastructures that would be impacted by a potential dam failure. There are currently no dams located in or immediately surrounding New Hope.

Town of New Hope Action Item	Develop a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	1-A, 3-C
Priority	Medium
Estimated Cost	$5,000
Potential Funding Sources	HMGP, PDM
Potential Matching Sources	Local, General Fund
Lead Department	Town Council
Implementation Schedule	18 – 36 months
Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire
Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire
Cost Effectiveness	CWPPs show town officials where to redouble their efforts in preventing wildfire, saving time and money. Also work to establish urban wildfire interface around new development properties.
Discussion	With assistance from Collin County Fire Marshall, identify mitigation strategies for all structures and infrastructures that would be impacted by a potential wildfire.

Town of New Hope Action Item	Develop a drought contingency plan
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	3-C, 4-B
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local, General Fund
Lead Department	Town Council
Implementation Schedule	12 - 18 months

Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and preservation of foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Develop a plan for conserving water based on North Collin Special Utility District recommendations. Use of social media will be key in implementing this plan. Ensuring residents have sufficient water to keep their foundations at a consistent saturation rate will mitigate droughts and drying soils which is a result of expansive soils of our region.

Town of New Hope Action Item	Develop and implement debris management program targeting buildup of debris and materials at bridges built over metal culverts that could result in flooding and damage to roadways.
Hazard(s) Addressed	2-E, 3-C
Goal/Objective	Flooding
Priority	Low
Estimated Cost	$500,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local, General Fund
Lead Department	Town Council
Implementation Schedule	12 months – 18 months
Effect on Old Buildings	Could prevent flooding and disruption to transportation
Effect on New Buildings	Could prevent flooding and disruption to transportation
Cost Effectiveness	Low compared to benefits
Discussion	The Town of New Hope needs to ensure clear pathways for the flow of stormwater to prevent buildup of debris and materials that could cause flooding and possible damage to roadways and bridges.

Town of New Hope Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils.
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2A,
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	HMGP

Potential Matching Sources	Local, General Funds
Lead Department	Town Council
Implementation Schedule	12-18 months
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction. Expansive soils are not prevalent in New Hope.

Town of New Hope Action Item	Implement all-hazards community education program, including information on mitigation activities.
Hazard(s) Addressed	Tornado, Wildfire, Winter Storm, Extreme Heat, High Winds, Flooding, Expansive Soils, Hail, Drought, Earthquake, Lightning, Dam Failure
Goal/Objective	4A- 4B
Priority	High
Estimated Cost	$1000 - $5000
Potential Funding Sources	HGMP, PDM, HMA, General Fund
Potential Matching Sources	Local funds, in-kind
Lead Department	Emergency Management
Implementation Schedule	2-4 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing buildings safer, stronger, and less vulnerable to damages by providing a qualitative understanding of hazards and how to mitigate them.
Effect on New Buildings	Depending on mitigation actions taken for structures, can make existing buildings safer, stronger, and less vulnerable to damages by providing a qualitative understanding of hazards and how to mitigate them.
Cost Effectiveness	Low-cost effectiveness for providing information to citizens to make good sound decisions based on current practices for mitigation.
Discussion	Community education is important for reducing loss of life and property.

National Flood Insurance Program (NFIP) Compliance

New Hope is participating in the National Flood Insurance Program and has identified their respective areas as vulnerable to flooding. This is incorporated into all current and future planning for dealing with repetitive loss vulnerabilities.

Table 6.1 NFIP Compliance

CID	Community Name	County	Initial FHBM Identified	Initial FIRM Identified	Curr Eff Map Date	Reg-Emer Date	Tribal
480138#	NEW HOPE, TOWN OF	COLLIN COUNTY	-	1/19/1996	06/02/09(M)	4/19/1996	No

Source: http://www.fema.gov/cis/TX.html

Jurisdiction Activities

In order to maintain eligibility with NFIP, jurisdictions are required to maintain their list of properties that hold a policy with NFIP, along with up-to-date maps of the floodplains in the jurisdictions. Each jurisdiction participating in the Collin County Hazard Mitigation Action Plan completes this basic requirement and has the information on file with the jurisdiction's designated floodplain manager. Using this plan, participating jurisdictions will be able to continue their compliance with NFIP by implementing damage control measures and take action to minimize the effects of flooding in their respective jurisdictions.

Table 6.2 NIFP Activity

Jurisdiction	Community Floodplain Administrator	NFIP Activity	Activity Description	Enforcement
Town of New Hope	Town Secretary	Complete and maintain FEMA elevation certificates for pre-FIRM and or post-FIRM buildings	Permits are issued through the Town Hall. New Hope requires 2 feet of freeboard above the base flood elevation for the top of bottom floor on residential structures and non-residential structures that will be built on properties created or platted after the effective date of the Flood Damage Prevention Ordinance	NFIP compliance is implemented and enforced through a process of floodplain identification using FEMA floodplain maps, permit issuance, building requirements, and compliance inspections pending approval. Failure to comply with Town's flood damage prevention order shall result in fines up to $500 per violation plus court costs.
		Floodplain development permits	Permits are required for any new construction in a floodplain.	
		Participate with FEMA in identifying Special Flood Hazard Areas for future FIRM maps	New Hope participates in Risk Assessment, Mapping and Planning Partners (RAMPP) meetings held by FEMA and/or their contractors to better identify areas that are flood prone that are not shown on current Flood Insurance Rate Maps.	
		Future Mitigation Projects	New Hope will continue to monitor for new areas of flooding that have not been previously identified for mitigation.	

7. Plan Maintenance

Monitoring, Evaluating and Updating the Plan

In Compliance with requirement § 201.6(c)(4)(i), the Collin County HMPT has developed a plan maintenance process which is described in the following paragraphs. Collin County, along with participating jurisdictions are responsible for monitoring implementation of the plan, executing a yearly evaluation of its effectiveness, and updating the plan within a 5-year cycle.

Following formal adoption by the Town of New Hope, the county, and the city/town council of each participating jurisdiction, the actions outlined in the Collin County Hazard Mitigation Action Plan (HazMAP) will be implemented by participating jurisdictions as described throughout this document.

The Collin County Emergency Management Coordinator, working in conjunction with the respective jurisdictions, will be responsible for ensuring the mitigation plan is monitored, evaluated, and reviewed on an annual basis. This will be accomplished by calling an annual meeting of the planning committee, whose members will provide assistance and expertise for plan review, evaluating, updating, and monitoring. This meeting will be open to the public and public notices will encourage community participation. During this annual meeting, the Town of New Hope will provide information on the implementation status of each action included in the plan. As part of the evaluation, the planning committee will assess whether goals and objectives address current and expected conditions, whether the nature and/or magnitude of the risks have changed, if current resources are appropriate for implementing the plan, whether outcomes have occurred as expected, and if agencies and other partners participated as originally proposed. These activities will take place according to the timetable presented below:

Table 7.1 Plan Maintenance Timeline

Jurisdiction	Personnel	Activity	Schedule
New Hope	Mayor	Monitoring Plan : Track implementation and action items, changes to risk assessment, changes to planning team members, changes to capabilities, plan integrations	Biannually
		Evaluate Plan: Assess effectiveness by evaluating completed actions, implementation processes, responsible personnel and lessons learned.	Annually
		Update Plan	Once every 5 years

At least once every five (5) years, or more frequently, if such a need is determined by the participating jurisdiction, the multi-jurisdictional plan will undergo a major update. During this process, all sections of the plan will be updated with current information and analyses and new and/or modified mitigation action plans will be developed. The revised plan will be submitted for state and federal review and approval, and presented to the Collin County Commissioner's Court and councils for the incorporated municipalities included in the Collin County plan for approval. Likewise, each participating jurisdiction will undergo the same process for reviewing, revising and updating their respective plans and submitting same for state, federal and each jurisdiction's local governing body approval. The plan will be updated every five years in accordance with federal requirements.

Plan Incorporation into Existing Planning Mechanisms *(In compliance with 201.6(c)(4)(ii))*

Based on the requirements set forth in § *201.6(c)(4(ii)*, the State of Texas Mitigation Plan, the vulnerability and capabilities assessment for each jurisdiction was carefully reviewed and considered when developing the mitigation actions for this plan. The HMPT and planning committees will establish a process in which the mitigation strategy, goals, objectives and actions outlined in this plan will be incorporated into the existing regional and local planning strategies.

Local and regional planning committees currently use comprehensive land use planning, capital improvements planning, and building code ordinances to guide development. The mitigation strategy, goals, objectives and actions outlined in this plan will be integrated into these existing mechanisms as applicable. Those mechanisms include the following:

Table 7.2 Plan Incorporation Mechanisms

Jurisdiction	Responsible Personnel	Jurisdictional Plans	Integration Schedule	Integration Plan
Town of New Hope	Town Council	Budget Meetings	Annually	Integration of mitigation projects identified in HazMAP, grants, and other fiscal allowances for mitigation actions and related costs
		Emergency Action Plan updates	Every Five Year	EAP Mitigation annex updates based on HazMAP HIRA; update preparedness, response and recovery actions related to identified hazards
		Floodplain ordinances	As needed	Enhance mitigation of flood hazards using HazMAP flood data for floodplain management and community development.
		Capital improvement plans	Annually	Strengthen critical infrastructure and key resources based on HazMAP hazard analysis, incorporate vulnerability data and action items.

Although it is recognized there are many possible benefits to integrating components of this HazMAP into other planning mechanisms, the New Hope Hazard Mitigation Planning Committee considers this HazMAP, including development and maintenance, to be the primary vehicles to ensure implementation of local hazard mitigation actions.

The process described here is the same as was used since the last planning update.

Continued Public Involvement (In compliance with 201.6(c)(4)(iii))

As stated in requirement § *201.6(c)(4)(iii)* The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.

To address this requirement, ongoing public participation will be encouraged throughout the entire planning and implementation process. A copy of the plan will be provided on the Collin County website. The planning team and committee will continue meeting on a regular basis to ensure the successful implementation of the plan and to discuss any additional issues regarding the emergency management of Collin County. The annual meetings for monitoring, evaluating, and updating the plan will be open to the public and public notices will encourage community participation.

Annex P: City of Parker

This annex was prepared in 2021 as part of an update to the Collin County Multi-Jurisdictional Hazard Mitigation Action Plan. The City of Parker participated on the Collin County Hazard Mitigation Planning Team (HMPT). In addition to the countywide hazards and strategies discussed in the main plan, this annex serves as a complete hazard mitigation planning tool for the City of Parker. It contains capability assessment information, a specific vulnerability assessment, and a complete mitigation strategy. The methodology and process for developing this annex are explained throughout the following sections.

1. Introduction

The City of Parker is a residential community generally located at the northeast area of Dallas; we pride ourselves on large lots and open spaces. Parker is located at latitude 33°03'17N and longitude 96°37'17"W, and sits in the southern end of Collin County, with Allen to its North, Plano to the West, Murphy to the south, and Wylie to the east. The City of Parker was incorporated in 1969, and the home of the infamous Southfork Ranch. According to the North Central Texas Council of Governments (NCTCOG), the population of Parker is estimated to be about 5,000. The city has a total area of 10.1 square miles of land area. Parker is a "Type A" general law city which operates under a system of local government called Council - Manager, wherein all powers of the city are vested in the city council.

2. Plan Development and Adoption Process

In order to apply for federal aid for technical assistance and post-disaster funding, local jurisdictions must comply with Part 201.3 of the Disaster Mitigation Act of 2000 (DMA 2000) implemented in the Federal Code of Regulations 44 CRF Part 201.6. While the City of Parker has historically implemented measures to reduce their vulnerability to hazards, passage of DMA 2000 helped City of Parker officials to recognize the benefits of a long-term approach to hazard mitigation, which achieves a gradual decrease of impacts associated through the implementation of a Hazard Mitigation Plan. Collin County's Hazard Mitigation Action Plan represents the collective efforts of all participating jurisdictions, the general public, and stakeholders.

Organizing the Planning Effort

A comprehensive county approach was taken in developing the plan. An open public involvement process was established for the public, neighboring communities, regional agencies, businesses, academia, etc. to provide opportunities for everyone to become involved in the planning process and to make their views known. The meetings were advertised with notices in public places and jurisdictional websites.

In accordance with Part 201.6(c)(5) of the DMA 2000, Collin County developed this Hazard Mitigation Action Plan. This plan identifies hazards and mechanisms to minimize future damages associated with these hazards, which threaten Collin County and its jurisdictions.

Existing Data and Plans

Existing hazard mitigation information and other plans were reviewed during the development of the Hazard Mitigation Action Plan. Data was gathered through numerous sources, and includes GIS, statistical and qualitative data. The table below outlines the sources of data for the plan:

Table 2.1 Plan Source Data

Source	Data
City and County Appraisal Data 2020	Population and demographics
Regional Hazard Assessment Tool	Hazard occurrences
National Centers for Environmental Information (NCEI)	Hazard occurrences
Texas Forest Service/Texas Wildfire Risk Assessment Summary Report	Wildfire Threat and Wildland/Urban Interface analysis
National Inventory of Dams	Dam Information

Planning Committee

This Hazard Mitigation Action Plan was developed by the City of Parker Hazard Mitigation Planning Committee, with support of the North Central Texas Council of Governments and in conjunction with the Collin County HMPT.

The Collin County HMPT was assembled in November 2020 with representatives from participating jurisdiction planning committees, including mayors, police chiefs, fire chiefs, and the general public. Collin County acted as the plan development consultant providing hazard mitigation planning services; the efforts of the planning committee were led by the City of Parker Emergency Management Specialist. The table below provides a list of the primary representatives on the Parker planning committee.

Table 2.2 Hazard Mitigation Committee – Primary Representatives

Representing	Position	Role
City of Parker	Mayor	Plan Development
City of Parker	Mayor Pro-Tem	Plan Development
City of Parker	City Administrator	Plan Development
City of Parker	Police Chief	Plan Development
City of Parker	Fire Chief	Plan Development
City of Parker	Councilmember	Plan Development
City of Parker	City Attorney	Plan Development

Collin County served as the coordinator and lead agency for all jurisdictions by accomplishing the following activities through the planning process:

- Assigned the County's Assistant Emergency Management Coordinator to provide technical assistance and necessary data to the planning committee.
- Scheduled, coordinated, and facilitated community meetings with the assistance of the HMPT and the planning committees.
- Provided any necessary materials, handouts, etc. for public planning meetings.
- Worked with the HMPT and planning committees to collect and analyze data and develop goals and implementation strategies.
- Prepared, based on community input and planning team/committee direction, the first draft of

the plan and provided technical writing assistance for review, editing and formatting.
- Coordinated with the stakeholders within the jurisdictions and the unincorporated areas of Collin County during plan development.

Each of the individual jurisdictions participated in accomplishing similar activities associated with development of the plan as follows:

- Coordinated input from representatives of neighborhood stakeholder groups and provided a representative to the County HMPT.
- Attended regular meetings of the planning team as coordinated by Collin County.
- Assisted Collin County staff with identifying hazards and estimating potential losses from future hazard events.
- Assisted Collin County in developing and prioritizing mitigation actions to address the identified risks.
- Assisted Collin County in coordinating public meetings to develop the plan.
- Identified the community resources available to support the planning effort.
- Worked for the support of neighborhood stakeholders for the recommendations resulting from the planning process.
- Submitted the proposed plan to all appropriate departments for review and comment and worked with Collin County to incorporate the resulting comments into the proposed plan.

Subsequent to the State of Texas and FEMA approval of the plan, each organization above is committed to accomplishing the following activities:

- Appoint members to a coordinating committee to monitor and work toward plan implementation.
- Publicize the plan to neighborhood interests and ensure that new community members are aware of the plan and its contents.
- Monitor progress in achieving the plan's goals through regular maintenance and implementation projects.

External stakeholders involved in reviewing the Collin County Hazard Mitigation Action Plan:

Table 2.3 External Stakeholders

Representing	Position	Role
NCTCOG	Emergency Preparedness Prog. Asst.	Review of plan
Collin County	Homeland Security Dept. Coordinator	Review of plan

Planning Meetings

During the planning process, the HMPT met to obtain relevant information from the participating jurisdictions and to discuss the objectives and progress of the plan. The objectives of these meetings were to gather information and to provide guidance for each jurisdiction throughout the planning stages.

The following meetings were held by Collin County and included all jurisdictions' participation:

- Collin County HazMAP Kickoff Meeting – August 12, 2020
- Collin County Planning Meeting – November 2, 2020

- Collin County Planning Meeting – November 5, 2020
- Collin County Kickoff Meeting – August 12, 2020
- Collin County HazMAP Public Meeting – 11/2/2021 at 2PM
- Collin County HazMAP Public Meeting – 01/12/2022 at 9AM

Public Involvement

Support from the community is vital for any successful hazard mitigation plan. The HMPT and planning committee provided opportunities, announced through public communication means, for public participation and input throughout the planning process prior to this draft and before approval of the finalized plan. Advertisement and sign in sheets for these meetings are located in Appendix A.

- The first public meeting was held on November 2, 2021 at 2PM, and advertised on the Collin County website along with other jurisdictional websites inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to comment. The meeting was held virtually via WebEX.
- A second public meeting was held on January 12, 2022 at 9AM. Announcements were placed on jurisdictions websites, including Collin County inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to view and comment on the HazMAP prior to plan submission.

There were no comments directly related to the mitigation plan received from citizens, non-profits, businesses, academia, or interested parties; therefore, no feedback was incorporated. An additional opportunity for the public to comment on the plan will be held prior to formal plan adoption.

This provided all citizens, stakeholders, neighboring communities, agencies, businesses, academia, non-profit organizations, and all interested parties an opportunity to be involved in the planning process and to take part in the decisions making process that affect the future of the communities that they live in.

3. Jurisdictional Hazard Assessment and Risk Assessment

The Hazard Mitigation Planning Team Committee for the City of Parker identified several natural and man-made hazards that could affect the city. The committee decided to focus on the natural hazards identified in Section 5 of this Update. This was done after reviewing the 2016 HazMAP, the State of Texas Hazard Mitigation Plan, as well as other sources such as federal and state agencies. The hazards identified are provided in the City of Parker Hazard Identification and Risk Assessment (HIRA) as provided in Appendix A-1 of this annex.

Priority Risk Index

A Priority Risk Index (PRI) was developed with the purpose of categorizing potential hazards for Collin County and ranks each hazard as high, moderate, low, or negligible to no risk. The hazard classification generated through the use of the PRI allows for the prioritization of those high hazard risks for mitigation planning purposes, and more specifically, the identification of hazard mitigation opportunities for Collin County jurisdictions to consider as part of their proposed mitigation strategy.

The PRI is used to assist all jurisdictions participating in the Collin County HazMAP in determining which hazards pose the most significant threat based on a variety of factors. The PRI is not scientifically based, but is rather meant to be utilized as an objective and systematic planning tool for classifying and prioritizing hazard risks in Collin County based on standardized criteria. The PRI results in numerical values that allow identified hazards to be ranked against one another. The sum of all four categories equals the final PRI value, as shown below:

PRI Value = (Probability x .30) + (Life Impact x .35) + (Property Impact x .25) + (Spatial Extent x .10)

The higher the PRI value, the greater the hazards risk. These values were obtained by assigning varying degrees of risk to four categories for each hazard: Probability, Life Impact, Property Impact, and Spatial Extent *(Table 3.1).* Each category has been assigned an Index Value (0 to 3) and a Weighing Factor (0 – 100%). These values may be adjusted during future plan updates. In order to evaluate the risk of each hazard, the assigned PRI Value for each category is multiplied by the weighing factor. Then, the PRI for each hazard is calculated by adding the product obtained in each category. According to the weighing scheme applied for Collin County, the highest possible PRI value is 3.0. The PRI calculations are presented in *Table 3.2*. Table 3.1 breaks down the value of each category.

Table 3.1 Priority Risk Index Value

Assigned Weighing Factor	PRI Category	Degree of Risk		
			Criteria	Index Value
30%	Probability	Unlikely	Less than 1% annual probability	0
		Possible	Between 1 and 10% annual probability	1
		Likely	Between 10 and 100% annual probability	2
		Highly Likely	100% annual probability	3
35%	Life Impact	Minor	Very few injuries, if at all none	0
		Limited	Minor Injuries	1
		Critical	Multiple deaths/injuries	2
		Catastrophic	High number of deaths/injuries	3
25%	Property Impact	Minor	Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	0
		Limited	More than 10% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one day.	1
		Critical	More than 25% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one week.	2
		Catastrophic	More than 50% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for 30 days or more.	3
10%	Spatial Extent	Negligible	Less than 1% of area affected	0
		Small	Between 1 and 10% of area affected	1
		Moderate	Between 10 and 50% of area affected	2
		Large	Between 50 and 100% of area affected	3

Table 3.2 Priority Risk Index for the City of Parker

Hazard	Category/Degree of Risk				
	Probability Index Value (0 - 3 30%)	Life Impact Index Value (0 - 3 35%)	Property Impact Index Value (0 - 3 25%)	Spatial Extent Index Value (0 - 3 10%)	PRI Value 2021
Dam Failure	0	0	0	0	0
Drought	3	0	1	3	1.45
Earthquake	0	0	0	0	0
Expansive Soils	2	0	1	1	0.95
Extreme Heat	2	0	0	0	0.6
Flooding	2	0	1	1	0.95
Hail	2	0	0	3	0.9
High Winds	3	0	1	1	1.25
Lightning	3	0	1	1	1.25
Tornado	3	1	1	1	1.6
Wildfire	1	0	1	1	0.65
Winter Storms	1	1	0	1	0.75

The conclusions drawn from the hazard profiling process for the City of Parker resulted in the classification of risk for each identified hazard according to four categories: High Risk, Moderate Risk, Low Risk, and Negligible to No Risk *(Table 3.3).* For purposes of these classifications, risk is expressed in relative terms according to the probability of occurrence and estimated impact that a hazard will have on human life and property in the City of Parker.

Table 3.3 Hazard Rankings for the City of Parker

High Risk (PRI 2 - 3)	
Moderate Risk (PRI 1.01 -1.9)	Drought
Low Risk (PRI 0.50 – 1)	Hail Expansive Soils High Winds Tornado Lightning Flooding Extreme Heat Wildfire
Negligible to No Risk (PRI 0 – 0.49)	Dam Failure Winter Storms Earthquake

Changes in Development and Priorities (Requirement §201.6(d) (3))

Our jurisdiction is in one of the fastest growing areas of the nation, hence development has increased and will continue to increase our vulnerability to hazards that may impact us.

Vulnerability Narratives

This annex focuses on specific areas of vulnerability the City of Parker faces with each hazard. The hazards identified in the main plan are all addressed in this annex, therefore the natural hazards rated negligible to no risk are included, described, and considered for mitigation.

Dam and Levee Failure This hazard was identified as having negligible to no risk to the City of Parker. As a participant in the county plan inundation studies will be considered.

Drought Drought can have a significant impact on the City of Parker because of the large farming community. Drought has the potential to impact the entire planning area equally; all improved property, emergency facilities, critical facilities, critical infrastructure, agricultural community and the entire population of Parker are vulnerable to this hazard. Foundations of all buildings are vulnerable; however, older structures, or those built under less stringent foundation code requirements are most vulnerable. Lake Lavon, Lake Texoma, Lake Tawakoni, Lake Fork and the Lake Chapman-Cooper reservoir system are water sources for City of Parker and are vulnerable to drought. In turn, the city's population, wildlife and vegetation are vulnerable. Lower income populations who may not have the resources to buy containerized water in the event of a shortage may be more vulnerable than other populations.

Earthquake Earthquakes have the potential to occur anywhere in the geographic planning area, therefore all geographic areas are potentially vulnerable. This hazard was identified as having negligible to no risk to the City of Parker. Buildings constructed under older building codes, aging underground infrastructure, and roads are most vulnerable to damages from seismic activity.

Expansive Soils All geographic areas and properties have the potential to be vulnerable to expansive soils, especially facilities constructed under older building codes.

Extreme Heat Extreme heat generally affects the entire population, but the homeless, very young, elderly, and populations without air conditioning are most vulnerable.

Flooding The City of Parker can be affected by two types of floods though in limited areas. These include:

- Riverine Flood
  - Occurs in the floodplain of a river or stream when the amount of water and the rate at which the moving increases. This type generally can be forecast in advance, and proper precautions taken to save lives.
- Flash Flood
  - A type of Riverine flood that occurs after a heavy storm, when the ground cannot absorb the high amount of precipitation. This can occur when heavy precipitation falls on already-saturated soils. Flash Floods occur rapidly with little warning.
- Locations: Below are the descriptions of the areas in the City of Parker that are affected by flooding:

- The City of Parker has two major tributaries that run through or along the city and drains to Lake Ray Hubbard.
- The two are Maxwell Creek and Cottonwood Creek. Major flash floods may occur during heavy rains when the ground is saturated which would affect creeks and roadways.

Hail All geographic areas, properties and populations have the potential to be vulnerable to hail. Exposed populations, manufactured homes, and older properties are most vulnerable.

High Winds All geographic areas, properties and populations have the potential to be vulnerable to high winds, manufactured homes and exposed populations are most vulnerable.

Lightning All geographic areas, properties and populations have the potential to be vulnerable to lightning. Property without lightning protection and exposed populations are most vulnerable.

Tornado All geographic areas, properties and populations have the potential to be vulnerable to tornadoes. Exposed populations, manufactured homes, and older properties are most vulnerable.

Wildland Fire According to the Texas A&M Forest Service, 64.66% of the population of the City of Parker live in the Wildland/Urban Interface. Additionally, due to the large amounts of farmland, the city is at elevated risk of wildfires.

Winter Storms All geographic areas, properties, and populations have the potential to be vulnerable to winter storms. Winter storms have the potential to make roads impassable for days. Residents may be confined to their homes due to the storm and may be without basic services, such as water and electricity, for an extended period of time. The homeless, elderly, and populations without access to heat are most vulnerable.

Identification of Assets and Vulnerability Assessment

An inventory of Parker's geo-referenced assets was created in order to identify and characterize property and population potentially at risk to the identified hazards. By understanding the type and number of assets that exist and where they are located in relation to known hazard areas, the relative risk and vulnerability for such assets can be assessed. For this assessment, five categories of assets were evaluated using Geographic Information System and statistical analysis. The five categories of vulnerable assets include:

- **Population**: Includes the number of people residing in the Collin County jurisdictions as delineated by U.S. Census 2020 block data provided by NCTCOG.
- **Improved property**: Includes all developed properties according to local parcel data from the Collin County Central Appraisal District. The information has been expressed in terms of the total assessed value of improvements that may be exposed to the identified hazards.
- **Emergency facilities**: Includes fire stations, police stations and hospitals, provided by the Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.
- **Critical facilities**: Includes schools and historic places provided by Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions. These are non-emergency facilities, but still provide critical services and functions for vulnerable sectors of the population.

- **Critical infrastructure**: Includes airports, natural gas facilities, wastewater facilities, potable water treatment facilities, wastewater treatment facilities, dams, and bridges. Data for all critical facilities was obtained from Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.

The following tables provide a breakdown by municipal jurisdiction of the geo-referenced assets that were used for the vulnerability assessment.

Population

According to the US Census Bureau, the total population of the City of Parker in 2020 was 5,177 people, with 1,665 households. The count breakdown by municipal jurisdiction is provided in *Table 3.4.*

Table 3.4. Population Counts

Jurisdiction	Population			Households		
	Population	% of County Total**	Population Density (Sq. Mile)	Household	% of County Total**	Household Density (Sq. Mile)
City of Parker	5,177	0.43%	557.01	1,665	0.43%	196.13

Source: US Census Bureau & Collin County Appraisal District

Table 3.5 summarizes population counts and population chance (absolute and percent predications for City of Parker).

Table 3.5 Population Predictions

County	Population 2010 Census	Population 2018 Estimate	Population 2019 Estimate	Absolute Change 2018-2019	Percent (%) Change 2018-2019
City of Parker	3,811	4,600	4,840	240	5.21%

Source: 2020 NCTCOG Population Estimate

Property

There are an estimated 2,111 parcels in the City of Parker, with an estimated $465,566,442 in total assessed value of, *Table 3.6* lists the total number and percentage of parcels by jurisdiction.

Table 3.6 Parcel Counts and Improvements Value

Jurisdiction	Number of Parcels	% of County Total	Total Assessed Value of Improvements (Buildings)[1]
City of Parker	2,111	0.96%	$839,789,857

Source: Collin County Appraisal District

Emergency Facilities

There is two identified emergency facilities in the City of Parker, including one fire station, and one police station. *(Figure 3.18). Table 3.7* presents the distribution of emergency facilities by jurisdiction. Geographic coordinates were used to determine the location of each facility.

Table 3.7 Emergency Facilities

Jurisdiction	Fire Stations	Police Stations	Hospitals
City of Parker	1	1	0

Source: County Data and Regional Hazard Assessment Tool

Critical Facilities

There are one critical facilities, which are considered non-emergency in the City of Parker, *(Figure 3.19).* The critical facilities include no schools and one historical property sites (*Table 3.8*). Geographic coordinates (i.e., latitude and longitude) were used to determine the location of each facility.

Table 3.8 Critical Facilities

Jurisdiction	Schools	Historical Property
City of Parker	1	1

Source: Local jurisdictions

Critical Infrastructure

There are one identified critical infrastructure facilities in the City of Parker, including no airports, no natural gas facilities, no water treatment facilities, no wastewater treatment facilities, no dams, and one railway/highway bridge (*Table 3.9*).

Table 3.9 Critical Infrastructure

Jurisdiction	Airports	Natural Gas Facilities	Wastewater Treatment Facilities	Potable Water Treatment Facilities	Dams	Railway/ Highway Bridges
City of Parker	0	0	0	0	0	1

Source: Local jurisdictions

Methodology

Based on the type of information available for analysis, the City of Parker's vulnerability assessment was conducted using two distinct methodologies, a Geographic Information System-based analysis and a statistical risk assessment methodology. Each approach provides estimates for the potential impact of hazards by using a common, systematic framework for evaluation of historical occurrence information provided by National Centers for Environmental Information, the Texas Forest Service, and the FEMA Resilience and Planning Tool. The results of the vulnerability assessment are provided by jurisdiction for each hazard analyzed.

Of the 12 hazards evaluated for the City of Parker, four were analyzed using a Geographic Information System-based analysis, five using a statistical risk assessment methodology, and the remaining three hazards using a qualitative analysis. Qualitative analysis was used due to lack of information, the inability to define specific areas of risk, and/or inexistence of historical records. Additional information regarding these hazards is unattainable at the present time; studies to address this data deficiency are noted as action items in this update. Table 3.10 summarizes the methodology used for each hazard.

Table 3.10 Analysis used for Vulnerability Assessment

Hazard	Geographic Information System-based Analysis	Statistical Analysis	Qualitative Analysis
Dam Failure			X
Drought	X		
Earthquake			X
Expansive Soils			X
Extreme Heat		X	
Flooding	X		
Hail	X		
High Winds		X	
Lightning		X	
Tornado		X	
Wildfire	X		
Winter Storms		X	

Summary of Vulnerably Assessment

A summary of the vulnerability assessment for each hazard using geographic and statistical analysis is presented in the following pages. The detailed assessment is presented in the following sections.

Summary Table 3.11

Drought	
Population	According to National Centers for Environmental Information (NCEI) no recorded injuries or fatalities have been recorded for drought events. There are no personal losses expected from drought events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Parker are expected but financially unknown due to lack of accurate reporting. Historical data indicates that crop losses in the City of Parker are expected mostly during water shortages, financially unknown due to lack of accurate reporting.

Emergency Facilities	Because of the nature of this hazard, no losses are expected on emergency facilities but foundation issues could occur due to drought events.
Critical Facilities	Because of the nature of this hazard, no losses are expected on critical facilities but foundation issues could occur due to drought events.
Critical Infrastructure	Because of the nature of this hazard, no losses are expected on critical infrastructure but foundation issues and road degradation could occur due to drought events.

Summary Table 3.12

Extreme Heat	
Population	According to National Centers for Environmental Information (NCEI), there were no fatalities recorded due to extreme heat from the City of Parker. The City of Parker and its population are vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to developed areas and the improved property in the City of Parker is not vulnerable to this hazard.
Emergency Facilities	According to National Centers for Environmental Information (NCEI), there is minimal impact of extreme heat to buildings and the emergency facilities in the City of Parker. The City of Parker is somewhat vulnerable to this hazard.
Critical Facilities	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to buildings, and the critical facilities in the City of Parker are not vulnerable to this hazard.
Critical Infrastructure	According to National Centers for Environmental Information (NCEI) there is minimal impact of extreme heat to critical infrastructure, and vulnerability to this hazard is considered minimal in the City of Parker.

Summary Table 3.13

Flooding	
Population	Flooding produces an expected annualized count of zero (0) fatalities and injuries per year. About 230 residential parcels in the City of Parker are located within the 100-year floodplain.
Improved Property	There have been thirteen (13) recorded flood events in the City of Parker. Property losses are expected annually however these reported values are underestimated due to lack of accurate reporting. No crop losses are expected or recorded county-wide.
Emergency Facilities	There are no emergency facilities at imminent risk from the 100-year storm event.

Critical Facilities	There are no critical facilities located within the 100-year storm event.
Critical Infrastructure	No % of railways/highways and bridges, no % of dams, no % of water treatment works, and no % waste water treatment facilities are at risk from the 100-year storm event. Many of these structures are designed to traverse or be located within the floodplain due to unavoidable circumstances. Additionally, treated wastewater is typically discharged towards streams, which makes portions of wastewater treatment facilities likely to be located within the floodplain.

Summary Table 3.14

Hail	
Population	According to National Centers for Environmental Information (NCEI), no recorded injuries or fatalities have been recorded for hailstorm events. There are no personal losses expected from hailstorm events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Parker are expected at $2,887,157.14 per year however these values are underestimated due to lack of accurate reporting. All improved property is vulnerable to this hazard. Although some crops are susceptible to hail hazards, available historical data for the City of Parker indicates that there are no expected crop losses from this event.
Emergency Facilities	Because of the unpredictability of the geographical location of hailstorms, all emergency facilities in the City of Parker are vulnerable to this hazard.
Critical Facilities	Because of the unpredictability of the geographical location of hailstorms, all critical facilities in the City of Parker are vulnerable to this hazard.
Critical Infrastructure	Because of the unpredictability of the geographical location of hailstorms, all critical infrastructures in the City of Parker are vulnerable to this hazard.

Summary Table 3.15

High Wind	
Population	According to National Centers for Environmental Information (NCEI), there are no recorded injuries or fatalities from high wind events. All populations in the City of Parker are vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Parker are expected but unknown due to lack of accurate reporting. Unknown crop losses resulted from this hazard in the City of Parker.
Emergency Facilities	Because of the expected geographical widespread nature of high winds, all emergency facilities in the City of Parker are vulnerable to this hazard.

Critical Facilities	Because of the expected geographical widespread nature of high winds, all critical facilities in the City of Parker are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of high winds, all critical infrastructures in the City of Parker are vulnerable to this hazard.

Summary Table 3.16

Lightning	
Population	According to National Centers for Environmental Information (NCEI), there are no recorded injuries or fatalities from lightning events. All populations in the City of Parker are vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Parker are expected at $20,833.33 however these values are underestimated due to lack of accurate reporting.
Emergency Facilities	Because of the expected geographical widespread nature of lightning, all emergency facilities in the City of Parker are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of lightning, all critical facilities in the City of Parker are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of lightning, all critical infrastructures in the City of Parker are vulnerable to this hazard.

Summary Table 3.17

Tornado	
Population	According to National Centers for Environmental Information (NCEI), there have been no recorded injuries or fatalities from tornado events in City of Parker. All populations in the City of Parker are exposed and vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), property losses in the City of Parker are expected but unknown due to lack of accurate reporting. No crop losses are expected from this hazard in City of Parker.
Emergency Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all emergency facilities in the City of Parker are exposed and vulnerable to this hazard.
Critical Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all critical facilities in the City of Parker are exposed and vulnerable to this hazard.

Critical Infrastructure	Because of the impossibility to predict the geographical area of impact for tornados, all critical infrastructures in the City of Parker are exposed and vulnerable to this hazard.

Summary Table 3.18

Wildfire	
Population	Based on geographical data from Texas A&M Forest Service, a majority of the City of Parker is vulnerable to wildfires. There have been no recorded injuries or fatalities due to wildfires.
Improved Property	Based on historical data, annual financial losses expected from property loss due to wildfires are unknown due to lack of accurate reporting.
Emergency Facilities	Based on geographic information there is one fire station at risk from wildfire events.
Critical Facilities	Based on geographic information there are no schools at risk from wildfire events.
Critical Infrastructure	Based on geographic information there are no bridges, no dams, no wastewater treatment facility, and no water treatment facility at risk from wildfire events.

Summary Table 3.19

Winter Storm	
Population	According to National Centers for Environmental Information (NCEI), there was one (1) county-wide fatality recorded due to winter storms, none from the City of Parker. All populations in the City of Parker are exposed and vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Parker are expected but unknown due to lack of reporting however county-wide property loss is estimated at $116,250 per year. No crop losses are expected from this hazard in the City of Parker.
Emergency Facilities	Because of the expected geographical widespread nature of winter storms, all emergency facilities in the City of Parker are exposed and vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of winter storms, all critical facilities in the City of Parker are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of winter storms, all critical infrastructures in the City of Parker are exposed and vulnerable to this hazard.

4. Capability Assessment

The risk assessment and capabilities assessment serves as the foundation for the development of a meaningful hazard mitigation strategy. During the process of identifying specific mitigation actions to pursue, the City of Parker considered not only its level of hazard risk but also the existing capabilities to minimize or eliminate that risk.

Table 4.1 Legal and Regulatory Capability Summary

Legal and Regulatory Capabilities															
Jurisdiction	Building Code	Zoning Ordinance	Subdivision Ordinance or regulation	Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances wildfire ordinances, hazard setback requirements)	Growth management ordinances (also called "smart Growth" or anti-sprawl programs)	Site Plan review requirements	General or comprehensive plan	A capital improvements plan	An economic development plan	An emergency response plan	A post-disaster recovery plan	A post-disaster recovery ordinance	Real estate disclosure requirements	Other	% Yes per Jurisdiction
City of Parker	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	?	**85.7%**
Average % Yes Capabilities – 85.7%															
Y- Yes N- No ?- Don't Know															

Table 4.2 Administrative and Technical Capability Summary

Administrative and Technical Capabilities											
Jurisdiction	Planner(s) or engineer(s) with knowledge of land development and land management	Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Planners or engineer(s) with an understanding of natural and/or human caused hazards	Floodplain manager	Surveyors	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in GIS	Scientists familiar with the hazards of the community	Emergency manager	Grant writers	% Yes
City of Parker	Y	Y	Y	Y	N	Y	Y	?	Y	N	**70%**
Average % Yes Capabilities – 70%											
Y- Yes N- No ?- Don't Know											

Table 4.3 Fiscal Capability Summary

Fiscal Capabilities											
Jurisdiction	Community Development Block Grants (CDBG)	Capital improvements project funding	Authority to levy taxes for specific purposes	Fees for water, sewer, gas, or electric service	Impact fees for homebuyers or developers for new developments/homes	Incur debt through general obligation bonds	Incur debt through special tax bonds	Incur debt through private activity bonds	Withhold spending in hazard-prone areas	Other	% Yes per Jurisdiction
City of Parker	N	Y	Y	Y	N	Y	N	N	N	N	**40%**
Average % Yes Capabilities – 40%											
Y- Yes N- No ?- Don't Know											

To quantify the City of Parker's legal and regulatory, administrative and technical, and fiscal capabilities, an overall rating system was administered for each category: limited (0-30%), moderate (31-70%), and strong (70-100%). Questionnaire responses indicated that on average, the City of Parker has strong identified legal and regulatory capabilities, strong identified administrative and technical capabilities, and moderate identified fiscal capabilities.

Table 4.4 Administrative Information

Jurisdiction	Chief Administrative Officer	Ability to Implement Capabilities
City of Parker	City Administrator	The city council, including the mayor, mayor pro-tem, and council members, along with the city administrator, address the budget; pass laws, regulations, and codes; hire staff; approve plans; and determine the direction of the city overall. Ability to implement and approve mitigation actions and integrate mitigation into existing policies and programs is a function of this group.

Specific actions that can expand and improve existing capabilities, authorities, plans, policies, and resources for mitigation include: budgeting and passing policies and procedures, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates and additions to existing plans as new needs are recognized.

5. Mitigation Strategies

Based on the results of the risk and capability assessments, and reviews of the goals and objectives included in the 2016 HazMAP, the Parker Hazard Mitigation Planning Committee developed mitigation strategies for the plan update.

Goal 1 **Reduce or eliminate loss of life, injuries and property damage resulting from severe weather events.**

Objective 1-A Provide warning and communication before, during, and after a hazard event.
Objective 1-B Expand and coordinate communication.
Objective 1-C Reduce or eliminate loss of life and property damage from tornados through the construction and use of safe rooms or shelter areas.

Goal 2 **Protect existing and new properties from the effects of all natural hazards.**

Objective 2-A Conduct studies to determine hazard and vulnerability threat assessment for all natural hazards.
Objective 2-B Rehabilitate or retrofit identified high hazard critical infrastructure.
Objective 2-C Enact and enforce regulatory measures that enforce hazard mitigation measures.
Objective 2-D Construct enhancements or additions to current and new facilities which mitigate the effects of natural hazards.
Objective 2-E Maintain NFIP compliance, storm water management, and implement drainage projects.

Goal 3 **Reduce losses and repetitive damages for chronic hazard events**.

Objective 3-A Conduct a hazard/vulnerability assessment of properties and structures located in flood zones.
Objective 3-B Develop a buyout program for those personal properties and structures located in high hazard flood zones starting with those that are most vulnerable to life and property loss.
Objective 3-C Develop and execute new programs which identify and reduce threats from natural hazards.

Goal 4 **Develop public education campaigns to disseminate information about actions to mitigate potential loss of life, injuries and property damage resulting from natural hazards.**

Objective 4-A Educate the public on risks, threats, and vulnerability from all natural hazards.
Objective 4-B Educate the public on actions they can take to prevent or reduce the loss of life or property from all natural hazards.
Objective 4-C Develop and implement a community education campaign to heighten public awareness about chronic flooding and options for insurance coverage to protect their personal properties as well as long term benefits from a buyout program.

6. Action Items

Below is a list of action items identified for the HazMAP Update. Each of the actions in this section were prioritized based on FEMA's STAPLEE criteria, which includes considering the social, technical, administrative, political, legal, economic and environmental factors necessary for the implementation of each action. As part of the STAPLEE analysis, economic considerations were weighed for each action. The STAPLEE was used for the 2016 Plan along with the 2021 Update. Priority rankings are classified as indicated in the table below.

Priority	Description
High	Benefits of mitigating risk of death or severe bodily injury outweigh costs to implement actions rated as high priorities.
Medium	Reducing vulnerability to threats and the resulting improvement in quality of life and peace of mind are benefits for actions rated as medium priorities.
Low	Awareness of low risk/low impact hazards offer benefits of time to assess, plan and integrate low priority mitigation actions as time, need, and funding permit.

City of Parker Action Items: Deferred from 2016 Plan

City of Parker Action Item	Develop and implement a comprehensive public education program to mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Tornado, Wildfire, Winter Storm, Extreme Heat, High Winds, Flooding, Expansive Soils, Hail, Drought, Earthquake, Lightning, Dam Failure
Goal/Objective	4-A, 4-B, 4-C
Priority	Medium
Estimated Cost	-
Potential Funding Sources	General Fund, HMGP
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Public education is extremely effective for low cost.
Discussion	This public education program would be based on the hazards that the City of Parker identified as being vulnerable to. The program would use a combination of distributed literature, social media, and

	civic presentations to educate residents on natural hazards and promote hazard mitigation.
Status	Receive supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021

City of Parker Action Item	Establish centers for vulnerable residents to mitigate the effects of extreme temperatures.
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	2-D
Priority	Medium
Estimated Cost	$5,000-$15,000
Potential Funding Sources	HMGP, PDM,
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	Emergency Management
Implementation Schedule	1-2 years
Effect on Old Buildings	Could require retrofit to accommodate required space and resources
Effect on New Buildings	May entail enhanced construction materials
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.
Discussion	Cooling and heating shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold
Status	Discontinued – Shelters will be opened in existing infrastructure as needed during incidents of extreme temperature,

City of Parker Action Item	Implement Individual Tornado Safe Room Rebate Program
Hazard(s) Addressed	High Wind, Tornado
Goal/Objective	1-C
Priority	High
Estimated Cost	Up to $3,000 per shelter
Potential Funding Sources	HMGP, PDM, Resident Match
Potential Matching Sources	Local Grants, FEMA
Lead Department	EMC
Implementation Schedule	2-3 years
Effect on Old Buildings	Enhance safety of existing residential structures through retrofit

Effect on New Buildings	Enhance safety of new residential structures
Cost Effectiveness	Residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind events.
Discussion	This program gives rebates to residents who purchase and install safe rooms in their homes or on their properties to protect against severe weather.
Status	Discontinued – Residents did received funding through the NCTCOG Saferoom Rebate Program. The NCTCOG Program has been suspended

City of Parker Action Item	Increase outdoor warning siren coverage for new development areas.
Hazard(s) Addressed	Tornado, Wildfire, High Winds, Flooding, Hail, Lightning, Dam Failure
Goal/Objective	1-A, 1-B
Priority	High
Estimated Cost	$25,000 per siren, number of sirens TBD
Potential Funding Sources	General Fund, HMGP, Developer cost
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	9-12 months
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	Early warning is a key element in keeping citizens that are outdoors notified of hazards.
Discussion	This project will expand Parker's siren coverage to new areas of development not currently protected by sirens.
Status	Deferred – will be included in 2021 Plan

City of Parker Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.
Hazard(s) Addressed	Dam Failure, Flooding
Goal/Objective	2-A, 3-A
Priority	Medium
Estimated Cost	$50,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Planning

Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	Discontinued – Dam Failure of Extremely low risk to City as none are present within city limits.

City of Parker Action Item	Develop a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	2-A
Priority	Medium
Estimated Cost	$5,000
Potential Funding Sources	TFS Grants,
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Fire Dept.
Implementation Schedule	2-3 years
Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire
Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire
Cost Effectiveness	CWPPs show city officials where to redouble their efforts in preventing wildfire, saving time and money. Also work to establish urban wildfire interface around new development properties.
Discussion	Identify and mitigate all structures and infrastructures that would be impacted by a potential wildfire.
Status	Deferred – will be included in 2021 Plan

City of Parker Action Item	Develop a drought contingency plan
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	2-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind

Lead Department	Public Works
Implementation Schedule	12 - 18 months
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing, soil conditioning around foundations
Effect on New Buildings	May require new codes for low-flow plumbing and preservation of foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Develop a plan for conserving water based on the stages of drought. Plan would include strategies for soil movement abatement depending on drought stage.
Status	Deferred – will be included in 2021 Plan

City of Parker Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.
Status	Discontinued – Relevant studies for the region were conducted by reputable research institutions,

City of Parker Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	$10,000

Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.
Status	Discontinued

City of Parker Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as provide other emergency and hazard information
Status	Deferred – will be modified and included in 2021 Plan

City of Parker Action Items: New

City of Parker Action Item	Establish outdoor warning siren coverage for new development areas.
Hazard(s) Addressed	Tornado, Wildfire, High Winds, Flooding, Hail, Lightning
Goal/Objective	1-A, 1-B
Priority	High
Estimated Cost	$35,000 per siren, number of sirens TBD
Potential Funding Sources	General Fund, HMGP, Developer cost
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	36-48 months
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	Early warning is a key element in keeping citizens that are outdoors notified of hazards.
Discussion	This project will expand siren coverage to areas of development not currently protected by sirens. This action item would be specific to installation/placement of new OWS sirens in the jurisdiction.

City of Parker Action Item	Develop a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	2-A
Priority	Medium
Estimated Cost	-
Potential Funding Sources	TFS Grants,
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Fire Dept.
Implementation Schedule	2-3 years
Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire
Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire
Cost Effectiveness	CWPPs show city officials where to redouble their efforts in preventing wildfire, saving time and money. Also work to establish urban wildfire interface around new development properties.
Discussion	Coordinate with TFS to Identify and mitigate all structures and infrastructures that would be impacted by a potential wildfire.

City of Parker Action Item	Develop a drought contingency plan
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	2-C
Priority	Medium
Estimated Cost	-
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Public Works
Implementation Schedule	12 - 18 months
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing, soil conditioning around foundations
Effect on New Buildings	May require new codes for low-flow plumbing and preservation of foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Coordinate with Parker Public Works to Develop a plan for conserving water based on the stages of drought. When water is conserved and not used for landscape during droughts, this would provide water for homeowners to use, through drip irrigation, to keep their foundations at a consistent saturation level, mitigating the impacts of drought and lack of water.

City of Parker Action Item	Develop and Implement an Emergency Notification System
Hazard(s) Addressed	Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	-
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of program Infrastructure.

Discussion	Utilize local Emergency alerting to warn citizens and provide information about severe weather as well as provide other emergency and hazard information

City of Parker Action Item	Develop and Implement a NIMS Training Program
Hazard(s) Addressed	Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	-
Potential Funding Sources	NIMS Grants, General Fund
Potential Matching Sources	None
Lead Department	Fire Department
Implementation Schedule	12-24 months
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	Low cost – Training is provided by National, State and Local Government Programs
Discussion	Utilize existing free training programs to bring training of city employees and volunteers that may respond to an emergency scene or EOC with the occurrence of an emergency or disaster affecting the City of Parker.

City of Parker Action Item	Implement all-hazards community education program, including information on mitigation activities.
Hazard(s) Addressed	Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	-
Potential Funding Sources	Local Funding
Potential Matching Sources	Local Grants, FEMA
Lead Department	Fire Department
Implementation Schedule	12-24 months

Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Educating public on mitigation against loss of life and property will save government resources in the event of a disaster event
Discussion	Community education is important for reducing loss of life and property.

City of Parker Item	Develop and implement a comprehensive public education program to educate on the actions to help mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Tornado, Hail, Winter Storms, High Winds, Lightning, Expansive Soils, Extreme Heat, Earthquake, Flooding, Wildfire, Drought
Goal/Objective	4-A, 4-B, 4-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local funds General fund
Lead Department	Town Council
Implementation Schedule	Yearly effort
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Minimal compared to preservation of life safety
Discussion	The utilization of social media will be key in this program. Program will include educational information about hazard awareness and mitigation.

City of Parker Action Item	Develop and Implement an extreme temperature program that identifies both locations for vulnerable residents to go to during periods of extreme temperatures.
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	2-A, 2D
Priority	Medium
Estimated Cost	$5,000-$20,000
Potential Funding Sources	HMGP

Potential Matching Sources	Local funds, General fund
Lead Department	Town Council
Implementation Schedule	12 months
Effect on Old Buildings	Could require retrofit to accommodate required space and resources, including but not limited to emergency generators.
Effect on New Buildings	May entail enhanced construction materials
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.
Discussion	Cooling shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold

National Flood Insurance Program (NFIP) Compliance

The City of Parker is participating in the National Flood Insurance Program and has identified their respective areas as vulnerable to flooding. This is incorporated into all current and future planning for dealing with repetitive loss vulnerabilities.

Table 6.1 NFIP Compliance

CID	Community Name	County	Initial FHBM Identified	Initial FIRM Identified	Curr Eff Map Date	Reg-Emer Date	Tribal
480139#	PARKER, CITY OF	COLLIN COUNTY	12/27/1977	08/15/1979	06/02/2009	08/15/1979	No

Source: http://www.fema.gov/cis/TX.html

Jurisdiction Compliance

Once the community applies for the NFIP, FEMA arranges for a study of the community to determine base flood elevations and flood risk zones. Consultation with the community occurs at the start of and during the study, and those communities with minimal flood risk are converted to the Regular Program without a study.

FEMA provides the studied community with a Flood Insurance Rate Map delineating base flood elevations and flood risk zones. The community is then given 6 months to adopt base flood elevations in its local zoning and building code ordinances. Once the community adopts more stringent ordinances, FEMA converts the community to the NFIP's Regular Program. FEMA then authorizes the sale of additional flood insurance in the community up to the Regular Program limits. The community must implement and enforce the adopted floodplain management measures. FEMA provides periodic community assistance visits with local officials to provide technical assistance regarding complying with NFIP floodplain management requirements.

The purchase of flood insurance is mandatory as a condition of receipt of federal or federally-related financial assistance for acquisition and/or construction of buildings in SFHAs of any participating community. Those communities notified as flood-prone which do not apply for participation in the NFIP within 1 year of notification are ineligible for federal or federally-related financial assistance for acquisition, construction, or reconstruction of insurable buildings in the SFHA.

Jurisdiction Activities

In order to maintain eligibility with NFIP, jurisdictions are required to maintain their list of properties that hold a policy with NFIP, along with up-to-date maps of the floodplains in the jurisdictions. Each jurisdiction participating in the Collin County Hazard Mitigation Action Plan completes this basic requirement and has the information on file with the jurisdiction's designated floodplain manager. Using this plan, participating jurisdictions will be able to continue their compliance with NFIP by implementing damage control measures and take action to minimize the effects of flooding in their respective jurisdictions.

Table 6.2 NIFP Activity

Jurisdiction	Community Floodplain Administrator	NFIP Activity	Activity Description	Enforcement
City of Parker	City Administrator	Completing and maintaining FEMA elevation certificates for pre-FIRM and or post-FIRM buildings	City Hall is responsible for issuing floodplain permits.	NFIP compliance is implemented and enforced through a process of floodplain identification using FEMA floodplain maps, permit issuance, building requirements, and compliance inspections pending approval. Failure to comply with City's flood damage prevention order shall result in fines up to $500 per violation plus court costs.
		Requiring and maintaining FEMA elevation certificates for all new and improved buildings located in floodplains		
		Implementing damage reduction measures for existing buildings such as acquisition, relocation, retrofitting, and maintenance of drainage ways and retention basins	Maintenance of drainage ways and retention basins. Installation of retention basins on new construction.	
		Taking action to minimize the effects of flooding on people, property, and building contents through measures including flood warning, emergency response, and evacuation planning	Implementing newly developed Storm-water Management Program which includes public education, new development standards, and other programs and policies.	

7. Plan Maintenance

Monitoring, Evaluating and Updating the Plan

In Compliance with requirement *§ 201.6(c)(4)(i)*, the City of Parker has developed a plan maintenance process which is described in the following paragraphs. The City of Parker, along with participating jurisdictions are responsible for monitoring the implementation of the plan, executing a yearly evaluation of its effectiveness, and updating the plan within a 5-year cycle.

Following formal adoption by the City of Parker, the county, and the city council of each participating jurisdiction, the actions outlined in the Collin County Hazard Mitigation Action Plan (HazMAP) would be implemented by participating jurisdictions as described throughout this document.

The Collin County Emergency Management Coordinator, working in conjunction with the respective jurisdictions, will be responsible for ensuring the mitigation plan is monitored, evaluated, and reviewed on an annual basis. This will be accomplished by calling an annual meeting of the Hazard Mitigation Planning Team (HMPT), whose members will provide assistance and expertise for plan review, evaluating, updating, and monitoring. This meeting will be open to the public and public notices will encourage community participation. During this annual meeting, Collin County will provide information on the implementation status of each action included in the plan. As part of the annual monitoring, review and evaluation process, Collin County will provide reports regarding implementation actions and action completion dates for the plan. Also, as part of the evaluation, the HMPT will assess whether goals and objectives address current and expected conditions, whether the nature and/or magnitude of the risks have changed, if current resources are appropriate for implementing the plan, whether outcomes have occurred as expected, and if agencies and other partners participated as originally proposed. These activities will take place according to the timetable presented below:

Table 7.1 Plan Maintenance Timeline

Personnel	What	Time
Emergency Management Coordinator	Monitoring Plan : Track implementation and action items, changes to risk assessment, changes to planning team members, changes to capabilities, plan integrations	Biannually
	Evaluate Plan: Assess effectiveness by evaluating completed actions, implementation processes, responsible personnel and lessons learned.	Annually
	Update Plan	Once every 5 years

At least once every five (5) years, or more frequently, if such a need is determined by the participating jurisdiction, the multi-jurisdictional plan will undergo a major update. During this process, all sections of the plan will be updated with current information, analyses done and new and/or modified mitigation action plans will be developed. The revised plan will be submitted for state and federal review and approval, and presented for approval to the Collin County Commissioner's Court and the respective councils of incorporated cities/towns included in the Collin County plan. Each participating jurisdiction will undertake the same process for reviewing, revising and updating their respective plans and submitting them for approval. The plans will be updated every five years in accordance with federal requirements.

Plan Incorporation into Existing Planning Mechanisms *(In compliance with 201.6(c)(4)(ii))*

Based on the requirements set forth in § *201.6(c)(4(ii)*, the State of Texas Mitigation Plan, the vulnerability and capabilities assessment for each jurisdiction was carefully reviewed and considered when developing the mitigation actions for this plan. The HMPT and planning committees will establish a process in which the mitigation strategy, goals, objectives and actions outlined in this plan will be incorporated into the existing regional and local planning strategies.

Local and regional planning committees currently use comprehensive land use planning, capital improvements planning, and building code ordinances to guide development. The mitigation strategy, goals, objectives and actions outlined in this plan will be integrated into these existing mechanisms as applicable. Those mechanisms include the following:

Table 7.2 Plan Incorporation Mechanisms

Jurisdiction	Responsible Personnel	Jurisdictional Plans	Integration Schedule	Integration Plan
City of Parker	City Council, City Administrator	Budget Meetings	Annually	Integration of mitigation projects identified in HazMAP, grants, and other fiscal allowances for mitigation actions and related costs
	City Administrator , Police Chief, Fire Chief, Emergency Management Coordinator	Emergency Action Plan updates	Every Five Year	EAP Mitigation annex updates based on HazMAP HIRA; update preparedness, response and recovery actions related to identified hazards
	Designated Floodplain Manager	Floodplain Ordinances	As needed	Enhance mitigation of flood hazards using HazMAP flood data for floodplain management and community development.
	City Council, City Administrator	Capital improvement plans	Annually	Strengthen critical infrastructure and key resources based on HazMAP hazard analysis, incorporate vulnerability data and action items.
	Public Works Director, City Council	Drought Contingency plans	Assessed annually and updated as needed.	Integrate drought actions such as xeriscaping, water restrictions, and public education
	Public Works Director, City Council	Natural Resource Conservation Plan	Assessed annually and updated as needed.	Integrate conservation measures by directing development away from hazard-prone areas identified in HazMAP.

Although it is recognized there are many possible benefits to integrating components of this HazMAP into other planning mechanisms, the Parker Hazard Mitigation Planning Committee considers this HazMAP, including development and maintenance, to be the primary vehicles to ensure implementation of local hazard mitigation actions.

The process described here is the same as was used since the last planning update.

Continued Public Involvement (In compliance with 201.6(c)(4)(iii))

As stated in requirement § *201.6(c)(4)(iii)* The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.

To address this requirement, ongoing public participation will be encouraged throughout the entire planning and implementation process. A copy of the plan will be provided on the Collin County website.

The planning team and committee will continue meeting on a regular basis to ensure the successful implementation of the plan and to discuss any additional issues regarding the emergency management of Collin County. The annual meetings for monitoring, evaluating, and updating the plan will be open to the public and public notices will encourage community participation.

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Annex Q: City of Princeton

1. Introduction

This annex was prepared in 2021 as part of an update to the Collin County Multi-Jurisdictional Hazard Mitigation Action Plan. The City of Princeton participated on the Collin County Hazard Mitigation Planning Team (HMPT) by representing the City of Princeton within the areas of the county. In addition to the countywide hazards and strategies discussed in the main plan, this annex serves as a complete hazard mitigation planning tool for the City of Princeton. It contains capability assessment information, a specific vulnerability assessment, and a complete mitigation strategy. The methodology and process for developing this annex are explained throughout the following sections.

2. Plan Development and Adoption Process

In order to apply for federal aid for technical assistance and post-disaster funding, the City of Princeton along with local jurisdictions must comply with Part 201.3 of the Disaster Mitigation Act of 2000 implemented in the Federal Code of Regulations 44 CRF Part 201.6. While Collin County has historically implemented measures to reduce their vulnerability to hazards, passage of DMA 2000 helped Collin County and City officials recognize the benefits of a long-term approach to hazard mitigation, which achieves a gradual decrease of impacts associated through the implementation of a Hazard Mitigation Plan. Collin County's Hazard Mitigation Action Plan represents the collective efforts of all participating jurisdictions, the general public, and stakeholders.

Organizing the Planning Effort

The City of Princeton participated in the comprehensive county wide approach that was taken in developing the plan. An open public involvement process was established for the public, neighboring communities, regional agencies, businesses, academia, etc. to provide opportunities for everyone to become involved in the planning process and to make their views known. The meetings were advertised with notices in public places and o.

In accordance with Part 201.6(c)(5) of the Disaster Mitigation Act of 2000 (DMA 2000), Collin County developed this Hazard Mitigation Action Plan. This plan identifies hazards and mechanisms to minimize future damages associated with these hazards, which threaten Collin County and its jurisdictions.

Existing Data and Plans

Existing hazard mitigation information and other plans were reviewed during the development of the Hazard Mitigation Action Plan. GIS, statistical and qualitative data was gathered through numerous sources. The table below outlines the sources of data for the plan:

Table 2.1 Plan Source Data

Source	Data
City and County Appraisal Data 2020	Population and demographics
Regional Hazard Assessment Tool	Hazard occurrences
National Climatic Data Center (NCDC)	Hazard occurrences
Texas Forest Service/Texas Wildfire Risk Assessment Summary Report	Wildfire Threat and Wildland/Urban Interface
National Inventory of Dams	Dam information

Source	Data
City of Princeton Ordinance	Flood Plain Ordinance Ch. 34 Flood Prevention

Planning Committee

This Hazard Mitigation Action Plan was developed by the City of Princeton Hazard Mitigation Planning Committee, with support from the North Central Texas Council of Governments, Collin County and the HMPT.

The Collin County HMPT was assembled in November 2020 with representatives from participating jurisdiction planning committees, including mayors, police chiefs, fire chiefs, and the general public The Collin County Department of Homeland Security acted as the plan development consultant providing hazard mitigation planning services; the efforts of the Princeton planning committee were led by the City of Princeton Emergency Management Coordinator. The table below provides a list of the primary representatives on the Princeton planning committee.

Table 2.2 Planning Committee - Primary Representatives

Representing	Position	Role
Department of Emergency Management	Emergency Management Coordinator	Plan Development
Department of Engineering	City Engineer	Plan Development
Fire Department	Fire Chief	Plan Development
Police Department	Police Chief	Plan Development
Public Works Department	Public Works Director	Plan Development

Collin County served as the coordinator and lead agency for all jurisdictions by accomplishing the following activities through the planning process:

- Assigned the County's Assistant Emergency Management Coordinator to provide technical assistance and necessary data to the planning committee.
- Scheduled, coordinated, and facilitated community meetings with the assistance of the HMPT and the planning committees.
- Provided any necessary materials, handouts, etc. for public planning meetings.
- Worked with the HMPT and planning committees to collect and analyze data and develop goals and implementation strategies.
- Prepared, based on community input and planning team/committee direction, the first draft of the plan and provided technical writing assistance for review, editing and formatting.
- Coordinated with the stakeholders within the jurisdictions and the unincorporated areas of Collin County during plan development.

Each of the individual jurisdictions participated in accomplishing similar activities associated with development of the plan as follows:

- Coordinated input from representatives of neighborhood stakeholder groups and provided a representative to the County HMPT.
- Attended regular meetings of the planning team as coordinated by Collin County.
- Assisted Collin County staff with identifying hazards and estimating potential losses from future hazard events.

- Assisted Collin County in developing and prioritizing mitigation actions to address the identified risks.
- Assisted Collin County in coordinating public meetings to develop the plan.
- Identified the community resources available to support the planning effort.
- Worked for the support of neighborhood stakeholders for the recommendations resulting from the planning process.
- Submitted the proposed plan to all appropriate departments for review and comment and worked with Collin County to incorporate the resulting comments into the proposed plan.

External stakeholders involved in reviewing the Collin County Hazard Mitigation Action Plan:

Table 2.3 External Stakeholders

Representing	Position	Role
City of Princeton Community Development Corporation	Board Member	Plan Review

Subsequent to the State of Texas and FEMA approval of the plan, these organizations are also committed to accomplishing the following activities:

- Appoint members to a coordinating committee to monitor and work toward plan implementation.
- Publicize the plan to neighborhood interests and ensure that new community members are aware of the plan and its contents.
- Monitor progress in achieving the plan's goals through regular maintenance and implementation projects.

Planning Meetings

During the planning process, the H met to obtain relevant information from the participating jurisdictions and to discuss the objectives and progress of the plan. The objectives of these meetings were to gather information and to provide guidance for each jurisdiction throughout the planning stages.

The following meetings were held by Collin County:

- Collin County HazMAP Kickoff Meeting – August 12, 2020
- Collin County Planning Meeting – November 11, 2020
- Collin County Planning Meeting – June 12, 2021
- Collin County HazMAP Public Meeting – 11/2/2021 at 2PM
- Collin County HazMAP Public Meeting – 01/12/2022 at 9AM

Public Involvement

Support from the community is vital for any successful hazard mitigation plan. The HMPT and planning committee provided opportunities, announced through public communication means, for public participation and input throughout the planning process prior to this draft and before approval of the finalized plan. Advertisement and sign in sheets for these meetings are located in Appendix A.

- The first public meeting was held on November 2, 2021 at 2PM, and advertised on the Collin County website along with other jurisdictional websites inviting the public, neighboring

communities, local business, academia, agencies, and nonprofits to comment. The meeting was held virtually via WebEX.

- A second public meeting was held on January 12, 2022 at 9AM. Announcements were placed on jurisdictions websites, including Collin County inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to view and comment on the HazMAP prior to plan submission.

There were no comments directly related to the mitigation plan received from citizens, non-profits, businesses, academia, or interested parties; therefore, no feedback was incorporated. An additional opportunity for the public to comment on the plan will be held prior to formal plan adoption.

This provided all citizens, stakeholders, neighboring communities, agencies, businesses, academia, non-profit organizations, and all interested parties an opportunity to be involved in the planning process and to take part in the decisions making process that affect the future of the communities that they live in.

3. Jurisdictional Hazard Identification and Risk Assessment

The Hazard Mitigation Planning Committee for the City of Princeton identified several natural hazards and man-made hazards that could affect the incorporated areas of the city. The committee decided to focus on the natural hazards identified in Section 5 of this update. This was done after reviewing the 2016 HazMAP, the State of Texas Hazard Mitigation Plan, as well as other sources such as federal and state agencies. The hazards were ranked using the Priority Risk Index.

Priority Risk Index

A Priority Risk Index (PRI) was developed with the purpose of categorizing potential hazards for Princeton and ranks each hazard as high, moderate, low, or negligible to no risk. The hazard classification generated through the use of the PRI allows for the prioritization of those high hazard risks for mitigation planning purposes, and more specifically, the identification of hazard mitigation opportunities for Princeton to consider as part of their proposed mitigation strategy.

The PRI is used to assist all jurisdictions participating in the Collin County HazMAP in determining which hazards pose the most significant threat based on a variety of factors. The PRI is not scientifically based, but is rather meant to be utilized as an objective and systematic planning tool for classifying and prioritizing hazard risks in Collin County based on standardized criteria. The PRI results in numerical values that allow identified hazards to be ranked against one another. The sum of all four categories equals the final PRI value, as shown below:

PRI Value = (Probability x .30) + (Life Impact x .35) + (Property Impact x .25) + (Spatial Extent x .10)

The higher the PRI value, the greater the hazards risk. These values were obtained by assigning varying degrees of risk to four categories for each hazard: Probability, Life Impact, Property Impact, and Spatial Extent *(Table 3.1).* Each category has been assigned an Index Value (0 to 3) and a Weighing Factor (0 – 100%). These values may be adjusted during future plan updates. In order to evaluate the risk of each hazard, the assigned PRI Value for each category is multiplied by the weighing factor. Then, the PRI for each hazard is calculated by adding the product obtained in each category. According to the weighing scheme applied for Collin County, the highest possible PRI value is 3.0. The PRI calculations are presented in *Table 3.2*. Table 3.1 breaks down the value of each category.

Table 3.1 Priority Risk Index Value

Assigned Weighing Factor	PRI Category	Degree of Risk		
			Criteria	Index Value
30%	Probability	Unlikely	Less than 1% annual probability	0
		Possible	Between 1 and 10% annual probability	1
		Likely	Between 10 and 100% annual probability	2
		Highly Likely	100% annual probability	3
35%		Minor	Very few injuries, if at all none	0

	Life Impact	Limited	Minor Injuries	1
		Critical	Multiple deaths/injuries	2
		Catastrophic	High number of deaths/injuries	3
25%	Property Impact	Minor	Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	0
		Limited	More than 10% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one day.	1
		Critical	More than 25% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one week.	2
		Catastrophic	More than 50% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for 30 days or more.	3
10%	Spatial Extent	Negligible	Less than 1% of area affected	0
		Small	Between 1 and 10% of area affected	1
		Moderate	Between 10 and 50% of area affected	2
		Large	Between 50 and 100% of area affected	3

Table 3.2 Priority Risk Index for Princeton

Hazard	Category/Degree of Risk				
	Probability Index Value (0 - 3 30%)	Life Impact Index Value (0 - 3 35%)	Property Impact Index Value (0 - 3 25%)	Spatial Extent Index Value (0 - 3 10%)	PRI Value 2021
Dam Failure	0	0	0	0	0
Drought	2	0	1	3	1.15
Earthquake	0	1	0	1	0.45
Expansive Soils	2	0	1	1	0.95
Extreme Heat	2	1	0	2	1.15
Flooding	3	1	2	1	1.85
Hail	2	0	1	1	0.95
High Winds	2	0	1	2	1.05
Lightning	1	0	1	1	0.65
Tornado	2	1	2	2	1.65
Wildfire	1	1	1	1	1
Winter Storms	2	0	2	3	1.4

The conclusions drawn from the hazard profiling process for the City of Princeton, resulted in the classification of risk for each identified hazard according to four categories: High Risk, Moderate Risk, Low Risk, and Negligible to No Risk *(Table 3.3).* For purposes of these classifications, risk is expressed in relative terms according to the probability of occurrence and estimated impact that a hazard will have on human life and property in Princeton.

Table 3.3 Hazard Rankings for City of Princeton

High Risk (PRI 2 - 3)	
Moderate Risk (PRI 1.01 -1.9)	Extreme Heat Drought Tornado Flooding High Winds Winter Storm
Low Risk (PRI 0.50 – 1)	Expansive Soils Lightning Wildfire Hail
Negligible to No Risk (PRI 0 – 0.49)	Dam Failure Earthquake

Changes in Development and Priorities (Requirement §201.6(d) (3))

Our jurisdiction is in one of the fastest growing areas of the nation, hence development has increased and will continue to increase our vulnerability to hazards that may impact us.

Vulnerability Narratives

This annex focuses on specific areas of vulnerability the City of Princeton faces with each hazard. The hazards identified in the main plan are all addressed in this annex, therefore the natural hazards rated negligible to no risk are included, described, and considered for mitigation.

Dam and Levee Failure A dam is defined as a barrier constructed across a watercourse for the purpose of storage, control, or diversion of water. Dams typically are constructed of earth, rock, concrete, or mine tailings. A dam failure is an accidental or unintentional collapse, breach, or other failure of an impoundment structure that results in downstream flooding. Because dams are man-made structures, dam failures are usually considered technological hazards. However, since most dam failures result from prolonged periods of rainfall, they are often cited as secondary or cascading effects of natural flooding disasters and are not named as the primary hazard that causes disaster declarations.

The City of Princeton has not identified any dams that present a hazard at this time, but as a participant in the county plan inundation studies will be considered.

Drought has the potential to impact the entire planning area equally; all improved property, emergency facilities, critical facilities, critical infrastructure, and the entire population of Princeton are vulnerable to

this hazard. Foundations of all buildings are vulnerable; however, older structures, or those built under less stringent foundation code requirements are most vulnerable. Lake Lavon, Lake Texoma, Lake Tawakoni, Lake Fork and the Lake Chapman-Cooper reservoir system are water sources for the City of Princeton and are vulnerable to drought. In turn, the city's population, wildlife and vegetation are vulnerable. Lower income populations who may not have the resources to buy containerized water in the event of a shortage may be more vulnerable than other populations.

Earthquake An earthquake is a sudden motion or trembling caused by an abrupt release of accumulated strain on the tectonic plates that comprise the Earth's crust. The theory of plate tectonics holds that the Earth's crust is broken into several major plates. These rigid, 50- to 60- mile thick plates move slowly and continuously over the interior of the earth, meeting in some areas and separating in others. As the tectonic plates move together they bump, slide, catch, and hold. Eventually, faults along or near plate boundaries slip abruptly when the stress exceeds the elastic limit of the rock, and an earthquake occurs. The ensuring seismic activity and ground motion provoke secondary hazards: surface faulting, ground failure, and tsunamis. The vibration or shaking of the ground during an earthquake is referred to as ground motion. In general, the severity of ground motion increases with the amount of energy released and decreases with distance from the causative fault or epicenter. When a fault ruptures, seismic waves are propagated in all directions, causing the ground to vibrate at frequencies ranging from 0.1 to 30 Hz. Seismic waves are referred to as P waves, S waves, and surface waves. Even though rated negligible risk, the entire geographic planning area, properties, and populations have the potential to be vulnerable to earthquakes. Buildings constructed under older building codes, aging underground infrastructure, and roads are most vulnerable to damages from seismic activity.

Expansive Soils Expansive soils, also referred as swelling soils, are those soils which have tendency to increase in the volume whenever the moisture content (i.e. water content) in it is increased. Foundation with swelling soil will heave and can cause lifting of a building or structure laid on it whenever the moisture content rises. This can ultimately lead to the failure of foundation and structure laid on it. They swell when water is added to them and shrink when they dry out. The entire geographic planning area, properties, and populations have the potential to be vulnerable to expansive soils, especially buildings constructed under older building codes.

Extreme Heat Severe summer heat is characterized by a combination of a very high temperatures and exceptionally humid conditions. When persisting over a period of time, it is called a heat wave. Extreme heat generally affects the entire population, but the homeless, very young, elderly, and populations without air conditioning are most vulnerable.

Flooding The City of Princeton has identified several low water crossings that are subject to periodic flash flooding. Affected areas differ with each storm as there are several different branches and tributaries of rivers and creeks subject to overflow, and also are dependent upon which area receives the rain. These areas are low water crossings mainly on older city streets and roads that have drainage ditches adjacent to the road or street. The drainage system gets impeded with material like (sedimentary rock which cements together other materials, including gravel, sand, clay, and silt). When flash flooding occurs these areas need to be barricaded, and the location of the storm determines which areas require barricading. Typical road closures due to flooding occur on West College Street at the bridge crossing and streets in the older part of the city.

Hail is an outgrowth of a severe thunderstorm in which balls or irregularly shaped lumps of ice greater than 0.75 inches in diameter fall with rain. Early in the developmental stages of a hailstorm, ice crystals

form within a low-pressure front due to warm air rising rapidly into the upper atmosphere and the subsequent cooling of the air mass. Frozen droplets gradually accumulate on the ice crystals until, having developed sufficient weight, they fall as precipitation. The entire geographic planning area, properties, and populations have the potential to be vulnerable to hail. Exposed populations, manufactured homes, and older properties are most vulnerable.

High Winds Straight-line winds are often responsible for the wind damage associated with a thunderstorm. These winds are often confused with tornadoes because of similar damage and wind speeds. However, the strong and gusty winds associated with straight-line winds blow roughly in a straight line unlike the rotating winds of a tornado. Downbursts or micro-bursts are examples of damaging straight-line winds. A downburst is a small area of rapidly descending rain and rain-cooled air beneath a thunderstorm that produces a violent, localized downdraft covering 2.5 miles or less. Wind speeds in some of the stronger downbursts can reach 100 to 150 miles per hour, which is similar to that of a strong tornado. The winds produced from a downburst often occur in one direction, and the worst damage is usually on the forward side of the downburst. High winds have the potential to affect the entire planning area.

High winds are a frequent occurrence with severe thunderstorms and they can affect all areas of the City of Princeton. These winds can occur suddenly and without warning during severe weather and may pose access challenges due to fallen trees on roadways. Manufactured homes and exposed populations are most vulnerable.

Lightning results from the buildup and discharge of electrical energy between positively and negatively charged areas within thunderstorms. A “bolt” or brilliant flash of light is created when the buildup becomes strong enough. These bolts of lightning can be seen in cloud-to-cloud or cloud-to-ground strikes. Bolts of lightning can reach temperatures approaching 50,000° Fahrenheit. While lightning is mostly affiliated with thunderstorms, lightning often strikes outside of these storms, as far as 10 miles away from any rainfall. Federal Emergency Management Agency states that an average of 300 people are injured and 80 people are killed in the United States each year by lightning. Direct strikes have the power to cause significant damage to buildings, critical facilities, infrastructure, and ignition of wildfires which can result in widespread damages to property. The entire geographic planning area**,** properties, and populations have the potential to be vulnerable to lightning. Property without lightning protection and exposed populations are most vulnerable.

Tornado A violently rotating column of air, in contact with the ground, either pendant from a cumuliform cloud or underneath a cumuliform cloud, and often (but not always) visible as a condensation funnel cloud. The entire geographic planning area, properties, and populations have the potential to be vulnerable to tornados. Manufactured homes and exposed populations are most vulnerable.

Wildfire in the City of Princeton is a low to moderate risk due to the well managed and readily available resources for response and 43.54% of the population lives in the WUI; the moderate threat area is location on the eastern side of the city and the low threat areas are located in the western side of the city. The City of Princeton gets mutual aid from surrounding agencies in Collin County that respond to fires within the City of Princeton during times of drought, burn bans, and high fire threat, this is part of the automatic mutual aid between the cities.

Winter Storms Winter storms originate as mid-latitude depressions or cyclonic weather systems, sometimes following the path of the jet stream. A winter storm or blizzard, combines heavy snowfall, high winds, extreme cold and ice storms. Many winter depressions give rise to exceptionally heavy rain and widespread flooding and conditions worsen if the precipitation falls in the form of snow. The winter storm season varies widely, depending on latitude, altitude and proximity to moderating influences. The entire geographic planning area, properties, and populations have the potential to be vulnerable to winter storms. Winter storms have the potential to make roads impassable for days. Residents may be confined to their homes due to the storm and may be without basic services, such as water and electricity, for an extended period of time. The homeless, elderly, and populations without access to heat are most vulnerable.

Identification of Assets and Vulnerability Assessment

An inventory of Princeton geo-referenced assets was created in order to identify and characterize property and population potentially at risk to the identified hazards. By understanding the type and number of assets that exist and where they are located in relation to known hazard areas, the relative risk and vulnerability for such assets can be assessed. For this assessment, five categories of assets were evaluated using Geographic Information System and statistical analysis. The five categories of vulnerable assets include:

- **Population**: Includes the number of people residing in Collin County jurisdictions as delineated by U.S. Census 2020 block data provided by NCTCOG.
- **Improved property**: Includes all developed properties according to local parcel data from the Collin County Central Appraisal District. The information has been expressed in terms of the total assessed value of improvements that may be exposed to the identified hazards.
- **Emergency facilities**: Includes fire stations, police stations and hospitals, provided by the Regional Hazard Assessment Tool, and the City of Princeton Emergency Management Coordinator.
- **Critical facilities**: Includes schools and historic places provided by Regional Hazard Assessment Tool, City of Princeton Emergency Management Coordinator. These are non-emergency facilities, but still provide critical services and functions for vulnerable sectors of the population.
- **Critical infrastructure**: Includes airports, natural gas facilities, wastewater facilities, potable water treatment facilities, wastewater treatment facilities, dams, and bridges. Data for all critical facilities was obtained from Regional Hazard Assessment Tool, and the City of Princeton Emergency Management Coordinator.

The following tables provide a breakdown of the geo-referenced assets that were used for the vulnerability assessment.

Population

According to city municipal information of residential water meters and 3.5 persons per households, the estimated total population of City of Princeton in 2020 was 15,330 people, with 7,163 households . The count breakdown by municipal jurisdiction is provided in *Table 3.4.*

Table 3.4. Population Counts

Jurisdiction	Population			Households		
	Population	% of County Total	Population Density (Sq. Mile)	Household	% of County Total	Household Density (Sq. Mile)
City of Princeton	15,330	1.4%	1,444.86	5,397	1.4%	508.75

Source: Local Jurisdiction, US Census Bureau & Collin County Appraisal District

Table 3.5 summarizes population counts and population chance (absolute and percent predications for the City of Princeton.

Table 3.5 Population Predictions

Jurisdiction	Population 2010 Census	Population 2018 Estimate	Population 2019 Estimate	Absolute Change 2018-2019	Percent (%) Change 2018-2019
City of Princeton	6,807	10,560	12,680	2,120	20.08%

Source: 2020 NCTCOG Population Estimate

Property

There are an estimated 7,603 parcels in Princeton, with an estimated $1,003,526,396 in total assessed value of improvements. *Table 3.6* lists the total number and percentage of parcels by jurisdiction.

Table 3.6 Parcel Counts and Improvements Value

Jurisdiction	Number of Parcels	% of County Total	Total Assessed Value of Improvements (Buildings)[1]
City of Princeton	7,603	0.82%	$1,003,526,396

Source: Collin County Appraisal District

Emergency Facilities

There are three identified emergency facilities in Princeton, including two fire stations, one police station. *Table 3.7* presents the distribution of emergency facilities by jurisdiction. Geographic coordinates were used to determine the location of each facility.

Table 3.7 Emergency Facilities

Jurisdiction	Fire Stations	Police Stations	Hospitals
City of Princeton	2	1	0

Source: County Data and Regional Hazard Assessment Tool

Critical Facilities

There are 12 critical facilities, which are considered non-emergency in Princeton, including twelve schools and two historical properties. Geographic coordinates (i.e., latitude and longitude) were used to determine the location of each facility.

Table 3.8 Critical Facilities

Jurisdiction	Schools	Historical Property
	12	2

Source: Local jurisdictions

Critical Infrastructure

There are 22 identified critical infrastructure facilities, including nine lift stations, three natural gas facilities, two water treatment facilities, zero wastewater treatment facilities, zero dams, and eight railway/highway bridges (*Table 3.9*).

Table 3.9 Critical Infrastructure

Jurisdiction	Lift Stations	Natural Gas and liquid Petroleum Facilities	Wastewater Treatment Facilities	Potable Water Treatment Facilities	Dams	Railway/ Highway Bridges
City of Princeton	9	3	0	2	0	8

Source: Local jurisdictions

Methodology

Based on the type of information available for analysis, Princeton's vulnerability assessment was conducted using two distinct methodologies, a Geographic Information System-based analysis and a statistical risk assessment methodology. Each approach provides estimates for the potential impact of hazards by using a common, systematic framework for evaluation of historical occurrence information provided by National Centers for Environmental Information, the Texas Forest Service, and the FEMA Resilience and Planning Tool. The results of the vulnerability assessment are provided by jurisdiction for each hazard analyzed.

Of the 13 hazards evaluated for Princeton, four were analyzed using a Geographic Information System-based analysis, 5 using a statistical risk assessment methodology, and the remaining 4 hazards using qualitative analysis. Qualitative analysis was used due to lack of information, the inability to define specific areas of risk, and/or inexistence of historical records. Additional information regarding these 4 hazards is unattainable at the present time; studies to address this data deficiency are noted as action items in this update. *Table 3.10* summarizes the methodology used for each hazard.

Table 3.10 Analysis used for Vulnerability Assessment

Hazard	Geographic Information System-based Analysis	Statistical Analysis	Qualitative Analysis

Dam Failure			X
Drought	X		
Earthquake			X
Expansive Soils			X
Extreme Heat		X	
Flooding	X		
Hail	X		
High Winds		X	
Lightning		X	
Tornado		X	
Wildfire	X		
Winter Storms		X	

Summary of Vulnerably Assessment

A summary of the vulnerability assessment for each hazard using geographic and statistical analysis is presented in the following pages. The detailed assessment is presented in the following sections.

Summary Table 3.11

Drought	
Population	According to National Centers for Environmental Information (NCEI) no recorded injuries or fatalities have been recorded for drought events. There are no personal losses expected from drought events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Princeton are expected but financially unknown due to lack of accurate reporting. Historical data indicates that crop losses in the City of Princeton are expected mostly during water shortages, financially unknown due to lack of accurate reporting.
Emergency Facilities	Because of the nature of this hazard, no losses are expected on emergency facilities but foundation issues could occur due to drought events.
Critical Facilities	Because of the nature of this hazard, no losses are expected on critical facilities but foundation issues could occur due to drought events.
Critical Infrastructure	Because of the nature of this hazard, no losses are expected on critical infrastructure but foundation issues and road degradation could occur due to drought events.

Summary Table 3.12

Extreme Heat	
Population	According to National Centers for Environmental Information (NCEI), there were no fatalities recorded due to extreme heat from the City of Princeton. The City of Princeton and its population are vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to developed areas and the improved property in the City of Princeton is not vulnerable to this hazard.
Emergency Facilities	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to buildings and the emergency facilities in are not vulnerable to this hazard.
Critical Facilities	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to buildings, and the critical facilities in the City of Princeton are not vulnerable to this hazard.
Critical Infrastructure	According to National Centers for Environmental Information (NCEI) there is no impact of extreme heat to critical infrastructure, and vulnerability to this hazard is considered minimal in the City of Princeton.

Summary Table 3.13

Flooding	
Population	Flooding produces an expected annualized count of zero (0) fatalities and injuries per year. Approximately 1.43% of the population of City of Princeton is located within the 100-year floodplain.
Improved Property	There have been two (2) recorded flood events in the City of Princeton. Property losses are expected but unknown due to inaccurate reporting No crop losses are expected. Approximately $3,240,000 of the total assessed value is at risk from the 100-year storm event.
Emergency Facilities	Emergency facilities have the potential to be as risk in the 100-year storm event.
Critical Facilities	Critical facilities have the potential to be as risk in the 100-year storm event.
Critical Infrastructure	Critical Infrastructure have the potential to be as risk in the 100-year storm event.

Summary Table 3.14

Hail

Population	According to National Centers for Environmental Information (NCEI), no recorded injuries or fatalities have been recorded for hailstorm events. There are no personal losses expected from hailstorm events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Princeton are expected at $228.57 per year however these values are underestimated due to lack of accurate reporting. All improved property is vulnerable to this hazard. Although some crops are susceptible to hail hazards, available historical data for the City of Princeton indicates that there are no expected crop losses from this event.
Emergency Facilities	Because of the unpredictability of the geographical location of hailstorms, all emergency facilities in the City of Princeton are vulnerable to this hazard.
Critical Facilities	Because of the unpredictability of the geographical location of hailstorms, all critical facilities in the City of Princeton are vulnerable to this hazard.
Critical Infrastructure	Because of the unpredictability of the geographical location of hailstorms, all critical infrastructures in the City of Princeton are vulnerable to this hazard.

Summary Table 3.15

High Wind	
Population	According to National Centers for Environmental Information (NCEI), there are no recorded injuries from high wind events. All the population of the City of Princeton are vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Princeton are expected at $4,228.57 per year however these values are underestimated due to lack of accurate reporting. Crop losses expected at $71.43 per year however these values are underestimated due to lack of accurate reporting.
Emergency Facilities	Because of the expected geographical widespread nature of high winds, all emergency facilities in the City of Princeton are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of high winds, all critical facilities in the City of Princeton are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of high winds, all critical infrastructures in the City of Princeton are vulnerable to this hazard.

Summary Table 3.16

Lightning

Population	According to National Centers for Environmental Information (NCEI), lightning events can be expected to cause no fatalities or injuries in the City of Princeton. All populations in the City of Princeton are vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Princeton are expected but unknown due to lack of accurate reporting.
Emergency Facilities	Because of the expected geographical widespread nature of lightning, all emergency facilities in the City of Princeton are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of lightning, all critical facilities in the City of Princeton are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of lightning, all critical infrastructures in the City of Princeton are vulnerable to this hazard.

Summary Table 3.17

Tornado	
Population	According to National Centers for Environmental Information (NCEI), there have been 3 recorded injuries and no recorded fatalities from tornado events in the City of Princeton. All the population of the City of Princeton is exposed and vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), an average loss of $10,000 per year in property losses is expected to result from tornado events. No crop losses resulted from this hazard in the City of Princeton.
Emergency Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all emergency facilities in the City of Princeton are exposed and vulnerable to this hazard.
Critical Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all critical facilities in the City of Princeton are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the impossibility to predict the geographical area of impact for tornados, all critical infrastructures in the City of Princeton are exposed and vulnerable to this hazard.

Summary Table 3.18

Wildfire	
Population	Based on geographical data, approximately 43.54% of the City of Princeton is vulnerable to wildfires, with the City of Princeton and the unincorporated areas contributing with the majority of the exposed population.

Improved Property	Based on geographical data, property losses in the City of Princeton are expected but unknown due to lack of accurate reporting; therefore, percentage of the overall property improvement values across the City of Princeton are also unknown...
Emergency Facilities	Based on geographic information there are 0 fire stations and 0 police stations at risk from wildfire events.
Critical Facilities	Based on geographic information there are no schools at risk from wildfire events.
Critical Infrastructure	Based on geographic information there are 0 bridges, 0 dams, 0 wastewater treatment facilities, and 0 water treatment facilities at risk from wildfire events.

Summary Table 3.19

Winter Storm	
Population	According to National Centers for Environmental Information (NCEI), there was one (1) county-wide fatality recorded due to winter storms, none from the City of Princeton. All the population of the City of Princeton is exposed and vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Princeton are expected but unknown due to lack of reporting however county-wide property loss is estimated at $116,250 per year. No crop losses are expected from this hazard in the City of Princeton.
Emergency Facilities	Because of the expected geographical widespread nature of winter storms, all emergency facilities in the City of Princeton are exposed and vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of winter storms, all critical facilities in the City of Princeton are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of winter storms, all critical infrastructures in the City of Princeton are exposed and vulnerable to this hazard.

4. Capability Assessment

The risk assessment and capabilities assessment serves as the foundation for the development of a meaningful hazard mitigation strategy. During the process of identifying specific mitigation actions to pursue, Collin County considered not only its level of hazard risk but also the existing capabilities to minimize or eliminate that risk.

Table 4.1 Legal and Regulatory Capability Summary

Legal and Regulatory Capabilities															
Jurisdiction	**Building Code**	**Zoning Ordinance**	**Subdivision Ordinance or regulation**	**Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances wildfire ordinances, hazard setback requirements)**	**Growth management ordinances (also called "smart Growth" or anti-sprawl programs)**	**Site Plan review requirements**	**General or comprehensive plan**	**A capital improvements plan**	**An economic development plan**	**An emergency response plan**	**A post-disaster recovery plan**	**A post-disaster recovery ordinance**	**Real estate disclosure requirements**	**Other**	**% Yes**
Princeton	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	N	N	?	**71%**
Average Yes Capabilities – 71%															
Y- Yes N- No ?- Don't Know															

Table 4.2 Administrative and Technical Capability Summary

Administrative and Technical Capabilities											
Jurisdiction	Planner(s) or engineer(s) with knowledge of land development and land management	Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Planners or engineer(s) with an understanding of natural and/or human caused hazards	Floodplain manager	Surveyors	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in GIS	Scientists familiar with the hazards of the community	Emergency manager	Grant writers	% Yes
Princeton	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	**90%**
Average Yes Capabilities – 90%											
Y- Yes N- No ?- Don't Know											

Table 4.3 Fiscal Capability Summary

Fiscal Capabilities											
Jurisdiction	Community Development Block Grants (CDBG)	Capital improvements project funding	Authority to levy taxes for specific purposes	Fees for water, sewer, gas, or electric service	Impact fees for homebuyers or developers for new developments/homes	Incur debt through general obligation bonds	Incur debt through special tax bonds	Incur debt through private activity bonds	Withhold spending in hazard-prone areas	Other	% Yes
Princeton	Y	Y	Y	Y	Y	Y	Y	N	N	?	**70%**
Average Yes Capabilities – 70%											
Y- Yes N- No ?- Don't Know											

To quantify Collin County's legal and regulatory, administrative and technical, and fiscal capabilities, an overall rating system was administered for each category: limited (0-30%), moderate (31-70%), and strong (70-100%). Questionnaire responses indicated that on average, Princeton has 71% of identified legal and regulatory capabilities, 90% of identified administrative and technical capabilities, and 70% of identified fiscal capabilities.

Table 4.4 Administrative Information

Jurisdiction	Chief Administrative Officer	Ability to Implement Capabilities
Princeton	City Manager	The city council, including the mayor, mayor pro-tem, and council members, along with the city manager, address the budget; pass laws, regulations, and codes; hire staff; approve plans; and determine the direction of the city overall. As the governing body, the ability to implement and approve mitigation actions and integrate mitigation into existing policies and programs is a function of this group.

Specific actions that can expand and improve existing capabilities, authorities, plans, policies, and resources for mitigation include: budgeting and passing policies and procedures, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates and additions to existing plans as new needs are recognized.

5. Mitigation Strategies

Based on the results of the risk and capability assessments, and reviews of the goals and objectives included in the 2016 HazMAP, the Princeton Hazard Mitigation Planning Committee developed mitigation strategies for the plan update.

Goal 1 Reduce or eliminate loss of life, injuries and property damage resulting from severe weather events.

Objective 1-A Provide adequate warning and communication before, during, and after a hazard event.
Objective 1-B Expand and coordinate Early Warning Systems currently in use.
Objective 1-C Reduce or eliminate loss of life and property damage from tornados through the construction and use of safe rooms or shelter areas.

Goal 2 Protect existing and new properties from the effects of all natural hazards.

Objective 2-A Conduct studies to determine hazard and vulnerability threat assessment for all natural hazards.
Objective 2-B Rehabilitate or retrofit identified high hazard critical infrastructure.
Objective 2-C Enact and enforce regulatory measures that enforce hazard mitigation measures.
Objective 2-D Construct enhancements or additions to current and new facilities which mitigate the effects of natural hazards.
Objective 2-E Maintain NFIP compliance, storm water management, and implement drainage projects.

Goal 3 Reduce losses and repetitive damages for chronic hazard events while promoting insurance coverage for catastrophic hazards.

Objective 3-A Conduct a hazard/vulnerability assessment of personal properties and structures located in flood zones.
Objective 3-B Develop and implement a buyout program for those personal properties and structures located in high hazard flood zones starting with those that are most vulnerable to life and property loss.
Objective 3-C Develop and execute new programs which identify and reduce threats from natural hazards.

Goal 4 Develop public education campaigns to disseminate information about actions to mitigate potential loss of life, injuries and property damage resulting from natural hazards.

Objective 4-A Educate the public on risks, threats, and vulnerability from all natural hazards.
Objective 4-B Educate the public on actions they can take to prevent or reduce the loss of life or property from all natural hazards.
Objective 4-C Develop and implement a community education campaign to heighten public awareness about chronic flooding and options for insurance coverage to protect their personal properties as well as long term benefits from a buyout program.

6. Action Items

Below is a list of action items identified for the HazMAP Update. Each of the actions in this section were prioritized based on FEMA's STAPLEE criteria, which includes considering the social, technical, administrative, political, legal, economic and environmental factors necessary for the implementation of each action. As part of the STAPLEE analysis, economic considerations were weighed for each action. The STAPLEE was used for the 2016 Plan along with the 2021 Update. Priority rankings are classified as indicated in the table below.

Priority	Description
High	Benefits of mitigating risk of death or severe bodily injury outweigh costs to implement actions rated as high priorities.
Medium	Reducing vulnerability to threats and the resulting improvement in quality of life and peace of mind are benefits for actions rated as medium priorities.
Low	Awareness of low risk/low impact hazards offer benefits of time to assess, plan and integrate low priority mitigation actions as time, need, and funding permit.

City of Princeton Action Items: Deferred from 2016 Plan

City of Princeton Action Item	Adopt and promote a public education program to mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Tornado, Wildfire, Winter Storm, Extreme Heat, High Winds, Flooding, Expansive Soils, Hail, Drought, Earthquake, Lightning, Dam Failure
Goal/Objective	4-A, 4-B, 4-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	General Fund, HMGP
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	2-3 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Public education is extremely effective for low cost.
Discussion	Program will include information on hazard mitigation and what actions can be taken.
Status	Utilize as able regional, state, and federal public education information. Will be included in 2021 Plan

City of Princeton Action Item	Develop and implement an extreme temperature program that establishes centers for vulnerable residents
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	2-D, 3-C
Priority	Medium
Estimated Cost	$5,000-$20,000
Potential Funding Sources	HMGP, PDM,
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	Fire Department/EMC
Implementation Schedule	12 months
Effect on Old Buildings	Could require retrofit to accommodate required space and resources
Effect on New Buildings	May entail enhanced construction materials
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.
Discussion	Cooling shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold
Status	Deferred – Will be included in 2021 Plan

City of Princeton Action Item	Implement Individual Tornado Safe Room Rebate Program
Hazard(s) Addressed	High Wind, Tornado
Goal/Objective	1-C
Priority	High
Estimated Cost	Up to $3,000 per safe room
Potential Funding Sources	HMGP, PDM, Resident Match
Potential Matching Sources	Local Grants, FEMA
Lead Department	EMC
Implementation Schedule	2-5 years
Effect on Old Buildings	Enhance safety of existing residential structures through retrofit
Effect on New Buildings	Enhance safety of new residential structures
Cost Effectiveness	Residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind events.
Discussion	Implement Individual Tornado Safe Room Rebate Program.
Status	Will be included in 2021, however, come residents were able to obtain funds through the NCTCOG Saferoom Rebate Program

City of Princeton Action Item	Increase outdoor warning siren coverage for new development areas.
Hazard(s) Addressed	Tornado, Wildfire, High Winds, Flooding, Hail, Lightning, Dam Failure
Goal/Objective	1-B
Priority	High
Estimated Cost	$25,000 each
Potential Funding Sources	General Fund, HMGP, Developer cost
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	2-5 years
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	Cost is low compared to lives saved and reduced injuries
Discussion	Early warning is a key element in keeping citizens that are outdoors notified of hazards.
Status	Deferred – will be included in 2021 Plan

City of Princeton Action Item	Develop a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	2A, 3C
Priority	Medium
Estimated Cost	$5,000
Potential Funding Sources	TFS Grants,
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Fire Dept.
Implementation Schedule	3-4 years
Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire
Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire
Cost Effectiveness	CWPPs show city officials where to redouble their efforts in preventing wildfire, saving time and money. Also work to establish urban wildfire interface around new development properties.
Discussion	Identify all structures and infrastructures that would be impacted by a potential wildfire.
Status	Deferred – will be included in 2021 Plan

City of Princeton Action Item	Develop a drought contingency plan
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Public Works
Implementation Schedule	2-3 years
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Develop a plan for conserving water based on the stages of drought. Plan would include strategies for soil movement abatement depending on drought stage.
Status	Deferred – Will be included in 2021 Plan

City of Princeton Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams.
Hazard(s) Addressed	Dam Failure, Flooding
Goal/Objective	2A, 3A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local Sponsors, In-Kind
Lead Department	Planning and Zoning/ NRCS
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Dam Failure data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	Deferred – will be included in 2021 Plan

City of Princeton Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.
Status	Deferred – will be included in 2021 Plan

City of Princeton Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.

Status	Deferred – will be included in 2021 Plan

City of Princeton Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as provide other emergency and hazard information
Status	Deferred – Will be included in 2021 Plan

City of Princeton Action Items: New

City of Princeton Action Item	Develop and implement a comprehensive public education program to educate on the actions to help mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Tornado, Hail, Winter Storms, High Winds, Lightning, Expansive Soils, Extreme Heat, Earthquake, Flooding, Wildfire, Drought
Goal/Objective	4-A, 4-B, 4-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	General Fund, HMGP
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC

Implementation Schedule	2-3 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Minimal compared to preservation of life safety.
Discussion	Public education can help educate the public to reduce personal and property damage during disasters. Program will include information about hazard mitigation.

City of Princeton Action Item	Develop and implement an extreme temperature program that establishes centers for vulnerable residents
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	2-D, 3-C
Priority	Medium
Estimated Cost	$5,000-$20,000
Potential Funding Sources	HMGP, PDM,
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	Fire Department/EMC
Implementation Schedule	12 months
Effect on Old Buildings	Could require retrofit to accommodate required space and resources
Effect on New Buildings	May entail enhanced construction materials
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.
Discussion	Cooling shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold

City of Princeton Action Item	Implement Individual Tornado Safe Room Rebate Program
Hazard(s) Addressed	High Wind, Tornado
Goal/Objective	1-C
Priority	High
Estimated Cost	Up to $3,000 per safe room
Potential Funding Sources	HMGP, PDM, Resident Match
Potential Matching Sources	Local Grants, FEMA

Lead Department	EMC
Implementation Schedule	2-5 years
Effect on Old Buildings	Enhance safety of existing residential structures through retrofit
Effect on New Buildings	Enhance safety of new residential structures
Cost Effectiveness	Residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind events.
Discussion	Implement Individual Tornado Safe Room Rebate Program.

City of Princeton Action Item	Increase outdoor warning siren coverage for new development areas.
Hazard(s) Addressed	Tornado, Wildfire, High Winds, Flooding, Hail, Lightning
Goal/Objective	1-B
Priority	High
Estimated Cost	$25,000 each
Potential Funding Sources	General Fund, HMGP, Developer cost
Potential Matching Sources	Local funds, in-kind
Lead Department	EMC
Implementation Schedule	2-5 years
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	Cost is low compared to lives saved and reduced injuries
Discussion	Early warning is a key element in keeping citizens that are outdoors notified of hazards. This action item would be specific to installation/placement of new OWS sirens in the jurisdiction.

City of Princeton Action Item	Develop a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	2A, 3C
Priority	Medium
Estimated Cost	$5,000
Potential Funding Sources	TFS Grants,
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Fire Dept.
Implementation Schedule	3-4 years

Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire
Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire
Cost Effectiveness	CWPPs show city officials where to redouble their efforts in preventing wildfire, saving time and money. Also work to establish urban wildfire interface around new development properties.
Discussion	Identify all structures and infrastructures that would be impacted by a potential wildfire.

City of Princeton Action Item	Develop a drought contingency plan
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local sponsors, in-kind
Lead Department	Public Works
Implementation Schedule	2-3 years
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Develop a plan for conserving water based on the stages of drought. Plan would include strategies for soil movement abatement depending on drought stage. When water is conserved and not used for landscape during droughts, this would provide water for homeowners to use, through drip irrigation, to keep their foundations at a consistent saturation level, mitigating the impacts of drought and lack of water.

City of Princeton Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds

Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.

City of Princeton Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.

City of Princeton Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Drought, Earthquake, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party

Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as provide other emergency and hazard information

City of Princeton Action Item	Increase back-up generator capabilities of critical facilities
Hazard(s) Addressed	Flooding, tornado, earthquake, extreme heat, lightning, wildfire, winter storms, hail, high winds
Goal/Objective	2-d
Priority	High
Estimated Cost	$100,000-$20,000
Potential Funding Sources	Local funding, HMGP, PDM
Potential Matching Sources	Local Funding
Lead Department	Public Works, Emergency Management
Implementation Schedule	1-2 years
Effect on Old Buildings	Some buildings will need to be retrofitted with the ability to connect to a generator
Effect on New Buildings	Buildings will need to be planned with the ability to connect to a generator
Cost Effectiveness	Very effective when taking into account the extended loss of power to critical facilities would negatively affect all the city and its citizens
Discussion	Back-up generator will allow the ongoing function of critical facilities as close to normal as possible during the event of a massive power outage

National Flood Insurance Program (NFIP) Compliance

Princeton is participating in the National Flood Insurance Program and has identified their respective areas as vulnerable to flooding. This is incorporated into all current and future planning for dealing with repetitive loss vulnerabilities.

Table 6.1 NFIP Compliance

Collin County							
Communities Participating in the National Flood Program							
CID	**Community Name**	**County**	**Initial FHBM Identified**	**Initial FIRM Identified**	**Curr Eff Map Date**	**Reg-Emer Date**	**Tribal**
480757#	PRINCETON, CITY OF	COLLIN COUNTY	7/25/1975	3/16/1988	06/02/09(M)	3/16/1988	No

Source: http://www.fema.gov/cis/TX.html

Jurisdiction Activities

In order to maintain eligibility with NFIP, jurisdictions are required to maintain their list of properties that hold a policy with NFIP, along with up-to-date maps of the floodplains in the jurisdictions. Each jurisdiction participating in the Collin County Hazard Mitigation Action Plan completes this basic requirement and has the information on file with the jurisdiction's designated floodplain manager. Using this plan, participating jurisdictions will be able to continue their compliance with NFIP by implementing damage control measures and take action to minimize the effects of flooding in their respective jurisdictions.

Table 6.2 NIFP Activity

Jurisdiction	Community Floodplain Administrator	NFIP Activity	Activity Description	Enforcement
City of Princeton	Chief Building Official	Complete and maintain FEMA elevation certificates for pre-FIRM and or post-FIRM buildings	Permits are issued through the Development Department. Princeton requires new construction to be elevated to or above the base flood elevation for the top of bottom floor on residential structures and non-residential structures that will be built on properties created or platted after the effective date of the Flood Damage Prevention Order	NFIP compliance is implemented and enforced through a process of floodplain identification using FEMA floodplain maps, permit issuance, building requirements, and compliance inspections pending approval. Failure to comply with City's flood damage prevention order shall result in fines up to $2,000 per violation plus court costs.
		Floodplain development permits	Permits are required for any new construction in a floodplain.	
		Participate with FEMA in identifying Special Flood Hazard Areas for future FIRM maps	Princeton participates in Risk Assessment, Mapping and Planning Partners (RAMPP) meetings held by FEMA and/or their contractors to better identify areas that are flood prone that are not shown on current Flood Insurance Rate Maps.	

Jurisdiction	Community Floodplain Administrator	NFIP Activity	Activity Description	Enforcement
		Future Mitigation Projects	Princeton will continue to monitor for new areas of flooding that have not been previously identified for mitigation.	

7. Plan Maintenance

Monitoring, Evaluating and Updating the Plan

In Compliance with requirement § 201.6(c)(4)(i), City of Princeton has developed a plan maintenance process which is described in the following paragraphs.

Following formal adoption by Collin County Commissioners Court, and formal adoption of the plan by City Council by each participating jurisdiction, the actions outlined in the Collin County Hazard Mitigation Plan would be implemented by the county and participating jurisdictions as described throughout this document.

The Collin County Emergency Management Coordinator, working in conjunction with the respective jurisdictions, will be responsible for ensuring the mitigation plan is monitored, evaluated, and reviewed on an annual basis. This will be accomplished by calling an annual meeting of the planning committee, whose members will provide assistance and expertise for plan review, evaluating, updating, and monitoring. This meeting will be open to the public and public notices will encourage community participation. During this annual meeting, City of Princeton will provide information on the implementation status of each action included in the plan. As part of the evaluation, the planning committee will assess whether goals and objectives address current and expected conditions, whether the nature and/or magnitude of the risks have changed, if current resources are appropriate for implementing the plan, whether outcomes have occurred as expected, and if agencies and other partners participated as originally proposed. These activities will take place according to the timetable presented below:

Table 7.1 Plan Maintenance Timeline

Personnel	What	Time
City Manager	Monitoring Plan : Track implementation and action items, changes to risk assessment, changes to planning team members, changes to capabilities, plan integrations	Biannually
	Evaluate Plan: Assess effectiveness by evaluating completed actions, implementation processes, responsible personnel and lessons learned.	Annually
	Update Plan	Once every 5 years

At least once every five (5) years, or more frequently, if such a need is determined by the participating jurisdiction, the multi-jurisdictional plan will undergo a major update. During this process, all sections of the plan will be updated with current information, analyses done and new and/or modified mitigation action plans will be developed. The revised plan will be submitted for state and federal review and approval, and presented for approval to the Collin County Commissioner's Court and the respective councils of incorporated cities/towns included in the Collin County plan. Each participating jurisdiction will undertake the same process for reviewing, revising and updating their respective plans and submitting them for approval. The plans will be updated every five years in accordance with federal requirements.

Plan Incorporation into Existing Planning Mechanisms *(In compliance with 201.6(c)(4)(ii))*

Based on the requirements set forth in § *201.6(c)(4(ii)*, the State of Texas Mitigation Plan, the vulnerability and capabilities assessment for each jurisdiction was carefully reviewed and considered when developing the mitigation actions for this plan. The HMPT and planning committees will establish a process in which the mitigation strategy, goals, objectives and actions outlined in this plan will be incorporated into the existing regional and local planning strategies.

Local and regional planning committees currently use comprehensive land use planning, capital improvements planning, and building code ordinances to guide development. The mitigation strategy, goals, objectives and actions outlined in this plan will be integrated into these existing mechanisms as applicable. Those mechanisms include the following:

Table 7.2 Plan Incorporation Mechanisms

Jurisdiction	Responsible Personnel	Jurisdictional Plans	Integration Schedule	Integration Plan
Princeton	City Council	Budget Meetings	Annually	Integration of mitigation projects identified in HazMAP, grants, and other fiscal allowances for mitigation actions and related costs
	Emergency Management Coordinator	Emergency Action Plan updates	Every Five Year	EAP Mitigation annex updates based on HazMAP HIRA; update preparedness, response and recovery actions related to identified hazards
	Designated Floodplain Manager	Floodplain ordinances	As needed	Enhance mitigation of flood hazards using HazMAP flood data for floodplain management and community development.
	City Council, Director of Planning	Capital improvement plans	Annually	Strengthen critical infrastructure and key resources based on HazMAP hazard analysis, incorporate vulnerability data and action items.
	Public Works Director, City Council	Drought Contingency plans	Assessed annually and updated as needed.	Integrate drought actions such as xeriscaping, water restrictions, and public education

Although it is recognized there are many possible benefits to integrating components of this HazMAP into other planning mechanisms, the Princeton Hazard Mitigation Planning Committee considers this

HazMAP, including development and maintenance, to be the primary vehicles to ensure implementation of local hazard mitigation actions.

The process described here is the same as was used since the last planning update.

Continued Public Involvement (In compliance with 201.6(c)(4)(iii))

As stated in requirement § *201.6(c)(4)(iii)* The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.

To address this requirement, ongoing public participation will be encouraged throughout the entire planning and implementation process. A copy of the plan will be provided on the Collin County website. The planning team and committee will continue meeting on a regular basis to ensure the successful implementation of the plan and to discuss any additional issues regarding the emergency management of Collin County. The annual meetings for monitoring, evaluating, and updating the plan will be open to the public and public notices will encourage community participation.

Annex R: Town of Prosper

1. Introduction

This annex was prepared in 2021 as part of an update to the Town of Prosper/County Multi-Jurisdictional Hazard Mitigation Action Plan. This is the second hazard mitigation plan to be submitted to FEMA for the Town of Prosper. In addition to the countywide hazards and strategies discussed in the main plan, this annex serves as a complete hazard mitigation planning tool for the Town of Prosper. It contains capability assessment information, a specific vulnerability assessment, and a complete mitigation strategy. The methodology and process for developing this annex are explained throughout the following sections.

2. Plan Development and Adoption Process

In order to apply for federal aid for technical assistance and post-disaster funding, local jurisdictions must comply with Part 201.3 of the Disaster Mitigation Act of 2000 implemented in the Federal Code of Regulations 44 CRF Part 201.6. While Prosper has historically implemented measures to reduce their vulnerability to hazards, passage of DMA 2000 helped Prosper officials to recognize the benefits of a long-term approach to hazard mitigation, which achieves a gradual decrease of impacts associated through the implementation of a Hazard Mitigation Plan. The Town of Prosper's Hazard Mitigation Action Plan represents the collective efforts of all participating jurisdictions, the general public, and stakeholders.

Organizing the Planning Effort

A comprehensive county approach was taken in developing the plan. An open public involvement process was established for the public, neighboring communities, regional agencies, businesses, academia, etc. to provide opportunities for everyone to become involved in the planning process and to make their views known. The meetings were advertised with notices in public places and online.

In accordance with Part 201.6(c)(5) of the Disaster Mitigation Act of 2000 (DMA 2000), the Town of Prosper developed this Hazard Mitigation Action Plan. This plan identifies hazards and mechanisms to minimize future damages associated with these hazards, which threaten the Town of Prosper and its jurisdictions.

Existing Data and Plans

Existing hazard mitigation information and other plans were reviewed during the development of the Hazard Mitigation Action Plan. GIS, statistical and qualitative data was gathered through numerous sources. The table below outlines the sources of data for the plan:

Table 2.1 Plan Source Data

Source	Data
City and County Appraisal Data 2020	Population and demographics
Regional Hazard Assessment Tool	Hazard occurrences
National Climatic Data Center (NCDC)	Hazard occurrences
Texas Forest Service/Texas Wildfire Risk Assessment Summary Report	Wildfire Threat and Urban Interface
National Inventory of Dams	Dam information

Planning Committee

This Hazard Mitigation Action Plan was developed by the Town of Prosper Hazard Mitigation Planning Committee, with support of the North Central Texas Council of Governments and in conjunction with the Collin County HMPT.

The Collin County HMPT was assembled in June 2020 with representatives from participating jurisdiction planning committees, including mayors, police chiefs, fire chiefs, and the general public. The Town of Prosper acted as the plan development consultant providing hazard mitigation planning services; the efforts of the planning committee were led by the Prosper Emergency Management Coordinator.

The table below provides a list of the primary representatives on the Prosper planning committee.

Table 2.2 Hazard Mitigation Committee – Primary Representatives

Representing	Position	Role
Town of Prosper	Emergency Management Coordinator	Identify vulnerabilities, review plan, prioritize risks
Town of Prosper	Fire Chief	Review plan
Town of Prosper	Assistant Fire Chief	Review plan
Town of Prosper	Police Chief	Review plan
Town of Prosper	Finance Director	Review plan
Town of Prosper	Asst. Police Chief	Review plan
Town of Prosper	Building Official	Review plan
Town of Prosper	Director of Engineering	Identify mitigation strategies/NFIP manager
Town of Prosper	Director of Public Works	Review plan
Town of Prosper	Executive Director of Infrastructure	Identify Action Items and review plan
Citizen 1	CERT Team Member	Review plan
Citizen 2	CERT Team Member	Review plan
Prosper EDC	Director of Economic Development	Review plan
Prosper ISD	Director of Security	Review plan
Homeland Security	Asst. Director	Identify strategies and Review plan

Collin County served as the coordinator and lead agency for all jurisdictions by accomplishing the following activities through the planning process:

- Assigned the County's Assistant Emergency Management Coordinator to provide technical assistance and necessary data to the planning committee.
- Scheduled, coordinated, and facilitated community meetings with the assistance of the HMPT and the planning committees.
- Provided any necessary materials, handouts, etc. for public planning meetings.
- Worked with the HMPT and planning committees to collect and analyze data and develop goals and implementation strategies.
- Prepared, based on community input and planning team/committee direction, the first draft of the plan and provided technical writing assistance for review, editing and formatting.
- Coordinated with the stakeholders within the jurisdictions and the unincorporated areas of Collin County during plan development.

Each of the individual jurisdictions participated in accomplishing similar activities associated with development of the plan as follows:

- Coordinated input from representatives of neighborhood stakeholder groups and provided a representative to the County HMPT.
- Attended regular meetings of the planning team as coordinated by Collin County.
- Assisted Collin County staff with identifying hazards and estimating potential losses from future hazard events.
- Assisted Collin County in developing and prioritizing mitigation actions to address the identified risks.
- Assisted Collin County in coordinating public meetings to develop the plan.
- Identified the community resources available to support the planning effort.
- Worked for the support of neighborhood stakeholders for the recommendations resulting from the planning process.
- Submitted the proposed plan to all appropriate departments for review and comment and worked with Collin County to incorporate the resulting comments into the proposed plan.

External stakeholders involved in reviewing the Collin County Hazard Mitigation Action Plan:

Table 2.3 External Stakeholders

Representing	Position	Role
Prosper ISD	Director of Security	Review of plan
Town of Prosper	Prosper Citizens (2)	Review of plan
Town of Prosper	Director of Economic Development	Review plan

Subsequent to the State of Texas and FEMA approval of the plan, each organization is also committed to accomplishing the following activities:

- Appoint members to a coordinating committee to monitor and work toward plan implementation.

- Publicize the plan to neighborhood interests and ensure that new community members are aware of the plan and its contents.
- Monitor progress in achieving the plan's goals through regular maintenance and implementation projects.

Planning Meetings

During the planning process, the HMPT met to obtain relevant information from the participating jurisdictions and to discuss the objectives and progress of the plan. The objectives of these meetings were to gather information and to provide guidance for each jurisdiction throughout the planning stages.

The following meetings were held by the Town of Prosper and or Collin County and included all jurisdiction's participation:

- Collin County HazMAP Kickoff Meeting – August 12, 2020
- Collin County HazMAP Committee Meeting – November 15th, 2020
- The Town of Prosper Hazard Mitigation Team Meeting – December 09, 2020
- The Town of Prosper Hazard Team Meeting – January 15th, 2021
- The Town of Prosper HazMAP Discussion/Update – February 15, 2021
- Collin County HazMAP Public Meeting – 11/2/2021 at 2PM
- Collin County HazMAP Public Meeting – 01/12/2022 at 9AM

Public Involvement

Support from the community is vital for any successful hazard mitigation plan. The HMPT and planning committee provided opportunities, announced through public communication means, for public participation and input throughout the planning process prior to this draft and before approval of the finalized plan. Advertisement and sign in sheets for these meetings are located in Appendix A.

- The first public meeting was held on November 2, 2021 at 2PM, and advertised on the Town of Prosper's Facebook page inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to comment.
- A second public meeting was held on January 12, 2022 at 9AM. Announcements were placed on jurisdictions websites, including Collin County inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to view and comment on the HazMAP prior to plan submission.

There were no comments directly related to the mitigation plan received from citizens, non-profits, businesses, academia, or interested parties; therefore, no feedback was incorporated. An additional opportunity for the public to comment on the plan will be held prior to formal plan adoption.

This provided all citizens, stakeholders, neighboring communities, agencies, businesses, academia, non-profit organizations, and all interested parties an opportunity to be involved in the planning process and to take part in the decisions making process that affect the future of the communities that they live in.

3. Jurisdictional Hazard Identification and Risk Assessment

The Hazard Mitigation Planning Committee for the Town of Prosper identified several natural and man-made hazards that could affect the town. The committee decided to focus on the natural hazards identified in Section 5 of this update. This was done after reviewing the 2016 HazMAP, the State of Texas Hazard Mitigation Plan, as well as other sources such as federal and state agencies. The hazards were ranked using the Priority Risk Index.

Priority Risk Index

A Priority Risk Index (PRI) was developed with the purpose of categorizing potential hazards for the Town of Prosper and ranks each hazard as high, moderate, low, or negligible to no risk. The hazard classification generated through the use of the PRI allows for the prioritization of those high hazard risks for mitigation planning purposes, and more specifically, the identification of hazard mitigation opportunities for Collin County jurisdictions to consider as part of their proposed mitigation strategy.

The PRI is used to assist all jurisdictions participating in the Collin County HazMAP in determining which hazards pose the most significant threat based on a variety of factors. The PRI is not scientifically based, but is rather meant to be utilized as an objective and systematic planning tool for classifying and prioritizing hazard risks in Collin County based on standardized criteria. The PRI results in numerical values that allow identified hazards to be ranked against one another. The sum of all four categories equals the final PRI value, as shown below:

PRI Value = (Probability x .30) + (Life Impact x .35) + (Property Impact x .25) + (Spatial Extent x .10)

The higher the PRI value, the greater the hazards risk. These values were obtained by assigning varying degrees of risk to four categories for each hazard: Probability, Life Impact, Property Impact, and Spatial Extent *(Table 3.1).* Each category has been assigned an Index Value (0 to 3) and a Weighing Factor (0 – 100%). These values may be adjusted during future plan updates. In order to evaluate the risk of each hazard, the assigned PRI Value for each category is multiplied by the weighing factor. Then, the PRI for each hazard is calculated by adding the product obtained in each category. According to the weighing scheme applied for the Town of Prosper, the highest possible PRI value is 3.0. The PRI calculations are presented in *Table 3.2*. Table 3.1 breaks down the value of each category.

Table 3.1 Priority Risk Index Value

Assigned Weighing Factor	PRI Category	Degree of Risk		
			Criteria	Index Value
30%	Probability	Unlikely	Less than 1% annual probability	0
		Possible	Between 1 and 10% annual probability	1
		Likely	Between 10 and 100% annual probability	2
		Highly Likely	100% annual probability	3
35%		Minor	Very few injuries, if at all none	0

	Life Impact	Limited	Minor Injuries	1
		Critical	Multiple deaths/injuries	2
		Catastrophic	High number of deaths/injuries	3
25%	Property Impact	Minor	Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	0
		Limited	More than 10% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one day.	1
		Critical	More than 25% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one week.	2
		Catastrophic	More than 50% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for 30 days or more.	3
10%	Spatial Extent	Negligible	Less than 1% of area affected	0
		Small	Between 1 and 10% of area affected	1
		Moderate	Between 10 and 50% of area affected	2
		Large	Between 50 and 100% of area affected	3

Table 3.2 Priority Risk Index for the Town of Prosper

Hazard	Category/Degree of Risk				
	Probability Index Value (0 - 3 30%)	Life Impact Index Value (0 - 3 35%)	Property Impact Index Value (0 - 3 25%)	Spatial Extent Index Value (0 - 3 10%)	PRI Value 2021
Dam Failure	1	1	1	1	1
Drought	2	1	1	1	1.3
Earthquake	1	0	0	3	0.6
Expansive Soils	1	1	1	1	1
Extreme Heat	1	2	0	2	1.2
Flooding	2	1	2	1	1.55
Hail	3	1	2	1	1.85
High Winds	3	1	1	3	1.8
Lightning	3	2	2	3	2.4
Tornado	3	2	2	3	2.4
Wildfire	2	1	1	1	1.3
Winter Storms	2	1	1	1	1.3

The conclusions drawn from the hazard profiling process for the Town of Prosper, resulted in the classification of risk for each identified hazard according to four categories: High Risk, Moderate Risk, Low Risk, and Negligible to No Risk *(Table 3.3).* For purposes of these classifications, risk is expressed in relative terms according to the probability of occurrence and estimated impact that a hazard will have on human life and property in the Town of Prosper.

Table 3.3 Hazard Rankings for the Town of Prosper

High Risk (PRI 2 - 3)	Lightning Tornado
Moderate Risk (PRI 1.01 -1.9)	Extreme Heat High Winds Wildfire Winter Storm Flooding Drought Hail
Low Risk (PRI 0.50 – 1)	Dam Failure Earthquake Expansive Soils
Negligible to No Risk (PRI 0 – 0.49)	

Changes in Development and Priorities (Requirement §201.6(d) (3))

Our jurisdiction is in one of the fastest growing areas of the nation, hence development has increased and will continue to increase our vulnerability to hazards that may impact us.

Vulnerability Narratives

This annex focuses on specific areas of vulnerability the Town of Prosper faces with each hazard. The hazards identified in the main plan are all addressed in this annex, therefore the natural hazards rated negligible to no risk are included, described, and considered for mitigation.

Dam Failure There are three FWRS Dams located within the limits of the Town of Prosper. Due to a lack of data, inundation studies need to be completed to determine the vulnerabilities of the town.

Drought A prolonged drought can have a serious economic impact on a community. Increased demand for water and electricity may result in shortages of resources. Moreover, since 1996, droughts have caused crop damages in neighboring communities and the Town of Prosper amount to well over 2.7 million dollars along with over one million dollars in property damage. Price increases due to shortages and increased demand would impact Prosper's residents.

Drought has the potential to impact the entire planning area equally; all improved property, emergency facilities, critical facilities, critical infrastructure, and the entire population of Prosper are vulnerable to this hazard. Foundations of all buildings are vulnerable; however, older structures, or those built under less stringent foundation code requirements are most vulnerable. Lake Lavon, Lake Texoma, Lake Tawakoni, Lake Fork and the Lake Chapman-Cooper reservoir system are water sources for the Town of Prosper and are vulnerable to drought. In turn, the city's population, wildlife and vegetation are vulnerable. Lower income populations who may not have the resources to buy containerized water in the event of a shortage may be more vulnerable than other populations.

Earthquake Although no active fault lines exist in the North Texas region, there has been 33 tremors recorded in the past 50 years. There is a possibility that the Town of Prosper may experience an earthquake ranging from Modified Mercalli Intensity I to V, equating to 4.8 and under on the Richter Scale. All properties and populations have the potential to be vulnerable to earthquakes. Buildings constructed under older building codes, aging underground infrastructure, and roads are most vulnerable to damages from seismic activity.

Expansive Soils Soil capacity will heave and cause potential foundation movement when the ground experiences a moisture fluctuation. This expansive soil vulnerability can lift buildings or settle them into the ground. Increasing our town's irrigation system and improving current culverts will mitigate future expansive soil problems. All properties has the potential to be vulnerable to expansive soils, especially those constructed under older building codes.

Extreme Heat Extreme heat generally affects the entire population, but the homeless, very young, elderly, and populations without air conditioning are most vulnerable. What constitutes extreme heat can vary based on what the population is accustomed to in their respective climates. Temperatures that hover 10 degrees or more above the average high temperature for a region and last for several weeks are defined as extreme heat by the Centers for Disease Control and Prevention (CDC). Extreme heat is common in Texas. The Town of Prosper has experienced 10 extreme heat events in the past 23 years, resulting in a 100 percent probability of an extreme heat event occurring every year. The most severe extreme temperature event to impact the Town of Prosper occurred in August 2011, when Collin County experienced triple-digit temperatures nearly every day during the month of August. An excessive heat warning was in effect for most of Texas.

After the excessive heat warning ended on the morning of August 6, a heat advisory was in effect for several days during the month. A heat advisory was in effect for all or parts of North Texas for most of the remainder of the month, except for a few days in the middle of the month. The prolonged heat took its toll on North Texans, resulting in 27 heat-related deaths and many more heat-related illnesses. According to a Collin County medical examiner, one person died on August 12 as a result of the heat.

Flooding is the most prevalent and costly disaster in the United States. Floods have the ability to cause devastation to property, people, and agriculture. Floods occur any time and are typically the result of dam failures, heavy rains, or melting of snow. The Town of Prosper has low topography in several areas which is vulnerable to flooding. The area located on and near Dallas Parkway has experienced flash flooding more than once in the past 5 years. With no signage to warn citizens of the potential danger, this increases the town's vulnerability to loss of life, property, and agriculture, as a result of flooding.

Hail Since 1996, 168 incidents involving hail have occurred. This hazard has caused over one billion dollars in damage throughout our two counties and includes agriculture damage as well. The Town of Prosper, its buildings, and citizen's property are vulnerable to hail and extreme hail storms. Property such as automobiles, roofs, siding, and windows are most vulnerable to such events. Extensive power outages may also occur, leading to secondary and possibly tertiary effects. Mitigation efforts can be made to lessen the effect of such a hazard. These efforts include ample warning systems which cover our entire jurisdiction, public education to encourage action and precautionary measures during weather events which could produce hail, and stronger protection measures facilitated by town codes. Exposed populations, manufactured homes, and older properties are most vulnerable.

High Winds Windstorms can cause power outages, transportation and economic disruptions, and significant property damage and pose a high risk for injuries and loss of life. All critical facilities as well as all public, private, and commercial properties are vulnerable to severe thunderstorms. Risk/vulnerability includes the entire population of the Town of Prosper because there is no way to determine the impact/magnitude of a windstorm, and no way to predict where a storm will occur. People are vulnerable to severe windstorms through power outages, effects on transportation routes, establishment of shelters, roofs blown off structures, etc. Windstorms occur frequently within the Town of Prosper. Manufactured homes and exposed populations are most vulnerable.

Overall, severe thunderstorms and high winds pose one of the greatest threats to the Town of Prosper in terms of property damage, injuries, and loss of life. Severe thunderstorms and high winds are the most frequently occurring natural hazard in the Town of Prosper and have the greatest chance of affecting the Town of Prosper each year. Based on the frequency of this hazard (134 events since 1996) and its ability to negatively affect the Town of Prosper (7 deaths, 15 injuries, and $5.975 million in property damage within our geographical area).

Lightning The Town of Prosper has significant exposure to lightning and thunderstorms. Overall, lightning is the most constant and widespread threat to our citizens. 38 damaging events have occurred since 1996, within our two counties, which has caused over $7.88 million in damages to property. The probability that lightning will occur in the Town of Prosper is extremely high and mitigation actions, such as a lightning detection system, will help mitigate the risk of this hazard. Property without lightning protection and exposed populations are most vulnerable.

Tornado Tornadoes can strike anywhere and cause extensive damage. Since 1996, North Texas has experienced 17 tornado events causing near $6 million in damages, two deaths, and eight injuries. According to NOAA data, the highest recorded magnitude was an EF-3, which occurred 20 miles from the Town of Prosper and caused $1 million in damages. Currently, the Town of Prosper has implemented improved construction standards to strengthen new buildings which will withstand higher winds produced by tornadoes. Other mitigation measures that will help minimize tornado destruction in the Town of Prosper are: Increasing the number of safe rooms via FEMA grants, education programs concerning loose items, and increased capabilities on the town's current warning system. Manufactured homes and exposed populations are most vulnerable.

Wildland Fire Wildfires typically start in woodland or prairie areas. They can occur naturally or exacerbate by human activities. This hazard can be hard to control, and mitigation efforts are needed to prevent wildfires from occurring in the Town of Prosper. Since 1996, Collin and Denton counties have had five events involving wildfires totaling over $100,000 in damages and a loss of life (1). The Town of Prosper and the surrounding counties are currently in a severe drought phase, thus increasing the town's

vulnerability to wildfires. Mitigation efforts which will help prevent or lessen the effect of wildfires in the Town of Prosper need to include education programs, zoning, burning restrictions, property maintenance, and increased capabilities of our local fire department.

According to the Texas A&M Forest Service 38.19% of the Town of Prosper's population live in the Wildfire Urban Interface (WUI). Wildfire low threat areas are predominately to the east and west areas of the city with the majority of the center of the city in the non-burnable area.

Winter Storms Generally, winter storm season in the Town of Prosper is between the months of November to mid-March. Residents who are disrupted more severely by severe winter storms include those without sufficient heating systems, and those impacted by extended power outages due to falling tree limbs or ice. Most residents do not have backup power sources. Since 1996, 27 winter storm events have occurred within 30 miles of the Town of Prosper, which has led to one death and $891,000 in property damage. Mitigation efforts to prevent the effects of this hazard should include establishing a warming center for Prosper residents that experience insufficient heating during winter storms, tree management, burying power lines, and an outreach program (CRW-system) to identify isolated, vulnerable, and functional-needs populations.

Identification of Assets and Vulnerability Assessment

An inventory of the Town of Prosper geo-referenced assets was created in order to identify and characterize property and population potentially at risk to the identified hazards. By understanding the type and number of assets that exist and where they are located in relation to known hazard areas, the relative risk and vulnerability for such assets can be assessed. For this assessment, five categories of assets were evaluated using Geographic Information System and statistical analysis. The five categories of vulnerable assets include:

- **Population**: Includes the number of people residing in Collin County jurisdictions as delineated by U.S. Census 2020 block data provided by NCTCOG.
- **Improved property**: Includes all developed properties according to local parcel data from the Collin County Central Appraisal District. The information has been expressed in terms of the total assessed value of improvements that may be exposed to the identified hazards.
- **Emergency facilities**: Includes fire stations, police stations and hospitals, provided by the Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.
- **Critical facilities**: Includes schools and historic places provided by Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions. These are non-emergency facilities, but still provide critical services and functions for vulnerable sectors of the population.
- **Critical infrastructure**: Includes airports, natural gas facilities, wastewater facilities, potable water treatment facilities, wastewater treatment facilities, dams, and bridges. Data for all critical facilities was obtained from Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.

The following tables provide a breakdown by municipal jurisdiction of the geo-referenced assets that were used for the vulnerability assessment.

Population

According to the US Census bureau, the total population of the Town of Prosper in 2020 was 28,380 people, with 7,313 households. The count breakdown by municipal jurisdiction is provided in *Table 3.4.*

Table 3.4. Population Counts

Jurisdiction	Population			Households		
	Population	% of County Total**	Population Density (Sq. Mile)	Household	% of County Total	Household Density (Sq. Mile)
Prosper	28,380	1.96%	1,555.07	9,992	2.60%	547.56

Source: US Census Bureau & Collin County Appraisal District

Table 3.5 summarizes population counts and population chance (absolute and percent predications for the Town of Prosper.

Table 3.5 Population Predictions

Jurisdiction	Population 2010 Census	Population 2018 Estimate	Population 2020 Estimate	Absolute Change 2019-20120	Percent (%) Change 2018-2010
Prosper	9,423	22,650	28,380	2750	10.7%

Source: 2020 NCTCOG Population Estimate

Property

There are an estimated 13,048 parcels in the Town of Prosper, with an estimated $4,023,541,491 in total assessed value of, *Table 3.6* lists the total number and percentage of parcels by jurisdiction.

Table 3.6 Parcel Counts and Improvements Value

Jurisdiction	Number of Parcels	% of County Total	Total Assessed Value of Improvements (Buildings)
Prosper	13,048	2.68%	$4,023,541,491

Source: Collin County Appraisal District
This also includes properties from Denton County. The % of County only reflects the Collin County portion of Prosper and in relation to only Collin County.

Emergency Facilities

There are six identified emergency facilities in the Town of Prosper, including two fire stations, one police station, and three hospitals. *Table 3.7* presents the distribution of emergency facilities by jurisdiction. Geographic coordinates were used to determine the location of each facility.

Table 3.7 Emergency Facilities

Jurisdiction	Fire Stations	Police Stations	Hospitals
Prosper	2	1	3

Source: County Data and Regional Hazard Assessment Tool

Critical Facilities

There are13 critical facilities, which are considered non-emergency in in the Town of Prosper. The critical facilities include 11 schools and two historical property sites (*Table 3.8*). Geographic coordinates (i.e., latitude and longitude) were used to determine the location of each facility.

Table 3.8 Critical Facilities

Jurisdiction	Schools	Historical Property
Prosper	11	2

Source: Local jurisdictions

Critical Infrastructure

There are 14 identified critical infrastructure facilities in the Town of Prosper, including six lift stations, one natural gas facility, no water treatment facilities, no potable water treatment facilities, no dams, one railroad, one highway, and four bridges (*Table 3.9*). In addition to the information in the table the Town of Prosper also has one water-pump facility, one elevated storage facility, and two water towers.

Table 3.9 Critical Infrastructure

Jurisdiction	Lift Stations	Natural Gas Facilities	Wastewater Treatment Facilities	Water Pump Facility	Dams	Railway/ Highway/ Bridges
Prosper	6	1	0	1	3	6

Source: Local jurisdictions

Methodology

Based on the type of information available for analysis, the Town of Prosper's vulnerability assessment was conducted using two distinct methodologies, a Geographic Information System-based analysis, and a statistical risk assessment methodology. Each approach provides estimates for the potential impact of hazards by using a common, systematic framework for evaluation of historical occurrence information provided by National Centers for Environmental Information, the Texas Forest Service, and the FEMA Resilience and Planning Tool. The results of the vulnerability assessment are provided by jurisdiction for each hazard analyzed.

Of the 12 hazards evaluated for the Town of Prosper, two were analyzed using a Geographic Information System-based analysis, seven using a statistical risk assessment methodology, and the remaining three hazards using a qualitative analysis. Qualitative analysis was used due to lack of information, the inability to define specific areas of risk, and/or inexistence of historical records. Additional information regarding these hazards is unattainable at the present time; studies to address this data deficiency are noted as action items in this update. *Table 3.10* summarizes the methodology used for each hazard.

Table 3.10 Analysis used for Vulnerability Assessment

Hazard	Geographic Information System-based Analysis	Statistical Analysis	Qualitative Analysis

Dam Failure			X
Drought		X	
Earthquake			X
Expansive Soils			X
Extreme Heat		X	
Flooding	X		
Hail		X	
High Winds		X	
Lightning		X	
Tornado		X	
Wildfire	X		
Winter Storms		X	

Summary of Vulnerably Assessment

A summary of the vulnerability assessment for each hazard using geographic and statistical analysis is presented in the following pages. The detailed assessment is presented in the following sections.

Summary Table 3.11

Drought	
Population	According to National Centers for Environmental Information (NCEI) zero (0) recorded injuries or fatalities have been recorded for drought events. There are no personal losses expected from drought events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the Town of Prosper are expected but financially unknown due to lack of accurate. Historical data indicates that crop losses in the Town of Prosper are expected mostly during water shortages, financially unknown due to lack of accurate reporting.
Emergency Facilities	Because of the nature of this hazard, no losses are expected on emergency facilities but foundation issues could occur due to drought events.
Critical Facilities	Because of the nature of this hazard, no losses are expected on critical facilities but foundation issues could occur due to drought events.
Critical Infrastructure	Because of the nature of this hazard, no losses are expected on critical infrastructure but foundation issues and road degradation could occur due to drought events.

Summary Table 3.12

Extreme Heat	
Population	According to National Centers for Environmental Information (NCEI), there were no fatalities recorded due to extreme heat from the Town of Prosper. The Town of Prosper and its population are vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to developed areas and the improved property in the Town of Prosper is not vulnerable to this hazard.
Emergency Facilities	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to buildings and the emergency facilities in the Town of Prosper are not vulnerable to this hazard.
Critical Facilities	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to buildings, and the critical facilities in the Town of Prosper are not vulnerable to this hazard.
Critical Infrastructure	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to critical infrastructure, and vulnerability to this hazard is considered minimal in the Town of Prosper.

Summary Table 3.13

Flooding	
Population	Flooding produces an expected annualized count of zero (0) fatalities and injuries per year. Approximately 152 residential parcels in the Town of Prosper are located within the 100-year floodplain.
Improved Property	Though there have been three (3) recorded flood events in the Town of Prosper, property losses are expected but financially unknown due to lack of accurate reporting. No crop losses are expected or recorded county-wide. Approximately $467,505,513 of the total assessed value is at risk from the 100-year storm event.
Emergency Facilities	Emergency facilities have the potential to be as risk in the 100-year storm event.
Critical Facilities	Critical facilities have the potential to be as risk in the 100-year storm event.
Critical Infrastructure	Critical Infrastructure have the potential to be as risk in the 100-year storm event.

Summary Table 3.14

Hail	
Population	According to National Centers for Environmental Information (NCEI), no recorded injuries or fatalities have been recorded for hailstorm events. There are no personal losses expected from hailstorm events.

Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the Town of Prosper are expected at $9,428.57 per year however these values are underestimated due to lack of accurate reporting. All improved property is vulnerable to this hazard. Although some crops are susceptible to hail hazards, available historical data indicates that there are no expected crop losses from this event.
Emergency Facilities	Because of the unpredictability of the geographical location of hailstorms, all emergency facilities in the Town of Prosper are vulnerable to this hazard.
Critical Facilities	Because of the unpredictability of the geographical location of hailstorms, all critical facilities in the Town of Prosper are vulnerable to this hazard.
Critical Infrastructure	Because of the unpredictability of the geographical location of hailstorms, all critical infrastructures in the Town of Prosper are vulnerable to this hazard.

Summary Table 3.15

High Wind	
Population	According to National Centers for Environmental Information (NCEI), there are no recorded injuries or fatalities from high wind events. All the population of the Town of Prosper are vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the Town of Prosper are expected at $700 per year however these values are underestimated due to lack of accurate reporting. No crop losses resulted from this hazard in the Town of Prosper.
Emergency Facilities	Because of the expected geographical widespread nature of high winds, all emergency facilities in the Town of Prosper are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of high winds, all critical facilities in the Town of Prosper are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of high winds, all critical infrastructures in the Town of Prosper are vulnerable to this hazard.

Summary Table 3.16

Lightning	
Population	According to National Centers for Environmental Information (NCEI), there are no recorded injuries or fatalities from lightning events. All the population of the Town of Prosper is vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the Town of Prosper are expected at $7,500 per year however these values are underestimated due to lack of accurate reporting.

Emergency Facilities	Because of the expected geographical widespread nature of lightning, all emergency facilities in the Town of Prosper are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of lightning, all critical facilities in the Town of Prosper are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of lightning, all critical infrastructures in the Town of Prosper are vulnerable to this hazard.

Summary Table 3.17

Tornado	
Population	According to National Centers for Environmental Information (NCEI), there have been no recorded injuries or fatalities from tornado events in Prosper. All the population of the Town of Prosper is exposed and vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), property losses in the Town of Prosper are expected but unknown due to lack of accurate reporting. No crop losses are expected from this hazard in the Town of Prosper.
Emergency Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all emergency facilities in the Town of Prosper are exposed and vulnerable to this hazard.
Critical Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all critical facilities in the Town of Prosper are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the impossibility to predict the geographical area of impact for tornados, all critical infrastructures in the Town of Prosper are exposed and vulnerable to this hazard.

Summary Table 3.18

Wildfire	
Population	Based on geographical data, approximately 38.19% of the Town of Prosper is vulnerable to wildfires, with the Town of Prosper and the unincorporated areas contributing with the majority of the exposed population. There have been no recorded injuries or fatalities due to wildfires.
Improved Property	Based on geographical data, property losses in the Town of Prosper are expected but unknown due to lack of accurate reporting; therefore, percentage of the overall property improvement values across the Town of Prosper are also unknown...
Emergency Facilities	Based on geographic information there are zero fire stations at risk from wildfire events.
Critical Facilities	Based on geographic information there are seven schools at risk from wildfire events.

Critical Infrastructure	Based on geographic information there are four bridges, zero dams, one water facility, two water towers, and one water treatment facility at risk from wildfire events.

Summary Table 3.19

Winter Storm	
Population	According to National Centers for Environmental Information (NCEI), there was one (1) county-wide fatality recorded due to winter storms, none from the Town of Prosper. All the population of the Town of Prosper are exposed and vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the Town of Prosper are expected but unknown due to lack of reporting however county-wide property loss is estimated at $116,250 per year. No crop losses are expected from this hazard in the Town of Prosper.
Emergency Facilities	Because of the expected geographical widespread nature of winter storms, all emergency facilities in the Town of Prosper are exposed and vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of winter storms, all critical facilities in the Town of Prosper are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of winter storms, all critical infrastructures in the Town of Prosper are exposed and vulnerable to this hazard.

4. Capability Assessment

The risk assessment and capabilities assessment serves as the foundation for the development of a meaningful hazard mitigation strategy. During the process of identifying specific mitigation actions to pursue, the Town of Prosper considered not only its level of hazard risk but also the existing capabilities to minimize or eliminate that risk.

Table 4.1 Legal and Regulatory Capability Summary

Legal and Regulatory Capabilities															
Jurisdiction	Building Code	Zoning Ordinance	Subdivision Ordinance or regulation	Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances wildfire ordinances, hazard setback requirements)	Growth management ordinances (also called "smart Growth" or anti-sprawl programs)	Site Plan review requirements	General or comprehensive plan	A capital improvements plan	An economic development plan	An emergency response plan	A post-disaster recovery plan	A post-disaster recovery ordinance	Real estate disclosure requirements	Other	% Yes per Jurisdiction
Town of Prosper	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	N	?	N	**64%**
Average % Yes Capabilities – 64%															
Y- Yes N- No ?- Don't Know															

Table 4.2 Administrative and Technical Capability Summary

Administrative and Technical Capabilities											
Jurisdiction	Planner(s) or engineer(s) with knowledge of land development and land management	Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Planners or engineer(s) with an understanding of natural and/or human caused hazards	Floodplain manager	Surveyors	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in GIS	Scientists familiar with the hazards of the community	Emergency manager	Grant writers	% Yes
Town of Prosper	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	**90%**
Average % Yes Capabilities – 90%											
Y- Yes N- No ?- Don't Know											

Table 4.3 Fiscal Capability Summary

Fiscal Capabilities											
Jurisdiction	Community Development Block Grants (CDBG)	Capital improvements project funding	Authority to levy taxes for specific purposes	Fees for water, sewer, gas, or electric service	Impact fees for homebuyers or developers for new developments/homes	Incur debt through general obligation bonds	Incur debt through special tax bonds	Incur debt through private activity bonds	Withhold spending in hazard-prone areas	Other	% Yes
Town of Prosper	N	Y	Y	Y	Y	Y	Y	Y	?	N	**70%**
Average % Yes Capabilities – 70%											
Y- Yes N- No ?- Don't Know											

To quantify Prosper's legal and regulatory capabilities, administrative and technical, and fiscal capabilities, an overall rating system was administered for each category: limited (0-30%), moderate (31-70%), and strong (70-100%). Questionnaire responses indicated that on average, the Town of Prosper and its jurisdictions have 64% of identified legal and regulatory capabilities, 90% of identified administrative and technical capabilities, and 70% of identified fiscal capabilities.

Table 4.4 Administrative Information

Jurisdiction	Chief Administrative Officer	Ability to Implement Capabilities
The Town of Prosper	Town Manager	The Town council, including the mayor, mayor pro-tem, and council members, along with the town manager, address the budget; pass laws, regulations, and codes; hire staff; approve plans; and determine the direction of the town overall. As the governing body, the ability to implement and approve mitigation actions and integrate mitigation into existing policies and programs is a function of this group.

Specific actions that can expand and improve existing capabilities, authorities, plans, policies, and resources for mitigation include: budgeting and passing policies and procedures, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates and additions to existing plans as new needs are recognized.

5. Mitigation Strategies

Based on the results of the risk and capability assessments, and reviews of the goals and objectives included in the 2016 HazMAP, the Prosper Hazard Mitigation Planning Committee developed mitigation strategies for the plan update.

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Goal 1 **Reduce or eliminate loss of life, injuries and property damage resulting from severe weather events.**

Objective 1-A Provide adequate warning and communication before, during, and after a hazard event.
Objective 1-B Expand and coordinate Early Warning Systems currently in use.
Objective 1-C Reduce or eliminate loss of life and property damage from tornados through the construction and use of safe rooms or shelter areas.

Goal 2 **Protect existing and new properties from the effects of all natural hazards.**

Objective 2-A Conduct studies to determine hazard and vulnerability threat assessment for all natural hazards.
Objective 2-B Rehabilitate or retrofit identified high hazard critical infrastructure.
Objective 2-C Enact and enforce regulatory measures that enforce hazard mitigation measures.
Objective 2-D Construct enhancements or additions to current and new facilities which mitigate the effects of natural hazards.
Objective 2-E Maintain NFIP compliance, storm water management, and implement drainage projects.

Goal 3 **Reduce losses and repetitive damages for chronic hazard events while promoting insurance coverage for catastrophic hazards**.

Objective 3-A Conduct a hazard/vulnerability assessment of personal properties and structures located in flood zones.
Objective 3-B Develop and implement a buyout program for those personal properties and structures located in high hazard flood zones starting with those that are most vulnerable to life and property loss.
Objective 3-C Develop and execute new programs which identify and reduce threats from natural hazards.

Goal 4 **Develop public education campaigns to disseminate information about actions to mitigate potential loss of life, injuries and property damage resulting from natural hazards.**

Objective 4-A Educate the public on risks, threats, and vulnerability from all natural hazards.
Objective 4-B Educate the public on actions they can take to prevent or reduce the loss of life or property from all natural hazards.
Objective 4-C Develop and implement a community education campaign to heighten public awareness about chronic flooding and options for insurance coverage to protect their personal properties as well as long term benefits from a buyout program.

6. Action Items

Below is a list of action items identified for the HazMAP Update. Each of the actions in this section were prioritized based on FEMA's STAPLEE criteria, which includes considering the social, technical, administrative, political, legal, economic, and environmental factors necessary for the implementation of each action. As part of the STAPLEE analysis, economic considerations were weighed for each action. The STAPLEE was used for the 2016 Plan along with the 2021 Update. Priority rankings are classified as indicated in the table below.

Priority	Description
High	Benefits of mitigating risk of death or severe bodily injury outweigh costs to implement actions rated as high priorities.
Medium	Reducing vulnerability to threats and the resulting improvement in quality of life and peace of mind are benefits for actions rated as medium priorities.
Low	Awareness of low risk/low impact hazards offer benefits of time to assess, plan and integrate low priority mitigation actions as time, need, and funding permit.

Town of Prosper Action Items: Deferred from 2016 Plan

Town of Prosper Action Item	Adopt and promote a public education program to mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Dam Failure, Flooding, High Wind, Lightning, Wildfire, Tornado, Hail, Extreme Heat, Drought, Winter Storms, Earthquakes, Expansive Soils
Goal/Objective	4A, 4B, 4C
Priority	Medium
Estimated Cost	$30,000
Potential Funding Sources	General Fund, EMPG, PDM
Potential Matching Sources	Local funds, citizen cost-share, donations
Lead Department	Fire Department
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger, and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger, and less vulnerable to damages
Cost Effectiveness	Extreme cost effectiveness
Discussion	Share perceptions of disaster myths, increases information gathering. Program will include information about mitigation actions for each hazard.

Status	Receive supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021 Plan
Town of Prosper Action Item	Develop, implement, and enforce ordinances to restrict the use of public water resources for non-essential usage, such as washing cars, landscape, and filling swimming pools
Hazard(s) Addressed	Drought
Goal/Objective	2A, 2C, 3C
Priority	Moderate
Estimated Cost	$45,000
Potential Funding Sources	General Fund, EMPG, other grants
Potential Matching Sources	Local donations, in-kind matching
Lead Department	Public Works, OEM
Implementation Schedule	2-5 years
Effect on Old Buildings	May require retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and lawn sprinklers
Cost Effectiveness	High. With millions of dollars potentially lost due to drought, this mitigation technique would have a long-term benefit on local farmers and citizens
Discussion	Additional project to include working with builders to encourage drought –tolerant landscape to reduce water usage with incentives
Status	Deferred – will be included in 2021 Plan

Town of Prosper Action Item	Implement individual/public tornado safe rooms and location awareness
Hazard(s) Addressed	Tornado, High Wind
Goal/Objective	1C, 2D, 4A, 4B,
Priority	High
Estimated Cost	Up to $3,000 per residential safe room/$1,000,000 public retrofit
Potential Funding Sources	FEMA, Local grants, PDM
Potential Matching Sources	Local Funding, Donations, Resident Match
Lead Department	Engineering
Implementation Schedule	2-5 years
Effect on Old Buildings	Enhance safety of existing residential/public structures through retrofit
Effect on New Buildings	Enhance safety of new residential structures
Cost Effectiveness	High, Residential safe room shelters decrease personal injuries and death during severe weather, tornadoes, or high winds
Discussion	Possible FEMA rebate program

Status	Will be included in 2021, however, come residents were able to obtain funds through the NCTCOG Saferoom Rebate Program

Town of Prosper Action Item	Protect citizens from extreme weather by building covered patios in public parks
Hazard(s) Addressed	Extreme Heat, Hail, High Winds, Lightning
Goal/Objective	2D
Priority	High
Estimated Cost	$50,000
Potential Funding Sources	PDM, General Budget, State and Federal Grants
Potential Matching Sources	Citizen cost-share, Donations
Lead Department	Public Works/Parks
Implementation Schedule	2-3 years
Effect on Old Buildings	Potentially add covered patios to existing small structures
Effect on New Buildings	N/A
Cost Effectiveness	Cost is low compared to loss of life from heat illness and debris injuries
Discussion	Covered patios are an effective means of providing temporary relief from severe weather
Status	Deferred – will be included in 2021 Plan

Town of Prosper Action Item	Purchase and Distribute NOAA Radios to Vulnerable Populations
Hazard(s) Addressed	Hail, Lightning, Drought, Extreme Heat, High Winds, Tornado, Wildfire, Winter Storm, Dam Failure, Earthquake, Expansive Soils, Flooding
Goal/Objective	3C
Priority	High
Estimated Cost	$60,000
Potential Funding Sources	Grant Funds, HMGP, PDM
Potential Matching Sources	Local funds, General Budget, Donations, citizens cost-share
Lead Department	Fire Department, Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger, and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger, and less vulnerable to damages
Cost Effectiveness	moderate

Discussion	Early warning, hazard and mitigation information, and reliable communications have been established to reduce loss of life, injuries, and property damage
Status	Deferred – will be included in 2021 Plan

Town of Prosper Action Item	Develop, Implement, and Enforce Private Residential and Commercial Construction Requirements
Hazard(s) Addressed	Hail, Lightning, Drought, Extreme Heat, High Winds, Tornado, Wildfire, Winter Storm, Dam Failure, Earthquake, Expansive Soils, Flooding
Goal/Objective	1C, 2C
Priority	Moderate
Estimated Cost	$85,000
Potential Funding Sources	PDM, EMGP
Potential Matching Sources	General budget, In-Kind
Lead Department	Development Services, OEM
Implementation Schedule	6-9 Months
Effect on Old Buildings	New standards could be used to drive retrofitting
Effect on New Buildings	Buildings will be safer and more resilient in face of hazards
Cost Effectiveness	High
Discussion	Develop and adopt building codes to harden private construction based on the hazards identified in this annex such as hail-resistant roofing and windows; wind and impact resistant doors, windows, and roofing ; wildfire breaks and fire resistant building materials; stricter foundation standards for earthquake and expansive soils; increased elevation (BFE) standards for flooding; higher grade insulation to mitigate extreme heat and winter weather; and resource-efficient (low-flow) plumbing for drought. Also, additional codes for dry-proofing and lightning protection (rods, grounding) for public buildings to mitigate flood, dam failure and lightning
Status	Town of Prosper has adopted current building code and will continue to adopt the most current building codes – will continue to be in future plans and updates

Town of Prosper Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	2A, 3A
Priority	High
Estimated Cost	$150,000

Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local Sponsors, In-Kind
Lead Department	Planning and Zoning/ NRCS
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Dam Failure data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	Deferred – will be included in 2021 Plan

Town of Prosper Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$45,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.
Status	Deferred will be included in 2021 Plan (50,000)

Town of Prosper Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2A

Priority	Low
Estimated Cost	$100,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	12-18 months
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.
Status	Deferred – will be included in 2021 Plan

Town of Prosper Action Items: New

Town of Prosper Action Item	Develop and implement a comprehensive public education program to educate on the actions to help mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Tornado, Hail, Winter Storms, High Winds, Dam Failure, Lightning, Expansive Soils, Extreme Heat, Earthquake, Flooding, Wildfire, Drought
Goal/Objective	4A, 4B, 4C
Priority	Medium
Estimated Cost	$30,000
Potential Funding Sources	General Fund, EMPG, PDM
Potential Matching Sources	Local funds, citizen cost-share, donations
Lead Department	Fire Department
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger, and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger, and less vulnerable to damages
Cost Effectiveness	Minimal compared to preservation of life safety
Discussion	Public education can help educate the public to reduce personal and property damage during disasters. Program will include information about hazard mitigation.

Town of Prosper Action Item	Develop, implement, and enforce ordinances to restrict the use of public water resources for non-essential usage, such as washing cars, landscape, and filling swimming pools
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	2A, 2C, 3C
Priority	Moderate
Estimated Cost	$45,000
Potential Funding Sources	General Fund, EMPG, other grants
Potential Matching Sources	Local donations, in-kind matching
Lead Department	Public Works, OEM
Implementation Schedule	2-5 years
Effect on Old Buildings	May require retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and lawn sprinklers
Cost Effectiveness	High. With millions of dollars potentially lost due to drought, this mitigation technique would have a long-term benefit on local farmers and citizens
Discussion	Additional project to include working with builders to encourage drought –tolerant landscape to reduce water usage with incentives When water is conserved and not used for landscape during droughts, this would provide water for homeowners to use, through drip irrigation, to keep their foundations at a consistent saturation level, mitigating the impacts of drought and lack of water.

Town of Prosper Action Item	Implement individual/public tornado safe rooms and location awareness
Hazard(s) Addressed	Tornado, High Wind
Goal/Objective	1C, 2D, 4A, 4B,
Priority	High
Estimated Cost	Up to $3,000 per residential safe room/$1,000,000 public retrofit
Potential Funding Sources	FEMA, Local grants, PDM
Potential Matching Sources	Local Funding, Donations, Resident Match
Lead Department	Engineering
Implementation Schedule	2-5 years
Effect on Old Buildings	Enhance safety of existing residential/public structures through retrofit
Effect on New Buildings	Enhance safety of new residential structures
Cost Effectiveness	High, Residential safe room shelters decrease personal injuries and death during severe weather, tornadoes, or high winds
Discussion	Possible FEMA rebate program

Town of Prosper Action Item	Protect citizens from extreme weather by building covered patios in public parks
Hazard(s) Addressed	Extreme Heat, Hail, High Winds, Lightning
Goal/Objective	2D
Priority	High
Estimated Cost	$50,000
Potential Funding Sources	PDM, General Budget, State and Federal Grants
Potential Matching Sources	Citizen cost-share, Donations
Lead Department	Public Works/Parks
Implementation Schedule	2-3 years
Effect on Old Buildings	Potentially add covered patios to existing small structures
Effect on New Buildings	N/A
Cost Effectiveness	Cost is low compared to loss of life from heat illness and debris injuries
Discussion	Covered patios are an effective means of providing temporary relief from severe weather

Town of Prosper Action Item	Purchase and Distribute NOAA Radios to Vulnerable Populations
Hazard(s) Addressed	Hail, Lightning, Drought, Extreme Heat, High Winds, Tornado, Wildfire, Winter Storm, Dam Failure, Earthquake, Expansive Soils, Flooding
Goal/Objective	3C
Priority	High
Estimated Cost	$60,000
Potential Funding Sources	Grant Funds, HMGP, PDM
Potential Matching Sources	Local funds, General Budget, Donations, citizens cost-share
Lead Department	Fire Department, Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger, and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger, and less vulnerable to damages
Cost Effectiveness	moderate
Discussion	Early warning, hazard and mitigation information, and reliable communications have been established to reduce loss of life, injuries, and property damage

Town of Prosper Action Item	Develop, Implement, and Enforce Private Residential and Commercial Construction Requirements
Hazard(s) Addressed	Hail, Lightning, Drought, Extreme Heat, High Winds, Tornado, Wildfire, Winter Storm, Dam Failure, Earthquake, Expansive Soils, Flooding
Goal/Objective	1C, 2C
Priority	Moderate
Estimated Cost	$25,000
Potential Funding Sources	PDM, EMGP
Potential Matching Sources	General budget, In-Kind
Lead Department	Development Services, OEM
Implementation Schedule	6-9 Months
Effect on Old Buildings	New standards could be used to drive retrofitting
Effect on New Buildings	Buildings will be safer and more resilient in face of hazards
Cost Effectiveness	High
Discussion	Develop and adopt building codes to harden private construction based on the hazards identified in this annex such as hail-resistant roofing and windows; wind and impact resistant doors, windows, and roofing ; wildfire breaks and fire resistant building materials; stricter foundation standards for earthquake and expansive soils; increased elevation (BFE) standards for flooding; higher grade insulation to mitigate extreme heat and winter weather; and resource-efficient (low-flow) plumbing for drought. Also, additional codes for dry-proofing and lightning protection (rods, grounding) for public buildings to mitigate flood, dam failure and lightning

Town of Prosper Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	2A, 3A
Priority	High
Estimated Cost	$125,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local Sponsors, In-Kind
Lead Department	Planning and Zoning/ NRCS
Implementation Schedule	1-2 years

Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Dam Failure data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.

Town of Prosper Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$50,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.

Town of Prosper Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2A
Priority	Low
Estimated Cost	$50,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	12-18 months

Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.

Town of Prosper Action Item	Install outdoor warning sirens
Hazard(s) Addressed	Tornado, High Winds
Goal/Objective	1A, 1B
Priority	High
Estimated Cost	$175,000
Potential Funding Sources	EMPG, PDM BRIC, General Funds, Developers,
Potential Matching Sources	General Funds, In-Kind
Lead Department	OEM
Implementation Schedule	6 Months
Effect on Old Buildings	N/A
Effect on New Buildings	N/A
Cost Effectiveness	Moderate
Discussion	To achieve 100% coverage to all residents of our fast growing jurisdiction, 4 new sirens would need to be installed. This action item would be specific to installation/placement of new OWS sirens in the jurisdiction.

National Flood Insurance Program (NFIP) Compliance

The Town of Prosper is participating in the National Flood Insurance Program and has identified their respective areas as vulnerable to flooding. This is incorporated into all current and future planning for dealing with repetitive loss vulnerabilities.

Table 6.1 NFIP Compliance

CID	Community Name	County	Initial FHBM Identified	Initial FIRM Identified	Curr Eff Map Date	Reg-Emer Date	Tribal
480141#	PROSPER, TOWN OF	DENTON COUNTY/COLLIN COUNTY	6/21/1974	5/4/1982	4/18/2011	5/4/1982	No

Source: http://www.fema.gov/cis/TX.html

Jurisdiction Compliance

Once the community applies for the NFIP, FEMA arranges for a study of the community to determine base flood elevations and flood risk zones. Consultation with the community occurs at the start of and during the study, and those communities with minimal flood risk are converted to the Regular Program without a study.

FEMA provides the studied community with a Flood Insurance Rate Map delineating base flood elevations and flood risk zones. The community is then given 6 months to adopt base flood elevations in its local zoning and building code ordinances. Once the community adopts more stringent ordinances, FEMA converts the community to the NFIP's Regular Program. FEMA then authorizes the sale of additional flood insurance in the community up to the Regular Program limits. The community must implement and enforce the adopted floodplain management measures. FEMA provides periodic community assistance visits with local officials to provide technical assistance regarding complying with NFIP floodplain management requirements.

The purchase of flood insurance is mandatory as a condition of receipt of federal or federally-related financial assistance for acquisition and/or construction of buildings in SFHAs of any participating community. Those communities notified as flood-prone which do not apply for participation in the NFIP within 1 year of notification are ineligible for federal or federally-related financial assistance for acquisition, construction, or reconstruction of insurable buildings in the SFHA.

Jurisdiction Activities

In order to maintain eligibility with NFIP, jurisdictions are required to maintain their list of properties that hold a policy with NFIP, along with up-to-date maps of the floodplains in the jurisdictions. Each jurisdiction participating in the Collin County Hazard Mitigation Action Plan completes this basic requirement and has the information on file with the jurisdiction's designated floodplain manager. Using this plan, participating jurisdictions will be able to continue their compliance with NFIP by implementing damage control measures and take action to minimize the effects of flooding in their respective jurisdictions.

Table 6.2 NIFP Activity

Jurisdiction	Community Floodplain Administrator	NFIP Activity	Activity Description	Enforcement
Town of Prosper	Senior Engineer/Director	Completing and maintaining FEMA elevation certificates for pre-FIRM and or post-FIRM buildings	The Engineering Department is responsible for issuing floodplain permits.	NFIP compliance is implemented and enforced through a process of floodplain identification using FEMA floodplain maps, permit issuance, building requirements, and compliance inspections pending approval. Failure to comply with town's flood damage prevention order shall result in fines up to $500 per violation plus court costs.
		Requiring and maintaining FEMA elevation certificates for all new and improved buildings located in floodplains	The Engineering Department is responsible for issuing floodplain permits.	
		Implementing damage reduction measures for existing buildings such as acquisition, relocation, retrofitting, and maintenance of drainage ways and retention basins	Maintenance of drainage ways and retention basins. Installation of retention basins on new construction.	
		Taking action to minimize the effects of flooding on people, property, and building contents through measures including flood warning, emergency response, and evacuation planning	Implementing newly developed Storm-water Management Program which includes public education, new development standards, and other programs and policies.	

7. Plan Maintenance

Monitoring, Evaluating and Updating the Plan

In Compliance with requirement § 201.6(c)(4)(i), the Town of Prosper has developed a plan maintenance process which is described in the following paragraphs. Town of Prosper, along with participating jurisdictions are responsible for monitoring implementation of the plan, executing a yearly evaluation of its effectiveness, and updating the plan within a 5-year cycle.

Following formal adoption by Collin County Commissioners Court, and formal adoption of the plan by City/Town Council by each participating jurisdiction, the actions outlined in the Collin County Hazard Mitigation Plan would be implemented by the county and participating jurisdictions as described throughout this document.

The Collin County Emergency Management Coordinator, working in conjunction with the respective jurisdictions, will be responsible for ensuring the mitigation plan is monitored, evaluated, and reviewed on an annual basis. This will be accomplished by calling an annual meeting of the planning committee, whose members will provide assistance and expertise for plan review, evaluating, updating, and monitoring. This meeting will be open to the public and public notices will encourage community participation. During this annual meeting, the Town of Prosper will provide information on the implementation status of each action included in the plan. As part of the evaluation, the planning committee will assess whether goals and objectives address current and expected conditions, whether the nature and/or magnitude of the risks have changed, if current resources are appropriate for implementing the plan, whether outcomes have occurred as expected, and if agencies and other partners participated as originally proposed. These activities will take place according to the timetable presented below:

Table 7.1 Plan Maintenance Timeline

Personnel	Activity	Schedule
Emergency Management Team	Monitoring Plan: Track implementation and action items, changes to risk assessment, changes to planning team members, changes to capabilities, plan integrations	Biannually
	Evaluate Plan: Assess effectiveness by evaluating completed actions, implementation processes, responsible personnel and lessons learned.	Annually
Planning Team	Update Plan	Once every 5 years

At least once every five (5) years, or more frequently, if such a need is determined by the participating jurisdiction, the multi-jurisdictional plan will undergo a major update. During this process, all sections of the plan will be updated with current information, analyses done and new and/or modified mitigation action plans will be developed. The revised plan will be submitted for state and federal review and approval and presented for approval to the Collin County Commissioner's Court and the respective councils of incorporated cities/towns included in the Collin County plan. Each participating jurisdiction will undertake the same process for reviewing, revising, and updating their respective plans and submitting them for approval. The plans will be updated every five years in accordance with federal requirements.

Plan Incorporation into Existing Planning Mechanisms *(In compliance with 201.6(c)(4)(ii))*

Based on the requirements set forth in § *201.6(c)(4(ii)*, the State of Texas Mitigation Plan, the vulnerability and capabilities assessment for each jurisdiction was carefully reviewed and considered when developing the mitigation actions for this plan. The HMPT and planning committees will establish a process in which the mitigation strategy, goals, objectives, and actions outlined in this plan will be incorporated into the existing regional and local planning strategies.

Local and regional planning committees currently use comprehensive land use planning, capital improvements planning, and building code ordinances to guide development. The mitigation strategy, goals, objectives, and actions outlined in this plan will be integrated into these existing mechanisms as applicable. Those mechanisms include the following:

Table 7.2 Plan Incorporation Mechanisms

Jurisdiction	Responsible Personnel	Jurisdictional Plans	Integration Schedule	Integration Plan
Town of Prosper	Town Council	Budget Meetings	As needed	Integration of mitigation projects identified in HazMAP, grants, and other fiscal allowances for mitigation actions and related costs
	Emergency Management Coordinator	Emergency Action Plan updates	Every Five years	EAP Mitigation annex updates based on HazMAP HIRA; update preparedness, response and recovery actions related to identified hazards
	Designated Floodplain Manager	Floodplain ordinances	As needed	Enhance mitigation of flood hazards using HazMAP flood data for floodplain management and community development.
	Town Council, Director of Planning	Capital improvement plans	Annually	Strengthen critical infrastructure and key resources based on HazMAP hazard analysis, incorporate vulnerability data and action items.
	Public Works Director, Town Council	Drought Contingency plans	As needed	Integrate drought actions such as xeriscaping, water restrictions, and public education
	Planning Director, Town Council	Parks & Recreation Master Plan	Triennially	Integrate conservation measures by directing development away from hazard-prone areas identified in HazMAP.

Although it is recognized there are many possible benefits to integrating components of this HazMAP into other planning mechanisms, the Prosper Hazard Mitigation Planning Committee considers this HazMAP, including development and maintenance, to be the primary vehicles to ensure implementation of local hazard mitigation actions.

The process described here is the same as was used since the last planning update.

Continued Public Involvement (In compliance with 201.6(c)(4)(iii))

As stated in requirement § *201.6(c)(4)(iii)* The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.

To address this requirement, ongoing public participation will be encouraged throughout the entire planning and implementation process. A copy of the plan will be provided on the Collin County website. The planning team and committee will continue meeting on a regular basis to ensure the successful implementation of the plan and to discuss any additional issues regarding the emergency management of Collin County. The annual meetings for monitoring, evaluating, and updating the plan will be open to the public and public notices will encourage community participation.

Annex S: Town of St. Paul

1. Introduction

This annex was prepared in 2020 as part of an update to the Collin County Multijurisdictional Hazard Mitigation Action Plan. The Town of St. Paul participated on the Collin County Hazard Mitigation Planning Team (HMPT). This is a new hazard mitigation plan and the first to be submitted to FEMA for the Town of St. Paul. In addition to the countywide hazards and strategies discussed in the main plan, this annex serves as a complete hazard mitigation planning tool for the Town of St. Paul. It contains capability assessment information, a specific vulnerability assessment, and a complete mitigation strategy. The methodology and process for developing this annex are explained throughout the following sections.

2. Plan Development and Adoption Process

In order to apply for federal aid for technical assistance and post-disaster funding, local jurisdictions must comply with Part 201.3 of the Disaster Mitigation Act of 2000 implemented in the Federal Code of Regulations 44 CRF Part 201.6. While the Town of St. Paul has historically implemented measures to reduce their vulnerability to hazards, passage of DMA 2000 helped the Town of St. Paul officials to recognize the benefits of a long-term approach to hazard mitigation, which achieves a gradual decrease of impacts associated through the implementation of a Hazard Mitigation Plan. Collin County's Hazard Mitigation Action Plan represents the collective efforts of all participating jurisdictions, the general public, and stakeholders.

Organizing the Planning Effort

A comprehensive county approach was taken in developing the plan. An open public involvement process was established for the public, neighboring communities, regional agencies, businesses, academia, etc. to provide opportunities for everyone to become involved in the planning process and to make their views known. The meetings were advertised with notices in public places and online.

In accordance with Part 201.6(c)(5) of the Disaster Mitigation Act of 2000 (DMA 2000), Collin County developed this Hazard Mitigation Action Plan. This plan identifies hazards and mechanisms to minimize future damages associated with these hazards, which threaten Collin County and its jurisdictions.

Existing Data and Plans

Existing hazard mitigation information and other plans were reviewed during the development of the Hazard Mitigation Action Plan. GIS, statistical and qualitative data was gathered through numerous sources. The table below outlines the sources of data for the plan:

Table 2.1 Plan Source Data

Source	Data
City and County Appraisal Data 2020	Population and demographics
Regional Hazard Assessment Tool	Hazard occurrences
National Centers for Environmental Information (NCEI)	Hazard occurrences
Texas Forest Service/Texas Wildfire Risk Assessment Summary Report	Wildfire Threat and Urban Interface
National Inventory of Dams	Dam Information

Planning Committee

This Hazard Mitigation Action Plan was developed by the Town of St. Paul Hazard Mitigation Planning Committee, with support of the North Central Texas Council of Governments and in conjunction with the Collin County HMPT.

The Collin County HMPT was assembled in November 2020 with representatives from participating jurisdiction planning committees, including mayors, police chiefs, fire chiefs, and the general public. Collin County acted as the plan development consultant providing hazard mitigation planning services; the efforts of the planning committee were led by the Town of St. Paul Emergency Management Coordinator. The table below provides a list of the primary representatives on the St. Paul planning committee.

Table 2.2 Hazard Mitigation Committee – Primary Representatives

Representing	Position	Role
Town of St. Paul	Mayor	Review of plan
Town of St. Paul	Town Secretary	Review of plan

Collin County served as the coordinator and lead agency for all jurisdictions by accomplishing the following activities through the planning process:

- Assigned the County's Assistant Emergency Management Coordinator to provide technical assistance and necessary data to the planning committee.
- Scheduled, coordinated, and facilitated community meetings with the assistance of the HMPT and the planning committees.
- Provided any necessary materials, handouts, etc. for public planning meetings.
- Worked with the HMPT and planning committees to collect and analyze data and develop goals and implementation strategies.
- Prepared, based on community input and planning team/committee direction, the first draft of the plan and provided technical writing assistance for review, editing and formatting.
- Coordinated with the stakeholders within the jurisdictions and the unincorporated areas of Collin County during plan development.

Each of the individual jurisdictions participated in accomplishing similar activities associated with development of the plan as follows:

- Coordinated input from representatives of neighborhood stakeholder groups and provided a representative to the County HMPT.
- Attended regular meetings of the planning team as coordinated by Collin County.
- Assisted Collin County staff with identifying hazards and estimating potential losses from future hazard events.
- Assisted Collin County in developing and prioritizing mitigation actions to address the identified risks.
- Assisted Collin County in coordinating public meetings to develop the plan.
- Identified the community resources available to support the planning effort.
- Worked for the support of neighborhood stakeholders for the recommendations resulting from the planning process.
- Submitted the proposed plan to all appropriate departments for review and comment and worked with Collin County to incorporate the resulting comments into the proposed

plan.

External stakeholders involved in reviewing the Collin County Hazard Mitigation Action Plan:

Table 2.3 External Stakeholders

Representing	Position	Role
NCTCOG	Emergency Preparedness Prog. Asst.	Review of plan
Collin County	Homeland Security Dept. Coordinator	Review of plan

Subsequent to the State of Texas and FEMA approval of the plan, each jurisdiction also is committed to accomplishing the following activities:

- Appoint members to a coordinating committee to monitor and work toward plan implementation.
- Publicize the plan to neighborhood interests and ensure that new community members are aware of the plan and its contents.
- Monitor progress in achieving the plan's goals through regular maintenance and implementation projects.

Planning Meetings

During the planning process, the HMPT met to obtain relevant information from the participating jurisdictions and to discuss the objectives and progress of the plan. The objectives of these meetings were to gather information and to provide guidance for each jurisdiction throughout the planning stages.

The following meetings were held by Collin County and included all jurisdictions' participation:

- Emailed Plan to St. Paul for updates – August 12, 2020
- Collin County Planning Meeting – November 5, 2020
- Collin County HazMAP Public Meeting – 11/2/2021 at 2PM
- Collin County HazMAP Public Meeting – 01/12/2022 at 9AM

Public Involvement

Support from the community is vital for any successful hazard mitigation plan. The HMPT and planning committee provided opportunities, announced through public communication means, for public participation and input throughout the planning process prior to this draft and before approval of the finalized plan. Advertisement and sign in sheets for these meetings are located in Appendix A.

- The first public meeting was held on November 2, 2021 at 2PM, and advertised on the Collin County website along with other jurisdictional websites inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to comment. The meeting was held virtually via WebEX.
- A second public meeting was held on January 12, 2022 at 9AM. Announcements were placed on jurisdictions websites, including Collin County inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to view and comment on the HazMAP prior to plan submission.

There were no comments directly related to the mitigation plan received from citizens, non-profits, businesses, academia, or interested parties; therefore, no feedback was incorporated. An additional opportunity for the public to comment on the plan will be held prior to formal plan adoption.

This provided all citizens, stakeholders, neighboring communities, agencies, businesses, academia, non-profit organizations, and all interested parties an opportunity to be involved in the planning process and to take part in the decisions making process that affect the future of the communities that they live in.

3. Jurisdictional Hazard Identification and Risk Assessment

The Hazard Mitigation Planning Committee for the Town of St. Paul identified several natural and man-made hazards that could affect the town. The committee decided to focus on the natural hazards identified in Section 5 of this update. This was done after reviewing the 2016 HazMAP, the State of Texas Hazard Mitigation Plan, as well as other sources such as federal and state agencies. The hazards were ranked using the Priority Risk Index.

Priority Risk Index

A Priority Risk Index (PRI) was developed with the purpose of categorizing potential hazards for St. Paul and ranks each hazard as high, moderate, low, or negligible to no risk. The hazard classification generated through the use of the PRI allows for the prioritization of those high hazard risks for mitigation planning purposes, and more specifically, the identification of hazard mitigation opportunities for Collin County jurisdictions to consider as part of their proposed mitigation strategy.

The PRI is used to assist all jurisdictions participating in the Collin County HazMAP in determining which hazards pose the most significant threat based on a variety of factors. The PRI is not scientifically based, but is rather meant to be utilized as an objective and systematic planning tool for classifying and prioritizing hazard risks in Collin County based on standardized criteria. The PRI results in numerical values that allow identified hazards to be ranked against one another. The sum of all four categories equals the final PRI value, as shown below:

PRI Value = (Probability x .30) + (Life Impact x .35) + (Property Impact x .25) + (Spatial Extent x .10)

The higher the PRI value, the greater the hazards risk. These values were obtained by assigning varying degrees of risk to four categories for each hazard: Probability, Life Impact, Property Impact, and Spatial Extent *(Table 3.1).* Each category has been assigned an Index Value (0 to 3) and a Weighing Factor (0 – 100%). These values may be adjusted during future plan updates. In order to evaluate the risk of each hazard, the assigned PRI Value for each category is multiplied by the weighing factor. Then, the PRI for each hazard is calculated by adding the product obtained in each category. According to the weighing scheme applied for Collin County, the highest possible PRI value is 3.0. The PRI calculations are presented in *Table 3.2*. Table 3.1 breaks down the value of each category.

Table 3.1 Priority Risk Index Value

Assigned Weighing Factor	PRI Category	Degree of Risk		
		Level	Criteria	Index Value
30%	Probability	Unlikely	Less than 1% annual probability	0
		Possible	Between 1 and 10% annual probability	1
		Likely	Between 10 and 100% annual probability	2
		Highly Likely	100% annual probability	3
35%	Life Impact	Minor	Very few injuries, if at all none	0
		Limited	Minor Injuries	1
		Critical	Multiple deaths/injuries	2
		Catastrophic	High number of deaths/injuries	3

25%	Property Impact	Minor	Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	0
		Limited	More than 10% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one day.	1
		Critical	More than 25% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one week.	2
		Catastrophic	More than 50% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for 30 days or more.	3
10%	Spatial Extent	Negligible	Less than 1% of area affected	0
		Small	Between 1 and 10% of area affected	1
		Moderate	Between 10 and 50% of area affected	2
		Large	Between 50 and 100% of area affected	3

Table 3.2 Priority Risk Index for the Town of St. Paul

Hazard	Category/Degree of Risk				
	Probability Index Value (0 - 3 30%)	Life Impact Index Value (0 - 3 35%)	Property Impact Index Value (0 - 3 25%)	Spatial Extent Index Value (0 - 3 10%)	PRI Value 2021
Dam Failure	0	0	0	0	0
Drought	2	0	1	3	1.15
Earthquake	0	1	0	1	0.45
Expansive Soils	2	0	0	1	0.7
Extreme Heat	1	1	0	2	0.85
Flooding	1	1	0	0	0.65
Hail	2	0	2	1	1.2
High Winds	1	0	0	1	0.4
Lightning	1	0	0	0	0.3
Tornado	2	1	1	1	1.3
Wildfire	1	2	0	1	1.1
Winter Storms	2	0	2	3	1.4

The conclusions drawn from the hazard profiling process for Collin County jurisdictions, resulted in the classification of risk for each identified hazard according to four categories: High Risk, Moderate Risk, Low Risk, and Negligible to No Risk *(Table 3.3).* For purposes of these classifications, risk is expressed in relative terms according to the probability of occurrence and estimated impact that a hazard will have on human life and property in Collin County.

Table 3.3 Hazard Rankings for the Town of St. Paul

High Risk (PRI 2 - 3)	
Moderate Risk (PRI 1.01 -1.9)	Tornado Winter Storms Drought Wildfire
Low Risk (PRI 0.50 – 1)	Extreme Heat Expansive Soils Hail Flooding
Negligible to No Risk (PRI 0 – 0.49)	Earthquake High Winds Lightning Dam Failure

Changes in Development and Priorities (Requirement §201.6(d) (3))

Our jurisdiction is in one of the fastest growing areas of the nation, hence development has increased and will continue to increase our vulnerability to hazards that may impact us.

Vulnerability Narratives

This annex focuses on specific areas of vulnerability the Town of St. Paul faces with each hazard. The hazards identified in the main plan are all addressed in this annex, therefore the natural hazards rated negligible to no risk are included, described, and considered for mitigation.

Dam and Levee Failure A dam is defined as a barrier constructed across a watercourse for the purpose of storage, control, or diversion of water. Dams typically are constructed of earth, rock, concrete, or mine tailings. A dam failure is an accidental or unintentional collapse, breach, or other failure of an impoundment structure that results in downstream flooding. Because dams are man-made structures, dam failures are usually considered technological hazards. However, since most dam failures result from prolonged periods of rainfall, they are often cited as secondary or cascading effects of natural flooding disasters and are not named as the primary hazard that causes disaster declarations.

Development of the downstream areas necessitates the original low hazard classifications to be changed to higher hazard classifications because the dams are no longer adequate for the increased downstream risks. NRCS data shows that there are no dams in the St. Paul that are no longer adequate for increased downstream risks. This percentage could actually be higher because detailed current evaluations of NRCS dams have not been conducted due to resource limitations. In addition, many of these inadequate dams have not been updated because many of the legally responsible entities of these dams do not have sufficient mechanisms funding for updates, or even adequate maintenance, in some cases. Soil and Water Conservation Districts do not have any statutory funding capability of their own, and counties, especially those with small populations and multiple dams, are not able to generate the resources needed to sustain a consistent and comprehensive effort upgrade these structures. While no record could be found of any previous dam failures in Collin County, three things are clear:

- There are no dams in St. Paul that are nearing the end of their designed project lives

- There are no dams in St. Paul that are in desperate need of detailed evaluations and consistent maintenance
- Increased development downstream of any dams may put more people, property, and infrastructure at risk.

Based on a quantitative analysis of no dams currently being in place in St. Paul and a qualitative analysis of the potential impacts that dam failures would have on the social, economic, and environmental components of the region, the risk of a dam failure hazard is negligible but as a participant in the county plan, inundation studies will be considered.

St. Paul is responsible for no high hazard dams identified by the NRCS in both the unincorporated County area and in several cities due to the use of easements and the Emergency Operations Plans for those dam sites.

Drought Drought has the potential to impact the entire planning area equally; all improved property, critical facilities, critical infrastructure, and the entire population of St. Paul are vulnerable to this hazard. Foundations of all buildings are vulnerable; however, older structures, or those built under less stringent foundation code requirements are most vulnerable. Lake Lavon, Lake Texoma, Lake Tawakoni, Lake Fork and the Lake Chapman-Cooper reservoir system are water sources for the Town of St. Paul and are vulnerable to drought. In turn, the city's population, wildlife and vegetation are vulnerable. Lower income populations who may not have the resources to buy containerized water in the event of a shortage may be more vulnerable than other populations.

Earthquake An earthquake is a sudden motion or trembling caused by an abrupt release of accumulated strain on the tectonic plates that comprise the Earth's crust. The theory of plate tectonics holds that the Earth's crust is broken into several major plates. These rigid, 50- to 60- mile thick plates move slowly and continuously over the interior of the earth, meeting in some areas and separating in others. As the tectonic plates move together they bump, slide, catch, and hold. Eventually, faults along or near plate boundaries slip abruptly when the stress exceeds the elastic limit of the rock, and an earthquake occurs. The ensuring seismic activity and ground motion provoke secondary hazards: surface faulting, ground failure, and tsunamis. The vibration or shaking of the ground during an earthquake is referred to as ground motion. In general, the severity of ground motion increases with the amount of energy released and decreases with distance from the causative fault or epicenter. When a fault ruptures, seismic waves are propagated in all directions, causing the ground to vibrate at frequencies ranging from 0.1 to 30 Hz. Seismic waves are referred to as P waves, S waves, and surface waves. Earthquakes have the potential to occur anywhere in the geographic planning area, therefore all geographic areas are potentially vulnerable. Buildings constructed under older building codes, aging underground infrastructure, and roads are most vulnerable to damages from seismic activity.

Expansive Soils Expansive soils contain minerals such as "smectite" clays that are capable of absorbing water. When they absorb water they increase in volume. The more water they absorb the more their volume increases. Expansions of ten percent or more are not uncommon. This change in volume can exert enough force on a building or other structure to cause damage. Expansive soils will also shrink when they dry out. This shrinkage can remove support from buildings or other structures and result in damaging foundations. Fissures in the soil can also develop. These fissures can facilitate the deep penetration of water when moist conditions or runoff occurs. This produces a cycle of shrinkage and swelling that places repetitive stress on structures. The Town of St. Paul is at low risk from expansive

soils. The entire geographic planning area and properties have the potential to be vulnerable to expansive soils, especially buildings constructed under older building codes.

Extreme Heat Severe summer heat is characterized by a combination of a very high temperatures and exceptionally humid conditions. When persisting over a period of time, it is called a heat wave. Extreme heat generally affects the entire population, but the homeless, very young, elderly, and populations without air conditioning are most vulnerable.

Flooding Flooding is defined as the accumulation of water within a water body and the overflow of excess water onto adjacent floodplain lands. The floodplain is the land adjoining the channel of a river, stream, ocean, lake, or other watercourse or water body that is susceptible to flooding. The statistical meaning of terms like “25-year storm” and “100-year flood” can be confusing. Simply stated, a floodplain can be located anywhere; it just depends on how large and how often a flood event occurs. Floodplains are those areas that are subject to inundation from flooding. Floods and the floodplains associated with them are often described in terms of the percent chance of a flood event happening in any given year. As a community management or planning term, “floodplain” most often refers to an area that is subject to inundation by a flood that has a one percent chance of occurring in any given year (commonly and incorrectly referred to as the 100-year floodplain). Common flooding hazards within the planning area include impacts from flash flooding and from new development.

A flash flood is a rapid flood that inundates low-lying areas in less than six hours. This is caused by intense rainfall from a thunderstorm or several thunderstorms. Flash floods can also occur from the collapse of a man-made structure or ice dam. Construction and development can change the natural drainage and create brand new flood risks as new buildings, parking lots, and roads create less land that can absorb excess precipitation from heavy rains, hurricanes, and tropical storms. Flash floods are a high risk hazard since they can roll boulders, tear out trees, and destroy buildings and bridges. There were no trouble areas identified in St. Paul.

Hail Outgrowth of a severe thunderstorm in which balls or irregularly shaped lumps of ice greater than 0.75 inches in diameter fall with rain. Early in the developmental stages of a hailstorm, ice crystals form within a low-pressure front due to warm air rising rapidly into the upper atmosphere and the subsequent cooling of the air mass. Frozen droplets gradually accumulate on the ice crystals until, having developed sufficient weight, they fall as precipitation. The entire geographic planning area, properties, and populations have the potential to be vulnerable to hail. Exposed populations, manufactured homes, and older properties are most vulnerable.

High Wind Straight-line winds are often responsible for the wind damage associated with a thunderstorm. These winds are often confused with tornadoes because of similar damage and wind speeds. However, the strong and gusty winds associated with straight-line winds blow roughly in a straight line unlike the rotating winds of a tornado. Downbursts or micro-bursts are examples of damaging straight-line winds. A downburst is a small area of rapidly descending rain and rain-cooled air beneath a thunderstorm that produces a violent, localized downdraft covering 2.5 miles or less. Wind speeds in some of the stronger downbursts can reach 100 to 150 miles per hour, which is similar to that of a strong tornado. The winds produced from a downburst often occur in one direction, and the worst damage is usually on the forward side of the downburst. High winds have the potential to affect the entire planning area. Manufactured homes and exposed populations are most vulnerable.

High winds are a frequent occurrence with severe thunderstorms and they can affect all areas of St. Paul. These winds can occur suddenly and without warning during severe weather and may pose access challenges due to fallen trees on roadways. There have been several instances of damage occurring to business and commercial structures as a result of high winds. Outside of primary residential structures, there are few locations for the public to seek shelter during high winds.

Lightning Lightning damage results from four (4) effects of lightning strike: electrocution of humans and animals; vaporization of materials along the path of strike; fire caused by the high temperature produced by the strike; and a sudden power surge that can damage electrical and electronic utility substations and distribution lines. It is estimated that throughout the United States, a power outage caused by lightning occurs on 50 percent of the days throughout the year. Lightning has the potential to affect all populations and property in the Town of St. Paul. Property without lightning protection and exposed populations are most vulnerable.

Tornado A violently rotating column of air, in contact with the ground, either pendant from a cumuliform cloud or underneath a cumuliform cloud, and often (but not always) visible as a condensation funnel cloud. Tornados may occur anywhere in the geographic planning area, making all properties and populations potentially vulnerable. Manufactured homes and exposed populations are most vulnerable.

Wildland Fire Wildland fire is any fire occurring on grassland, forest, or prairie, regardless of ignition source, damages or benefits. Wildland fires are fueled almost exclusively by natural vegetation. They typically occur in national forests and parks, where federal agencies are responsible for fire management and suppression. Interface or intermix fires are urban/wildland fires in which vegetation and the built-environment provide fuel. Firestorms are events of such extreme intensity that effective suppression is virtually impossible. Firestorms occur during extreme weather and generally burn until conditions change or the available fuel is exhausted. For the purposes of this hazard analysis, wildland fires are assessed under what is known as the Wildland Urban Interface (WUI). The WUI is an area of development that is susceptible to wildland fires due to the amount of structures located in an area with vegetation that can act a fuel for a wildland fire.

Wildland fires can occur anywhere in the geographic planning area, but most vulnerable populations and structures are located in the WUI. According to the Texas Forest Service Wildfire Risk Assessment Summary 82.86% of the town's population lives in the Wildland Urban Interface and is at moderate threat to wildfires.

Winter Storms Winter storms originate as mid-latitude depressions or cyclonic weather systems, sometimes following the path of the jet stream. A winter storm or blizzard, combines heavy snowfall, high winds, extreme cold and ice storms. Many winter depressions give rise to exceptionally heavy rain and widespread flooding and conditions worsen if the precipitation falls in the form of snow. The winter storm season varies widely, depending on latitude, altitude and proximity to moderating influences. The entire geographic planning area, properties, and populations have the potential to be vulnerable to winter storms. Winter storms have the potential to make roads impassable for days. Residents may be confined to their homes due to the storm and may be without basic services, such as water and electricity, for an extended period of time. The homeless, elderly, and populations without access to heat are most vulnerable.

Identification of Assets and Vulnerability Assessment

An inventory of the Town of St. Paul geo-referenced assets was created in order to identify and characterize property and population potentially at risk to the identified hazards. By understanding the type and number of assets that exist and where they are located in relation to known hazard areas, the relative risk and vulnerability for such assets can be assessed. For this assessment, five categories of assets were evaluated using Geographic Information System and statistical analysis. The five categories of vulnerable assets include:

- **Population**: Includes the number of people residing in Collin County jurisdictions as delineated by U.S. Census 2020 block data provided by NCTCOG.
- **Improved property**: Includes all developed properties according to local parcel data from the Collin County Central Appraisal District. The information has been expressed in terms of the total assessed value of improvements that may be exposed to the identified hazards.
- **Emergency facilities**: Includes fire stations, police stations and hospitals, provided by the Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.
- **Critical facilities**: Includes schools and historic places provided by Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions. These are non-emergency facilities, but still provide critical services and functions for vulnerable sectors of the population.
- **Critical infrastructure**: Includes airports, natural gas facilities, wastewater facilities, potable water treatment facilities, wastewater treatment facilities, dams, and bridges. Data for all critical facilities was obtained from Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.

The following tables provide a breakdown by municipal jurisdiction of the geo-referenced assets that were used for the vulnerability assessment.

Population

According to the 2020 NCTCOG Population Estimates, the total population of Town of St. Paul in 2020 was 1090 people, with 379 households. The count breakdown by municipal jurisdiction is provided in *Table 3.4.*

Table 3.4. Population Counts

Jurisdiction	Population			Households		
	Population	% of County Total	Population Density (Sq. Mile)	Household	% of County Total	Household Density (Sq. Mile)
St. Paul	1090	0.09%	674.29	332	0.09%	237.42

Source: 2020 NCTCOG Population Estimate & Collin County Appraisal District

Table 3.5 summarizes population counts and population chance (absolute and percent predications for Town of St. Paul.

Table 3.5 Population Predictions

Jurisdiction	Population 2010 Census	Population 2018 Estimate	Population 2019 Estimate	Absolute Change 2018-2019	Percent (%) Change 2018-2019
St. Paul	1,066	1,090	1,090	0	0%

Source: 2020 NCTCOG Population Estimate

Property

There are an estimated 446 parcels in Town of St. Paul, with an estimated $94,227,833in total assessed value of, *Table 3.6* lists the total number and percentage of parcels by jurisdiction.

Table 3.6 Parcel Counts and Improvements Value

Jurisdiction	Number of Parcels	% of County Total	Total Assessed Value of Improvements (Buildings)[1]
St. Paul	446	0.16%	$94,227,833

Source: Collin County Appraisal District

Emergency Facilities

There are zero identified emergency facilities in the Town of St. Paul, including no fire stations, no police stations, and no hospitals. *Table 3.7* presents the distribution of emergency facilities by jurisdiction. Geographic coordinates were used to determine the location of each facility.

Table 3.7 Emergency Facilities

Jurisdiction	Fire Stations	Police Stations	Hospitals
St. Paul	0	0	0

Source: County Data and Regional Hazard Assessment Tool

Critical Facilities

There is one critical facility, which are considered non-emergency in Town of St. Paul. The critical facility is one historical property site (*Table 3.8*). Geographic coordinates (i.e., latitude and longitude) were used to determine the location of each facility.

Table 3.8 Critical Facilities

Jurisdiction	Schools	Historical Property
St. Paul	0	1

Source: Local jurisdictions

Critical Infrastructure

There are no identified critical infrastructure facilities in the Town of St. Paul. (*Table 3.9*).

Table 3.9 Critical Infrastructure

Jurisdiction	Airports	Natural Gas Facilities	Wastewater Treatment Facilities	Potable Water Treatment Facilities	Dams	Railway/ Highway Bridges
St. Paul	0	0	0	0	0	0

Source: Local jurisdictions

Methodology

Based on the type of information available for analysis, Collin County's vulnerability assessment was conducted using two distinct methodologies, a Geographic Information System-based analysis and a statistical risk assessment methodology. Each approach provides estimates for the potential impact of hazards by using a common, systematic framework for evaluation of historical occurrence information provided by National Centers for Environmental Information, the Texas Forest Service, and the FEMA Resilience and Planning Tool. The results of the vulnerability assessment are provided by jurisdiction for each hazard analyzed.

Of the 12 hazards evaluated for Collin County, four were analyzed using a Geographic Information System-based analysis, 5 using a statistical risk assessment methodology, and the remaining 3 using qualitative analysis. Qualitative analysis was used due to lack of information, the inability to define specific areas of risk, and/or inexistence of historical records. Additional information regarding these 3 hazards is unattainable at the present time; studies to address this data deficiency are noted as action items in this update. Table 3.10 summarizes the methodology used for each hazard.

Table 3.10 Analysis used for Vulnerability Assessment

Hazard	Geographic Information System-based Analysis	Statistical Analysis	Qualitative Analysis
Dam Failure			X
Drought	X		
Earthquake			X
Expansive Soils			X
Extreme Heat		X	
Flooding	X		
Hail	X		
High Winds		X	
Lightning		X	X

Tornado		X	
Wildfire	X		
Winter Storms		X	

Summary of Vulnerably Assessment

A summary of the vulnerability assessment for each hazard using geographic and statistical analysis is presented in the following pages. The detailed assessment is presented in the following sections.

Summary Table 3.11

Drought	
Population	According to National Centers for Environmental Information (NCEI) zero (0) recorded injuries or fatalities have been recorded for drought events. There are no personal losses expected from drought events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the Town of St. Paul are expected but financially unknown due to lack of accurate reporting. Historical data indicates that crop losses in the Town of St. Paul are expected mostly during water shortages, financially unknown due to lack of accurate reporting .
Emergency Facilities	There are no emergency facilities located within the Town of St. Paul. Therefore, no facilities are at risk.
Critical Facilities	Because of the nature of this hazard, no losses are expected on critical facilities but foundation issues could occur due to drought events.
Critical Infrastructure	Because of the nature of this hazard, no losses are expected on critical infrastructure but foundation issues and road degradation could occur due to drought events.

Summary Table 3.12

Extreme Heat	
Population	According to National Centers for Environmental Information (NCEI), there were no fatalities recorded due to extreme heat from the Town of St. Paul. The Town of St. Paul and its population are vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to developed areas and the improved property in the Town of St. Paul is not vulnerable to this hazard.
Emergency Facilities	There are no emergency facilities located within the Town of St. Paul. Therefore, no facilities are at risk.
Critical Facilities	National Centers for Environmental Information (NCEI), there is no impact of extreme heat to buildings, and the critical facilities in the Town of St. Paul are not vulnerable to this hazard.

Critical Infrastructure	According to National Centers for Environmental Information (NCEI) there is no impact of extreme heat to critical infrastructure, and vulnerability to this hazard is considered minimal in the Town of St. Paul.

Summary Table 3.13

Flooding	
Population	Flooding produces an expected annualized count of zero (0) fatalities and injuries per year. Approximately 0.99% of the population of the Town of St. Paul is located within the 100-year floodplain.
Improved Property	Though there have been zero (0) recorded flood events in the Town of St. Paul, property losses are expected but financially unknown due to lack of accurate reporting. No crop losses are expected or recorded. Approximately 0.99% of the total assessed value of improvements in the Town of St. Paul is at risk from the 100-year storm event.
Emergency Facilities	There are no emergency facilities located within the Town of St. Paul. Therefore, no facilities are at risk.
Critical Facilities	There are no critical facilities located within the 100-year storm event.
Critical Infrastructure	0% of railways/highways and bridges, 0% of dams, 0% of water treatment works, and 0% waste water treatment facilities are at risk from the 100-year storm event. Many of these structures are designed to traverse or be located within the floodplain due to unavoidable circumstances. Additionally, treated wastewater is typically discharged towards streams, which makes portions of wastewater treatment facilities likely to be located within the floodplain.

Summary Table 3.14

Hail	
Population	According to National Centers for Environmental Information (NCEI), no recorded injuries or fatalities have been recorded for hailstorm events. There are no personal losses expected from hailstorm events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the Town of St. Paul are expected but unknown due to lack of accurate reporting. All improved property is vulnerable to this hazard. Although some crops are susceptible to hail hazards, available historical data indicates that there are no expected crop losses from this event..
Emergency Facilities	There are no emergency facilities located within the Town of St. Paul. Therefore, no facilities are at risk.
Critical Facilities	Because of the unpredictability of the geographical location of hailstorms, all critical facilities in the Town of St. Paul are vulnerable to this hazard.

Critical Infrastructure	Because of the unpredictability of the geographical location of hailstorms, all critical infrastructures in are vulnerable to this hazard.

Summary Table 3.15

High Wind	
Population	According to National Centers for Environmental Information (NCEI), there are no recorded injuries or fatalities from high wind events. All the population of the Town of St. Paul are vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the Town of St. Paul are expected but unknown due to lack of accurate reporting. No crop losses resulted from this hazard in St. Paul.
Emergency Facilities	There are no emergency facilities located within the Town of St. Paul. Therefore, no facilities are at risk.
Critical Facilities	Because of the expected geographical widespread nature of high winds, all critical facilities in the Town of St. Paul are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of high winds, all critical infrastructures in the Town of St. Paul are vulnerable to this hazard.

Summary Table 3.16

Lightning	
Population	According to National Centers for Environmental Information (NCEI), there are no recorded injuries or fatalities from lightning events. All the population of the Town of St. Paul is vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the Town of St. Paul are expected but unknown due to lack of accurate reporting
Emergency Facilities	There are no emergency facilities located within the Town of St. Paul. Therefore, no facilities are at risk.
Critical Facilities	Because of the expected geographical widespread nature of lightning, all critical facilities in the Town of St. Paul are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of lightning, all critical infrastructures in the Town of St. Paul are vulnerable to this hazard.

Summary Table 3.17

Tornado	
Population	According to National Centers for Environmental Information (NCEI), there have been no recorded injuries or fatalities from tornado events in the Town of St Paul. All the population of St. Paul is exposed and vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), property losses in the Town of St. Paul are expected but unknown due to lack of accurate reporting. No crop losses are expected from this hazard in the Town of St. Paul.
Emergency Facilities	There are no emergency facilities located within the Town of St. Paul. Therefore, no facilities are at risk.
Critical Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all critical facilities in the Town of St. Paul are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the impossibility to predict the geographical area of impact for tornados, all critical infrastructures in the Town of St. Paul are exposed and vulnerable to this hazard.

Summary Table 3.18

Wildfire	
Population	Based on geographical data, approximately 82.86% of the Town of St. Paul is vulnerable to wildfires. There have been no recorded injuries or fatalities due to wildfires.
Improved Property	Based on historical data, annual financial losses expected from property loss due to wildfires are unknown due to lack of accurate reporting; therefore, percentage of the overall property improvement values across the Town of St. Paul are also unknown.
Emergency Facilities	There are no emergency facilities located within the Town of St. Paul. Therefore, no facilities are at risk.
Critical Facilities	Based on geographic information there are 0 schools at risk from wildfire events.
Critical Infrastructure	Based on geographic information there are 0 bridges, 0 dams, 0 wastewater treatment facility, and 0 water treatment facility at risk from wildfire events.

Summary Table 3.19

Winter Storm	
Population	According to National Centers for Environmental Information (NCEI), there was one (1) county-wide fatality recorded due to winter storms, none from the Town of St. Paul. All the population of the Town of St. Paul are exposed and vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the Town of St. Paul are expected but unknown due to lack of reporting however county-wide property loss is estimated at $116,250 per year. No crop losses are expected from this hazard in the Town of St. Paul.
Emergency Facilities	There are no emergency facilities located within the Town of St. Paul. Therefore, no facilities are at risk.
Critical Facilities	Because of the expected geographical widespread nature of winter storms, all critical facilities in the Town of St. Paul are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of winter storms, all critical infrastructures in the Town of St. Paul are exposed and vulnerable to this hazard.

4. Capability Assessment

The risk assessment and capabilities assessment serve as the foundation for the development of a meaningful hazard mitigation strategy. During the process of identifying specific mitigation actions to pursue, the Town of St. Paul considered not only its level of hazard risk but also the existing capabilities to minimize or eliminate that risk.

Table 4.1 Legal and Regulatory Capability Summary

Legal and Regulatory Capabilities															
Jurisdiction	**Building Code**	**Zoning Ordinance**	**Subdivision Ordinance or regulation**	**Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances wildfire ordinances, hazard setback requirements)**	**Growth management ordinances (also called "smart Growth" or anti-sprawl programs)**	**Site Plan review requirements**	**General or comprehensive plan**	**A capital improvements plan**	**An economic development plan**	**An emergency response plan**	**A post-disaster recovery plan**	**A post-disaster recovery ordinance**	**Real estate disclosure requirements**	**Other**	**% Yes per Jurisdiction**
Town of St. Paul	Y	Y	Y	Y	N	Y	Y	N	N	Y	Y	N	N	?	**57%**
Average % Yes Capabilities – 62%															
Y- Yes N- No ?- Don't Know															

Table 4.2 Administrative and Technical Capability Summary

Administrative and Technical Capabilities											
Jurisdiction	Planner(s) or engineer(s) with knowledge of land development and land management	Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Planners or engineer(s) with an understanding of natural and/or human caused hazards	Floodplain manager	Surveyors	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in GIS	Scientists familiar with the hazards of the community	Emergency manager	Grant writers	% Yes
Town of St. Paul	Y	Y	Y	N	Y	N	Y	N	Y	N	**60%**
Average % Yes Capabilities – 60%											
Y- Yes N- No ?- Don't Know											

Table 4.3 Fiscal Capability Summary

Fiscal Capabilities											
Jurisdiction	Community Development Block Grants (CDBG)	Capital improvements project funding	Authority to levy taxes for specific purposes	Fees for water, sewer, gas, or electric service	Impact fees for homebuyers or developers for new developments/homes	Incur debt through general obligation bonds	Incur debt through special tax bonds	Incur debt through private activity bonds	Withhold spending in hazard-prone areas	Other	% Yes
Town of St. Paul	N	Y	Y	N	N	Y	Y	Y	N	?	**50%**
Average % Yes Capabilities – 50%											
Y- Yes N- No ?- Don't Know											

To quantify the Town of St. Paul's legal and regulatory capabilities, administrative and technical, and fiscal capabilities, an overall rating system was administered for each category: limited (0-30%), moderate (31-70%), and strong (70-100%). Questionnaire responses indicated that on average, the Town of St. Paul has 57.14% of identified legal and regulatory capabilities, 60% of identified administrative and technical capabilities, and 50% of identified fiscal capabilities.

Table 4.4 Administrative Information

Jurisdiction	Chief Administrative Officer	Ability to Implement Capabilities
Town of St. Paul	Town Secretary	The town council, including the mayor, mayor pro-tem, and council members, along with the town secretary, address the budget; pass laws, regulations, and codes; hire staff; approve plans; and determine the direction of the town overall. Ability to implement and approve mitigation actions and integrate mitigation into existing policies and programs is a function of this group.

Specific actions that can expand and improve existing capabilities, authorities, plans, policies, and resources for mitigation include: budgeting and passing policies and procedures, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates and additions to existing plans as new needs are recognized.

5. Mitigation Strategies

Based on the results of the risk and capability assessments, and reviews of the goals and objectives included in the 2016 HazMAP, the Town of St. Paul Hazard Mitigation Planning Committee developed mitigation strategies for the plan update.

Goal 1 **Reduce or eliminate loss of life, injuries and property damage resulting from severe weather events.**

Objective 1-A Provide adequate warning and communication before, during, and after a hazard event.
Objective 1-B Expand and coordinate early warning systems currently in use.
Objective 1-C Reduce or eliminate loss of life and property damage from tornados through the construction and use of safe rooms or shelter areas.

Goal 2 **Protect existing and new properties for the effects of all natural hazards.**

Objective 2-A Conduct studies to determine hazard and vulnerability threat assessment for all natural hazards.
Objective 2-B Rehabilitate or retrofit identified high hazard critical infrastructure.
Objective 2-C Enact and enforce regulatory measures that enforce hazard mitigation measures.
Objective 2-D Construct enhancements or additions to current and new facilities which mitigate the effects of natural hazards.
Objective 2-E Maintain NFIP compliance, storm water management, and implement drainage projects.

Goal 3 **Reduce losses and repetitive damages from chronic hazard events.**

Objective 3-A Conduct a hazard/vulnerability assessment of personal properties and structures located in flood zones.
Objective 3-B Develop and implement a buyout program for those personal properties and structures located in high hazard flood zones starting with those that are most vulnerable to life and property loss.
Objective 3-C Develop and execute new programs which identify and reduce threats from natural hazards.

Goal 4 **Develop public education campaigns to disseminate information about actions to mitigate potential loss of life, injuries and property damage resulting from natural hazards.**

Objective 4-A Educate the public on risks, threats, and vulnerability from all natural hazards.
Objective 4-B Educate the public on actions they can take to prevent or reduce the loss of life or property from all natural hazards.
Objective 4-C Develop and implement a community education campaign to heighten public awareness about chronic flooding and options for insurance coverage to protect their personal properties as well as long term benefits from a buyout program.

6. Action Items

Below is a list of action items identified for the HazMAP Update. Each of the actions in this section were prioritized based on FEMA's STAPLEE criteria, which includes considering the social, technical, administrative, political, legal, economic and environmental factors necessary for the implementation of each action. As part of the STAPLEE analysis, economic considerations were weighed for each action. The STAPLEE was used for the 2016 Plan along with the 2021 Update. Priority rankings are classified as indicated in the table below.

Priority	Description
High	Benefits of mitigating risk of death or severe bodily injury outweigh costs to implement actions rated as high priorities.
Medium	Reducing vulnerability to threats and the resulting improvement in quality of life and peace of mind are benefits for actions rated as medium priorities.
Low	Awareness of low risk/low impact hazards offer benefits of time to assess, plan and integrate low priority mitigation actions as time, need, and funding permit.

Town of St. Paul Action Items: Deferred from 2016 Plan

Town of St. Paul Action Item	Adopt and promote public education program.
Hazard(s) Addressed	Hail, Lightning, Drought, Extreme Heat, High Winds, Tornado, Wildfire, Winter Storm, Dam Failure, Earthquake, Expansive Soils, Flooding
Goal/Objective	4A, 4B, 4-C
Priority	Medium
Estimated Cost	$15,000
Potential Funding Sources	General fund, HMGP, PDM, other state/federal grants
Potential Matching Sources	Local funds, citizen cost-share, donations
Lead Department	Town Administration
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Public education is extremely effective for low cost.
Discussion	Also the utilization of social media will be key in this program. Program will include information about mitigation actions and education.
Status	Receive supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021

Town of St. Paul Action Item	Implement Individual Tornado Safe Room Rebate Program
Hazard(s) Addressed	Tornadoes
Goal/Objective	1-C
Priority	High
Estimated Cost	$3,000 per safe room
Potential Funding Sources	HMGP, PDM, Resident Match
Potential Matching Sources	Local Grants, FEMA
Lead Department	Town Administration
Implementation Schedule	2-3 years
Effect on Old Buildings	Some buildings modified for safe room retrofit
Effect on New Buildings	Buildings constructed with safe rooms
Cost Effectiveness	Residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind events.
Discussion	Implement Individual Tornado Safe Room Rebate Program
Status	Deferred – Residents did received funding through the NCTCOG Saferoom Rebate Program. The NCTCOG Program has been suspended

Town of St. Paul Action Item	Purchase of a CASA (WX) Weather Radar system
Hazard(s) Addressed	Hail, Tornadoes, Wildfire, Flooding, Lightning, Dam Failure
Goal/Objective	1-A, 3-C
Priority	High
Estimated Cost	$550,000
Potential Funding Sources	Local Funding, Federal Funding, HMPG
Potential Matching Sources	Local Grants
Lead Department	Town Administration
Implementation Schedule	12-36 Months
Effect on Old Buildings	n/a
Effect on New Buildings	Increase response decisions by 100%
Cost Effectiveness	Cost effectiveness is low compared to the benefits.
Discussion	The Collaborative Adaptive Sensing of the Atmosphere (CASA WX) project is a multi-sector partnership dedicated to engineering revolutionary weather-sensing networks. The main purpose of the CASA WX project is to save lives and minimize injuries due to severe weather. This is accomplished through the enhancement of data by providing lower atmospheric coverage at faster rates. The CASA WX radars provide jurisdictions more accurate weather data and geographically specific weather data culled from the most active levels of the atmosphere. This data

	could save lives by providing the public more time to react and prepare appropriately as severe weather affects their location. The more accurate data will also provide a better means to analyze severe weather post event which can also help in the assessment of damage after a severe weather event.
Status	No longer viable project for St. Paul

Town of St. Paul Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Populations, Businesses, and Critical Infrastructure.
Hazard(s) Addressed	Hail, Lightning, Drought, Extreme Heat, High Winds, Tornado, Wildfire, Winter Storm, Expansive Soils, Earthquake, Dam Failure, Flooding
Goal/Objective	3-C
Priority	High
Estimated Cost	$60,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Town Administration
Implementation Schedule	12-18 months
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning saves lives, which outweighs the cost of the radios.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens about severe weather, civil emergencies and hazard information. It is impossible to quantify the value of a human life or value of an injury.
Status	Deferred – will be included in 2021 Plan

Town of St. Paul Action Item	Develop a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	1-A, 3-C
Priority	Medium
Estimated Cost	$65,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local funds, donations, in-kind, grants
Lead Department	Town Administration
Implementation Schedule	18-36 Months

Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire
Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire
Cost Effectiveness	CWPPs show county officials where to redouble their efforts in preventing wildfire, saving time and money. Also work to establish urban wildfire interface around lake development properties.
Discussion	This project will become increasingly needed as development around Richland Chambers (Tarrant County Water Supply) increases.
Status	Deferred – will be included in 2021 Plan

Town of St. Paul Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams within the county.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	2-A, 3-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local Sponsors, In-Kind
Lead Department	Town Administration
Implementation Schedule	12-18 Months
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	Deferred – will be included in 2021 Plan

Town of St. Paul Action Item	Develop and implement an extreme temperature program that identifies locations for vulnerable residents to go to during periods of extreme temperatures.
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$5,000-$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	Town Administration

Implementation Schedule	12 months
Effect on Old Buildings	Could require retrofit to accommodate required space and resources
Effect on New Buildings	May entail enhanced construction materials
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.
Discussion	Cooling shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold
Status	Deferred – will be included in 2021 Plan

Town of St. Paul Action Item	Develop, implement, and enforce building codes that would prevent building deterioration from structure-impacting hazards.
Hazard(s) Addressed	Hail, Lightning, Drought, Extreme Heat, High Winds, Tornado, Wildfire, Winter Storm, Dam Failure, Earthquake, Expansive Soils, Flooding
Goal/Objective	2-C, 3-C
Priority	Low
Estimated Cost	$5,000- $7,500
Potential Funding Sources	General Fund
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	Town Administration
Implementation Schedule	12 Months
Effect on Old Buildings	New building codes would allow for existing buildings to be retrofitted to mitigate against structure-impacting hazards.
Effect on New Buildings	New building codes would allow for new buildings to be constructed to mitigate against structure-impacting
Cost Effectiveness	Low - Benefits outweigh costs
Discussion	Building codes would help to promote better building standards such as including hail-resistant roofing and windows; wind and impact resistant doors, windows, and roofing ; wildfire breaks and fire resistant building materials; stricter foundation standards for earthquake and expansive soils; increased elevation (BFE) standards for flooding; higher grade insulation to mitigate extreme heat and winter weather; and resource-efficient (low-flow) plumbing for drought. Also, additional codes for dry-proofing and lightning protection (rods, grounding) for public buildings to mitigate flood, dam failure and lightning.
Status	Deferred – will be included in 2021 Plan

Town of St. Paul Action Item	Develop and implement mandatory water conservation measures
Hazard(s) Addressed	Drought
Goal/Objective	4-C
Priority	Medium
Estimated Cost	$1,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	Town Administration
Implementation Schedule	1-2 years
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Promote water conservation throughout the county and work with local water supplies to implement mandatory water restrictions
Status	Deferred – will be included in 2021 Plan

Town of St. Paul Action Item	Develop and implement storm water management on creek waterways
Hazard(s) Addressed	Flooding
Goal/Objective	2-D, 2-E, 3-C
Priority	Medium
Estimated Cost	$75,000
Potential Funding Sources	HMGP, General Funds
Potential Matching Sources	Local funds, In-kind match
Lead Department	Town Administration
Implementation Schedule	6 months
Effect on Old Buildings	My prevent flooding of existing structures
Effect on New Buildings	May prevent flooding of planned development areas
Cost Effectiveness	Low compared to life safety benefits
Discussion	Project would prevent erosion, stopping expansion of the floodplain
Status	Deferred – will be included in 2021 Plan

Town of St. Paul Action Item	Develop and implement debris management program targeting stream banks at bridges
Hazard(s) Addressed	Flooding

Goal/Objective	2-E, 3-C
Priority	Medium
Estimated Cost	$534,000
Potential Funding Sources	HMGP, General Funds
Potential Matching Sources	Local funds, In-kind match
Lead Department	Town Administration
Implementation Schedule	6 months
Effect on Old Buildings	Could prevent flooding and disruption to transportation
Effect on New Buildings	None
Cost Effectiveness	Low compared to life safety benefits
Discussion	Town of St. Paul needs to ensure clear waterways in order to prevent buildup of debris and materials that could cause flooding and contribute to damage to bridges.
Status	Deferred – will be included in 2021 Plan

Town of St. Paul Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works
Implementation Schedule	6 months – 18 months
Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	. Project outputs will guide development of future earthquake mitigation projects.
Status	Deferred – will be included in 2021 Plan

Town of St. Paul Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works
Implementation Schedule	12-18 months
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.
Status	Deferred – will be included in 2021 Plan

Town of St. Paul Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	3-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	HMPG, Water Shed Authorities, Dam Sponsors
Potential Matching Sources	Local Sponsors, In-Kind
Lead Department	Planning and Zoning/ NRCS, Emergency Management
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low

Discussion	Dam Failure data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.
Status	Deferred – will be included in 2021 Plan

Town of St. Paul Items: New

Town of St. Paul Action Item	Develop and implement a comprehensive public education program to educate on the actions to help mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Tornado, Hail, Winter Storms, High Winds, Lightning, Expansive Soils, Extreme Heat, Earthquake, Flooding, Wildfire, Drought
Goal/Objective	4A, 4B, 4-C
Priority	Medium
Estimated Cost	$15,000
Potential Funding Sources	General fund, HMGP, PDM, other state/federal grants
Potential Matching Sources	Local funds, citizen cost-share, donations
Lead Department	Department of Town Administration
Implementation Schedule	1-2 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Minimal compared to preservation of life safety
Discussion	Public education can help educate the public to reduce personal and property damage during disasters. Program will include information about hazard mitigation..

Town of St. Paul Action Item	Implement Individual Tornado Safe Room Rebate Program
Hazard(s) Addressed	Tornadoes
Goal/Objective	1-C
Priority	High
Estimated Cost	$3,000 per safe room
Potential Funding Sources	HMGP, PDM, Resident Match
Potential Matching Sources	Local Grants, FEMA
Lead Department	Department of Town Administration
Implementation Schedule	2-3 years
Effect on Old Buildings	Some buildings modified for safe room retrofit
Effect on New Buildings	Buildings constructed with safe rooms

Cost Effectiveness	Residential safe room shelters potentially decrease personal injuries and death during severe weather, tornadoes or high wind events.
Discussion	Implement Individual Tornado Safe Room Rebate Program

Town of St. Paul Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Populations, Businesses, and Critical Infrastructure.
Hazard(s) Addressed	Hail, Lightning, Drought, Extreme Heat, High Winds, Tornado, Wildfire, Winter Storm, Expansive Soils, Earthquake, Flooding
Goal/Objective	3-C
Priority	High
Estimated Cost	$60,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Department of Town Administration
Implementation Schedule	12-18 months
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning saves lives, which outweighs the cost of the radios.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens about severe weather, civil emergencies and hazard information. It is impossible to quantify the value of a human life or value of an injury.

Town of St. Paul Action Item	Develop a Community Wildfire Protection Plan (CWPP)
Hazard(s) Addressed	Wildfire
Goal/Objective	1-A, 3-C
Priority	Medium
Estimated Cost	$65,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local funds, donations, in-kind, grants
Lead Department	Department of Town Administration
Implementation Schedule	18-36 Months
Effect on Old Buildings	Reduce vulnerability of existing structures to damages or loss from wildfire
Effect on New Buildings	Reduce vulnerability of new structures to damages or loss from wildfire

Cost Effectiveness	CWPPs show county officials where to redouble their efforts in preventing wildfire, saving time and money. Also work to establish urban wildfire interface around lake development properties.
Discussion	This project will become increasingly needed as development around Richland Chambers (Tarrant County Water Supply) increases.

Town of St. Paul Action Item	Develop and implement an extreme temperature program that identifies locations for vulnerable residents to go to during periods of extreme temperatures.
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	3-C
Priority	Medium
Estimated Cost	$5,000-$10,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	Department of Town Administration
Implementation Schedule	12 months
Effect on Old Buildings	Could require retrofit to accommodate required space and resources
Effect on New Buildings	May entail enhanced construction materials
Cost Effectiveness	Cost to implement this program is low compared to the benefits of program.
Discussion	Cooling shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold

Town of St. Paul Action Item	Develop, implement, and enforce building codes that would prevent building deterioration from structure-impacting hazards.
Hazard(s) Addressed	Hail, Lightning, Drought, Extreme Heat, High Winds, Tornado, Wildfire, Winter Storm, Earthquake, Expansive Soils, Flooding
Goal/Objective	2-C, 3-C
Priority	Low
Estimated Cost	$5,000- $7,500
Potential Funding Sources	General Fund
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	Department of Town Administration
Implementation Schedule	12 Months
Effect on Old Buildings	New building codes would allow for existing buildings to be retrofitted to mitigate against structure-impacting hazards.
Effect on New Buildings	New building codes would allow for new buildings to be constructed to mitigate against structure-impacting

Cost Effectiveness	Low - Benefits outweigh costs
Discussion	Building codes would help to promote better building standards such as including hail-resistant roofing and windows; wind and impact resistant doors, windows, and roofing ; wildfire breaks and fire resistant building materials; stricter foundation standards for earthquake and expansive soils; increased elevation (BFE) standards for flooding; higher grade insulation to mitigate extreme heat and winter weather; and resource-efficient (low-flow) plumbing for drought. Also, additional codes for dry-proofing and lightning protection (rods, grounding) for public buildings to mitigate flood, dam failure and lightning.

Town of St. Paul Action Item	Develop and implement mandatory water conservation measures
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	4-C
Priority	Medium
Estimated Cost	$1,000
Potential Funding Sources	HMGP, PDM, General Fund
Potential Matching Sources	Local funds, donations, in-kind
Lead Department	Department of Town Administration
Implementation Schedule	1-2 years
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and foundation integrity
Cost Effectiveness	Low cost for effective means of preserving water.
Discussion	Promote water conservation throughout the county and work with local water supplies to implement mandatory water restrictions. When water is conserved and not used for landscape during droughts, this would provide water for homeowners to use, through drip irrigation, to keep their foundations at a consistent saturation level, mitigating the impacts of drought and lack of water.

Town of St. Paul Action Item	Develop and implement storm water management on creek waterways
Hazard(s) Addressed	Flooding
Goal/Objective	2-D, 2-E, 3-C
Priority	Medium
Estimated Cost	$75,000
Potential Funding Sources	HMGP, General Funds

Potential Matching Sources	Local funds, In-kind match
Lead Department	Department of Town Administration
Implementation Schedule	6 months
Effect on Old Buildings	My prevent flooding of existing structures
Effect on New Buildings	May prevent flooding of planned development areas
Cost Effectiveness	Low compared to life safety benefits
Discussion	Project would prevent erosion, stopping expansion of the floodplain

Town of St. Paul Action Item	Develop and implement debris management program targeting stream banks at bridges
Hazard(s) Addressed	Flooding
Goal/Objective	2-E, 3-C
Priority	Medium
Estimated Cost	$534,000
Potential Funding Sources	HMGP, General Funds
Potential Matching Sources	Local funds, In-kind match
Lead Department	Department of Town Administration
Implementation Schedule	6 months
Effect on Old Buildings	Could prevent flooding and disruption to transportation
Effect on New Buildings	None
Cost Effectiveness	Low compared to life safety benefits
Discussion	Town of St. Paul needs to ensure clear waterways in order to prevent buildup of debris and materials that could cause flooding and contribute to damage to bridges.

Town of St. Paul Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Department of Town Administration
Implementation Schedule	6 months – 18 months

Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	. Project outputs will guide development of future earthquake mitigation projects.

Town of St. Paul Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Department of Town Administration
Implementation Schedule	12-18 months
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.

National Flood Insurance Program (NFIP) Compliance

St. Paul is participating in the National Flood Insurance Program and has identified their respective areas as vulnerable to flooding. This is incorporated into all current and future planning for dealing with repetitive loss vulnerabilities.

Table 6.1 NFIP Compliance

CID	Community Name	County	Initial FHBM Identified	Initial FIRM Identified	Curr Eff Map Date	Reg-Emer Date	Tribal
481318#	ST. PAUL, TOWN OF	COLLIN COUNTY	6/6/1978	4/2/1991	06/02/09(M)	8/12/2002	No

Source: http://www.fema.gov/cis/TX.html

Jurisdiction Compliance

Once the community applies for the NFIP, FEMA arranges for a study of the community to determine base flood elevations and flood risk zones. Consultation with the community occurs at the start of and during the study, and those communities with minimal flood risk are converted to the Regular Program without a study.

FEMA provides the studied community with a Flood Insurance Rate Map delineating base flood elevations and flood risk zones. The community is then given 6 months to adopt base flood elevations in its local zoning and building code ordinances. Once the community adopts more stringent ordinances, FEMA converts the community to the NFIP's Regular Program. FEMA then authorizes the sale of additional flood insurance in the community up to the Regular Program limits. The community must implement and enforce the adopted floodplain management measures. FEMA provides periodic community assistance visits with local officials to provide technical assistance regarding complying with NFIP floodplain management requirements.

Jurisdiction Activities

In order to maintain eligibility with NFIP, jurisdictions are required to maintain their list of properties that hold a policy with NFIP, along with up-to-date maps of the floodplains in the jurisdictions. Each jurisdiction participating in the Collin County Hazard Mitigation Action Plan completes this basic requirement and has the information on file with the jurisdiction's designated floodplain manager. Using this plan, participating jurisdictions will be able to continue their compliance with NFIP by implementing damage control measures and take action to minimize the effects of flooding in their respective jurisdictions.

Table 6.2 NIFP Activity

Jurisdiction	Community Floodplain Administrator	NFIP Activity	Activity Description	Enforcement
Town of St. Paul	Mayor	Taking action to minimize the effects of flooding on people, property, and building contents through measures including flood warning, emergency response, and evacuation planning	No current areas of repetitive flooding. Floodplain Administrator will continue to monitor for any new flooding areas.	NFIP compliance is implemented and enforced through a process of floodplain identification using FEMA floodplain maps, permit issuance, building requirements, and compliance inspections pending approval. Failure to comply with town's flood damage prevention order shall result in fines up to $2000 per violation plus court costs.
		Complete and maintain FEMA elevation certificates for pre-FIRM and or post-FIRM buildings	Permits are issued through the Town of St. Paul. Collin County requires 2 feet of freeboard above the base flood elevation for the top of bottom floor on residential structures and non-residential structures that will be built on properties created or platted after the effective date of the Flood Damage Prevention Order	
		Future Mitigation Projects	The Town of St. Paul will continue to monitor for new areas of flooding that have not been previously identified for mitigation.	

7. Plan Maintenance

Monitoring, Evaluating and Updating the Plan

In Compliance with requirement § 201.6(c)(4)(i), the Town of St. Paul has developed a plan maintenance process which is described in the following paragraphs. The Town of St. Paul , along with participating jurisdictions are responsible for monitoring implementation of the plan, executing a yearly evaluation of its effectiveness, and updating the plan within a 5-year cycle.

Following formal adoption by Collin County Commissioners Court, and formal adoption of the plan by City/Town Council by each participating jurisdiction, the actions outlined in the Collin County Hazard Mitigation Plan would be implemented by the county and participating jurisdictions as described throughout this document.

The Collin County Emergency Management Coordinator, working in conjunction with the respective jurisdictions, will be responsible for ensuring the mitigation plan is monitored, evaluated, and reviewed on an annual basis. This will be accomplished by calling an annual meeting of the planning committee, whose members will provide assistance and expertise for plan review, evaluating, updating, and monitoring. This meeting will be open to the public and public notices will encourage community participation. During this annual meeting, the Town of St. Paul will provide information on the implementation status of each action included in the plan. As part of the evaluation, the planning committee will assess whether goals and objectives address current and expected conditions, whether the nature and/or magnitude of the risks have changed, if current resources are appropriate for implementing the plan, whether outcomes have occurred as expected, and if agencies and other partners participated as originally proposed. These activities will take place according to the timetable presented below:

Table 7.1 Plan Maintenance Timeline

Personnel	Activity	Schedule
Town Secretary	Monitoring Plan : Track implementation and action items, changes to risk assessment, changes to planning team members, changes to capabilities, plan integrations	Biannually
	Evaluate Plan: Assess effectiveness by evaluating completed actions, implementation processes, responsible personnel and lessons learned.	Annually
	Update Plan	Once every 5 years

At least once every five (5) years, or more frequently, if such a need is determined by the participating jurisdiction, the multi-jurisdictional plan will undergo a major update. During this process, all sections of the plan will be updated with current information, analyses done and new and/or modified mitigation action plans will be developed. The revised plan will be submitted for state and federal review and approval, and presented for approval to the Collin County Commissioner's Court and the respective councils of incorporated cities/towns included in the Collin County plan. Each participating jurisdiction will undertake the same process for reviewing, revising and updating their respective plans and submitting them for approval. The plans will be updated every five years in accordance with federal requirements.

Plan Incorporation into Existing Planning Mechanisms *(In compliance with 201.6(c)(4)(ii))*

Based on the requirements set forth in § *201.6(c)(4(ii)*, the State of Texas Mitigation Plan, the vulnerability and capabilities assessment for each jurisdiction was carefully reviewed and considered when developing the mitigation actions for this plan. The HMPT and planning committees will establish a process in which the mitigation strategy, goals, objectives and actions outlined in this plan will be incorporated into the existing regional and local planning strategies.

Local and regional planning committees currently use comprehensive land use planning, capital improvements planning, and building code ordinances to guide development. The mitigation strategy, goals, objectives and actions outlined in this plan will be integrated into these existing mechanisms as applicable. Those mechanisms include the following:

Table 7.2 Plan Incorporation Mechanisms

Jurisdiction	Responsible Personnel	Jurisdictional Plans	Integration Schedule	Integration Plan
Town of St. Paul	Mayor, Town Council	Budget Meetings	Annually	Integration of mitigation projects identified in HazMAP, grants, and other fiscal allowances for mitigation actions and related costs
		Emergency Action Plan updates	Every Five Years	EAP Mitigation annex updates based on HazMAP HIRA; update preparedness, response and recovery actions related to identified hazards
		Floodplain ordinances	As needed	Enhance mitigation of flood hazards using HazMAP flood data for floodplain management and community development.
		Capital improvement plans	As Needed	Strengthen critical infrastructure and key resources based on HazMAP hazard analysis, incorporate vulnerability data and action items.
		Drought Contingency plans	As needed	Integrate drought actions such as xeriscaping, water restrictions, and public education
		Natural Resource Conservation Plan	As Needed	Integrate conservation measures by directing development away from hazard-prone areas identified in HazMAP.

Although it is recognized there are many possible benefits to integrating components of this HazMAP into other planning mechanisms, the St. Paul Hazard Mitigation Planning Committee considers this HazMAP, including development and maintenance, to be the primary vehicles to ensure implementation of local hazard mitigation actions.

Continued Public Involvement (In compliance with 201.6(c)(4)(iii))

As stated in requirement § *201.6(c)(4)(iii)* The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.

The process described here is the same as was used since the last planning update.

To address this requirement, ongoing public participation will be encouraged throughout the entire planning and implementation process. A copy of the plan will be provided on the Collin County website. The planning team and committee will continue meeting on a regular basis to ensure the successful implementation of the plan and to discuss any additional issues regarding the emergency management of Collin County. The annual meetings for monitoring, evaluating, and updating the plan will be open to the public and public notices will encourage community participants.

Annex T: City of Wylie

1. Introduction

This annex was prepared in 2020 as part of an update to the Collin County Multi-Jurisdictional Hazard Mitigation Action Plan. This plan updates the Wylie hazard mitigation plan submitted to FEMA as part of the 2016 Collin County plan. The City of Wylie participated in the Collin County Hazard Mitigation Planning Team (HMPT) for this update. In addition to the countywide hazards and strategies discussed in the main plan, this annex serves as a complete hazard mitigation planning tool for the City of Wylie. It contains capability assessment information, a specific vulnerability assessment, and a complete mitigation strategy. The methodology and process for developing this annex are explained throughout the following sections.

2. Plan Development and Adoption Process

In order to apply for federal aid for technical assistance and post-disaster funding, local jurisdictions must comply with Part 201.3 of the Disaster Mitigation Act of 2000 implemented in the Federal Code of Regulations 44 CRF Part 201.6. While the City of Wylie has historically implemented measures to reduce their vulnerability to hazards, passage of DMA 2000 helped Wylie officials to recognize the benefits of a long-term approach to hazard mitigation, which achieves a gradual decrease of impacts associated through the implementation of a Hazard Mitigation Plan. Collin County's Hazard Mitigation Action Plan represents the collective efforts of all participating jurisdictions, the general public, and stakeholders.

Organizing the Planning Effort

A comprehensive county approach was taken in developing the plan. An open public involvement process was established for the public, neighboring communities, regional agencies, businesses, academia, etc. to provide opportunities for everyone to become involved in the planning process and to make their views known. The meetings were advertised with notices in public places, including online. .In accordance with Part 201.6(c)(5) of the Disaster Mitigation Act of 2000 (DMA 2000), Collin County developed this Hazard Mitigation Action Plan. This plan identifies hazards and mechanisms to minimize future damages associated with these hazards, which threaten Collin County and its jurisdictions.

Existing Data and Plans

Existing hazard mitigation information and other plans were reviewed during the development of the Hazard Mitigation Action Plan. GIS, statistical and qualitative data was gathered through numerous sources. The table below outlines the sources of data for the plan:

Table 2.1 Plan Source Data

Source	Data
City and County Appraisal Data 2020	Population and demographics
Regional Hazard Assessment Tool	Hazard occurrences
National Center for Environmental Information (NCEI)	Hazard occurrences
Texas Forest Service/Texas Wildfire Risk Assessment Summary Report	Wildfire Threat and Wildland/Urban Interface
National Inventory of Dams	Dam Information

Planning Committee

This Hazard Mitigation Action Plan was developed by the City of Wylie Hazard Mitigation Planning Committee, with support of the North Central Texas Council of Governments and in conjunction with the Collin County HMPT.

The Collin County HMPT was assembled in November 2020 with representatives from participating jurisdiction planning committees, including mayors, police chiefs, fire chiefs, and the general public. Collin County acted as the plan development consultant providing hazard mitigation planning services; the efforts of the Wylie planning committee were led by the City of Wylie Emergency Management Coordinator.

Table 2.2 Hazard Mitigation Committee – Primary Representatives

Representing	Position	Role
City of Wylie	Emergency Management Coordinator	Information Collection
City of Wylie	City Engineer Building/Planning	Floodplain Manager Information Collection
Collin County	Emergency Management Coordinator	General Assistance

Collin County served as the coordinator and lead agency for all jurisdictions by accomplishing the following activities through the planning process:

- Assigned the County's Assistant Emergency Management Coordinator to provide technical assistance and necessary data to the planning committee.
- Scheduled, coordinated, and facilitated community meetings with the assistance of the HMPT and the planning committees.
- Provided any necessary materials, handouts, etc. for public planning meetings.
- Worked with the HMPT and planning committees to collect and analyze data and develop goals and implementation strategies.
- Prepared, based on community input and planning team/committee direction, the first draft of the plan, and provided technical writing assistance for review, editing and formatting.
- Coordinated with the stakeholders within the jurisdictions and the unincorporated areas of Collin County during plan development.

Each of the individual jurisdictions participated in accomplishing similar activities associated with development of the plan as follows:

- Coordinated input from representatives of neighborhood stakeholder groups and provided a representative to the County HMPT.
- Attended regular meetings of the planning team as coordinated by Collin County.
- Assisted Collin County staff with identifying hazards and estimating potential losses from future hazard events.
- Assisted Collin County in developing and prioritizing mitigation actions to address the identified risks.
- Assisted Collin County in coordinating public meetings to develop the plan.
- Identified the community resources available to support the planning effort.

- Worked for the support of neighborhood stakeholders for the recommendations resulting from the planning process.
- Submitted the proposed plan to all appropriate departments for review and comment and worked with Collin County to incorporate the resulting comments into the proposed plan.

External stakeholders involved in reviewing the Collin County Hazard Mitigation Action Plan:

Table 2.3 External Stakeholders

Representing	Position	Role
Lakepointe Hospital	Representative	Review of plan
Wylie ISD	Representative	Review of plan
First Baptist Church Wylie	Representative	Review of plan

Subsequent to the State of Texas and FEMA approval of the plan, each organization also is committed to accomplishing the following activities:

1. Appoint members to a coordinating committee to monitor and work toward plan implementation.
2. Publicize the plan to neighborhood interests and ensure that new community members are aware of the plan and its contents.
3. Monitor progress in achieving the plan's goals through regular maintenance and implementation projects.

Planning Meetings

During the planning process, the HMPT met to obtain relevant information from the participating jurisdictions and to discuss the objectives and progress of the plan. The objectives of these meetings were to gather information and to provide guidance for each jurisdiction throughout the planning stages.

The following meetings were held by Collin County and included all jurisdiction's participation:

- Collin County HazMAP Kickoff Meeting – August 12, 2020
- Collin County Planning Meeting – November 11, 2020
- Collin County Planning Meeting – June 12, 2021
- Collin County HazMAP Public Meeting – 11/2/2021 at 2PM
- Collin County HazMAP Public Meeting – 01/12/2022 a 9AM

Public Involvement

Support from the community is vital for any successful hazard mitigation plan. The HMPT and planning committee provided opportunities, announced through public communication means, for public participation and input throughout the planning process prior to this draft and before approval of the finalized plan. Advertisement and sign in sheets for these meetings are located in Appendix A.

- The first public meeting was held on November 2, 2021 at 2PM, and advertised on the Collin County website along with other jurisdictional websites inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to comment. The meeting was held virtually via WebEX.

- A second public meeting was held on January 12, 2022 at 9AM. Announcements were placed on jurisdictions websites, including Collin County inviting the public, neighboring communities, local business, academia, agencies, and nonprofits to view and comment on the HazMAP prior to plan submission.

There were no comments directly related to the mitigation plan received from citizens, non-profits, businesses, academia, or interested parties; therefore, no feedback was incorporated.
An additional opportunity for the public to comment on the plan will be held prior to formal plan adoption.

This provided all citizens, stakeholders, neighboring communities, agencies, businesses, academia, non-profit organizations, and all interested parties an opportunity to be involved in the planning process and to take part in the decisions making process that affect the future of the communities that they live in.

3. Jurisdictional Hazard Identification and Risk Assessment

The Hazard Mitigation Planning Committee for the City of Wylie identified several natural and man-made hazards that could affect the city. The committee decided to focus on the natural hazards identified in Section 5 of this update. This was done after reviewing the 2016 HazMAP, the State of Texas Hazard Mitigation Plan, as well as other sources such as federal and state agencies. The hazards were ranked using the Priority Risk Index.

Priority Risk Index

A Priority Risk Index (PRI) was developed with the purpose of categorizing potential hazards for Collin County and ranks each hazard as high, moderate, low, or negligible to no risk. The hazard classification generated through the use of the PRI allows for the prioritization of those high hazard risks for mitigation planning purposes, and more specifically, the identification of hazard mitigation opportunities for Collin County jurisdictions to consider as part of their proposed mitigation strategy.

The PRI is used to assist all jurisdictions participating in the Collin County HazMAP in determining which hazards pose the most significant threat based on a variety of factors. The PRI is not scientifically based, but is rather meant to be utilized as an objective and systematic planning tool for classifying and prioritizing hazard risks in Collin County based on standardized criteria. The PRI results in numerical values that allow identified hazards to be ranked against one another. The sum of all four categories equals the final PRI value, as shown below:

PRI Value = (Probability x .30) + (Life Impact x .35) + (Property Impact x .25) + (Spatial Extent x .10)

The higher the PRI value, the greater the hazards risk. These values were obtained by assigning varying degrees of risk to four categories for each hazard: Probability, Life Impact, Property Impact, and Spatial Extent *(Table 3.1).* Each category has been assigned an Index Value (0 to 3) and a Weighing Factor (0 – 100%). These values may be adjusted during future plan updates. In order to evaluate the risk of each hazard, the assigned PRI Value for each category is multiplied by the weighing factor. Then, the PRI for each hazard is calculated by adding the product obtained in each category. According to the weighing scheme applied for Collin County, the highest possible PRI value is 3.0. The PRI calculations are presented in *Table 3.2*. Table 3.1 breaks down the value of each category.

Table 3.1 Priority Risk Index Value

Assigned Weighing Factor	PRI Category	Degree of Risk		
		Level	Criteria	Index Value
30%	Probability	Unlikely	Less than 1% annual probability	0
		Possible	Between 1 and 10% annual probability	1
		Likely	Between 10 and 100% annual probability	2
		Highly Likely	100% annual probability	3
35%	Life Impact	Minor	Very few injuries, if at all none	0
		Limited	Minor Injuries	1
		Critical	Multiple deaths/injuries	2
		Catastrophic	High number of deaths/injuries	3
25%	Property Impact	Minor	Only minor property damage and minimal disruption of life. Temporary shutdown of critical facilities.	0
		Limited	More than 10% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one day.	1
		Critical	More than 25% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for more than one week.	2
		Catastrophic	More than 50% of property in affected area damaged/destroyed. Complete shutdown of critical facilities for 30 days or more.	3
10%	Spatial Extent	Negligible	Less than 1% of area affected	0
		Small	Between 1 and 10% of area affected	1
		Moderate	Between 10 and 50% of area affected	2
		Large	Between 50 and 100% of area affected	3

Table 3.2 Priority Risk Index for the City of Wylie

Hazard	Category/Degree of Risk				
	Probability Index Value (0 - 3 30%)	Life Impact Index Value (0 - 3 35%)	Property Impact Index Value (0 - 3 25%)	Spatial Extent Index Value (0 - 3 10%)	PRI Value 2021
Dam Failure	1	0	0	0	0.3
Drought	2	0	1	3	1.15
Earthquake	0	1	0	1	0.45
Expansive Soils	2	0	0	1	0.7
Extreme Heat	1	1	0	3	0.95
Flooding	1	1	0	1	0.75
Hail	2	0	1	2	1.05
High Winds	1	0	0	1	0.4
Lightning	2	1	0	0	0.95
Tornado	2	2	2	2	2
Wildfire	1	0	0	0	0.3
Winter Storms	2	0	1	3	1.15

The conclusions drawn from the hazard profiling process for the city of Wylie resulted in the classification of risk for each identified hazard according to four categories: High Risk, Moderate Risk, Low Risk, and Negligible to No Risk *(Table 3.3).* For purposes of these classifications, risk is expressed in relative terms according to the probability of occurrence and estimated impact that a hazard will have on human life and property in the city of Wylie.

Table 3.3 Hazard Rankings City of Wylie

High Risk (PRI 2 - 3)	Tornado
Moderate Risk (PRI 1.01 -1.9)	Hail Winter Storms
Low Risk (PRI 0.50 – 1)	Drought Lightning Expansive Soils Extreme Heat Flooding
Negligible to No Risk (PRI 0 – 0.49)	Earthquake Dam Failure Wildfire High Winds

Changes in Development and Priorities (Requirement §201.6(d)(3))

The City of Wylie was a participating jurisdiction in the 2016 Collin County Hazard Mitigation Action Plan. Since then, Wylie has completed several of their original action items, in an effort to lower vulnerability on populations and property from natural hazards. The following actions, sorted by type of action, have had a direct impact on lowering vulnerability:

- Natural Systems Protection
- Local Rules and Regulations
  - Maintained continued NFIP compliance through continued enforcement and compliance with city ordinance.
  - Expanded early warning sirens and local warning system to notify the public of impending severe weather to reduce the loss of life and mitigate the effects of the hazards.

The City of Wylie is continuously working to increase their outdoor warning system to accommodate expanding areas. The development and implementation of these projects have directly led to lower vulnerability for residents and property located in Wylie. A NexGEN software upgrade has been completed and two new outdoor warning sirens are scheduled for installation by fall of 2021 with more to follow along with siren upgrades.

As of January 1, 2015 the official population was 45,000 and the current population is 56,376. Housing units have increased from approximately 14,971 to 19,113. Enrollment in Wylie IDS rose from 14,426 in 2015 to approximately 18,300 for the 2021 school year.

The City of Wylie has new developments that include Collin College, an apartment complex, Holiday Inn Express, La Quinta, Whataburger, Chik-Fil-A, new subdivisions, expansions of existing subdivisions, various retail and an assisted living facility.

Planned development for the City of Wylie includes Wylie Fire Rescue Station #4, an expansion of the KCS yard, an apartment complex, and various retail.

New priorities are noted and ranked in each new action item, Section 6. Except for actions completed or cancelled, other priorities remain the same as in the previous version of this plan.

Vulnerability Narratives

This annex focuses on specific areas of vulnerability the City of Wylie faces with each hazard. The hazards identified in the main plan are all addressed in this annex, therefore the natural hazards rated negligible to no risk are included, described, and considered for mitigation in this plan.

Dam and Levee Failure The City of Wylie borders along the southern and western area of Lake Lavon including just west of the Lake Lavon Dam. Lake Lavon is owned and managed by the Army Corps of Engineers. In the event of a worst case scenario dam failure the inundation zone does not affect the City of Wylie. This was tested in a joint exercise with the Army Corps of Engineers. The land south of Lake Lavon Dam is the spillway then it leads to the next lake which is Lake Ray Hubbard. Therefore the City of Wylie is not considered to be at risk for dam failure although unincorporated areas served by Wylie Fire Rescue may be, so inundation studies will be considered. Muddy Creek Dam is owned by the City of Wylie and is located west of Country Club Road across from the Municipal Complex. Any breach of this dam would flow southeast towards FM 544 and may have an effect on businesses and some residences depending on capacity. This inundation would possibly have an effect on the neighboring jurisdictions of

Sachse and Rowlett. This would be a low risk as it would not affect a high population but could still cause damage for some businesses/residents.

Drought Drought has the potential to impact the entire planning area equally; all improved property, emergency facilities, critical facilities, critical infrastructure, and the entire population of Wylie are vulnerable to this hazard. Foundations of all buildings are vulnerable; however, older structures, or those built under less stringent foundation code requirements are most vulnerable. Lake Lavon, Lake Texoma, Lake Tawakoni, Lake Fork and the Lake Chapman-Cooper reservoir system are water sources for the City of Wylie and are vulnerable to drought. In turn, the city's population, wildlife and vegetation are vulnerable. Lower income populations who may not have the resources to buy containerized water in the event of a shortage may be more vulnerable than other populations.

Earthquake All properties and populations have the potential to be vulnerable to earthquakes. Buildings constructed under older building codes, aging underground infrastructure, and roads are most vulnerable to damages from seismic activity.

Expansive Soils All properties have the potential to be vulnerable to expansive soils, especially those constructed under older building codes.

Extreme Heat Extreme heat generally affects the entire population, but the homeless, very young, elderly, and populations without air conditioning are most vulnerable.

Flooding This hazard was identified as having low risk to the City of Wylie. Areas that are prone to flash flooding are: the S curve on McMillan Rd off of Country Club and Sachse Rd at Creek Crossing on the border of Wylie and Sachse.

Hail Hail storms are common during the severe weather months within "tornado alley." It is common for roofs of houses and vehicles to suffer damage from the occasional hail storm. All properties and populations have the potential to be vulnerable to hail. Exposed populations, manufactured homes, and older properties are most vulnerable.

High Winds High Winds are common during the severe weather months within "tornado alley". It is common for fences and trees to suffer damage from the occasional high wind storm. All properties and populations have the potential to be vulnerable to high winds, manufactured homes and exposed populations are most vulnerable.

Lightning All properties and populations have the potential to be vulnerable to lightning. Property without lightning protection and exposed populations are most vulnerable.

Tornado The City of Wylie is within "tornado alley", therefore, there is the potential for a tornado to occur. All properties and populations have the potential to be vulnerable to tornadoes, manufactured homes and exposed populations are most vulnerable.

Wildland Fire This hazard was identified as having minimal or low risk to the City of Wylie. According to data by the Texas Forest Service, it is estimated that 38.07% percent of Wylie's population lives within the WUI which is located primarily in the southern part of the city.

Winter Storms .Texas is greatly affected by winter storms because this is not a common occurrence as in some states. Heavy ice and snow can cause loss of power for an extended amount of time as well as transportation issues which impact life safety. Freezing temperatures and blowing winds can also contribute to life safety issues as well as property damage. Vulnerable populations include the homeless, elderly, and those without access to heat. Critical facilities are also at risk.

Identification of Assets and Vulnerability Assessment

An inventory of Wylie's geo-referenced assets was created in order to identify and characterize property and population potentially at risk to the identified hazards. By understanding the type and number of assets that exist and where they are located in relation to known hazard areas, the relative risk and vulnerability for such assets can be assessed. For this assessment, five categories of assets were evaluated using Geographic Information System and statistical analysis. The five categories of vulnerable assets include:

- **Population**: Includes the number of people residing in Collin County jurisdictions as delineated by U.S. Census 2020 block data provided by NCTCOG.
- **Improved property**: Includes all developed properties according to local parcel data from the Collin County Central Appraisal District. The information has been expressed in terms of the total assessed value of improvements that may be exposed to the identified hazards.
- **Emergency facilities**: Includes fire stations, police stations and hospitals, provided by the Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.
- **Critical facilities**: Includes schools and historic places provided by Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions. These are non-emergency facilities, but still provide critical services and functions for vulnerable sectors of the population.
- **Critical infrastructure**: Includes airports, natural gas facilities, wastewater facilities, potable water treatment facilities, wastewater treatment facilities, dams, and bridges. Data for all critical facilities was obtained from Regional Hazard Assessment Tool, Collin County Emergency Management Coordinator, and participating jurisdictions.

The following tables provide a breakdown by municipal jurisdiction of the geo-referenced assets that were used for the vulnerability assessment.

Population

According to the US Census Bureau, the total population of the City of Wylie in 2020 was 53,067 people, with 19,113 households. The count breakdown by municipal jurisdiction is provided in *Table 3.4.*

Table 3.4 Collin County Population Counts

Jurisdiction	Population			Households		
	Population	% of County Total	Population Density (Sq. Mile)	Household	% of County Total	Household Density (Sq. Mile)
Wylie	53,067	4.44%	1340.36	17,084	4.44%	471.96

Source: US Census Bureau & Collin County Appraisal District

Table 3.5 summarizes population counts and population chance (absolute and percent predictions for Collin County).

Table 3.5 Population Predictions

Jurisdiction	Population 2010 Census	Population 2018 Estimate	Population 2019 Estimate	Absolute Change 2018-2019	Percent (%) Change 2018-2019
Wylie	41,427	49,500	51,730	2,230	4.51%

Source: 2020 NCTCOG Population Estimates

Property

There are an estimated 17,130 parcels in Wylie, with an estimated $4,065,640,595 in total assessed value of, *Table 3.6* lists the total number and percentage of parcels by jurisdiction.

Table 3.6 Parcel Counts and Improvements Value

Jurisdiction	Number of Parcels	% of County Total	Total Assessed Value of Improvements (Buildings)
Wylie	17,130	4.09%	$4,065,640,595

Source: Collin County Appraisal District

Emergency Facilities

There are 5 identified emergency facilities in the City of Wylie, including 3 fire stations, 1 police station (including communications), and 1 hospital. *Table 3.7* presents the distribution of emergency facilities by jurisdiction. Geographic coordinates were used to determine the location of each facility.

Table 3.7 Emergency Facilities

Jurisdiction	Fire Stations	Police Stations	Hospitals
Wylie	3	1	1

Source: County Data and Regional Hazard Assessment Tool

Critical Facilities

There are 29 critical facilities, which are considered non-emergency in Wylie. The critical facilities include 20 schools and 9 historical property sites (*Table 3.8*). Geographic coordinates (i.e., latitude and longitude) were used to determine the location of each facility.

Table 3.8 Critical Facilities

Jurisdiction	Schools	Historical Property
Wylie	20	9

Source: Local jurisdictions

Critical Infrastructure

There are two identified critical infrastructure facilities in Wylie, including zero airports, zero natural gas facilities, one water treatment facilities, one wastewater treatment facilities, two dams, and zero railway/highway bridges (*Table 3.9*).

Table 3.9 Critical Infrastructure

Jurisdiction	Airports	Natural Gas Facilities	Wastewater Treatment Facilities	Potable Water Treatment Facilities	Dams	Railway/ Highway Bridges
Wylie	0	0	1	1	2	0

Source: Local jurisdictions

Methodology

Based on the type of information available for analysis, Collin County's vulnerability assessment was conducted using two distinct methodologies, a Geographic Information System-based analysis and a statistical risk assessment methodology. Each approach provides estimates for the potential impact of hazards by using a common, systematic framework for evaluation of historical occurrence information provided by National Centers for Environmental Information, the Texas Forest Service, and the FEMA Resilience and Planning Tool. The results of the vulnerability assessment are provided by jurisdiction for each hazard analyzed.

Of the 12 hazards evaluated for Collin County, four were analyzed using a Geographic Information System-based analysis, 5 using a statistical risk assessment methodology, and the remaining 3 using qualitative analysis. Qualitative analysis was used due to lack of information, the inability to define specific areas of risk, and/or inexistence of historical records. Additional information regarding these 3 hazards is unattainable at the present time; studies to address this data deficiency are noted as action items in this update. *Table 3.10* summarizes the methodology used for each hazard.

Table 3.10 Analysis used for Vulnerability Assessment Collin County

Hazard	Geographic Information System-based Analysis	Statistical Analysis	Qualitative Analysis
Dam Failure			X
Drought	X		
Earthquake			X
Expansive Soils			X
Extreme Heat		X	
Flooding	X		
Hail	X		

High Winds		X	
Lightning		X	
Tornado		X	
Wildfire	X		
Winter Storms		X	

Summary of Vulnerably Assessment

A summary of the vulnerability assessment for each hazard using geographic and statistical analysis is presented in the following pages. The detailed assessment is presented in the following sections.

Summary Table 3.11

Drought	
Population	According to National Centers for Environmental Information (NCEI) no recorded injuries or fatalities have been recorded for drought events. There are no personal losses expected from drought events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Wylie are expected but financially unknown due to lack of accurate reporting; however county-wide property loss is estimated at $21,208.33 per year. Historical data indicates that crop losses in the City of Wylie are expected mostly during water shortages, financially unknown due to lack of accurate reporting however county-wide crop loss is estimated to be $58,916.67 per year.
Emergency Facilities	Because of the nature of this hazard, no losses are expected on emergency facilities but foundation issues could occur due to drought events.
Critical Facilities	Because of the nature of this hazard, no losses are expected on critical facilities but foundation issues could occur due to drought events.
Critical Infrastructure	Because of the nature of this hazard, no losses are expected on critical infrastructure but foundation issues and road degradation could occur due to drought events.

Summary Table 3.12

Extreme Heat	
Population	According to National Centers for Environmental Information (NCEI), there were four (4) county-wide fatalities recorded due to extreme heat, none from the City of Wylie. The City of Wylie and its population are vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to developed areas and the improved property in the City of Wylie is not vulnerable to this hazard.

Emergency Facilities	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to buildings and the emergency facilities in the City of Wylie are not vulnerable to this hazard.
Critical Facilities	According to National Centers for Environmental Information (NCEI), there is no impact of extreme heat to buildings, and the critical facilities in the City of Wylie are not vulnerable to this hazard.
Critical Infrastructure	According to National Centers for Environmental Information (NCEI) there is no impact of extreme heat to critical infrastructure, and vulnerability to this hazard is considered minimal in the City of Wylie.

Summary Table 3.13

Flooding	
Population	Flooding produces an expected annualized count of zero (0) fatalities and injuries per year. Approximately 427 residential parcels in the City of Wylie are located within the 100-year floodplain.
Improved Property	There have been five (5) recorded flood events in the City of Wylie. Property losses are expected at $2,800 per year however these values are underestimated due to lack of accurate reporting. No crop losses are expected or recorded. Approximately $60,830,722 of the total assessed value is at risk from the 100-year storm event.
Emergency Facilities	Emergency facilities have the potential to be at risk in the 100-year storm event.
Critical Facilities	Critical facilities have the potential to be at risk in the 100-year storm event.
Critical Infrastructure	Critical Infrastructure has the potential to be at risk in the 100-year storm event.

Summary Table 3.14

Hail	
Population	According to the National Centers for Environmental Information (NCEI), no injuries or fatalities have been recorded for hailstorm events. There are no personal losses expected from hailstorm events.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Wylie are expected at $7,573,171.43 per year however these values are underestimated due to lack of accurate reporting. All improved property is vulnerable to this hazard. Although some crops are susceptible to hail hazards, available historical data for Wylie indicates that there are no expected crop losses from this event.

Emergency Facilities	Because of the unpredictability of the geographical location of hailstorms, all emergency facilities in the City of Wylie are vulnerable to this hazard.
Critical Facilities	Because of the unpredictability of the geographical location of hailstorms, all critical facilities in the City of Wylie are vulnerable to this hazard.
Critical Infrastructure	Because of the unpredictability of the geographical location of hailstorms, all critical infrastructures in the City of Wylie are vulnerable to this hazard.

Summary Table 3.15

High Wind	
Population	According to the National Centers for Environmental Information (NCEI), there are no recorded injuries or fatalities from high wind events. All the population of the City of Wylie are vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Wylie are expected at $900 per year however these values are underestimated due to lack of accurate reporting. No crop losses resulted from this hazard in the City of Wylie.
Emergency Facilities	Because of the expected geographical widespread nature of high winds, all emergency facilities in the City of Wylie are vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of high winds, all critical facilities in the City of Wylie are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of high winds, all critical infrastructures in the City of Wylie are vulnerable to this hazard.

Summary Table 3.16

Lightning	
Population	According to the National Centers for Environmental Information (NCEI), there are no recorded injuries or fatalities from lightning events. All the population of the City of Wylie are vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Wylie are expected but unknown due to lack of accurate reporting.
Emergency Facilities	Because of the expected geographical widespread nature of lightning, all emergency facilities in the City of Wylie are vulnerable to this hazard.

Critical Facilities	Because of the expected geographical widespread nature of lightning, all critical facilities in the City of Wylie are vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of lightning, all critical infrastructures in the City of Wylie are vulnerable to this hazard.

Summary Table 3.17

Tornado	
Population	According to National Centers for Environmental Information (NCEI), there have been no recorded injuries or fatalities from tornado events in the City of Wylie. All the population of the City of Wylie is exposed and vulnerable to this hazard.
Improved Property	According to National Centers for Environmental Information (NCEI), an average loss of $7,142.86 per year in property losses is expected to result from tornado events. No crop losses are expected from this hazard in the City of Wylie.
Emergency Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all emergency facilities in the City of Wylie are exposed and vulnerable to this hazard.
Critical Facilities	Because of the impossibility to predict the geographical area of impact for tornados, all critical facilities in the City of Wylie are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the impossibility to predict the geographical area of impact for tornados, all critical infrastructures in the City of Wylie are exposed and vulnerable to this hazard.

Summary Table 3.18

Wildfire	
Population	Based on geographical data, approximately 38.07% of the City of Wylie is vulnerable to wildfires. There have been no recorded injuries or fatalities due to wildfires.
Improved Property	Based on historical data, annual financial losses expected from property loss due to wildfires are unknown due to lack of accurate reporting; therefore, the percentage of the overall property improvement values across the City of Wylie are also unknown.
Emergency Facilities	Based on geographic information there are two fire stations, one police station, and one hospital at risk from wildfire events.
Critical Facilities	Based on geographic information there are 17 schools and 15 historical properties at risk from wildfire events.

Critical Infrastructure	Based on geographic information there are no bridges, no dams, one wastewater treatment facility, and no water treatment facility at risk from wildfire events.

Summary Table 3.19

Winter Storm	
Population	According to National Centers for Environmental Information (NCEI), there was one (1) county-wide fatality recorded due to winter storms, none from the City of Wylie. All the population of the City of Wylie are exposed and vulnerable to this hazard.
Improved Property	According to the National Centers for Environmental Information (NCEI), property losses in the City of Wylie are expected but unknown due to lack of reporting; however county-wide property loss is estimated at $116,250 per year. No crop losses are expected from this hazard in the City of Wylie.
Emergency Facilities	Because of the expected geographical widespread nature of winter storms, all emergency facilities in the City of Wylie are exposed and vulnerable to this hazard.
Critical Facilities	Because of the expected geographical widespread nature of winter storms, all critical facilities in the City of Wylie are exposed and vulnerable to this hazard.
Critical Infrastructure	Because of the expected geographical widespread nature of winter storms, all critical infrastructures in the City of Wylie are exposed and vulnerable to this hazard.

4. Capability Assessment

The risk assessment and capabilities assessment serve as the foundation for the development of a meaningful hazard mitigation strategy. During the process of identifying specific mitigation actions to pursue, the City of Wylie considered not only its level of hazard risk but also the existing capabilities to minimize or eliminate that risk.

Table 4.1 Legal and Regulatory Capability Summary

Legal and Regulatory Capabilities															
Jurisdiction	Building Code	Zoning Ordinance	Subdivision Ordinance or regulation	Special purpose ordinances (floodplain management, storm water management, hillside or steep slope ordinances wildfire ordinances, hazard setback requirements)	Growth management ordinances (also called "smart Growth" or anti-sprawl programs)	Site Plan review requirements	General or comprehensive plan	A capital improvements plan	An economic development plan	An emergency response plan	A post-disaster recovery plan	A post-disaster recovery ordinance	Real estate disclosure requirements	Other	% Yes per Jurisdiction
Wylie	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	N	N	N	**71%**
Average % Yes Capabilities – 71%															
Y- Yes N- No ?- Don't Know															

Table 4.2 Administrative and Technical Capability Summary

Administrative and Technical Capabilities											
Jurisdiction	Planner(s) or engineer(s) with knowledge of land development and land management	Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Planners or engineer(s) with an understanding of natural and/or human caused hazards	Floodplain manager	Surveyors	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in GIS	Scientists familiar with the hazards of the community	Emergency manager	Grant writers	% Yes per Jurisdiction
Wylie	Y	Y	Y	Y	N	Y	Y	N	Y	Y	**80%**
Average % Yes Capabilities – 80%											
Y- Yes N- No ?- Don't Know											

Table 4.3 Fiscal Capability Summary

Fiscal Capabilities											
Jurisdiction	Community Development Block Grants (CDBG)	Capital improvements project funding	Authority to levy taxes for specific purposes	Fees for water, sewer, gas, or electric service	Impact fees for homebuyers or developers for new developments/homes	Incur debt through general obligation bonds	Incur debt through special tax bonds	Incur debt through private activity bonds	Withhold spending in hazard-prone areas	Other	% Yes per Jurisdiction
Wylie	N	Y	N	Y	N	N	N	N	Y	N	**20%**
Average % Yes Capabilities – 20%											
Y- Yes N- No ?- Don't Know											

To quantify Wylie's legal and regulatory, administrative and technical, and fiscal capabilities, an overall rating system was administered for each category: limited (0-30%), moderate (31-70%), and strong (70-

100%). Questionnaire responses indicated that on average, Wylie has 71.42% of identified legal and regulatory capabilities, 80% of identified administrative and technical capabilities, and 20% of identified fiscal capabilities.

Table 4.4 Administrative Information

Jurisdiction	Chief Administrative Officer	Ability to Implement Capabilities
City of Wylie	City Manager	The city manager, along with Directors (department heads), address the budget; pass ordinances and codes; hire staff; approve plans; and determine the direction of the city overall. As the governing body, the ability to implement and approve mitigation actions, expand mitigation activities and programs, and integrate mitigation into existing policies and programs is a function of this group.

Specific actions that can expand and improve existing capabilities, authorities, plans, policies, and resources for mitigation include: budgeting and passing policies and procedures, adopting and implementing stricter mitigation regulations, approving the hiring and training of staff for mitigation activities, and approving mitigation updates and additions to existing plans as new needs are recognized.

5. Mitigation Strategies

Based on the results of the risk and capability assessments, and reviews of the goals and objectives included in the 2016 HazMAP, the Wylie Hazard Mitigation Planning Committee developed mitigation strategies for the plan update.

Goal 1 Reduce or eliminate loss of life, injuries and property damage resulting from severe weather events.

Objective 1-A Provide adequate warning and communication before, during, and after a hazard event.
Objective 1-B Expand and coordinate early warning systems currently in use.
Objective 1-C Reduce or eliminate loss of life and property damage from tornadoes through the construction and use of safe rooms or shelter areas.

Goal 2 Protect existing and new properties from the effects of all natural hazards.

Objective 2-A Conduct studies to determine hazard and vulnerability threat assessment for all natural hazards.
Objective 2-B Rehabilitate or retrofit identified high hazard critical infrastructure.
Objective 2-C Enact and enforce regulatory measures that enforce hazard mitigation measures.
Objective 2-D Construct enhancements or additions to current and new facilities which mitigate the effects of natural hazards.
Objective 2-E Maintain NFIP compliance, storm water management, and implement drainage projects.

Goal 3 Reduce losses and repetitive damages for chronic hazard events.

Objective 3-A Conduct a hazard/vulnerability assessment of personal properties and structures located in flood zones.
Objective 3-B Develop and implement a buyout program for those personal properties and structures located in high hazard flood zones starting with those that are most vulnerable to life and property loss.
Objective 3-C Develop and execute new programs which identify and reduce threats from natural hazards.

Goal 4 Develop public education campaigns to disseminate information about actions to mitigate potential loss of life, injuries and property damage resulting from natural hazards.

Objective 4-A Educate the public on risks, threats, and vulnerability from all natural hazards.
Objective 4-B Educate the public on actions they can take to prevent or reduce the loss of life or property from all natural hazards.
Objective 4-C Develop and implement a community education campaign to heighten public awareness about chronic flooding and options for insurance coverage to protect their personal properties as well as long term benefits from a buyout program.

6. Action Items

Below is a list of the new and deferred action items identified for the HazMAP Update. Each of the actions in this section were prioritized based on FEMA's STAPLEE criteria, which includes considering the social, technical, administrative, political, legal, economic and environmental factors necessary for the implementation of each action. As part of the STAPLEE analysis economic considerations were weighed for each action. The STAPLEE was used for the 2016 Plan along with the 2021 Update. Priority rankings are classified as indicated in the table below.

Priority	Description
High	Benefits of mitigating risk of death or severe bodily injury outweigh costs to implement actions rated as high priorities.
Medium	Reducing vulnerability to threats and the resulting improvement in quality of life and peace of mind are benefits for actions rated as medium priorities.
Low	Awareness of low risk/low impact hazards offer benefits of time to assess, plan and integrate low priority mitigation actions as time, need, and funding permit.

City of Wylie Action Items: Deferred from 2016 Plan

City of Wylie Action Item	Add outdoor warning sirens to meet the needs of the growing population in newly developed areas and/or subdivisions.
Hazard(s) Addressed	Tornado, Hail, High Winds, Dam Failure, Lightning, Flooding, Wildfire
Goal/Objective	1-A, 1-B
Priority	High
Estimated Cost	$30,000 per siren
Potential Funding Sources	General Fund
Potential Matching Sources	None
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	Minimal compared to preservation of life safety
Discussion	Outdoor warning systems will help alert the public to reduce personal and property damage before a disaster strikes.
Status	Two Sirens and software have been added or in the process of being added. Continue to add additional sirens as needed based on population needs.

City of Wylie Action Item	Adopt and implement water conservation regulations

Hazard(s) Addressed	Drought
Goal/Objective	2-C, 3-C
Priority	High
Estimated Cost	$7,500 to $15,000
Potential Funding Sources	General Fund
Potential Matching Sources	None
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and foundation integrity
Cost Effectiveness	Minimal compared to benefit to community
Discussion	This will mitigate drought conditions.
Status	Deferred – will be included in 2021 Plan

City of Wylie Action Item	Develop and implement a comprehensive public education program to educate on the actions to help mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Tornado, Hail, Winter Storms, High Winds, Dam Failure, Lightning, Expansive Soils, Extreme Heat, Earthquake, Flooding, Wildfire, Drought
Goal/Objective	4-A, 4-B, 4-C
Priority	High
Estimated Cost	$7,500-$15,000
Potential Funding Sources	General Fund
Potential Matching Sources	None
Lead Department	Emergency Management
Implementation Schedule	2-3 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Minimal compared to preservation of life safety
Discussion	Public education can help educate the public to reduce personal and property damage during disasters. Program will include information about hazard mitigation.
Status	Receive supplies and materials from the NCTCOG KnoWhat2do Program and provide to residents. Continue – will be included in 2021

City of Wylie Action Item	Develop and implement an extreme temperature program that provides resources and identifies locations for vulnerable residents to go to during periods of extreme temperatures.
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	2-D
Priority	Medium
Estimated Cost	$10,000-$15,000
Potential Funding Sources	HMGP, PDM
Potential Matching Sources	Local funds, NPO donations, In-kind
Lead Department	Emergency Management, Planning
Implementation Schedule	1-2 years
Effect on Old Buildings	Could require retrofit to accommodate required space and resources
Effect on New Buildings	May entail enhanced construction materials
Cost Effectiveness	Cost to implement this program is low compared to the benefits of the program.
Discussion	Cooling shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold.
Status	Deferred – will be included in 2021 Plan

City of Wylie Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	3-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	HMPG, Watershed Authorities, Dam Sponsors
Potential Matching Sources	Local Sponsors, In-Kind
Lead Department	Planning and Zoning/ NRCS, Emergency Management
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Dam Failure data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.

Status	Deferred – will be included in 2021 Plan

City of Wylie Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works, Planning Zoning
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.
Status	Deferred – will be included in 2021 Plan

City of Wylie Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds
Lead Department	Emergency management, Public works, Planning Zoning
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.

Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.
Status	Deferred – will be included in 2021 Plan

City of Wylie Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as provide other emergency and hazard information
Status	Deferred – will be included in 2021 Plan

City of Wylie Action Items: New

City of Wylie Action Item	Add outdoor warning sirens to meet the needs of the growing population in newly developed areas and/or subdivisions.
Hazard(s) Addressed	Tornado, Hail, High Winds, Dam Failure, Lightning, Flooding, Wildfire
Goal/Objective	1-A, 1-B
Priority	High
Estimated Cost	$30,000 per siren
Potential Funding Sources	General Fund
Potential Matching Sources	None
Lead Department	Emergency Management
Implementation Schedule	2-5 years

Effect on Old Buildings	None
Effect on New Buildings	None
Cost Effectiveness	Minimal compared to preservation of life safety
Discussion	Outdoor warning systems will help alert the public to reduce personal and property damage before a disaster strikes. This action item would be specific to installation/placement of new OWS sirens in the jurisdiction.

City of Wylie Action Item	Adopt and implement water conservation regulations
Hazard(s) Addressed	Drought, Expansive Soils
Goal/Objective	2-C, 3-C
Priority	High
Estimated Cost	$7,500 to $15,000
Potential Funding Sources	General Fund
Potential Matching Sources	None
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Will identify need for retrofits, such as low-flow plumbing
Effect on New Buildings	May require new codes for low-flow plumbing and foundation integrity
Cost Effectiveness	Minimal compared to benefit to community
Discussion	This will mitigate drought conditions. When water is conserved and not used for landscape during droughts, this would provide water for homeowners to use, through drip irrigation, to keep their foundations at a consistent saturation level, mitigating the impacts of drought and lack of water.

City of Wylie Action Item	Develop and implement a comprehensive public education program to educate on the actions to help mitigate the impacts of each identified hazard.
Hazard(s) Addressed	Tornado, Hail, Winter Storms, High Winds, Dam Failure, Lightning, Expansive Soils, Extreme Heat, Earthquake, Flooding, Wildfire, Drought
Goal/Objective	4-A, 4-B, 4-C
Priority	High
Estimated Cost	$7,500-$15,000
Potential Funding Sources	General Fund
Potential Matching Sources	None
Lead Department	Emergency Management

Implementation Schedule	2-3 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Minimal compared to preservation of life safety
Discussion	Public education can help educate the public to reduce personal and property damage during disasters. Program will include information about hazard mitigation.

City of Wylie Action Item	Develop and implement an extreme temperature program that provides resources and identifies locations for vulnerable residents to go to during periods of extreme temperatures.
Hazard(s) Addressed	Extreme Heat, Winter Storms
Goal/Objective	2-D
Priority	Medium
Estimated Cost	$10,000-$15,000
Potential Funding Sources	HMGP, PDM
Potential Matching Sources	Local funds, NPO donations, In-kind
Lead Department	Emergency Management, Planning
Implementation Schedule	1-2 years
Effect on Old Buildings	Could require retrofit to accommodate required space and resources
Effect on New Buildings	May entail enhanced construction materials
Cost Effectiveness	Cost to implement this program is low compared to the benefits of the program.
Discussion	Cooling shelters would allow special populations to reduce their vulnerability to extreme heat, as warming centers would aid residents in extreme cold.

City of Wylie Action Item	Hire consultant to complete new inundation studies of all high and moderate hazard dams.
Hazard(s) Addressed	Dam Failure, Flood
Goal/Objective	3-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	HMPG, Watershed Authorities, Dam Sponsors
Potential Matching Sources	Local Sponsors, In-Kind

Lead Department	Planning and Zoning/ NRCS, Emergency Management
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will determine what mitigation actions are needed to protect existing buildings in inundation zones
Effect on New Buildings	Results will determine what mitigation actions are needed for new buildings in inundation zones
Cost Effectiveness	Low
Discussion	Dam Failure data deficiency identified in Chapter 3. Identify all structures and infrastructures that would be impacted by a potential dam failure.

City of Wylie Action Item	Conduct earthquake assessment study to determine potential for earthquakes to affect public facilities and utilities.
Hazard(s) Addressed	2-A
Goal/Objective	Earthquake
Priority	Low
Estimated Cost	$20,000
Potential Funding Sources	HMGP
Potential Matching Sources	Local Funds
Lead Department	Public Works, Planning Zoning
Implementation Schedule	1-2 years
Effect on Old Buildings	Results will help identify/define retrofits or additions to reduce vulnerability to earthquakes
Effect on New Buildings	Results will identify/define codes for new construction to reduce vulnerability to earthquakes
Cost Effectiveness	Low
Discussion	Project outputs will guide development of future earthquake mitigation projects.

City of Wylie Action Item	Conduct a soil analysis to determine the scope, impact, and extent of expansive soils
Hazard(s) Addressed	Expansive Soils
Goal/Objective	2-A
Priority	Low
Estimated Cost	$10,000
Potential Funding Sources	Federal grants, state grants
Potential Matching Sources	Local funds

Lead Department	Emergency management, Public works, Planning Zoning
Implementation Schedule	1-2 years
Effect on Old Buildings	Study would identify existing construction most at risk for expansive soil damage.
Effect on New Buildings	Study would be used to identify undeveloped areas at risk for expansive soil damage for real estate disclosure.
Cost Effectiveness	High. This study would lead to targeted mitigation projects to lower vulnerability to expansive soils.
Discussion	Study would be used to identify scope, impact, and extent of expansive soils throughout jurisdiction.

City of Wylie Action Item	Purchase and Distribute NOAA Weather Radios to Vulnerable Residents
Hazard(s) Addressed	Dam Failure, Drought, Earthquake, Expansive Soils, Extreme Heat, Flooding, Hail, High Winds, Lightning, Tornado, Wildfire, Winter Storms
Goal/Objective	1-A
Priority	High
Estimated Cost	$75,000
Potential Funding Sources	Grant Funds, HMPG, PDM, Partial payment by receiving party
Potential Matching Sources	Local funds, in-kind, donations, citizen cost-share
Lead Department	Emergency Management
Implementation Schedule	2-5 years
Effect on Old Buildings	Depending on mitigation actions taken for structures, can make existing building safer, stronger and less vulnerable to damages through retrofits
Effect on New Buildings	Depending on mitigation actions taken for structures, can make new building safer, stronger and less vulnerable to damages
Cost Effectiveness	Advanced warning and mitigation information saves lives which outweighs the cost of a radio.
Discussion	Weather Alert Radios are a proven means to alert and warn citizens and provide information about severe weather as well as provide other emergency and hazard information

National Flood Insurance Program (NFIP) Compliance

Wylie is participating in the National Flood Insurance Program and has identified their respective areas as vulnerable to flooding. This is incorporated into all current and future planning for dealing with repetitive loss vulnerabilities.

Table 6.1 NFIP Compliance

CID	Community Name	County	Initial FHBM Identified	Initial FIRM Identified	Curr Eff Map Date	Reg-Emer Date	Tribal
480759#	WYLIE, CITY OF	ROCKWALL COUNTY/DALLAS COUNTY/COLLIN COUNTY	11/12/1976	6/4/1980	7/7/2014	6/4/1980	No

Source: http://www.fema.gov/cis/TX.html

Jurisdiction Activities

In order to maintain eligibility with NFIP, jurisdictions are required to maintain their list of properties that hold a policy with NFIP, along with up-to-date maps of the floodplains in the jurisdictions. Each jurisdiction participating in the Collin County Hazard Mitigation Action Plan completes this basic requirement and has the information on file with the jurisdiction's designated floodplain manager. Using this plan, participating jurisdictions will be able to continue their compliance with NFIP by implementing damage control measures and to take action to minimize the effects of flooding in their respective jurisdictions.

Table 6.2 NIFP Activity

Jurisdiction	Community Floodplain Administrator	NFIP Activity	Activity Description	Enforcement
City of Wylie	City Engineer	Complete and maintain FEMA elevation certificates for pre-FIRM and or post-FIRM buildings	Permits are issued through the Building Dept. The City requires a residential structure to have the lowest floor elevated at least 2 feet above the base flood elevation. Non-residential is the same or be designed so that below the base flood level the structure is watertight with the walls substantially impermeable to the passage of water.	NFIP compliance is implemented and enforced through a process of floodplain identification using FEMA floodplain maps, permit issuance, building requirements, and compliance inspections pending approval. Failure to comply with City's flood ordinance can
		Floodplain development permits	Permits are required for any new construction in a floodplain.	
		Coordinate with FEMA in identifying	The City of Wylie attends meetings held by FEMA	

		Special Flood Hazard Areas for future FIRM maps	and/or their contractors to better identify areas that are flood prone that are not shown on current Flood Insurance Rate Maps.	shall result in a fine up to $2,000.
		Take action to minimize the effects of flooding on people, property, and building contents through measures including flood warning, emergency response, and evacuation planning	Maintain road closures to known flood prone areas. Use public outreach via Nixle for flash flood warnings.	
		Future Mitigation Projects	The City of Wylie will continue to monitor for new areas of flooding that have not been previously identified for mitigation.	

7. Plan Maintenance

Monitoring, Evaluating and Updating the Plan

In Compliance with requirement § 201.6(c)(4)(i), Collin County has developed a plan maintenance process which is described in the following paragraphs. Collin County, along with participating jurisdictions are responsible for monitoring implementation of the plan, executing a yearly evaluation of its effectiveness, and updating the plan within a 5-year cycle.

Following formal adoption by Collin County Commissioners Court, and formal adoption of the plan by City Council by each participating jurisdiction, the actions outlined in the Collin County Hazard Mitigation Plan would be implemented by the county and participating jurisdictions as described throughout this document.

The Collin County Emergency Management Coordinator, working in conjunction with the respective jurisdictions, will be responsible for ensuring the mitigation plan is monitored, evaluated, and reviewed on an annual basis. This will be accomplished by calling an annual meeting of the planning committee, whose members will provide assistance and expertise for plan review, evaluating, updating, and monitoring. This meeting will be open to the public and public notices will encourage community participation. During this annual meeting, Wylie will provide information on the implementation status of each action included in the plan. As part of the evaluation, the planning committee will assess whether goals and objectives address current and expected conditions, whether the nature and/or magnitude of the risks have changed, if current resources are appropriate for implementing the plan, whether outcomes have occurred as expected, and if agencies and other partners participated as originally proposed. These activities will take place according to the timetable presented below:

Table 7.1 Plan Maintenance Timeline

Personnel	Activity	Schedule
Emergency Management Coordinator	Monitoring Plan : Track implementation and action items, changes to risk assessment, changes to planning team members, changes to capabilities, plan integrations	Biannually
	Evaluate Plan: Assess effectiveness by evaluating completed actions, implementation processes, responsible personnel and lessons learned.	Annually
	Update Plan	Once every 5 years

At least once every five (5) years, or more frequently, if such a need is determined by the participating jurisdiction, the multi-jurisdictional plan will undergo a major update. During this process, all sections of the plan will be updated with current information, analyses done and new and/or modified mitigation action plans will be developed. The revised plan will be submitted for state and federal review and approval, and presented for approval to the Collin County Commissioner's Court and the respective councils of incorporated cities/towns included in the Collin County plan. Each participating jurisdiction will undertake the same process for reviewing, revising and updating their respective plans and submitting them for approval. The plans will be updated every five years in accordance with federal requirements.

Plan Incorporation into Existing Planning Mechanisms *(In compliance with 201.6(c)(4)(ii))*

2016 Plan Incorporation: The vulnerability and capabilities assessments for each jurisdiction were carefully reviewed and considered when developing the mitigation actions for this plan. The HMPT and planning committees have established a process in which the mitigation strategy, goals, objectives and actions outlined in this plan will be incorporated into existing local planning strategies and mechanisms, as appropriate. Those mechanisms include the following:

Table 7.2 Plan Incorporation Mechanisms

Jurisdictions	Responsible Personnel	Jurisdictional Plans	Integration Schedule	Integration Plan
City of Wylie	City Council	Budget	Annually	Integration of mitigation projects identified in HazMAP, grants, and other fiscal allowances for mitigation actions and related costs
	Emergency Management Coordinator	Emergency Action Plan	Every Five Year	EAP Mitigation annex updates based on HazMAP HIRA; update preparedness, response and recovery actions related to identified hazards
	Designated Floodplain Manager	Floodplain Ordinances	As needed	Enhance mitigation of flood hazards using HazMAP flood data for floodplain management and community development.
	City Council, Director of Planning	Capital Improvement Plan	Annually	Strengthen critical infrastructure and key resources based on HazMAP hazard analysis, incorporate vulnerability data and action items.
	Public Works Director, City Council	Drought Contingency Plan	Assessed annually and updated as needed.	Integrate drought actions such as xeriscaping, water restrictions, and public education
	Planning Director, City Council	Natural Resource Conservation Plan	Assessed annually and updated as needed.	Integrate conservation measures by directing development away from hazard-prone areas identified in HazMAP.

Although it is recognized there are many possible benefits to integrating components of this HazMAP into other planning mechanisms, the Wylie Hazard Mitigation Planning Committee considers this HazMAP, including development and maintenance, to be the primary vehicle to ensure implementation of local hazard mitigation actions.

The process described here is the same as was used since the last planning update.

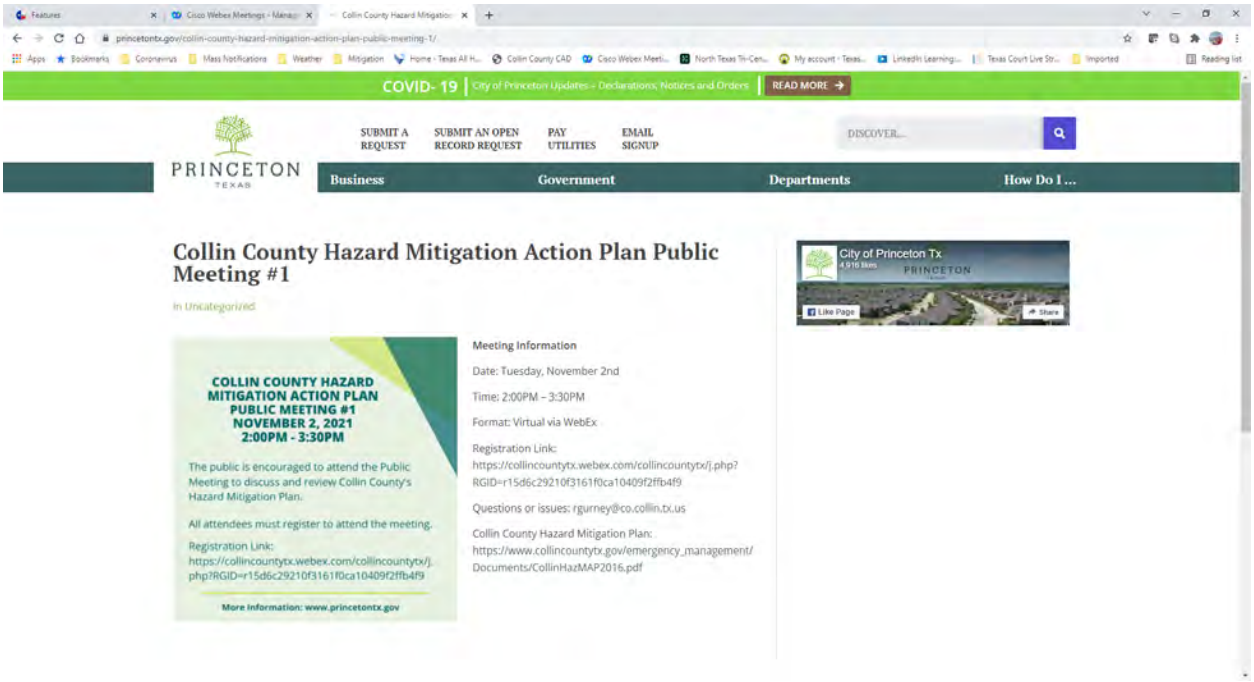
Continued Public Involvement (In compliance with 201.6(c)(4)(iii))

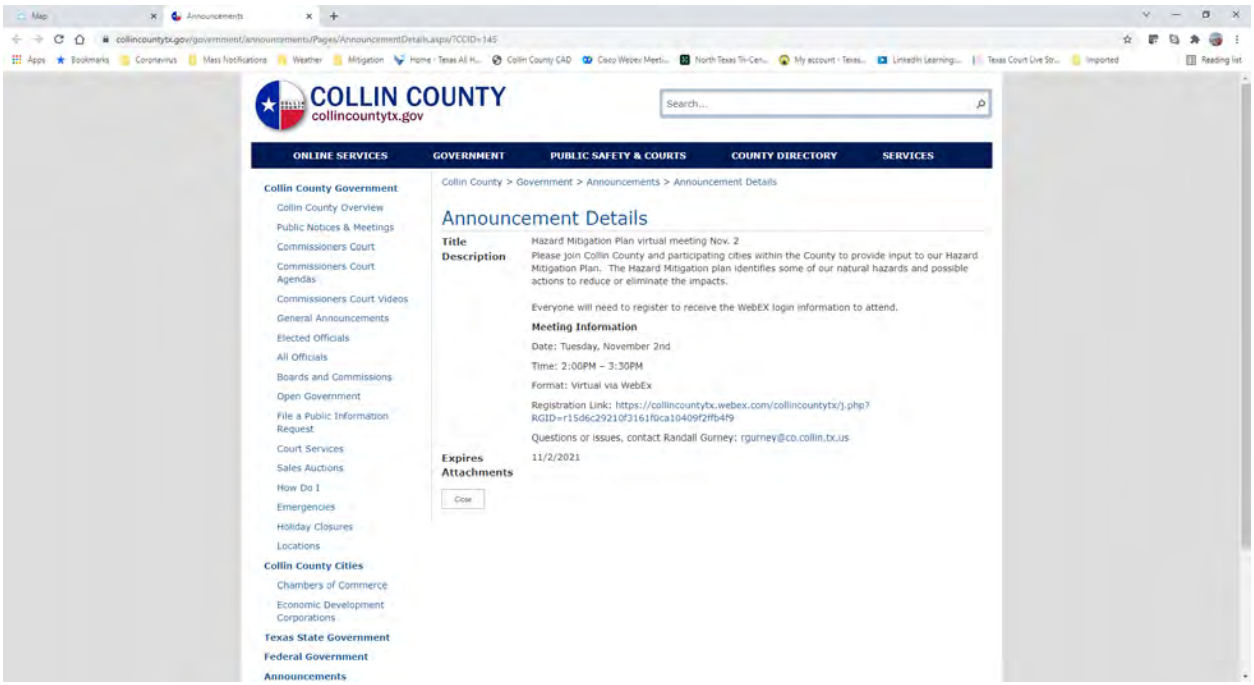
As stated in requirement § *201.6(c)(4)(iii)* The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.

To address this requirement, ongoing public participation will be encouraged throughout the entire planning and implementation process. A copy of the plan will be provided on the Collin County website. The planning team and committees will continue meeting on a regular basis to ensure the successful implementation of the plan and to discuss any additional issues regarding the emergency management of Collin County. The annual meetings for monitoring, evaluating, and updating the plan will be open to the public and public notices will encourage community participation.

Planning Process Documents

Public Meeting #1 Announcement

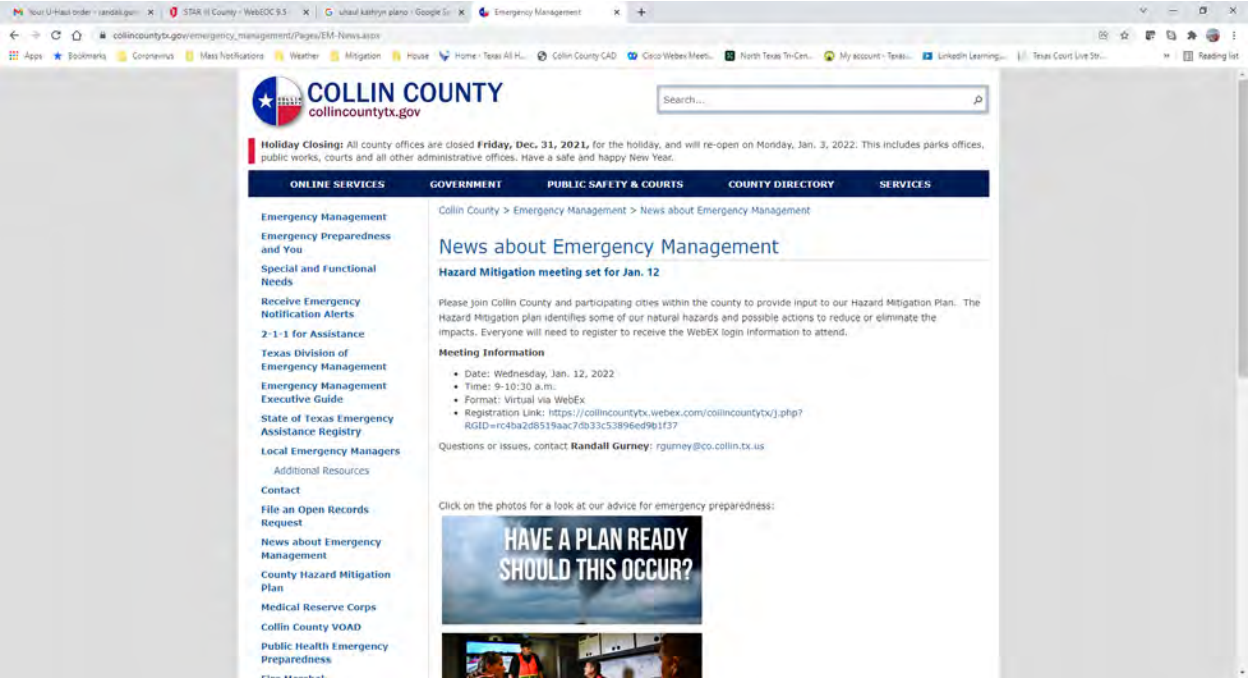




Public Meeting #1 Attendees

Name	Email Address	City
Edie Sims	esims@blueridgecity.com	Blue Ridge
Alexa Bach	kyrosalexa@gmail.com	Plano
Simon Katz	skatz@parkertexas.us	Parker
Meredith Nurge	mnurge@co.collin.tx.us	Collin County
Amanda Meldrum	ameldrum@friscofire.com	Frisco
Janis Cable	jcable@lowrycrossingtexas.org	Lowry Crossing
Dustin Lankford	dlankford@princetontx.us	Princeton
Eric Everson	eeverson@celina-tx.gov	Celina
Kent Bauer	kbauer@prospertx.gov	Town of Prosper
Perry Elliott	pelliott@murphytx.org	Murphy
Dustin Butler	dbutler@csmediatexas.com	Wylie
Elizabeth Carlberg	ecarlberg@co.collin.tx.us	McKinney
Adam Wilbourn	awilbourn@fairviewtexas.org	Fairview
Carol King	carol.king@newhopetx.gov	McKinney
Dustin Butler	dbutler@csmediatedas.com	Princeton
Lance Gant	lgant@lucastexas.us	Lucas
Kim Dobbs	kdobbs@lavontx.gov	Lavon
Tenishea Turner	tturner@princetontx.us	Princeton
Carl Nix	cnix@cityofmelissa.com	Melissa
Brittany Elliott	belliott@cityofmelissa.com	Melissa
Cody Nelson	cnelson@annatexas.gov	Anna
Jason Lane	jlane@friscofire.com	Frisco
Randall Gurney	rgurney@co.collin.tx.us	McKinney

Public Meeting #2 Announcement



COLLIN COUNTY
collincountytx.gov

Search...

Holiday Closing: All county offices are closed **Friday, Dec. 31, 2021,** for the holiday, and will re-open on Monday, Jan. 3, 2022. This includes parks offices, public works, courts and all other administrative offices. Have a safe and happy New Year.

ONLINE SERVICES | GOVERNMENT | PUBLIC SAFETY & COURTS | COUNTY DIRECTORY | SERVICES

- Emergency Management
- Emergency Preparedness and You
- Special and Functional Needs
- Receive Emergency Notification Alerts
- 2-1-1 for Assistance
- Texas Division of Emergency Management
- Emergency Management Executive Guide
- State of Texas Emergency Assistance Registry
- Local Emergency Managers
  - Additional Resources
- Contact
- File an Open Records Request
- News about Emergency Management
- County Hazard Mitigation Plan
- Medical Reserve Corps
- Collin County VOAD
- Public Health Emergency Preparedness

Collin County > Emergency Management > News about Emergency Management

News about Emergency Management

Hazard Mitigation meeting set for Jan. 12

Please join Collin County and participating cities within the county to provide input to our Hazard Mitigation Plan. The Hazard Mitigation plan identifies some of our natural hazards and possible actions to reduce or eliminate the impacts. Everyone will need to register to receive the WebEX login information to attend.

Meeting Information

- Date: Wednesday, Jan. 12, 2022
- Time: 9-10:30 a.m.
- Format: Virtual via WebEx
- Registration Link: https://collincountytx.webex.com/collincountytx/j.php?RGID=rc4ba2d8519aac7db33c53896ed9b1f37

Questions or issues, contact **Randall Gurney**: rgurney@co.collin.tx.us

Click on the photos for a look at our advice for emergency preparedness:

Public Meeting #2 Attendees

Name	Email Address	City
Danny Anthony	danthony@lavontx.gov	Lavon
Danny Anthony	danthony@cityoflavon.gov	Lavon
Danny Anthony	danny.anthony@lavonvfd.org	lavon
Gina Zimmel	gzimmel@collincountytx.gov	
LeAnn Strait	townhall@stpaultexas.us	St Paul
Dustin Butler	dbutler@csmediatexas.com	Wylie
Connor Pittman	cpittman@csmediatexas.com	
Pandora Wilson	pawski1@gmail.com	McKinney
Adam Wilbourn	awilbourn@fairviewtexas.org	Fairview
Barry KOFFROTH	bkoffroth@gmail.com	PROSPER
Amy Bartley	abartley95@gmail.com	Prosper
Leigh Ann Nolen	lnolen@co.collin.tx.us	Collin County
Yoon Kim	ykim@co.collin.tx.us	McKinney
Elizabeth Carlberg	ecarlberg@co.collin.tx.us	McKinney
T Scally	wiztoms@hotmail.com	Princeton
Tom Harvey	tharvey@princetontx.us	Princeton
Dustin Lankford	dlankford@princetontx.us	Princeton
Carol King	carol.king@newhopetx.gov	New Hope
Kim Dobbs	kdobbs@lavontx.gov	LAVON
Amanda Meldrum	ameldrum@friscofire.com	Frisco
Jason Lane	jlane@friscofire.com	Frisco
Eric Everson	eeverson@celina-tx.gov	Celina
Lance Gant	lgant@lucastexas.us	Lucas
Randall Gurney	rgurney@co.collin.tx.us	McKinney

Meeting News Report

PLANNING

TOWN OF PROSPER

Prosper is a place where everyone matters.

To: **Mayor and Town Council**

From: **David Soto, Planning Manager**

Through: **Harlan Jefferson, Town Manager**
Hulon T. Webb, Jr., Interim Executive Director of Development and Infrastructure Services

Re: **Town Council Meeting – June 28, 2022**

Agenda Item:
Consider and act upon an ordinance to rezone 0.2± acre from Single Family-15 (SF-15) to Planned Development-Downtown Single Family (PD), located on the north side of Third Street, east of Coleman Street. (Z22-0009).

Description of Agenda Item:
The purpose of the zoning request, which was approved by Town Council on June 14, 2022, by a vote of 7-0 is to rezone the property to Planned Development-Downtown Single Family to allow for deviation from the required lot depth, from 120 feet to 100 feet. The purpose is to develop a single-family downtown residence in the future. The existing house will be demolished. Prior to development, the developer will be required to submit a plat for review and approval. The applicant has been advised of the standards necessary for development.

A Planned Development ordinance has been prepared accordingly.

Legal Obligations and Review:
Town Attorney, Terrence Welch of Brown & Hofmeister, L.L.P., has approved the standard ordinance as to form and legality.

Attached Documents:
1. Ordinance
2. Exhibits A-F

Staff Recommendation:
Staff recommends approval of an ordinance to rezone 0.2± acre from Single Family-15 (SF-15) to Planned Development-Downtown Single Family (PD), located on the north side of Third Street, east of Coleman Street. (Z22-0009).

Proposed Motion:
I move to approve an ordinance to rezone 0.2± acre from Single Family-15 (SF-15) to Planned Development-Downtown Single Family (PD), located on the north side of Third Street, east of Coleman Street. (Z22-0009).

TOWN OF PROSPER, TEXAS **ORDINANCE NO. 2022-___**

AN ORDINANCE OF THE TOWN COUNCIL OF THE TOWN OF PROSPER, TEXAS, AMENDING THE ZONING ORDINANCE BY REZONING A TRACT OF LAND CONSISTING OF 0.2 ACRE, SITUATED IN BLOCK 12, BRYANT'S ADDITION , TOWN OF PROSPER, COLLIN COUNTY, TEXAS, FROM SINGLE FAMILY-15 DISTRICT TO PLANNED DEVELOPMENT; DESCRIBING THE TRACT TO BE REZONED; PROVIDING FOR A PENALTY FOR THE VIOLATION OF THIS ORDINANCE; PROVIDING FOR REPEALING, SAVING AND SEVERABILITY CLAUSES; PROVIDING FOR AN EFFECTIVE DATE OF THIS ORDINANCE; AND PROVIDING FOR THE PUBLICATION OF THE CAPTION HEREOF.

WHEREAS, the Town Council of the Town of Prosper, Texas (the "Town Council"), has investigated and determined that the Zoning Ordinance should be amended; and

WHEREAS, the Town of Prosper, Texas ("Prosper") has received a request (Case Z22-0009) from Jeanna Montgomery ("Applicant"), to rezone 0.2 acre of land, more or less, situated in Block 12, Bryant's addition, Town of Prosper, Collin County, Texas, from Single Family-15 District to Planned Development and being more particularly described in Exhibit A, attached hereto and incorporated herein for all purposes; and

WHEREAS, the Town Council has investigated and determined that the facts contained in the request are true and correct; and

WHEREAS, all legal notices required for rezoning have been given in the manner and form set forth by law, Public Hearings have been held, and all other requirements of notice and completion of such procedures have been fulfilled; and

WHEREAS, the Town Council has further investigated into and determined that it will be advantageous and beneficial to Prosper and its inhabitants to rezone this property as set forth below.

NOW, THEREFORE, BE IT ORDAINED BY THE TOWN COUNCIL OF THE TOWN OF PROSPER, TEXAS:

SECTION 1

Findings Incorporated. The findings set forth above are incorporated into the body of this Ordinance as if fully set forth herein.

SECTION 2

Amendment to the Town's Zoning Ordinance. The Town's Zoning Ordinance, as amended, is hereby amended as follows: The zoning designation of the below described property containing 0.2 acre of land, more or less, situated in Block 12, Bryant's Addition, Town of Prosper, Collin County, Texas, and all streets, roads, and alleyways contiguous and/or adjacent thereto are hereby zoned as Planned Development and being more particularly described in Exhibit A, attached hereto and incorporated herein for all purposes as if set forth verbatim.

The development plans, standards, and uses for the Property in this Planned Development District shall conform to, and comply with (1) the Statement of Intent and Purpose, attached hereto as Exhibit B; (2) the Development Standards, attached hereto as Exhibit C; (3) the Site Plan, attached hereto as Exhibit D; (4) the Development Schedule, attached hereto as Exhibit E; (5) the Façade Plans, attached hereto as Exhibit F; all of which are incorporated herein for all purposes as if set forth verbatim.

Two (2) original, official, and identical copies of the zoning exhibit map are hereby adopted and shall be filed and maintained as follows:

a. One (1) copy shall be filed with the Town Secretary and retained as an original record and shall not be changed in any manner.

b. One (1) copy shall be filed with the Building Official and shall be maintained up-to-date by posting thereon all changes and subsequent amendments for observation, issuing building permits, certificates of compliance and occupancy, and enforcing the zoning ordinance. Reproduction for information purposes may from time-to-time be made of the official zoning district map.

SECTION 3

No Vested Interest/Repeal. No developer or property owner shall acquire any vested interest in this Ordinance or in any other specific regulations contained herein. Any portion of this Ordinance may be repealed by the Town Council in the manner provided for by law.

SECTION 4

Unlawful Use of Premises. It shall be unlawful for any person, firm or corporation to make use of said premises in some manner other than as authorized by this Ordinance, and shall be unlawful for any person, firm or corporation to construct on said premises any building that is not in conformity with the permissible uses under this Zoning Ordinance.

SECTION 5

Penalty. Any person, firm, corporation, or business entity violating this Ordinance or any provision of Prosper's Zoning Ordinance, as amended, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined any sum not exceeding Two Thousand Dollars ($2,000.00). Each continuing day's violation under this Ordinance shall constitute a separate offense. The penal provisions imposed under this Ordinance shall not preclude Prosper from filing suit to enjoin the violation. Prosper retains all legal rights and remedies available to it pursuant to local, state and federal law.

SECTION 6

Severability. Should any section, subsection, sentence, clause or phrase of this Ordinance be declared unconstitutional or invalid by a court of competent jurisdiction, it is expressly provided that any and all remaining portions of this Ordinance shall remain in full force and effect. Prosper hereby declares that it would have passed this Ordinance, and each section, subsection, clause or phrase thereof irrespective of the fact that any one or more sections, subsections, sentences, clauses and phrases be declared unconstitutional or invalid.

SECTION 7

Savings/Repealing Clause. Prosper's Zoning Ordinance, as amended, shall remain in full force and effect, save and except as amended by this or any other Ordinance. All provisions of any ordinance in conflict with this Ordinance are hereby repealed to the extent they are in conflict; but such repeal shall not abate any pending prosecution for violation of the repealed ordinance, nor shall the appeal prevent a prosecution from being commenced for any violation if occurring prior to the repealing of the ordinance. Any remaining portions of said ordinances shall remain in full force and effect.

SECTION 8

Effective Date. This Ordinance shall become effective from and after its adoption and publications as required by law.

DULY PASSED, APPROVED, AND ADOPTED BY THE TOWN COUNCIL OF THE TOWN OF PROSPER, TEXAS, ON THIS __ DAY OF JUNE, 2022.

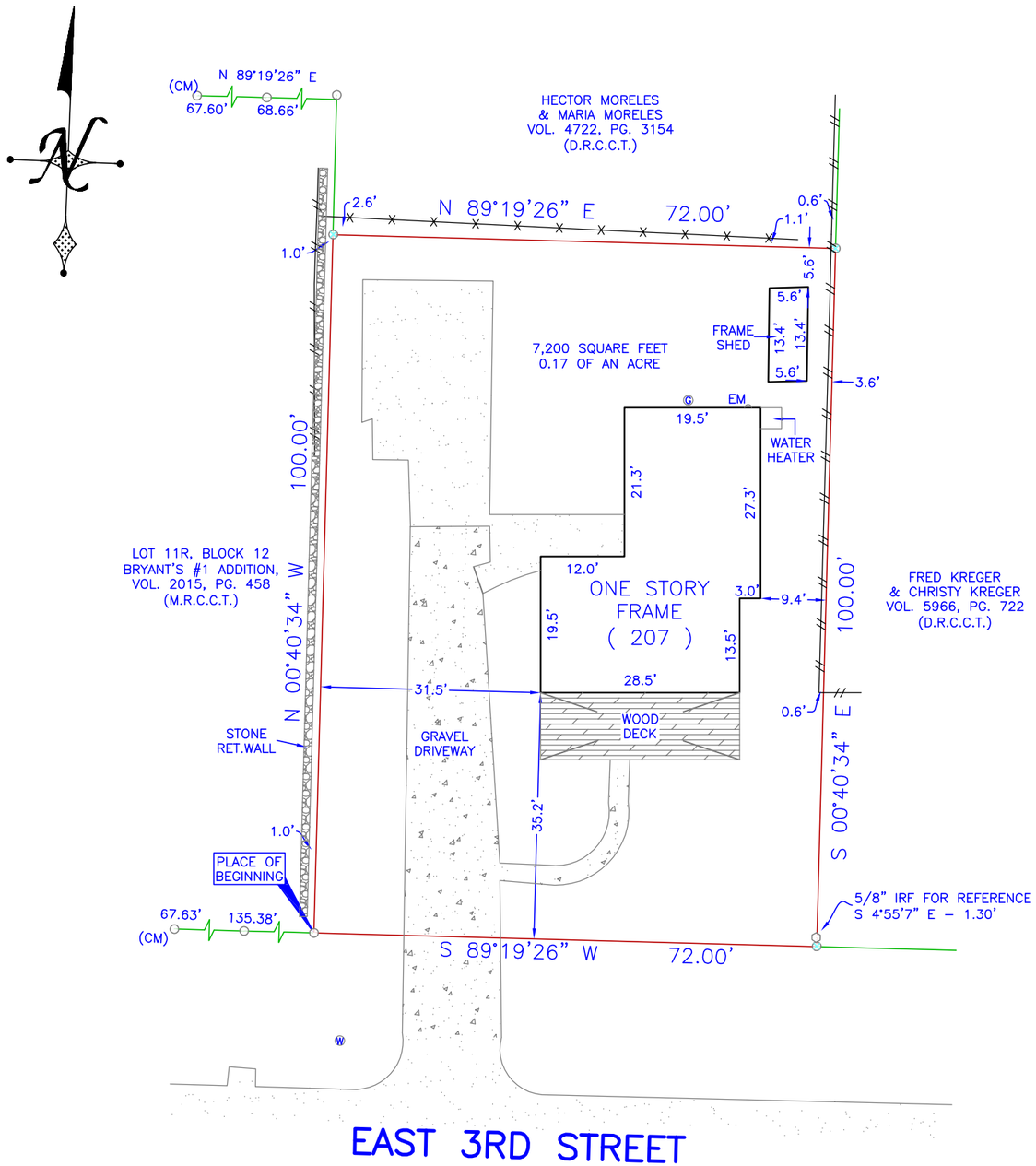
_____
David F. Bristol, Mayor

ATTEST:

_____
Michelle Lewis Sirianni, Town Secretary

APPROVED AS TO FORM AND LEGALITY:

_____
Terrence S. Welch, Town Attorney



7509 PENNRIDGE CIRCLE
ROWLETT, TX 75088

FIRM REGISTRATION NO. 10194366

SURVEY PLAT

BURNS SURVEYING

BARRY S. RHODES Registered Professional Land Surveyor (214) 326–1090

This is to certify that I have, this date, made a careful and accurate survey on the ground of property located at No. 207 EAST 3RD STREET, in the city of PROSPER Texas.

BEING a parcel of land situated in Block 12, Bryant's Addition, an Addition to the Town of Prosper, Collin County, Texas, according to the Plat thereof recorded in Volume 116, Page 162, Public Records, Collin County, Texas (P.R.C.C.T.), and being a parcel of land described in deed to Jesus (A.K.A. Jesse) Martinez and Lupe Martinez, recorded under Instrument File No. 20180724000918500 (D.R.C.C.T.), and being more particularly described by the following metes and bound description:

Beginning at a 1/2 inch iron rod found in the North line of East 3rd Street, at the Southeast corner of Lot 11R, Block 12, Bryant's #1 Addition, an Addition to the Town of Prosper, Collin County, Texas, according to the Plat thereof recorded in Volume 2015, Page 458 (P.R.C.C.T.), and at the Southwest corner of said Martinez parcel;

THENCE North 00 deg. 40 min. 34 sec. West, a distance of 100.00 feet to a 1/2 inch iron rod set in the East line of said Lot 11R, at the Southwest corner of a tract of land described in deed to Hector Moreles and Maria Moreles, recorded in Volume 4722, Page 3154 (D.R.C.C.T.);

THENCE North 89 deg. 19 min. 26 sec. East, a distance of 72.00 feet to a 1/2 inch iron rod set in the West line of a tract of land described in deed to Fred Kreger and Christy Kreger, recorded in Volume 5966, Page 722 (D.R.C.C.T), at the Southeast corner of said Moreles tract;

THENCE South 00 deg. 40 min. 34 sec. East, a distance of 100.00 feet to the 1/2 inch iron rod set for corner in the said North line of East 3rd Street, at the Southwest corner of said Kreger tract;

THENCE South 89 deg. 19 min. 26 sec. West, a distance of 72.00 feet to the PLACE OF BEGINNING and containing 7,200 sq. ft. or 0.17 of an acre of land.

THIS CERTIFICATION DOES NOT TAKE INTO CONSIDERATION ADDITIONAL FACTS THAT AN ACCURATE TITLE SEARCH AND OR EXAMINATION MIGHT DISCLOSE.

Exhibit A

BEARINGS ARE BASED ON NAD 83 DATUM, TEXAS STATE PLANE COORDINATE SYSTEM. NORTH CENTRAL ZONE

The plat hereon is true, correct, and accurate representation of the property as determined by survey, the lines and dimensions of said property being as indicated by the plat: the size, location and type of building and improvements are as shown, all improvements being within the boundaries of the property, set back from property lines the distance indicated, or visible and apparent easements.

TITLE AND ABSTRACTING WORK FURNISHED BY n/a

THERE ARE NO ENCROACHMENTS, CONFLICTS, OR PROTRUSIONS, EXCEPT AS SHOWN.

Scale: 1" = 20'

Date: 02–07–2020

G. F. No.: N/A

Job no.: 202000845

Drawn by: BM

USE OF THIS SURVEY FOR ANY OTHER PURPOSE OR OTHER PARTIES SHALL BE AT THEIR RISK AND UNDERSIGNED IS NOT RESPONSIBLE TO OTHER FOR ANY LOSS RESULTING THEREFROM.
THIS SURVEY WAS PERFORMED EXCLUSIVELY FOR GEORGINA HENNEN

LEGEND

WOOD FENCE — TEXT
CHAIN LINK — IMPROVEMENTS
IRON FENCE — BOUNDARY LINE
WIRE FENCE — EASEMENT SETBACK
RESIDENCE

CM – CONTROLLING MONUMENT
MRD – MONUMENTS OF RECORD DIGNITY
1/2" IRON ROD FOUND
1/2" YELLOW–CAPPED IRON ROD SET
SET 'X'
FOUND 'X'
5/8" IRON ROD FOUND
PK NAIL FOUND
(C) – CABLE
(E) – ELECTRIC
– CLEAN OUT
PE – POOL EQUIP
(G) – GAS METER
– POWER POLE
– FIRE HYDRANT
(T) – TELEPHONE
(L) – LIGHT POLE
(W) – WATER METER
(M) – MANHOLE
(V) – WATER VALVE
(UNLESS OTHERWISE NOTED)

STATE OF TEXAS
REGISTERED
BARRY S. RHODES
3691
PROFESSIONAL
LAND SURVEYOR

Exhibit B Statement of Intent of Purpose

The purpose of the request is to rezone a single family lot from Single family 15 to Planned Development – Downtown Single Family to facilitate setbacks to accommodate a new build structure of approximately 1900sq ft. The current setbacks would not allow an updated and useful new structure to be built. The current lot is 20ft short on the required 120 ft depth. The developer will incorporate craftsman style architecture into the exterior design and follow guidelines for the downtown residential revitalization program. Due to lot constraints the developer is requesting to decrease the lot depth from 120ft to 100ft.

Exhibit C

PLANNED DEVELOPMENT STANDARDS
207 E. Third St Prosper TX 75078

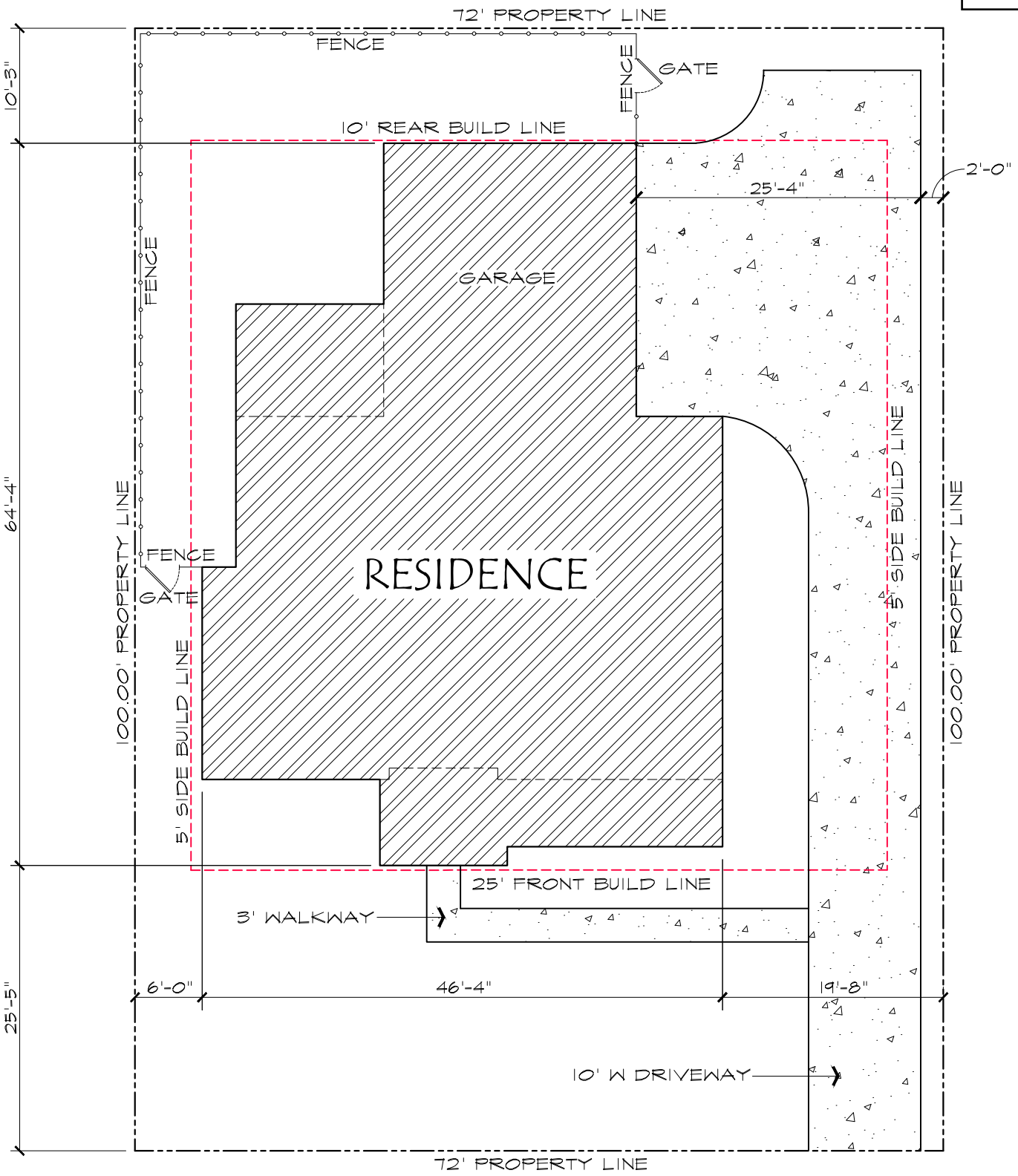
The proposed development will conform to the development standards of the DTSF (Downtown Single Family) District of the Town of Prosper's Zoning Ordinance, as it exists or may be amended, and Subdivision Ordinance, as it exists or may be amended, except as otherwise set forth in these Development Standards.

1. Except as noted below, the Tract shall develop in accordance with the DTSF District requirements of the Town of Prosper's Zoning Ordinance, as it exists or may be amended.

2. Development Plans
   a. Concept Plan: The tract shall be developed in general accordance with the attached concept plan, set forth in Exhibit D
   b. Elevations: The tract shall be developed in general accordance with the attached elevations, set forth in Exhibit F

3. Uses. Uses shall be permitted in accordance with the DTSF.

4. Exceptions
The lot will conform to the DTSF standards with the exception of-
   a. Minimum lot depth of 100ft.



--- 207 East 3rd Street ---

NORTH

Exhibit D

site plan

SCALE: 1"= 10'-0"

Exhibit E – Development Schedule

April 2022 – Submit for Planned Development – Downtown Single Family Zoning

May 2022 – Planning & Zoning Commission Approval

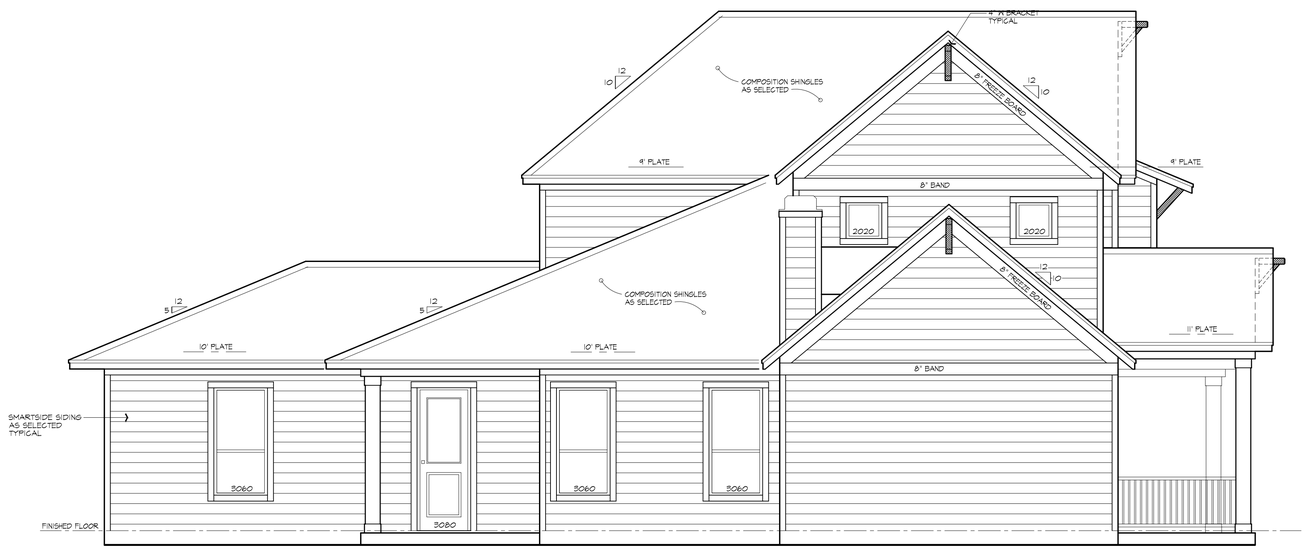
June 2022 - Town Council Approval and Ordinance Adoption

July 2022 – Submit Building permits

August- December 2022 - Complete construction

front elevation

SCALE: 1/4"= 1'-0"



left side elevation

SCALE: 1/4"= 1'-0"

Exhibit F

SCALE 1/4"=1'-0" IF PRINTED ON 24x36
SCALE 1/8"=1'-0" IF PRINTED ON 11x17

DESIGNER ACCEPTS NO RESPONSIBILITY OR LIABILITY FOR CONSTRUCTION METHODS AND/OR TECHNIQUES, LIMIT OF THE DESIGNER LIABILITY NOT TO EXCEED THE PRICE CHARGED FOR THESE PLANS.
CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS PRIOR TO CONSTRUCTION AND NOTIFY DESIGNER IN WRITING OF ANY DISCREPANCIES BEFORE BEGINNING CONSTRUCTION OF WORK.
THESE PLANS MAY HAVE TO BE MODIFIED TO MEET ENGINEERING AND/OR BUILDING CODE REQUIREMENTS. DO NOT SCALE THESE PLANS.

R E S I D E N T I A L
D E S I G N
700 S. Central Expy. - Suite 400
Allen, Texas 75013
Office : 469•235•1819
www.sithomedesign.com

REVISIONS

NO.	DATE	DESCRIPTION

A NEW RESIDENCE FOR:
207 East 3rd Street
PROSPER, TEXAS

DATE DRAWN
04-17-22

SHEET NO.
2

PLANNING

TOWN OF PROSPER

Prosper is a place where everyone matters.

To: **Mayor and Town Council**

From: **David Soto, Planning Manager**

Through: **Harlan Jefferson, Town Manager**
Hulon T. Webb Jr., Interim Executive Director of Development & Infrastructure Services

Re: **Town Council Meeting – June 28, 2022**

Agenda Item:
Consider and act upon an ordinance amending Planned Development-69 (PD-69), on 71.0± acres, generally to modify the allowed uses and landscape standards, located on the southeast corner of Dallas Parkway and Frontier Parkway. (Z22-0007).

Description of Agenda Item:
The purpose of the zoning request, which was approved by Town Council on June 14, 2022, by a vote of 7-0 is to amend Planned Development-69 (PD-69), on 71.0± acres, generally to modify the allowed uses and landscape standards, located on the southeast corner of Dallas Parkway and Frontier Parkway.

A Planned Development ordinance has been prepared accordingly.

Legal Obligations and Review:
Town Attorney, Terrence Welch of Brown & Hofmeister, L.L.P., has approved the standard ordinance as to form and legality.

Attached Documents:
1. Ordinance
2. Ordinance Exhibits

Town Staff Recommendation:
Staff recommends the Town Council approve an ordinance amending Planned Development-69 (PD-69), on 71.0± acres, generally to amend the residential tract to allow for non-residential uses, located on the southeast corner of Dallas Parkway and Frontier Parkway.

Proposed Motion:
I move to approve an ordinance amending Planned Development-69 (PD-69), on 71.0± acres, generally to amend the residential tract to allow for non-residential uses, located on the southeast corner of Dallas Parkway and Frontier Parkway.

TOWN OF PROSPER, TEXAS **ORDINANCE NO. 2022-__**

AN ORDINANCE AMENDING PROSPER'S ZONING ORDINANCE NO. 05-20; REZONING A TRACT OF LAND CONSISTING OF 70.9 ACRES, MORE OR LESS, SITUATED IN THE COLLIN COUNTY SCHOOL LAND SURVEY NO. 12, ABSTRACT NO. 147, IN THE TOWN OF PROSPER, COLLIN COUNTY, TEXAS, HERETOFORE ZONED PLANNED DEVELOPMENT-69 (PD-69) IS HEREBY REZONED AND PLACED IN THE ZONING CLASSIFICATION OF PLANNED DEVELOPMENT-69 (PD-69); DESCRIBING THE TRACT TO BE REZONED; PROVIDING FOR A PENALTY FOR THE VIOLATION OF THIS ORDINANCE; PROVIDING FOR REPEALING, SAVING AND SEVERABILITY CLAUSES; PROVIDING FOR AN EFFECTIVE DATE OF THIS ORDINANCE; AND PROVIDING FOR THE PUBLICATION OF THE CAPTION HEREOF.

WHEREAS, the Town Council of the Town of Prosper, Texas (the "Town Council") has investigated and determined that Zoning Ordinance No. 05-20 should be amended; and

WHEREAS, the Town of Prosper, Texas ("Prosper") has received a request from Metten Real Estate, L.P. ("Applicant") to rezone 70.9 acres of land, more or less, situated in the Collin County School Land Survey No. 12, Abstract No. 147, in the Town of Prosper, Collin County, Texas; and

WHEREAS, the Town Council has investigated into and determined that the facts contained in the request are true and correct; and

WHEREAS, all legal notices required for rezoning have been given in the manner and form set forth by law, and public hearings have been held on the proposed rezoning and all other requirements of notice and completion of such zoning procedures have been fulfilled; and

WHEREAS, the Town Council has further investigated into and determined that it will be advantageous and beneficial to Prosper and its inhabitants to rezone this property as set forth below.

NOW, THEREFORE, BE IT ORDAINED BY THE TOWN COUNCIL OF THE TOWN OF PROSPER, TEXAS:

SECTION 1

Findings Incorporated. The findings set forth above are incorporated into the body of this Ordinance as if fully set forth herein.

SECTION 2

Amendments to Zoning Ordinance No. 05-20. Zoning Ordinance No. 05-20 is amended as follows: The zoning designation of the below-described property containing 70.9 acres of land, more or less, situated in the Collin County School Land Survey No. 12, Abstract No. 147, in the Town of Prosper, Collin County, Texas, (the "Property") and all streets, roads and alleyways contiguous and/or adjacent thereto is hereby rezoned as Planned Development-69 (PD-69). The property as a whole and the boundaries for each zoning classification are more particularly described in Exhibit "A" attached hereto and incorporated herein for all purposes as if set forth verbatim.

The development plans, standards, and uses for the Property in this Planned Development District shall conform to, and comply with 1) the statement of intent and purpose, attached hereto as Exhibit "B"; 2) the planned development standards, attached hereto as Exhibit "C"; 3) the conceptual development plan requirements, attached hereto as Exhibit "D"; and 4) the development schedule, attached hereto as Exhibit "E", and 5) Landscape Plan, attached hereto as Exhibit "F" which are incorporated herein for all purposes as if set forth verbatim. Except as amended by this Ordinance, the development of the Property within this Planned Development District must comply with the requirements of all ordinances, rules, and regulations of Prosper, as they currently exist or may be amended.

Two (2) original, official, and identical copies of the zoning exhibit map are hereby adopted and shall be filed and maintained as follows:

a. One (1) copy shall be filed with the Town Secretary and retained as an original record and shall not be changed in any manner.

b. One (1) copy shall be filed with the Building Official and shall be maintained up to date by posting thereon all changes and subsequent amendments for observation, issuing building permits, certificates of compliance and occupancy, and enforcing the zoning ordinance. Reproduction for information purposes may from time-to-time be made of the official zoning district map.

Written notice of any amendment to this District shall be sent to all owners of properties within the District as well as all properties within two hundred feet (200') of the District to be amended.

SECTION 3

No Vested Interest/Repeal. No developer or property owner shall acquire any vested interest in this Ordinance or in any other specific regulations contained herein. Any portion of this Ordinance may be repealed by the Town Council in the manner provided for by law.

SECTION 4

Unlawful Use of Premises. It shall be unlawful for any person, firm or corporation to make use of said premises in some manner other than as authorized by this Ordinance, and shall be unlawful for any person, firm or corporation to construct on said premises any building that is not in conformity with the permissible uses under this Zoning Ordinance.

SECTION 5

Penalty. Any person, firm, corporation or business entity violating this Ordinance or any provision of Prosper's Zoning Ordinance No. 05-20, or as amended, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined any sum not exceeding Two Thousand Dollars ($2,000.00). Each continuing day's violation under this Ordinance shall constitute a separate offense. The penal provisions imposed under this Ordinance shall not preclude Prosper from filing suit to enjoin the violation. Prosper retains all legal rights and remedies available to it pursuant to local, state and federal law.

SECTION 6

Severability. Should any section, subsection, sentence, clause or phrase of this Ordinance be declared unconstitutional or invalid by a court of competent jurisdiction, it is expressly provided that any and all remaining portions of this Ordinance shall remain in full force and effect. Prosper hereby declares that it would have passed this Ordinance, and each section, subsection, clause or phrase thereof irrespective of the fact that any one or more sections, subsections, sentences, clauses and phrases be declared unconstitutional or invalid.

SECTION 7

Savings/Repealing Clause. Prosper's Zoning Ordinance No. 05-20 shall remain in full force and effect, save and except as amended by this or any other Ordinance. All provisions of any ordinance in conflict with this Ordinance are hereby repealed to the extent they are in conflict; but such repeal shall not abate any pending prosecution for violation of the repealed ordinance, nor shall the appeal prevent a prosecution from being commenced for any violation if occurring prior to the repealing of the ordinance. Any remaining portions of said ordinances shall remain in full force and effect.

SECTION 8

Effective Date. This Ordinance shall become effective from and after its adoption and publications as required by law.

DULY PASSED, APPROVED, AND ADOPTED BY THE TOWN COUNCIL OF THE TOWN OF PROSPER, TEXAS, ON THIS 28TH DAY OF JUNE, 2022.

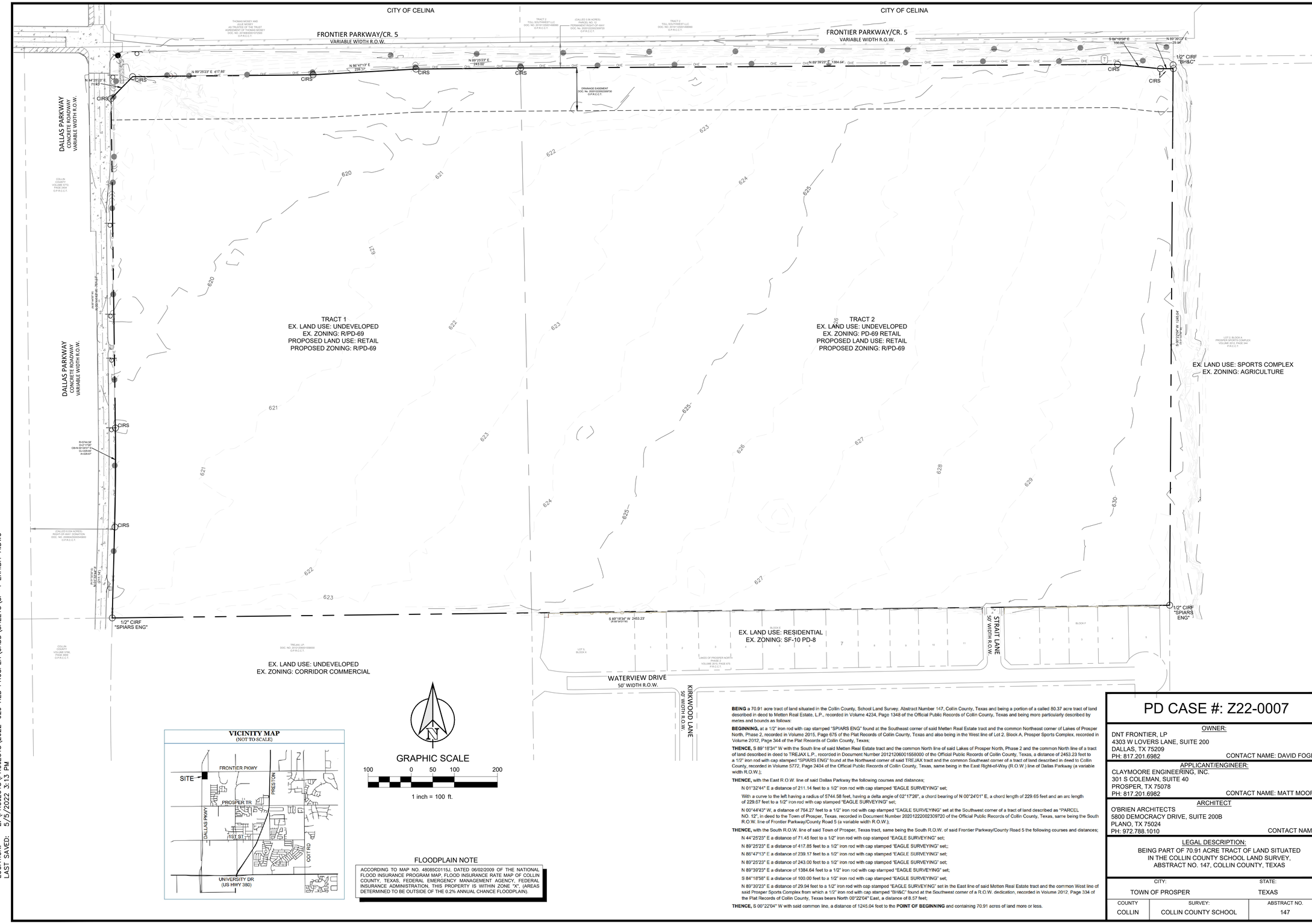
_____
David F. Bristol, Mayor

ATTEST:

_____
Michelle Lewis Sirianni, Town Secretary

APPROVED AS TO FORM AND LEGALITY:

_____
Terrence S. Welch, Town Attorney



PLOTTED BY: DAN CABALLERO
PLOT DATE: 5/13/2022 8:52 AM
LOCATION: Z:\PROJECTS\PROJECTS\2022-029 HEB PROSPER\CADD\SHEETS\SP-1 EXHIBIT A.DWG
LAST SAVED: 5/5/2022 3:13 PM

VICINITY MAP
(NOT TO SCALE)

GRAPHIC SCALE

100 0 50 100 200

1 inch = 100 ft.

FLOODPLAIN NOTE

ACCORDING TO MAP NO. 48085C0115J, DATED 06/02/2009 OF THE NATIONAL FLOOD INSURANCE PROGRAM MAP, FLOOD INSURANCE RATE MAP OF COLLIN COUNTY, TEXAS, FEDERAL EMERGENCY MANAGEMENT AGENCY, FEDERAL INSURANCE ADMINISTRATION, THIS PROPERTY IS WITHIN ZONE "X", (AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN).

BEING a 70.91 acre tract of land situated in the Collin County, School Land Survey, Abstract Number 147, Collin County, Texas and being a portion of a called 80.37 acre tract of land described in deed to Metten Real Estate, L.P., recorded in Volume 4234, Page 1348 of the Official Public Records of Collin County, Texas and being more particularly described by metes and bounds as follows:

BEGINNING, at a 1/2" iron rod with cap stamped "SPIARS ENG" found at the Southeast corner of said Metten Real Estate tract and the common Northeast corner of Lakes of Prosper North, Phase 2, recorded in Volume 2015, Page 675 of the Plat Records of Collin County, Texas and also being in the West line of Lot 2, Block A, Prosper Sports Complex, recorded in Volume 2012, Page 344 of the Plat Records of Collin County, Texas;

THENCE, S 89°18'34" W with the South line of said Metten Real Estate tract and the common North line of said Lakes of Prosper North, Phase 2 and the common North line of a tract of land described in deed to TREJAX L.P., recorded in Document Number 20121206001558000 of the Official Public Records of Collin County, Texas, a distance of 2453.23 feet to a 1/2" iron rod with cap stamped "SPIARS ENG" found at the Northwest corner of said TREJAX tract and the common Southeast corner of a tract of land described in deed to Collin County, recorded in Volume 5772, Page 2404 of the Official Public Records of Collin County, Texas, same being in the East Right-of-Way (R.O.W.) line of Dallas Parkway (a variable width R.O.W.);

THENCE, with the East R.O.W. line of said Dallas Parkway the following courses and distances;

N 01°32'44" E a distance of 211.14 feet to a 1/2" iron rod with cap stamped "EAGLE SURVEYING" set;

With a curve to the left having a radius of 5744.58 feet, having a delta angle of 02°17'26", a chord bearing of N 00°24'01" E, a chord length of 229.65 feet and an arc length of 229.67 feet to a 1/2" iron rod with cap stamped "EAGLE SURVEYING" set;

N 00°44'43" W, a distance of 764.27 feet to a 1/2" iron rod with cap stamped "EAGLE SURVEYING" set at the Southwest corner of a tract of land described as "PARCEL NO. 12", in deed to the Town of Prosper, Texas, recorded in Document Number 20201222002309720 of the Official Public Records of Collin County, Texas, same being the South R.O.W. line of Frontier Parkway/County Road 5 (a variable width R.O.W.);

THENCE, with the South R.O.W. line of said Town of Prosper, Texas tract, same being the South R.O.W. of said Frontier Parkway/County Road 5 the following courses and distances;

N 44°25'23" E a distance of 71.45 feet to a 1/2" iron rod with cap stamped "EAGLE SURVEYING" set;

N 89°25'23" E a distance of 417.85 feet to a 1/2" iron rod with cap stamped "EAGLE SURVEYING" set;;

N 86°47'13" E a distance of 239.17 feet to a 1/2" iron rod with cap stamped "EAGLE SURVEYING" set;

N 89°25'23" E a distance of 243.00 feet to a 1/2" iron rod with cap stamped "EAGLE SURVEYING" set;

N 89°39'23" E a distance of 1384.64 feet to a 1/2" iron rod with cap stamped "EAGLE SURVEYING" set;

S 84°18'58" E a distance of 100.00 feet to a 1/2" iron rod with cap stamped "EAGLE SURVEYING" set;

N 89°39'23" E a distance of 29.94 feet to a 1/2" iron rod with cap stamped "EAGLE SURVEYING" set in the East line of said Metten Real Estate tract and the common West line of said Prosper Sports Complex from which a 1/2" iron rod with cap stamped "BH&C" found at the Southwest corner of a R.O.W. dedication, recorded in Volume 2012, Page 334 of the Plat Records of Collin County, Texas bears North 00°22'04" East, a distance of 8.57 feet;

THENCE, S 00°22'04" W with said common line, a distance of 1245.04 feet to the **POINT OF BEGINNING** and containing 70.91 acres of land more or less.

PD CASE #: Z22-0007

OWNER:
DNT FRONTIER, LP
4303 W LOVERS LANE, SUITE 200
DALLAS, TX 75209
PH: 817.201.6982 CONTACT NAME: DAVID FOGEL

APPLICANT/ENGINEER:
CLAYMOORE ENGINEERING, INC.
301 S COLEMAN, SUITE 40
PROSPER, TX 75078
PH: 817.201.6982 CONTACT NAME: MATT MOORE

ARCHITECT
O'BRIEN ARCHITECTS
5800 DEMOCRACY DRIVE, SUITE 200B
PLANO, TX 75024
PH: 972.788.1010 CONTACT NAME:

LEGAL DESCRIPTION:
BEING PART OF 70.91 ACRE TRACT OF LAND SITUATED IN THE COLLIN COUNTY SCHOOL LAND SURVEY, ABSTRACT NO. 147, COLLIN COUNTY, TEXAS

CITY:	STATE:	
TOWN OF PROSPER	TEXAS	
COUNTY	SURVEY:	ABSTRACT NO.
COLLIN	COLLIN COUNTY SCHOOL	147

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
1003 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM

PRELIMINARY
FOR REVIEW ONLY
Not for construction purposes.
CLAYMOORE ENGINEERING
ENGINEERING AND PLANNING CONSULTANTS
Engineer MATT MOORE
P.E. No. 95813 Date 5/13/2022

PROSPER COMMERCIAL
BEING PART OF 70.91 ACRES OF LAND OUT OF COLLIN COUNTY SCHOOL LAND SURVEY, ABSTRACT NO. 147 PROSPER, TEXAS

No.	DATE	REVISION	BY

EXHIBIT A

DESIGN:	MAM
DRAWN:	DC
CHECKED:	MAM
DATE:	5/13/2022

SHEET
SP-1

CASE NO.

EXHIBIT B – STATEMENT OF INTENT AND PURPOSE

March 18, 2022

Planning Dept.
Town of Prosper
250 W. First Street
Prosper, Texas 75078

Re: Zoning Request – DSF Capital (Metten Tract)
Letter of Intent

To whom it may concern,

Please let this letter serve as the Letter of Intent for the PD Zoning amendment associated with the proposed development located at the SE corner of Frontier Parkway and Dallas Parkway. The subject tract is currently zoned PD-69-Retail. The purpose of the planned development amendment is to request a specific use permit for a proposed retail development and modification to a few landscape requirements associated with the project. It is intended to utilize the Town's base standards and incorporate some additional uses and criteria which will better position the proposed development due to proximity to the future Tollway.

Should you have any questions, please feel free to contact me.

Sincerely,
Matt Moore, P.E.

Claymoore Engineering, Inc.
301 S. Coleman, Suite 40
Prosper, TX 75078
817-281-0572

Case Z22-0007
Exhibit C – Planned Development Standards

The proposed development will conform to the development standards of the Retail District of the Town of Prosper's Zoning Ordinance, as it exists or may be amended, and Subdivision Ordinance, as it exists or may be amended, except as otherwise set forth in these Development Standards.

1. Except as noted below, the Tract shall develop in accordance with the Retail District requirements of the Town of Prosper's Zoning Ordinance, as it exists or may be amended.
2. **Development Plans**
   a) Concept Plan: Tract 1 shall be developed in general accordance with the attached concept plan, set forth in Exhibits D.
   b) Landscape Plan: Tract 1 shall be developed in general accordance with the attached landscape plan, set forth in Exhibit F.
3. <u>TRACT 1 & 2 Retail</u>

A. **Permitted Uses:**

In addition to those permitted uses as allowed per the Retail District of the Town of Prosper Zoning Ordinance, the following use shall be permitted in the retail areas indicated on Exhibit" D". Uses followed by an S are only permitted by Specific Use Permit. Uses followed by a C are permitted subject to the conditional standards in the Town' s Zoning Ordinance:

Tract 1

a) Big Box on Lot 5 as shown on Exhibit D.
b) Restaurant with drive-through to be incorporated with the big box on Lot 5 as shown on Exhibit D.
c) Convenience Store with Gas Pumps and or Gas Pumps – In addition to conditional standards, shall only be allowed on Lot 5 as shown on Exhibit D.
d) Car Wash (Accessory Use to Convenience Store with Gas Pumps and or Gas Pumps) on Lot 5 as shown on Exhibit D.
e) Outdoor Merchandise Display, Incidental on Lot 5 as shown on Exhibit D.

Tract 2

a) Hotels – **C**
b) Theater, Regional
c) Research & Development Center – **S**
d) Automobile Repair, Minor – In addition to conditional standards, shall not be located within 230 feet of residentially zoned property
e) Automobile Parts Sales – Shall not be located within 230 feet of residentially zoned property
f) Restaurant – In addition to conditional standards, shall not be located within 230 feet of residentially zoned property.
g) Retail Shops and Stores – In addition to conditional standards, shall not be located within 230 feet of residentially zoned property.

B. **Max. FAR:** Max. FAR for buildings taller than two (2) stories shall be 1.5:1. Max. FAR for all other buildings shall be 0.4:1.

C. **Building Heights:** The permitted height of all buildings within the retail areas of the Planned Development District shall be as follows:

a) The allowed height for Hotels, Office buildings, and Hospitals located within the retail tract shall be eight (8) stories, not greater than one hundred (100) feet. All other uses shall be limited to two (2) stories, not greater than forty (40) feet.
b) Non-residential buildings located within one hundred fifty feet (150') of a single- family zoned area shall be limited to a maximum height of two (2) stories, not greater than forty (40) feet.
c) Non-residential buildings, which exceed two (2) stories in height, shall be required to have additional setbacks from single- family zoned areas. These additional setbacks will require one foot (1') of setback, beyond the aforementioned one hundred fifty feet (150'), for each additional foot of building height above two (2) stories.
d) Only one-story structures are allowed within 84 feet of the south property line of Tract 2.

D. **Landscape Standards:**

a) 25’ of the required 30’ Landscape Buffer to be allowed within the 100’ Drainage Easement Along Frontier Parkway. Landscaping Proposed will comply with the Town of Prosper’s Zoning Ordinance.
b) Required Foundation Plantings trees to be placed elsewhere on the site on Lot 5 as shown on Exhibit D.
c) No Trees to be located within 150’ of the front doors of the proposed big box building on Lot 5. The required trees within 150’ of the front door to be place somewhere else on the site.
d) The required trees may be planted in groups with appropriate spacing for species both Tract 1 & 2.
e) Earthen berms are not required along Frontier Parkway for both Tract 1 & 2.
f) In Tract 2, a 30-foot landscape buffer shall be provided adjacent to residentially zoned property.
g) In Tract 2, Perimeter landscaping adjacent to residentially zoned property shall consist of a double row of Nellie R Stevens Holly or Eastern Red Cedar trees, or similar as approved by the Parks Department, planted on 15-foot-centers, minimum of eight feet (8’) in height at the time of planting, in addition to canopy tees as require by the Zoning Ordinance.
    1. The landscape buffer and associated planting shall be provided in conjunction with the first development that occurs within Tract 2.

E. **Screening:**

a) Dumpster enclosures shall not be permitted within 100 feet of a residentially zoned property for retail/restaurant uses.
b) An eight- foot (8’) ornamental metal fence shall be required along the east property line for a minimum distance of 200 feet and commencing at the southeast corner of the subject property.
    1. The ornamental metal fence shall be provided in conjunction with the first development that occurs within Tract 2.
c) In Tract 1 - Loading docks, truck parking, trash collection, dumpsters, and other service functions shall be incorporated into the overall design of the building or placed behind or on the side of a building and screened to not be seen from the rights-of-way. On corner lots, these areas shall be located behind the buildings.
d) In Tract 1 - Roofs shall be designed and constructed in such a way that they acknowledge their visibility from other buildings and from the street. Rooftop mechanical equipment shall be adequately screened with durable material that is architecturally compatible with the building design. Screening shall insure mechanical equipment cannot be seen from the public right of way

Additional Regulations:

1. *Restaurant, Drive-Thru Service*
   Where site conditions permit, drive-thru queuing lanes shall be designed so that the queuing wraps behind the building instead of in front of the building. If the queue lane wraps in the front of the building, the site shall provide for an ample amount of landscaping that will provide a buffer from the public rights-of-way.
   In additional to the condition standards, there shall be a maximum of two drive-thru restaurants permitted for every 5 acres on a PD development plan. Drive throughs associated with an anchor tenant (50,000 gross square feet or larger) are excluded provided the drive through is supporting an accessory use such as pharmacy, or restaurant.
2. *Big Box with Gas Pumps*
   a. The design of pump islands and canopy should be architecturally integrated with other structures on-site using similar colors, materials, and architectural detailing. All signage should be architecturally integrated with their surroundings in terms of size, shape and lighting so that they do not visually compete with architecture of the building and design of the sight.

3. Include Public Art in Gateway Areas to promote vitality and provide a unique sense of identity.

   Art can be an expression of a collective community identity. It can celebrate what is unique about a community and honor the past and present heritage. Art can include references to the Town's geography, history, landmarks, ethnic and cultural diversity which can increase a sense of belonging when people can associate themselves with a place.
   a. Art should be integrated into the community fabric of the Tollway and should be used to mark significant intersections of the Tollway.

   b. Developers should incorporate artist into the design team from the inception of planning to integrate works of art into their projects.

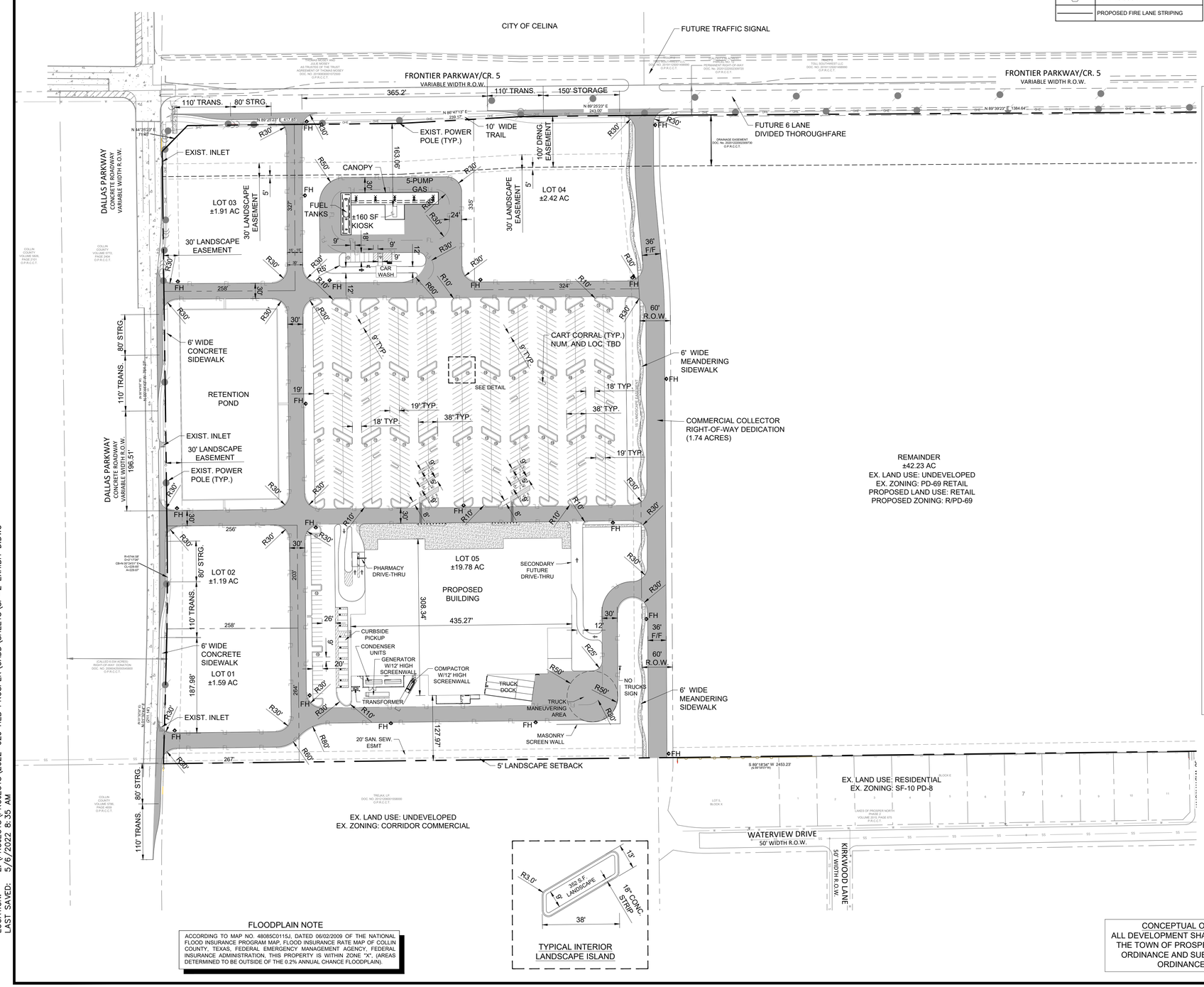
   c. Stand-alone public art can also be used and does not necessarily have to be tied to a project. Local artists should be used whenever possible.

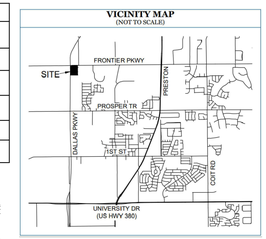
   d. Art may be incorporated into existing structures such as retaining walls or integrated into utility systems to enhance or screen the use of those systems.
4. Site Plan and Elevations for Lot 5 set forth in Exhibit D shall be submitted and approved by the Planning & Zoning Commission and City Council.

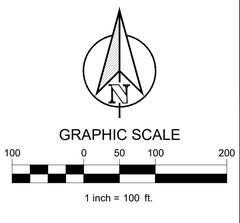
SITE DATA SUMMARY

LOT	ZONING	PROPOSED USE	LOT SIZE (ACRES)	LOT SIZE (SQ. FT.)	BUILDING AREA (SQ. FT.)	BLDG HGT. (FT-# ST.)	LOT COVERAGE		FLR AREA RATIO		PARKING			HANDICAP SP.		PARKING LOT LANDSCAPING		OPEN SPACE	
							REQ.	PROV.	REQ.	PROV.	REQ. RATIO	REQ.	PROV.	REQ.	PROV.	REQ. (15 SF	PROV.	REQ. (7% SITE AREA), SQ. FT.	PROV. (SQ. FT.)
5	PD-69	RETAIL/GAS GROCERY	19.81	862,880	108,060	39' - 1 STORY	50% MAX	12.5%	0.5:1 MAX	.0528	1 SPACE / 250 SF (RETAIL)	432	713	16	19	10,695	15,869	60,402	113,916

LEGEND	
	PROPOSED FIRE HYDRANT
	PROPOSED HEAVY DUTY CONCRETE PAVEMENT
	PROPOSED CONCRETE SIDEWALK
	PROPOSED CONCRETE CURB AND GUTTER
X	PARKING COUNT
	PROPOSED FIRE LANE STRIPING







SITE PLAN NOTES:

1. DUMPSTERS AND TRASH COMPACTORS SHALL BE SCREENED PER THE ZONING ORDINANCE.
2. OPEN STORAGE, WHERE PERMITTED, SHALL BE SCREENED PER THE ZONING ORDINANCE.
3. OUTDOOR LIGHTING SHALL COMPLY WITH THE LIGHTING AND GLARE STANDARDS CONTAINED WITHIN THE ZONING ORDINANCE AND SUBDIVISION ORDINANCE.
4. LANDSCAPING SHALL CONFORM TO LANDSCAPE PLANS APPROVED BY THE TOWN.
5. ALL ELEVATIONS SHALL COMPLY WITH THE STANDARDS CONTAINED WITHIN THE ZONING ORDINANCE.
6. BUILDINGS OF 5,000 SQUARE FEET OR GREATER SHALL BE 100% FIRE SPRINKLED. ALTERNATIVE FIRE PROTECTION MEASURES MAY BE APPROVED BY THE FIRE DEPARTMENT.
7. OCCUPANT NOTIFICATION PER THIS SECTION AND 907.5 SHALL BE REQUIRED FOR ALL NEW CONSTRUCTION, OR EXISTING CONSTRUCTION COMPLYING WITH THE INTERNATIONAL BUILDING CODE, FOR RENOVATIONS TO EXISTING BUILDINGS, TENANT SPACES, CHANGES IN OCCUPANCY, REPLACEMENT OR MODIFICATION OF THE EXISTING FIRE ALARM SYSTEM, OR AS REQUIRED BY THE FIRE CODE OFFICIAL. FOR ALL BUILDINGS OR SPACES PROVIDED WITH AN APPROVED AUTOMATIC SPRINKLER SYSTEM.
8. FIRE LANES SHALL BE DESIGNED AND CONSTRUCTED PER TOWN STANDARDS OR AS DIRECTED BY THE FIRE DEPARTMENT.
9. TWO POINTS OF ACCESS SHALL BE MAINTAINED FOR THE PROPERTY AT ALL TIMES.
10. SPEED BUMPS/HUMPS ARE NOT PERMITTED WITHIN A FIRE LANE.
11. FIRE LANES SHALL BE PROVIDED WITHIN 150 FEET OF ALL EXTERIOR WALLS OF ANY BUILDING FOR HOSE LAY REQUIREMENTS. AMENDMENT 503.1.1
12. THE FIRE LANE SHALL BE A MINIMUM OF 24 FEET WIDE. AMENDMENT 503.2.1
13. BUILDINGS MORE THAN 30 FEET IN HEIGHT ARE REQUIRED TO HAVE A MINIMUM OF A 26-FOOT WIDE FIRE LANE IN THE IMMEDIATE VICINITY FOR FIREFIGHTING OPERATIONS OF THE BUILDING. ONE OF THE 26-FOOT WIDE FIRE LANES SHALL BE LOCATED A MINIMUM OF 15 FEET FROM THE BUILDING AND NO MORE THAN 30 FEET. APPENDIX D105
14. THE INSIDE TURNING RADIUS OF THE 24-FOOT FIRE LANE SHALL BE A MINIMUM OF 30 FEET. AMENDMENT 503.2.4
15. THE INSIDE TURNING RADIUS OF THE 26-FOOT FIRE LANE SHALL BE A MINIMUM OF 30 FEET. AMENDMENT 503.2.4
16. DEAD-END FIRE LANES ARE ONLY PERMITTED WITH APPROVED HAMMERHEADS.
17. FIRE HYDRANTS SHALL BE PROVIDED AT THE ENTRANCES AND INTERSECTIONS. AMENDMENT 507.5.1
18. AS PROPERTIES DEVELOP, FIRE HYDRANTS SHALL BE LOCATED AT ALL INTERSECTING STREETS AND THE MAXIMUM SPACING SHALL BE EVERY 300 FEET (300') FOR ALL DEVELOPMENTS, AND FACILITIES OTHER THAN R3. R-3 DEVELOPMENTS SHALL BE EVERY 500 FEET (500'). DISTANCES BETWEEN HYDRANTS SHALL BE MEASURED ALONG THE ROUTE THAT FIRE HOSE IS LAID BY A FIRE APPARATUS FROM HYDRANT–TO-HYDRANT, NOT AS THE "CROW FLIES." AMENDMENT 507.5.1
19. FIRE DEPARTMENT CONNECTION (FDC) FOR THE FIRE SPRINKLER SYSTEM SHALL BE LOCATED WITHIN 50 FEET OF A FIRE HYDRANT AND 50 FEET OF A FIRE LANE. 5" STORZ, 30-DEGREE DOWNWARD TURN WITH LOCKING CAP. AMENDMENT 507.5.1
20. FIRE HYDRANTS SHALL BE LOCATED 2 FOOT (2') TO 6 FOOT (6') BACK FROM THE CURB OR FIRE LANE AND SHALL NOT BE LOCATED IN THE BULB OF A CUL-DE-SAC. AMENDMENT 507.5.1
21. THERE SHALL BE A MINIMUM OF TWO (2) FIRE HYDRANTS SERVING EACH PROPERTY WITHIN THE PRESCRIBED DISTANCES LISTED ABOVE. A MINIMUM OF ONE FIRE HYDRANT SHALL BE LOCATED ON EACH LOT. AMENDMENT 507.5.1
22. A MINIMUM 10-FOOT UNOBSTRUCTED WIDTH SHALL BE PROVIDED AROUND A BUILDING FOR ADEQUATE FIRE DEPARTMENT ABOVE. A CONTINUOUS ROW OF PARKING AND LANDSCAPING SHALL BE CONSIDERED A BARRIER. AMENDMENT 503.1.1
23. THE MAXIMUM DEAD- END CUL-DE-SAC LENGTH SHALL NOT EXCEED SIX HUNDRED FEET (600') AS MEASURED FROM THE CENTERLINE OF THE INTERSECTION STREET TO THE CENTER POINT OF THE RADIUS. AMENDMENT 503.1.5
24. ONE-AND TWO-FAMILY DWELLINGS AUTOMATIC FIRE SYSTEMS. AUTOMATIC FIRE PROTECTION SYSTEMS PER NFPA 13D OR NFPA 13R SHALL BE PROVIDED IN ALL ONE-AND TWO-FAMILY DWELLINGS WITH A CONDITIONED FLOOR AREA OF 5,500 SQUARE FEET (511 M2) OR GREATER, DWELLINGS THREE (3) STORIES OR GREATER, OR DWELLINGS WITH ROOF HEIGHTS EXCEEDING THIRTY-FIVE FEET (35') FROM GRADE. IRC-2015 AMENDMENT R313.2
25. HANDICAPPED PARKING AREAS AND BUILDING ACCESSIBILITY SHALL CONFORM TO THE AMERICANS WITH DISABILITIES ACT (ADA) AND WITH THE REQUIREMENTS OF THE CURRENT, ADOPTED BUILDING CODE.
26. ALL SIGNAGE IS SUBJECT TO BUILDING OFFICIAL APPROVAL.
27. ALL FENCES AND RETAINING WALLS SHALL BE SHOWN ON THE SITE PLAN AND ARE SUBJECT TO BUILDING OFFICIAL APPROVAL.
28. ALL EXTERIOR BUILDING MATERIALS ARE SUBJECT TO BUILDING OFFICIAL APPROVAL AND SHALL CONFORM TO THE APPROVED FAÇADE PLAN.
29. SIDEWALKS OF NOT LESS THAN SIX (6) FEET IN WIDTH ALONG THOROUGHFARES AND COLLECTORS AND FIVE (5) FEET IN WIDTH ALONG RESIDENTIAL STREETS AND BARRIER-FREE RAMPS AT ALL CURB CROSSINGS SHALL BE PROVIDED PER TOWN STANDARDS.
30. APPROVAL OF THE SITE PLAN IS NOT FINAL UNTIL ALL ENGINEERING PLANS ARE APPROVED BY THE ENGINEERING SERVICES DEPARTMENT.
31. SITE PLAN APPROVAL IS REQUIRED BEFORE THE GRADING RELEASE.
32. ALL NEW ELECTRICAL LINES SHALL BE INSTALLED AND/OR RELOCATED UNDERGROUND.
33. ALL MECHANICAL EQUIPMENT SHALL BE SCREENED FROM PUBLIC VIEW PER THE ZONING ORDINANCE.
34. ALL LANDSCAPE EASEMENTS MUST BE EXCLUSIVE OF ANY OTHER TYPE OF EASEMENT.
35. IMPACT FEES WILL BE ASSESSED PER THE LAND USE CLASSIFICATION(S) IDENTIFIED ON THE SITE DATA SUMMARY TABLE; HOWEVER, CHANGES TO THE PROPOSED LAND USE AT THE TIME OF CO AND/OR FINISH-OUT PERMIT MAY RESULT IN ADDITIONAL IMPACT FEES AND/OR PARKING REQUIREMENTS.
36. THE APPROVAL OF A SITE PLAN SHALL BE EFFECTIVE FOR EIGHTEEN (18) MONTHS FROM THE DATE OF APPROVAL BY THE PLANNING & ZONING COMMISSION, AT THE END OF WHICH TIME THE APPLICANT MUST HAVE SUBMITTED AND RECEIVED THE APPROVAL OF ENGINEERING PLANS AND BUILDING PERMITS. IF THE ENGINEERING PLANS AND BUILDING PERMITS ARE NOT APPROVED, THE SITE PLAN APPROVAL, TOGETHER WITH ANY PRELIMINARY SITE PLAN FOR THE PROPERTY, IS NULL AND VOID.

PD CASE #: Z22-0007

OWNER:
DNT FRONTIER, LP
4303 W LOVERS LANE, SUITE 200
DALLAS, TX 75209
PH: 817.201.6982 CONTACT NAME: DAVID FOGEL

APPLICANT/ENGINEER:
CLAYMOORE ENGINEERING, INC.
301 S COLEMAN, SUITE 40
PROSPER, TX 75078
PH: 817.201.6982 CONTACT NAME: MATT MOORE

ARCHITECT
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5800 DEMOCRACY DRIVE, SUITE 200B
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PH: 972.788.1010 CONTACT NAME:

LEGAL DESCRIPTION:
BEING PART OF 70.91 ACRE TRACT OF LAND SITUATED IN THE COLLIN COUNTY SCHOOL LAND SURVEY, ABSTRACT NO. 147, COLLIN COUNTY, TEXAS

CITY:	STATE:	
TOWN OF PROSPER	TEXAS	
COUNTY	SURVEY:	ABSTRACT NO.
COLLIN	COLLIN COUNTY SCHOOL	147

FLOODPLAIN NOTE

ACCORDING TO MAP NO. 48085C0115J, DATED 06/02/2009 OF THE NATIONAL FLOOD INSURANCE PROGRAM MAP, FLOOD INSURANCE RATE MAP OF COLLIN COUNTY, TEXAS, FEDERAL EMERGENCY MANAGEMENT AGENCY, FEDERAL INSURANCE ADMINISTRATION, THIS PROPERTY IS WITHIN ZONE "X", (AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN).

TYPICAL INTERIOR LANDSCAPE ISLAND

CONCEPTUAL ONLY
ALL DEVELOPMENT SHALL FOLLOW THE TOWN OF PROSPER ZONING ORDINANCE AND SUBDIVISION ORDINANCE

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM

PRELIMINARY
FOR REVIEW ONLY
Not for construction purposes.
CLAYMOORE ENGINEERING
ENGINEERING AND PLANNING CONSULTANTS
Engineer MATT MOORE
P.E. No. 95813 Date 5/6/2022

PROSPER COMMERCIAL
BEING PART OF 70.91 ACRES OF LAND OUT OF COLLIN COUNTY SCHOOL LAND SURVEY, ABSTRACT NO. 147 PROSPER, TEXAS

No.	DATE	REVISION	BY

EXHIBIT D

DESIGN:	MAM
DRAWN:	DC
CHECKED:	MAM
DATE:	5/6/2022

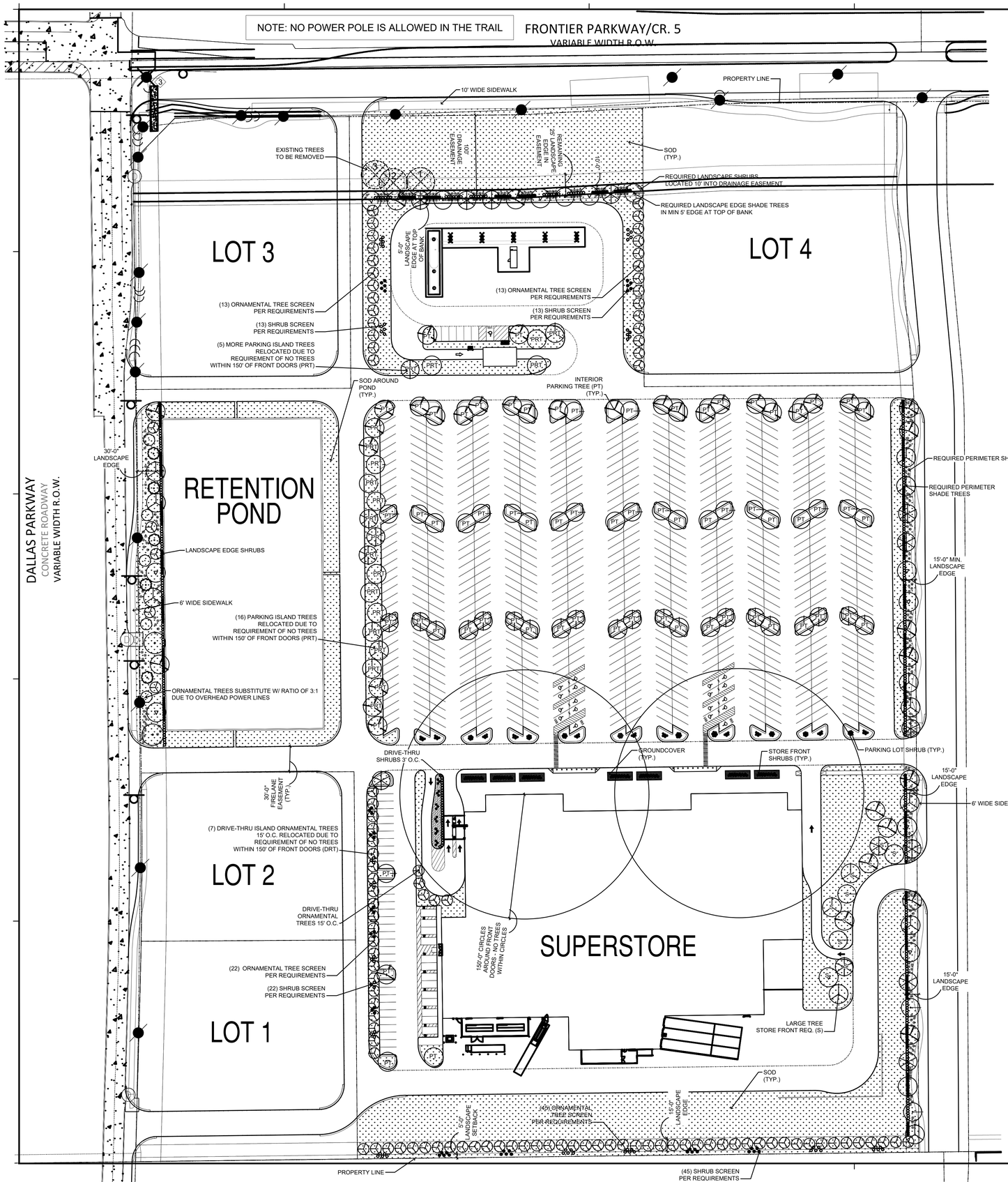
SHEET
SP-2

CASE NO.

PLOTTED BY: DAN CABALLERO
PLOT DATE: 5/6/2022 8:36 AM
LOCATION: Z:\PROJECTS\PROJECTS\2022-029 HEB PROSPER\CADD\SHEETS\SP-2 EXHIBIT D.DWG
LAST SAVED: 5/6/2022 8:35 AM

Exhibit E – DSF Retail Development Schedule

It is anticipated that the sanitary sewer line needed to serve this property will be installed by March 2024. Currently, it is anticipated that design of the retail building will occur in 2023 and construction will commence in 2024.



NOTE: INSTALLING THE TREE ON TOP OF BANKS MUST MEET TOWN PLANTING REQUIREMENTS. THE DETAILS FOR THE PLANTING MUST BE PROVIDED WITH THE SITE PLAN AND NEED TO BE APPROVED BY PARKS AND REC.

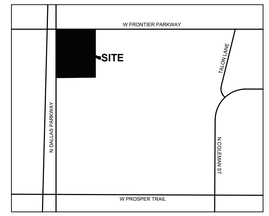
NOTE: THIS IS CONCEPTUAL IN NATURE AND THE DETAILS PER THE PD AND TOWN ORDINANCES WILL BE PROVIDED WITH THE SP / PSP

WATER METER SCHEDULE

METER ID NUMBER	WATER METER SIZE	METER		SAN. SEWER SIZE
		DOM.	IRR.	
3	2"		1	

LANDSCAPE HYDROZONE SCHEDULE (LWR):

SHRUBS/GROUNDCOVER: 1.25 X [(55.85 X 0.5) - 8.7] x 17,845 / 1.604 = 267,355.14 GAL.
WARM SEASON TURFGRASS: 1.33 X [(55.85 X 0.6) - 8.7] x 258,522.6 / 1.604 = 5,318,296.5 GAL.



VICINITY MAP
(NOT TO SCALE)

LANDSCAPE CALCULATIONS TABLE

TOTAL SITE AREA:	3,088,839.6 SF
SPECIFIC AREA:	862,923.6 SF
DALLAS PARKWAY FRONTAGE:	416 LF
FRONTIER PARKWAY FRONTAGE:	338 LF
# OF PARKING SPACES:	778

NOTE: LANDSCAPE EASEMENT FOR THE WEST AND THE EAST WILL NOT OVERLAP THE UTILITY EASEMENT

PERIMETER REQUIREMENTS

DALLAS PARKWAY

REQUIREMENT: 30' LANDSCAPE EDGE
(1) 3" CAL. SHADE TREE (OR 3 ORNAMENTALS) AND (15) 5 GAL. SHRUBS PER 30 LF OF FRONTAGE
416 LF / 30 = (13.9) 3" CAL. SHADE AND X 15 = (207.9) 5 GAL. SHRUBS

PROVIDED: (9) 3" SHADE TREES, (15) ORNAMENTAL TREES SUBSTITUTING FOR 5SHADE TREES, AND (210) 5 GAL. SHRUBS ALONG DALLAS PARKWAY

FRONTIER PARKWAY

REQUIREMENT: 30' LANDSCAPE EDGE
(1) 3" CAL. SHADE TREE AND (15) 5 GAL. SHRUBS PER 30 LF OF FRONTAGE
338 LF / 30 = (11.3) 3" CAL. SHADE AND X 15 = (168.9) 5 GAL. SHRUBS

PROVIDED: (12) 3" SHADE TREES AND (169) 5 GAL. SHRUBS ALONG FRONTIER PARKWAY

EASTERN PERIMETER:

REQUIREMENT: 15' LANDSCAPE EDGE
(1) 3" CAL. SHADE TREE AND (15) 5 GAL. SHRUBS PER 30 LF OF FRONTAGE
821 LF / 30 = (27.36) 3" CAL. SHADE AND X 15 = (410.49) 5 GAL. SHRUBS

PROVIDED: (27) 3" SHADE TREES AND (411) 5 GAL. SHRUBS ALONG FRONTIER PARKWAY

SOUTHERN AND LOTS 1,2,3,4 PERIMETER:

REQUIREMENT: 5' SET BACK WITH 15' LANDSCAPE EDGE
SMALL TREE AND (1) 5 GAL. SHRUBS PER 15 LF

PROVIDED: (1) SMALL TREES AND (1) 5 GAL. SHRUBS CLUSTERED IN GROUPS TO MEET PERIMETER REQUIREMENTS

DRIVE-THRU REQUIREMENTS

REQUIREMENT: MIN. 10' WIDE LANDSCAPE ISLAND
PROVIDED: 10' WIDE LANDSCAPE ISLAND

REQUIREMENT: 3" CAL ORNAMENTAL TREE PLANTED 15' O.C. WITH MIN. 5 GAL. SHRUBS PLANTED 3' O.C.
PROVIDED: DRIVE-THRU REQUIREMENTS MET WITH THE EXCEPTION OF TREES WITHIN 150' OF FRONT DOORS.. PER APPROVAL, TREES WERE RELOCATED TO ANOTHER LOCATION TO SCREEN DRIVE-THRU

INTERIOR PARKING LOT LANDSCAPING

REQUIREMENT: (15) SF. OF PERMEABLE LANDSCAPE FOR EACH PARKING SPACE
778 SPACES X 8 SF = 11,670 SF OF PERMEABLE LANDSCAPE
PROVIDED: 48,824.88 SF

REQUIREMENT: (1) SHADE TREE PER EVERY LANDSCAPE ISLAND AND WITHIN 150 FT. OF EVERY PARKING SPACE
PROVIDED: (1) SHADE TREE IN EVERY ISLAND (EXCEPT THOSE WITHIN 150 FT. OF BUILDING FACE) AND ALL PARKING SPACES WITHIN 150 FT. OF A SHADE TREE

OPEN SPACE REQUIREMENT

REQUIREMENT: 7% OF LOT AREA IS REQUIRED TO BE OPEN SPACE. THIS SPACE SHALL NOT CONSIST OF VEHICULAR PAVING, PARKING LOT LANDSCAPE ISLANDS, BUILDING FOOTPRINT, LANDSCAPE EDGE, OR SIDEWALKS
PROVIDED: MORE THAN 7% OF OPEN SPACE PROVIDED

BUILDING LANDSCAPING

REQUIREMENT: (1) LARGE 3" CAL. TREE FOR EVERY 10,000 SQ. FT. OF BUILDING AREA
108,418.67 / 10,000 = 10.8 TREES
PROVIDED: 11 TREES

OVERALL LANDSCAPE PLAN

SCALE: 1" = 60'-0"

0 60 120
GRAPHIC SCALE IN FEET

N

OWNER/APPLICANT
HEB GROCERY CO.
3890 NORTHWEST HWY., STE 300
DALLAS, TEXAS 75075
PH: (214) 680-7600
CONTACT: JOHN E. ROSE III, P.E.
rose.john@heb.com

LANDSCAPE ARCHITECT
MEEKS DESIGN GROUP, INC.
1755 N. COLLINS BLVD., STE 300
RICHARDSON, TEXAS 75080
PH: (972) 690-7474
CONTACT: HERB MEEKS
hmeeks@mdgland.com

PLEASE BE ADVISED: THIS DOCUMENT MAY CONTAIN SENSITIVE AND/OR PROPRIETARY INFORMATION AND THEREFORE MUST BE TREATED AS A CONFIDENTIAL DOCUMENT. ACCEPTANCE OF THIS DOCUMENT CONSTITUTES AN AGREEMENT THAT THIS DOCUMENT AND THE INFORMATION CONTAINED HEREIN SHALL BE MAINTAINED AND TRANSMITTED IN A CONFIDENTIAL MANNER. NO PART OF THIS DOCUMENT SHALL BE REPRODUCED, RELEASED OR DISTRIBUTED WITHOUT THE EXPRESS WRITTEN PERMISSION OF H.E.B. GROCERY. ANY DISTRIBUTION TO NON-H.E.B. ENTITIES OR PERSONS MUST BE SUBJECT TO A WRITTEN CONFIDENTIALITY AGREEMENT.

Item 12.

03.22.22	CITY SUBMITTAL
05.06.22	CITY RESUBMITTAL
05.15.22	CITY RESUBMITTAL

05.13.22

MEEKS DESIGN GROUP, INC.
1755 N. COLLINS BLVD.
SUITE 300
RICHARDSON, TX 75080
P: (972) 690-7474
F: (972) 690-7878

CITY SUBMITTAL PLAN

H.E.B. Prosper
PROSPER, TEXAS

SCALE: AS INDICATED
DESIGN:
PROJ. NO:
DATE: 05/13/2022

SHEET NO.
LP.01

PLANNING

TOWN OF PROSPER

Prosper is a place where everyone matters.

To: **Mayor and Town Council**

From: **David Soto, Planning Manager**

Through: **Harlan Jefferson, Town Manager**
Hulon T. Webb, Jr., Interim Executive Director of Development and Infrastructure Services

Re: **Town Council Meeting – June 28, 2022**

Agenda Item:
Consider and act upon an ordinance amending Planned Development-94 (PD-94), for the Westside Development, on 64.5± acres, northeast corner of US 380 and FM 1385, regarding hotel uses and development standards. (Z22-0001).

Description of Agenda Item:
On April 26, 2022, the Town Council approved the proposed rezoning request, by a vote of 6-0 subject to:

1. Approval of a Development Agreement to prohibit certain business establishments for Lots 15 & 16.

Per the discussions at the June 14, 2022, Town Council meeting, Staff has made the following corrections:

1. Exhibit C, Paragraph A2.2.a: Changed wording from two (2) limited service hotels to one (1) extended stay hotel. Also, added clarification extended stay hotel can be developed on either Lot 15 or Lot 16.
2. Exhibit C, Paragraph B2.1: Confirmed that Lot 8 and Lot 15 are correct lot designations as called out in original PD. Also, added clarification extended stay hotel can be developed on either Lot 15 or Lot 16.
3. Exhibit C, Paragraph A5.1.a.ii: Changed timing of the construction of urban park open space from Phase 1 to prior to any construction of Phase 1B.
4. Exhibit C, Paragraph B5.1.a.ii: Changed timing of the construction of urban park open space from Phase 1 to prior to any construction of Phase 1B.
5. Exhibit F: Added missing elevations.

An ordinance has been prepared accordingly. The Development Agreement between the Town of Prosper and Alpha3 Prosper RI, LLC, is also on the June 28, 2022, Town Council agenda for consideration.

Legal Obligations and Review:
Town Attorney, Terrence Welch of Brown & Hofmeister, L.L.P., has approved the standard ordinance as to form and legality.

Attached Documents:
1. Ordinance

Staff Recommendation:
Staff recommends approval of an ordinance to amend Planned Development-94 (PD-94), for the Westside Development, on 64.5± acres, northeast corner of US 380 and FM 1385, regarding hotel uses and development standards

Proposed Motion:
I move to approve an ordinance to amend Planned Development-94 (PD-94), for the Westside Development, on 64.5± acres, northeast corner of US 380 and FM 1385, regarding hotel uses and development standards.

TOWN OF PROSPER, TEXAS **ORDINANCE NO. 2022-___**

AN ORDINANCE OF THE TOWN COUNCIL OF THE TOWN OF PROSPER, TEXAS, AMENDING THE ZONING ORDINANCE BY REZONING A TRACT OF LAND CONSISTING OF 64.501 ACRES, SITUATED IN THE J. GONZALEZ SURVEY, ABSTRACT NO. 447, THE B. HODGES SURVEY, ABSTRACT NO. 593, THE P. BARNES SURVEY, ABSTRACT NO. 79, THE R.TAYLOR SURVEY, ABSTRACT NO. 1671, THE J. HAYNES SURVEY, ABSTRACT NO. 573 AND THE ANGUS JAMISON SURVEY, TOWN OF PROSPER, DENTON COUNTY, TEXAS, FROM PLANNED DEVELOPMENT-94 (PD-94) TO PLANNED DEVELOPMENT-94; DESCRIBING THE TRACT TO BE REZONED; PROVIDING FOR A PENALTY FOR THE VIOLATION OF THIS ORDINANCE; PROVIDING FOR REPEALING, SAVING AND SEVERABILITY CLAUSES; PROVIDING FOR AN EFFECTIVE DATE OF THIS ORDINANCE; AND PROVIDING FOR THE PUBLICATION OF THE CAPTION HEREOF.

WHEREAS, the Town Council of the Town of Prosper, Texas (the "Town Council"), has investigated and determined that the Zoning Ordinance should be amended; and

WHEREAS, the Town of Prosper, Texas ("Prosper") has received a request (Case Z22-0001) from Perry Molubhoy and Shiva Kondru ("Applicants"), to rezone 64.601 acres of land, more or less, in the J. Gonzalez Survey, Abstract No. 447, the B. Hodes Survey, Abstract No. 593, the P. Barnes Survey, Abstract No. 79, the R. Taylor Survey, Abstract No. 1671, the Haynes Survey, Abstract No. 573 and the Angus Jamison Survey, Town of Prosper, Denton County, Texas, from Planned Development-94 to Planned Development-94 (PD-94) and being more particularly described in Exhibit A, attached hereto and incorporated herein for all purposes; and

WHEREAS, the Town Council has investigated and determined that the facts contained in the request are true and correct; and

WHEREAS, all legal notices required for rezoning have been given in the manner and form set forth by law, Public Hearings have been held, and all other requirements of notice and completion of such procedures have been fulfilled; and

WHEREAS, the Town Council has further investigated into and determined that it will be advantageous and beneficial to Prosper and its inhabitants to rezone this property as set forth below.

NOW, THEREFORE, BE IT ORDAINED BY THE TOWN COUNCIL OF THE TOWN OF PROSPER, TEXAS:

SECTION 1

Findings Incorporated. The findings set forth above are incorporated into the body of this Ordinance as if fully set forth herein.

SECTION 2

Amendment to the Town's Zoning Ordinance. The Town's Zoning Ordinance, as amended, is hereby amended as follows: The zoning designation of the below described property containing 64.501 acres of land, more or less, in the J. Gonzalez Survey, Abstract No. 447, the

B. Hodes Survey, Abstract No. 593, the P. Barnes Survey, Abstract No. 79, the R. Taylor Survey, Abstract No. 1671, the Haynes Survey, Abstract No. 573 and the Angus Jamison Survey, Town of Prosper, Denton County, Texas, and all streets, roads, and alleyways contiguous and/or adjacent thereto are hereby zoned as Planned Development-94 and being more particularly described in Exhibit A, attached hereto and incorporated herein for all purposes as if set forth verbatim.

The development plans, standards, and uses for the Property in this Planned Development District shall conform to, and comply with (1) the Statement of Intent and Purpose, attached hereto as Exhibit B; (2) the Development Standards, attached hereto as Exhibit C; (3) the Site Plan, attached hereto as Exhibit D; (4) the Development Schedule, attached hereto as Exhibit E; (5) the Façade Plans, attached hereto as Exhibit F; and (6) the Landscape Plans, attached hereto as Exhibit G, all of which are incorporated herein for all purposes as if set forth verbatim, subject to the following conditions of approval by the Town Council:

1. Approval of a Development Agreement, which includes but is not limited to, prohibiting certain business establishments.

   Two (2) original, official, and identical copies of the zoning exhibit map are hereby adopted and shall be filed and maintained as follows:

   a. One (1) copy shall be filed with the Town Secretary and retained as an original record and shall not be changed in any manner.

   b. One (1) copy shall be filed with the Building Official and shall be maintained up-to-date by posting thereon all changes and subsequent amendments for observation, issuing building permits, certificates of compliance and occupancy, and enforcing the zoning ordinance. Reproduction for information purposes may from time-to-time be made of the official zoning district map.

SECTION 3

No Vested Interest/Repeal. No developer or property owner shall acquire any vested interest in this Ordinance or in any other specific regulations contained herein. Any portion of this Ordinance may be repealed by the Town Council in the manner provided for by law.

SECTION 4

Unlawful Use of Premises. It shall be unlawful for any person, firm or corporation to make use of said premises in some manner other than as authorized by this Ordinance, and shall be unlawful for any person, firm or corporation to construct on said premises any building that is not in conformity with the permissible uses under this Zoning Ordinance.

SECTION 5

Penalty. Any person, firm, corporation, or business entity violating this Ordinance or any provision of Prosper's Zoning Ordinance, as amended, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined any sum not exceeding Two Thousand Dollars ($2,000.00). Each continuing day's violation under this Ordinance shall constitute a separate offense. The penal provisions imposed under this Ordinance shall not preclude Prosper from

filing suit to enjoin the violation. Prosper retains all legal rights and remedies available to it pursuant to local, state and federal law.

SECTION 6

Severability. Should any section, subsection, sentence, clause or phrase of this Ordinance be declared unconstitutional or invalid by a court of competent jurisdiction, it is expressly provided that any and all remaining portions of this Ordinance shall remain in full force and effect. Prosper hereby declares that it would have passed this Ordinance, and each section, subsection, clause or phrase thereof irrespective of the fact that any one or more sections, subsections, sentences, clauses and phrases be declared unconstitutional or invalid.

SECTION 7

Savings/Repealing Clause. Prosper's Zoning Ordinance, as amended, shall remain in full force and effect, save and except as amended by this or any other Ordinance. All provisions of any ordinance in conflict with this Ordinance are hereby repealed to the extent they are in conflict; but such repeal shall not abate any pending prosecution for violation of the repealed ordinance, nor shall the appeal prevent a prosecution from being commenced for any violation if occurring prior to the repealing of the ordinance. Any remaining portions of said ordinances shall remain in full force and effect.

SECTION 8

Effective Date. This Ordinance shall become effective from and after its adoption and publications as required by law.

DULY PASSED, APPROVED, AND ADOPTED BY THE TOWN COUNCIL OF THE TOWN OF PROSPER, TEXAS, ON THIS __ DAY OF JUNE, 2022.

_____
David F. Bristol, Mayor

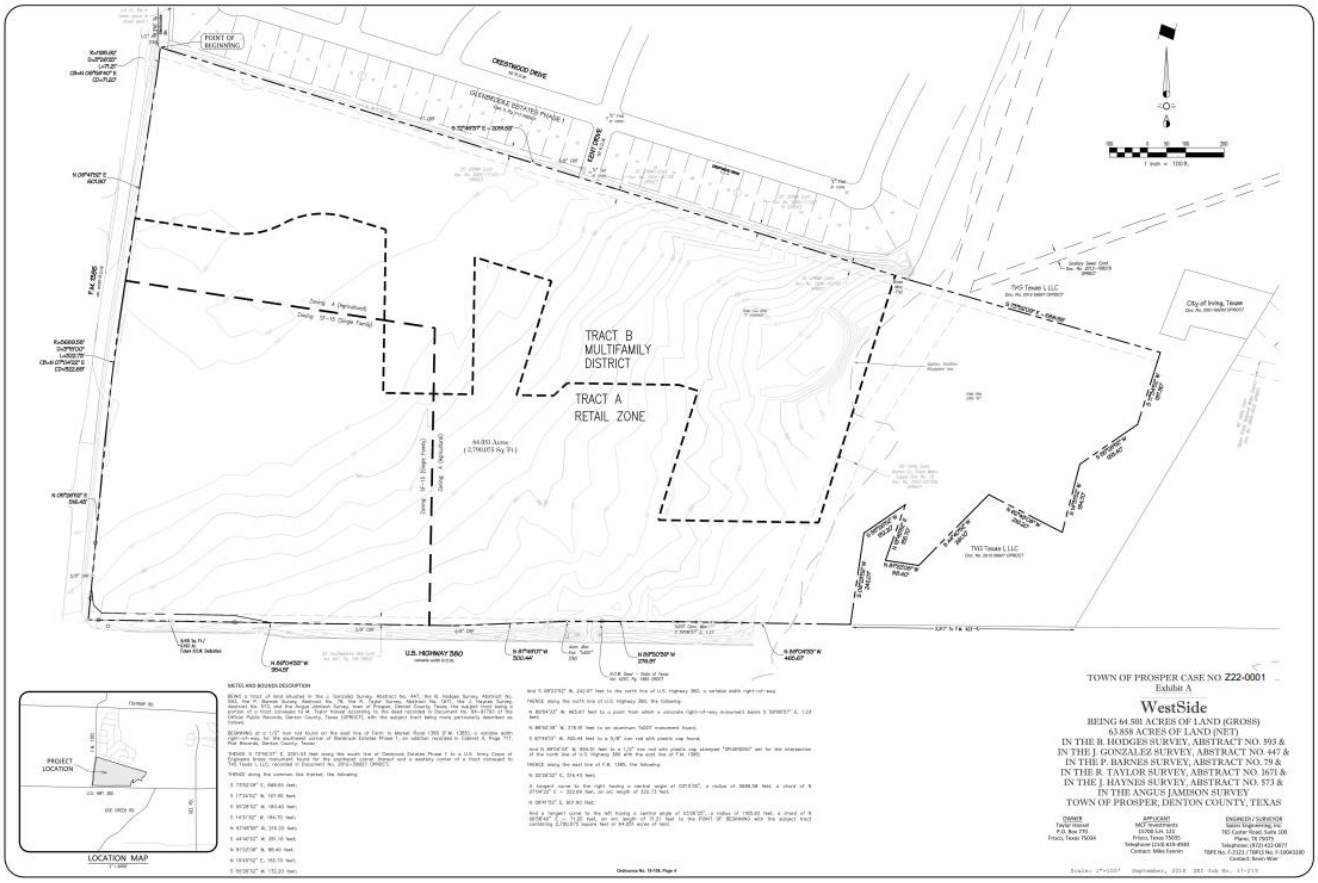
ATTEST:

_____
Michelle Lewis-Sirianni, Town Secretary

APPROVED AS TO FORM AND LEGALITY:

_____
Terrence S. Welch, Town Attorney

Exhibit A


POINT OF BEGINNING
CRESTWOOD DRIVE
FORT DRIVE
TRACT B
MULTIFAMILY
DISTRICT
TRACT A
RETAIL ZONE
U.S. HIGHWAY 380
TVG Texas L LLC
City of Irving, Texas
PROJECT LOCATION
LOCATION MAP
TOWN OF PROSPER CASE NO. Z22-0001
Exhibit A
WestSide
BEING 64.581 ACRES OF LAND (GROSS)
63.858 ACRES OF LAND (NET)
IN THE B. HODGES SURVEY, ABSTRACT NO. 393 &
IN THE J. GONZALEZ SURVEY, ABSTRACT NO. 447 &
IN THE P. BARNES SURVEY, ABSTRACT NO. 79 &
IN THE R. TAYLOR SURVEY, ABSTRACT NO. 1671 &
IN THE J. HAYNES SURVEY, ABSTRACT NO. 573 &
IN THE ANGUS JAMISON SURVEY
TOWN OF PROSPER, DENTON COUNTY, TEXAS

Z22-0001

EXHIBIT B
STATEMENT OF INTENT AND PURPOSE
WESTSIDE

1. Statement of Intent
   A. Overall Intent
      The purpose of this project is to create a walkable urban neighborhood using a horizontal mix of uses. Access to shopping, housing, community retail and park land promotes a quality of life that nurtures the public health, safety, comfort, convenience, prosperity and general welfare of the immediate community, as well as to assist in the orderly and controlled growth and development of the land area described within this document.
   B. Description of Property
      The subject property comprises approximately 64 acres of vacant land at the northeast corner of U.S. Highway 380 and F.M. 1385 in Prosper, Texas. It is additionally bounded by the Glenbrooke single family neighborhood to the north and Doe Branch Creek to the east. An existing trail exists along the property's north boundary and currently serves the adjacent single family neighborhood. This trail may extend into the Doe Branch drainage system and be part of the larger Town of Prosper Trails Plan.
   C. Description of Proposed Property
      The subject property as depicted in Exhibit "D" has been divided into two distinct sub-districts. The purpose of sub-district requirements is to define the character of new development within each sub-district. They have been carefully designed to allow enough flexibility for creative building solutions, while being prescriptive in areas necessary to preserve consistency throughout the development.
      Given that the subject property resides at the hard corner of two major thoroughfares and will serve as a gateway to the Town of Prosper, a portion of land with a size yet to be determined, will be set aside as a signage easement for a Town gateway sign near the intersection of U.S. 380 and F.M. 1385.

2. Current Zoning and Land Uses
   A. Current Zoning
      The subject property comprises land that fall under two distinct zoning classifications. At the intersection of U.S. 380 and F.M. 1385 is a small portion of acreage that zoned for Single Family. The remainder of the property is zoned for Agriculture.
   B. Future Land Use Plan
      The Future Land Use Plan designates the entire subject property as US 380 District, which is defined as having a variety of uses, such as big box development, hotels, banks, gas/convenience and residential that serves as a buffer between the commercial and nearby single family.

Z22-0001
EXHIBIT C
DEVELOPMENT STANDARDS
WESTSIDE

Conformance with the Town's Zoning Ordinance and Subdivision Ordinance: Except as otherwise set forth in these Development Standards, the regulations of the Town's Zoning Ordinance, as it exists or may be amended, and the Subdivision Ordinance, as it exists or may be amended, shall apply.

Tract A – Retail District

A1. Except as noted below, the Tract shall develop in accordance with the Retail District as it exists or may be amended.

A2. Uses. Uses shall be permitted in accordance with the Retail District with the exception of the following:

Permitted Uses

1. Restaurant (with Drive-Through)
   a. A restaurant with drive-through shall be permitted by right in accordance with the Conditional Development Standards, outlined in the Zoning Ordinance. A maximum of two (2) noncontiguous drive-through restaurants shall be permitted along US 380, and a maximum of two (2) drive-through restaurants shall be permitted along FM 1385, as shown on Exhibit D.
2. Hotel, Extended Stay
   a. An extended stay hotel shall be permitted by right on the subject property, as shown on Exhibit D, on either Lot 15 or Lot 16, and shall otherwise be permitted in accordance with the Conditional Development Standards, outlined in the Zoning Ordinance.

Prohibited Uses:

1. Athletic Stadium or Field, Public
2. Automobile Parking Lot/Garage
3. Automobile Paid Parking Lot/Garage
4. Recycling Collection Point
5. School District Bus Yard

A3. Regulations. Regulations shall be permitted in accordance with the Retail District with the exception of the following:

1. Maximum Height
   a. Commercial Amusement, Indoor: Two (2) stories, no greater than fifty (50) feet at the parapet height, with an additional twenty (20) feet above the parapet for a marquee.
   b. Hotel, Extended Stay: Five (5) stories, no greater than seventy-five (75) feet.
      i. Minimum height of four (4) stories.

A4. Design Guidelines

1. Elevation Review and Approval
   a. Conceptual Elevations, conforming to Exhibit F, shall be submitted at the time of Preliminary Site Plan, subject to approval by the Planning & Zoning Commission.

b. Detailed Façade Plans conforming to the Conceptual Elevations shall be submitted for each building at the time of Site Plan, subject to approval by the Planning & Zoning Commission. Façade Plans for the Extended Stay Hotels and the Indoor Commercial Amusement uses shall also be subject to Town Council approval.

2. Architectural Standards
   a. At least eighty percent (80%) of each building's façade (excluding doors and windows) shall be finished in one of the following materials: Masonry (brick or stone)
      i. Commercial Amusement, Indoor may utilize architectural finished concrete as a primary masonry material, and may be used for up to one hundred percent (80%) of a building elevation, as shown on Exhibit F. In addition, a maximum of ten percent (10%) secondary material, and minimum of ten percent (10%) stone, per elevation, shall be required for Commercial Amusement, Indoor.
   b. For retail/restaurant uses, no more than thirty percent (30%) of each façade elevation shall use wood-based high pressure laminate (i.e. Prodema, Trespa, CompactWood), as shown on Exhibit F.
   c. No more than fifteen percent (15%) of each façade elevation may use a combination of accent materials such as cedar or similar quality decorative wood, architectural metal panel, tile, stucco, or Exterior Insulating Finishing System (EIFS). Stucco and EIFS may only be used eight feet (8') above the ground floor and is prohibited on all building elevations with the exception of its use for exterior trim and molding features. Commercial Amusement, Indoor shall be limited to a maximum ten percent (10%).
   d. Architectural embellishments not intended for human occupancy that are integral to the architectural style of the buildings, including spires, belfries, towers, cupolas, domes, marquees and roof forms whose area in plan is no greater than fifteen percent (15%) of the ground floor footprint may exceed the height limits by up to ten feet (10').
   e. No single material shall exceed eighty percent (80%) percent of an elevation area. Except for Commercial Amusement, Indoor, a minimum of twenty percent (20%) of the front façade and all facades facing public right-of-way shall be natural or manufactured stone. A minimum of ten percent (10%) of all other facades shall be natural or manufactured stone. Commercial Amusement, Indoor shall require a minimum ten percent (10%) stone, per elevation.
      i. All buildings shall be designed to incorporate a form of architectural articulation every thirty feet (30'), both horizontally along each wall's length and vertically along each wall's height. Acceptable articulation may include the following:
      ii. Canopies, awnings, or porticos;
      iii. Recesses/projections;
      iv. Arcades;
      v. Arches;
      vi. Display windows, including a minimum sill height of thirty (30) inches;
      vii. Architectural details (such as tile work and moldings) integrated into the building facade;
      viii. Articulated ground floor levels or base;
      ix. Articulated cornice line;
      x. Integrated planters or wing walls that incorporate landscape and sitting areas;
      xi. Offsets, reveals or projecting rib used to express architectural or structural bays; or
      xii. Varied roof heights;
   f. All buildings shall be architecturally finished on all four (4) sides with same materials, detailing, and features.

g. Except for the Commercial Amusement, Indoor, all primary and secondary exterior building materials (exclusive of glass) shall be of natural texture and shall be neutrals, creams, or other similar, non-reflective earth tone colors. Bright, reflective, pure tone primary or secondary colors, such as red, orange, yellow, blue, violet, or green are not permitted.
h. Corporate identities that conflict with the building design criteria shall be reviewed on a case-by-case basis and approved by the Director of Development Services or his/her designee. The applicant may appeal the decision to the Planning & Zoning Commission and Town Council using the appeal procedure in Chapter 4, Section 1 of the Town's Zoning Ordinance.
i. Exposed conduit, ladders, utility boxes, and drain spouts shall be painted to match the color of the building or an accent color. Natural metal finishes (patina) are an acceptable alternative to paint.
j. All retail/commercial buildings with facades greater than two hundred feet (200') in length shall incorporate wall plane projections or recesses that are at least six feet (6') deep. Projections/recesses must be at least twenty five percent (25%) of the length of the facade. Except for Commercial Amusement, Indoor, no uninterrupted length of facade may exceed one hundred feet (100') in length.

3. Windows and Doors
   a. All ground floor front facades of buildings along streets or public ways with on-street parking or that face directly onto Open Space and contain non-residential uses shall have transparent storefront windows covering no less than thirty percent (30%) of the façade area. Hotels shall have no less than ten percent (10%) of the façade.
      i. Clear glass is required in all non-residential storefronts. Smoked, reflective, or black glass that blocks two-way visibility is only permitted above the first story. Windows shall have a maximum exterior visible reflectivity of thirty percent (30%).

4. Awning, Canopies, Arcades, and Overhangs
   a. Awnings shall not be internally illuminated.
   b. Canopies shall not exceed one hundred linear feet (100') without a break of at least five feet (5').
   c. Awnings and canopies shall not extend beyond ten feet (10') from the main building façade.

A5. Additional Standards
1. Open Space
   a. Urban Open Space
      i. An open space as depicted on the Landscape Plan (Exhibit G) shall comprise a minimum of one (1) acre of useable land area that will serve as the central park to the commercial development. A minimum of one (1) pedestrian connection shall be required from the Urban Open Space to the Rural Open Space; a minimum of one (1) pedestrian connection shall be required from the Urban Open Space to the Glenbrooke neighborhood via Kent Drive. Gates and/or fencing on any pedestrian or vehicular way accessing Kent Drive shall be prohibited.
      ii. The urban park open space shall be constructed prior to any construction of Phase 1B. The urban park open space shall be constructed at the developer's cost.
      iii. The hike and bike trail system and trailhead shall be constructed at the time of construction of Phase 1B. The hike and bike trail system shall be constructed at the developer's cost.

b. Rural Open Space
   i. An open space as depicted on the Landscape Plan (Exhibit G) shall comprise a minimum of nine (9) acres of useable land area that will serve the greater community with both active and passive open space.
c. Combined Urban Open Space and Rural Open Space shall collectively satisfy all Open Space requirements for both Tract A and Tract B as required by the Town of Prosper Zoning Ordinance.

2. Landscape Screening and Buffering
   a. A thirty-foot (30') landscape easement shall be required along roadways when an adjacent building sides or backs the road. The landscape buffer shall consist of a minimum three- foot (3') foot berm.
   b. A minimum of twenty feet (20') of landscape easement shall be exclusive of all utility easements, right turn lanes, drainage easements, and rights-of-way. None of the required trees and/or shrubs shall be located within any utility easement.
   c. A minimum ten-foot (10') landscape buffer is required adjacent to Urban and Rural Open Space.
   d. Berming shall be required behind the Entertainment/Indoor Commercial Amusement structure located in Phase 2A as reflected on the Phasing Diagram.

3. Lot Frontage
   a. Lots are not required to front on a public right-of-way, provided an access easement is established by plat prior to issuance of a Certificate of Occupancy (CO) for any building on a lot not fronting on right-of-way.

4. Parking Requirement
   a. Hotel, Extended Stay: One (1) parking space, equivalent to seventy-five percent (75%) of the total number of rooms/keys provided. Parking spaces for Lots 15 and 16 may be shared, provided the minimum requirements per the zoning ordinance and herein are met.

Tract B – Multifamily District

B1. Except as noted below, the Tract shall develop in accordance with the Multifamily District as it exists or may be amended.

B2. Multifamily Construction
   1. For Phase 1B, as shown on Exhibit E2, which consists of a maximum of 243 units, construction may not commence until construction of the first floor framing has begun on the restaurant/retail building as shown on Lot 8 on Exhibit D and the Extended Stay Hotel on either Lot 15 or Lot 16 on Exhibit D.

   2. For Phase 2B, as shown on Exhibit E2, which consists of a maximum of 237 units, construction may not commence until vertical construction has begun on a minimum fifty thousand (50,000) square foot Indoor Commercial Amusement building or similar size retail building.

B3. Regulations. Regulations shall be permitted in accordance with the Multifamily District with the exception of the following:
   1. Maximum Number of Units: Four hundred and eighty (480) units.

2. Maximum Height:
   a. Two (2) stories, no greater than forty feet (40') for buildings within one hundred (100) feet of a single family zoning district.
   b. Three (3) stories, no greater than fifty feet (50').
   c. Four (4) stories, no greater than sixty-five feet (65').

3. Size of Yards
   a. In accordance with Exhibit D.

4. Minimum Dwelling Area
   a. One (1) bedroom: 650 square feet
   b. Two (2) bedroom: 925 square feet
   c. Three (3) bedroom: 1,150 square feet

5. Lot Coverage: Maximum fifty percent (50%)

B4. Design Guidelines

1. Elevation Review and Approval
   a. Conceptual Elevations, conforming to Exhibit F, shall be submitted at the time of Preliminary Site Plan, subject to approval by the Planning & Zoning Commission.
   b. Detailed Façade Plans conforming to the Conceptual Elevations shall be submitted for each building at the time of Site Plan, subject to approval by the Planning & Zoning Commission.

2. Architectural Standards
   a. At least eighty percent (80%) of each building's façade (excluding doors and windows) shall be finished in one of the following materials: Masonry (brick and stone).
   b. No more than fifteen percent (15%) of each façade elevation shall use a combination of accent materials such as cedar or similar quality decorative wood, fiber cement siding, resin-impregnated wood panel system, cementitious-fiber clapboard (not sheet) with at least a fifty (50) year warranty, architectural metal panel, split-face concrete block, tile, stucco, or Exterior Insulating Finishing System (EIFS). Stucco and EIFS may only be used eight feet (8') above the ground floor and is prohibited on all building elevations with the exception of its use for exterior trim and molding features.
   c. Any enclosed one or two-car garage shall be designed and constructed of the same material as the primary building.

B5. Additional Standards

1. Open Space
   a. Urban Open Space
      i. An open space as depicted on the Landscape Plan (Exhibit G) shall comprise a minimum of one (1) acre of useable land area that will serve as the central park to the commercial development. A minimum of one (1) pedestrian connection shall be required from the Urban Open Space to the Rural Open Space; a minimum of one (1) pedestrian connection shall be required from the Urban Open Space to the Glenbrooke neighborhood via Kent Drive. Gates and/or fencing on any pedestrian or vehicular way accessing Kent Drive shall be prohibited.
      ii. The urban park open space shall be constructed prior to any construction of Phase 1B. The urban park open space shall be constructed at the developer's cost.

iii. The hike and bike trail system and trailhead shall be constructed at the time of construction of Phase 1B. The hike and bike trail system shall be constructed at the developer's cost.

b. Rural Open Space
   i. An open space as depicted on the Landscape Plan (Exhibit G) shall comprise a minimum of nine (9) acres of useable land area that will serve the greater community with both active and passive open space.

c. Combined Urban Open Space and Rural Open Space shall collectively satisfy all Open Space requirements for both Tract A and Tract B as required by the Town of Prosper Zoning Ordinance.

2. Landscape Screening and Buffering
   a. As depicted on the Landscape Plan (Exhibit G), two (2) rows of minimum three inch (3") caliper trees every fifty feet (50') on center, offset, shall be planted along the northern property line.
   b. A minimum of twenty feet (20') of landscape easement shall be exclusive of all utility easements, right turn lanes, drainage easements, and rights-of-way. None of the required trees and/or shrubs shall be located within any utility easement, except for the twenty-five foot (25') UTRWD utility easement that currently resides immediately south of the property's north property line.
   c. A minimum ten-foot (10') landscape buffer is required adjacent to Rural Open Space.

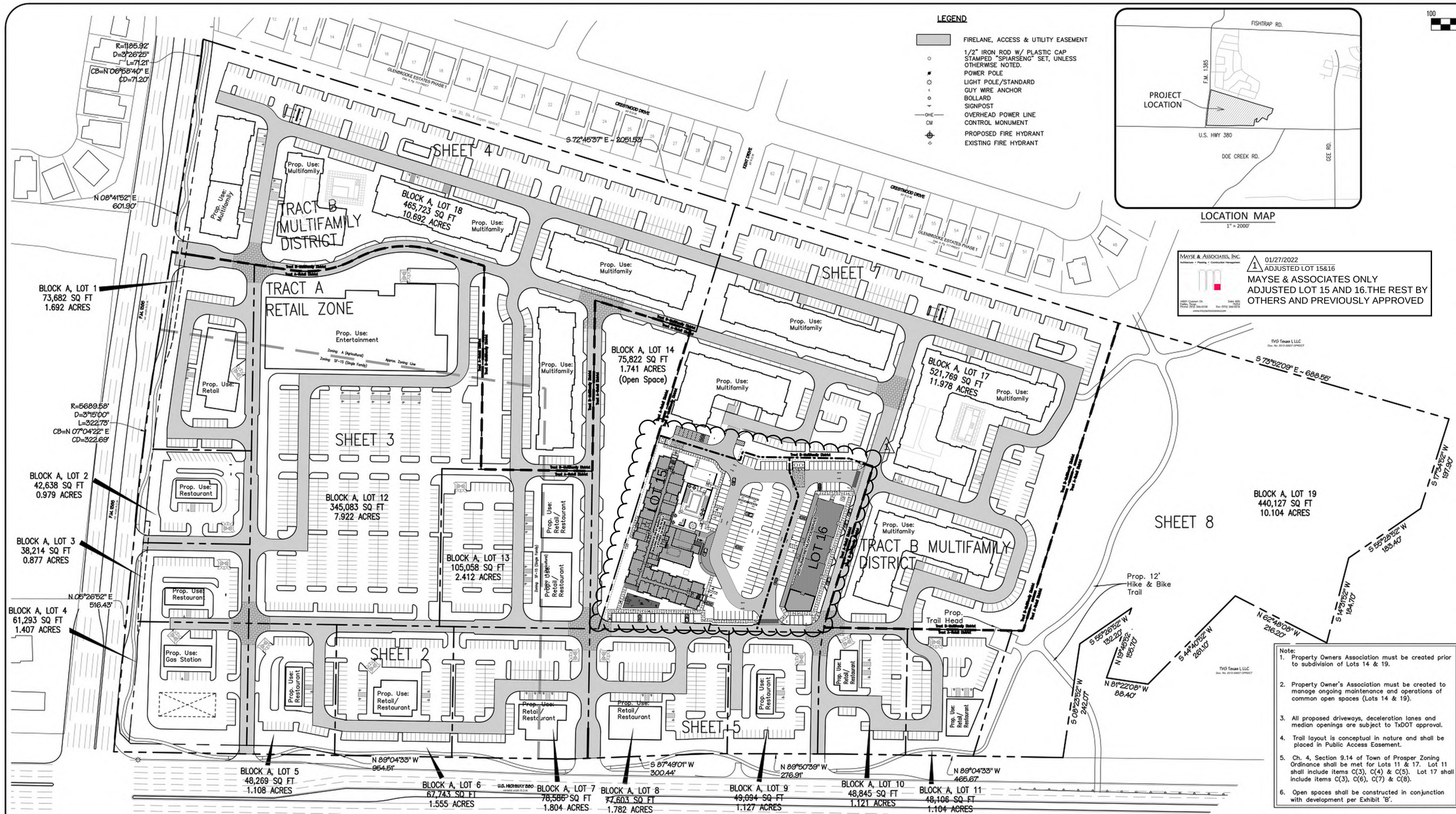
3. Lot Frontage
   a. Lots are not required to front on a public right-of-way, provided an access easement is established by plat prior to issuance of a Certificate of Occupancy (CO) for any building on a lot not fronting on right-of-way.

4. Parking
   a. Minimum "Off-Street" Parking. For the purpose of this ordinance, off-street parking shall mean any parking not located immediately adjacent to and along public drives (i.e. parallel parking) used for internal circulation throughout the development.
      i. One (1) and two (2) bedroom units: 1.8 parking spaces per unit.
      ii. Three (3) bedroom units: 2.0 parking spaces per unit.
   b. Tandem parking shall count towards the parking provided for each designated tract or phase that the parking resides within.
   c. Surface parallel parking that is provided along interior drives shall count towards the parking provided for each designated tract or phase that the parking resides within.

5. The provisions of Chapter 4, Section 9.14 (Non-Residential and Multifamily Development Adjacent to a Major Creek) shall apply to the proposed development.

6. The provisions of Chapter 4, Section 9.16 (Residential Open Space) shall apply to the proposed development.

7. The provision of Chapter 4, Section 9.17 (Multifamily Site Design) shall not apply to the proposed development.



Town of Prosper Site Plan Notes:

1. Dumpsters and trash compactors shall be screened in accordance of the Comprehensive Zoning Ordinance.
2. Open storage, where permitted, shall be screened in accordance with the Comprehensive Zoning Ordinance.
3. Outdoor lighting shall comply with the lighting and glare standards contained within the Comprehensive Zoning Ordinance and Subdivision Regulation Ordinance.
4. Landscaping shall conform to landscape plans approved by the town.
5. All elevations shall comply with the standards contained within the Comprehensive Zoning Ordinance.
6. Buildings of 5,000 square feet or greater shall be 100% fire sprinkled. Alternative fire protection measures may be approved by the Fire Department.
7. Fire lanes shall be designed and constructed per town standards or as directed by the Fire Department.
8. Two points of access shall be maintained for the property at all times.
9. Speedbumps/humps are not permitted within a fire lane.
10. Handicapped parking areas and building accessibility shall conform to the Americans with Disabilities Act (ADA) and with the requirements of the current, adopted uniform Building Code.
11. All signage is subject to Building Official approval.
12. All fences and retaining walls shall be shown on the site plan and are subject to Building Official approval.
13. All exterior building materials are subject to Building Official approval and shall conform to the approved facade plan.
14. Sidewalks of not less than six (6') feet in width along thoroughfares and five (5') in width along collectors and residential streets, and barrier free ramps at all curb crossings shall be provided per Town standards.
15. Approval of the site plan is not final until all engineering plans are approved by the Town Engineer.
16. Site plan approval is required prior to grading release.
17. All new electrical lines shall be installed and/or relocated underground.
18. All mechanical equipment shall be screened from public view in accordance with the Comprehensive Zoning Ordinance.
19. Impact fees will be assessed in accordance with the land use classification(s) identified on the Site Data Summary Table; however, changes to the proposed land use at the time CO and/or finish-out permit may result in additional impact fees and/or parking requirements.

Note:
1. Property Owners Association must be created prior to subdivision of Lots 14 & 19.
2. Property Owner's Association must be created to manage ongoing maintenance and operations of common open spaces (Lots 14 & 19).
3. All proposed driveways, deceleration lanes and median openings are subject to TxDOT approval.
4. Trail layout is conceptual in nature and shall be placed in Public Access Easement.
5. Ch. 4, Section 9.14 of Town of Prosper Zoning Ordinance shall be met for Lots 11 & 17. Lot 11 shall include items C(3), C(4) & C(5). Lot 17 shall include items C(3), C(6), C(7) & C(8).
6. Open spaces shall be constructed in conjunction with development per Exhibit 'B'.

SITE DATA SUMMARY TABLE

LOT	ZONING	PROPOSED USE	LOT AREA SF	LOT AREA AC	FIRST FLOOR BUILDING AREA (SF)	TOTAL BUILDING AREA (SF)	UNIT COUNT	BUILDING HEIGHT (ft)	MAX. BUILDING HEIGHT (story)	COVERAGE (%)	FLOOR AREA RATIO	REQ. PARKING RATIO	PARKING REQUIRED	PARKING PROVIDED	REQUIRED HANDICAP PARKING	PROVIDED HANDICAP PARKING	INTERIOR LANDSCAPE REQUIRED (SF)	INTERIOR LANDSCAPE PROVIDED (SF)	IMPERVIOUS AREA (SF)	OPEN SPACE REQUIRED (SF)	OPEN SPACE PROVIDED (SF)
1	PD	RETAIL	73,682	1.69	10,950	10,950	N/A	40'	1	14.9%	0.1486:1	1:250	44	62	2	2	930	34,878	33,874	5,158	Provided in Lots 14/19
2	PD	RESTAURANT W/ D.T.	42,638	0.98	3,172	3,172	N/A	40'	1	7.4%	0.0744:1	1:100	32	33	1	1	495	13,906	25,754	2,985	Provided in Lots 14/19
3	PD	RESTAURANT W/ D.T.	38,214	0.88	2,872	2,872	N/A	40'	1	7.5%	0.0752:1	1:100	29	32	1	1	480	12,064	24,600	2,675	Provided in Lots 14/19
4	PD	GAS STATION	61,293	1.41	4,500	4,500	N/A	40'	1	7.3%	0.0734:1	1:250	18	28	1	1	420	21,561	35,374	4,291	Provided in Lots 14/19
5	PD	RESTAURANT W/ D.T.	48,269	1.11	2,880	2,880	N/A	40'	1	6.0%	0.0597:1	1:100	29	41	1	1	615	15,949	30,349	3,379	Provided in Lots 14/19
6	PD	RETAIL/RESTAURANT	67,743	1.56	6,447	6,447	N/A	40'	1	9.5%	0.0952:1	1:75	86	98	4	4	1,470	24,584	38,417	4,742	Provided in Lots 14/19
7	PD	RETAIL/RESTAURANT	78,586	1.80	6,321	6,321	N/A	40'	1	8.0%	0.0804:1	1:75	85	102	4	4	1,530	26,625	46,460	5,501	Provided in Lots 14/19
8	PD	RETAIL/RESTAURANT	77,603	1.78	7,700	7,700	N/A	40'	1	9.9%	0.0992:1	1:75	103	99	4	4	1,485	24,516	47,655	5,432	Provided in Lots 14/19
9	PD	RESTAURANT W/ D.T.	49,094	1.13	2,931	2,931	N/A	40'	1	6.0%	0.0597:1	1:100	30	44	2	2	660	16,273	29,209	3,437	Provided in Lots 14/19
10	PD	RETAIL/RESTAURANT	48,845	1.12	3,756	3,756	N/A	40'	1	7.7%	0.0769:1	1:75	51	53	3	3	795	18,171	27,255	3,419	Provided in Lots 14/19
11	PD	RETAIL/RESTAURANT	48,106	1.10	4,805	4,805	N/A	40'	1	10.0%	0.0999:1	1:75	65	65	3	3	975	20,260	24,479	3,367	Provided in Lots 14/19
12	PD	ENTERTAINMENT	345,083	7.92	56,000	56,000	N/A	50'	2	16.2%	0.1623:1	1:150	374	494	12	12	7,410	105,889	221,992	24,156	Provided in Lots 14/19
13	PD	RETAIL/RESTAURANT	105,058	2.41	14,819	29,638	N/A	40	1	14.1%	0.2821:1	1:250	119	152	6	6	2,280	35,118	62,586	7,354	Provided in Lots 14/19
14	PD	OPEN SPACE	75,822	1.74	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	20	N/A	N/A	N/A	N/A	11,290	N/A	64,532
15	PD	HOTEL	123,227	1.85	27,780	96,750	124	55'	5	22.5%	0.78:1	1 SPACE PER GUESTROOM	124	163 SHARED PARKING	6	6	1,470	27,051+/-	96,176+/-	5,637	Provided in Lots 14/19
16	PD	RETAIL/RESTAURANT/ OFFICE	52,296	1.2	10,858	10,858	N/A	40'	1	20.7%	0.20:1	1:250; 1:100; 1:350; REFER TO SHEET A0.2A	63				1,830	6,229+/-	46,067+/-	5,949	Provided in Lots 14/19
17	PD	MULTIFAMILY	521,769	11.98	111,516	319,215	343 (316 - 1B, 103 - 2B, 24 - 3B)	65'	4	21.4%	0.6118:1	1.8 per 1B&2B unit 2.0 per 3B unit	443	529	10	10	7,935	141,562	214,547	156,531	Provided in Lots 14/19
18	PD	MULTIFAMILY	465,723	10.69	99,752	282,821	237 (119 - 1B, 93 - 2B, 25 - 3B)	65'	4	21.4%	0.6073:1	1.8 per 1B&2B unit 2.0 per 3B unit	432	443	10	10	6,645	160,528	210,529	139,717	Provided in Lots 14/19
19	PD	OPEN SPACE	440,127	10.10	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	16,996	N/A	440,127
		Total=	2753170	63.20	370,761	889,208														383,729	506,659

SHT. 1 OF 8
TOWN OF PROSPER CASE NO. Z22-0001
Exhibit D Conceptual Plan

WestSide

BLOCK A, LOTS 1-19
BEING 64.501 ACRES OF LAND (GROSS)
63.858 ACRES OF LAND (NET)
IN THE B. HODGES SURVEY, ABSTRACT NO. 593 &
IN THE J. GONZALEZ SURVEY, ABSTRACT NO. 447 &
IN THE P. BARNES SURVEY, ABSTRACT NO. 79 &
IN THE R. TAYLOR SURVEY, ABSTRACT NO. 1671 &
IN THE J. HAYNES SURVEY, ABSTRACT NO. 573 &
IN THE ANGUS JAMISON SURVEY
TOWN OF PROSPER, DENTON COUNTY, TEXAS

OWNER
Taylor Hansel
P.O. Box 770
Frisco, Texas 75034

APPLICANT
MCF Investments
15700 S.H. 121
Frisco, Texas 75035
Telephone (214) 619-4930
Contact: Mike Fannin

ENGINEER / SURVEYOR
Spiars Engineering, Inc.
765 Custer Road, Suite 100
Plano, TX 75075
Telephone: (972) 422-0077
TBPE No. F-2121 / TBPLS No. F-10043100
Contact: Kevin Wier

Scale: 1"=100' September, 2018 SEI Job No. 17-219

LIST OF HOTEL AMENITIES PROVIDED

AMENITIES	APPROX SQUARE FOOTAGE
01. HOTEL LOBBY/LOUNGE	855 SQ.FT. +/-
02. REGISTRATION DESK	165 SQ.FT. +/-
03. DINNING AREA & PANTRY	937 SQ.FT. +/-
04. FITNESS CENTER @ 1ST FLOOR	846 SQ.FT. +/-
05. MEETING ROOM/BOARD ROOM @ 1ST FLOOR	342 SQ.FT. +/-

PARKING TABULATION

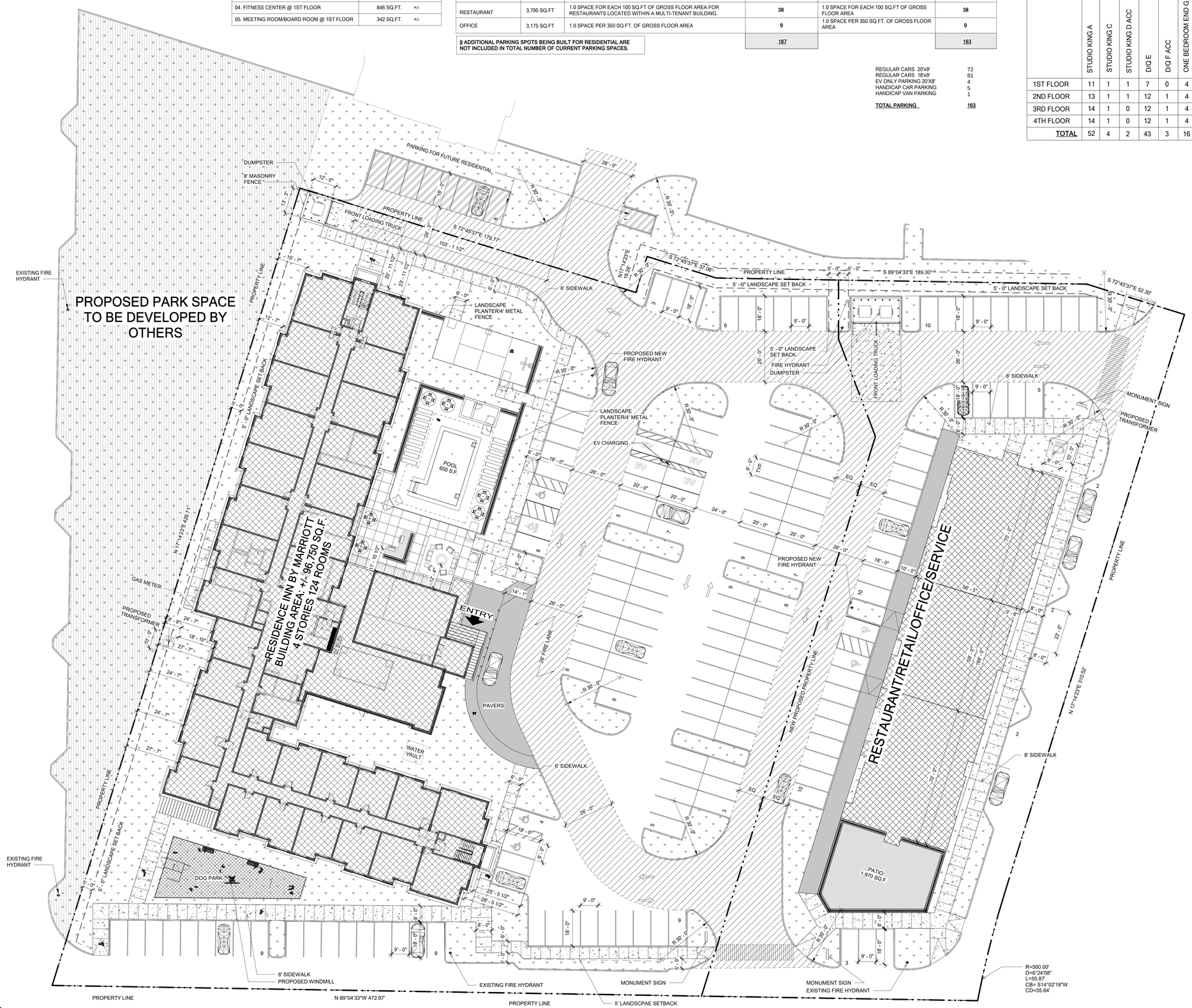
USE	QTY	REQUIRED PARKING RATIO	PARKING REQUIRED BY ORDINANCE	PROPOSED ACKNOWLEDGE SHARE PARKING	PROVIDED PARKING
HOTEL - GUESTROOMS	124 KEYS	1.0 SPACE PER GUEST ROOM PLUS (1) SPACE FOR EACH 200 SQ.FT. OF COMMERCIAL FLOOR AREA CONTAINED	124	0.8 SPACE PER GUEST ROOM	100
RETAIL	3,888 SQ.FT	1.0 SPACE PER 250 SQ.FT. OF GROSS FLOOR AREA	16	1.0 SPACE PER 250 SQ.FT. OF GROSS FLOOR AREA	16
RESTAURANT	3,795 SQ.FT	1.0 SPACE FOR EACH 100 SQ.FT OF GROSS FLOOR AREA FOR RESTAURANTS LOCATED WITHIN A MULTI-TENANT BUILDING.	38	1.0 SPACE FOR EACH 100 SQ.FT OF GROSS FLOOR AREA	38
OFFICE	3,175 SQ.FT	1.0 SPACE PER 350 SQ.FT. OF GROSS FLOOR AREA	9	1.0 SPACE PER 350 SQ.FT. OF GROSS FLOOR AREA	9
			187		163

9 ADDITIONAL PARKING SPOTS BEING BUILT FOR RESIDENTIAL ARE NOT INCLUDED IN TOTAL NUMBER OF CURRENT PARKING SPACES.

REGULAR CARS 20'x9'	72
REGULAR CARS 18'x9'	81
EV ONLY PARKING 20'X8'	4
HANDICAP CAR PARKING	5
HANDICAP VAN PARKING	1
TOTAL PARKING	163

SPECIFIC GUEST ROOM TYPE MATRIX

	STUDIO KING A	STUDIO KING C	STUDIO KING D ACC	D/Q E	D/Q F ACC	ONE BEDROOM END G	TWO BED ROOM H	TWO BED ROOM J ACC	TOTAL
1ST FLOOR	11	1	1	7	0	4	0	1	25
2ND FLOOR	13	1	1	12	1	4	0	1	33
3RD FLOOR	14	1	0	12	1	4	1	0	33
4TH FLOOR	14	1	0	12	1	4	1	0	33
TOTAL	52	4	2	43	3	16	2	2	124



1 SITE PLAN
A3.0 A0.2A 1" = 20'-0"

SITE PLAN GENERAL NOTES

1. ALL NEW UTILITIES WILL BE INSTALLED UNDERGROUND IN ACCORDANCE WITH CITY REQUIREMENTS.
2. ALL COMMERCIAL DUMPSTERS SHALL BE CONSTRUCTED, IN ACCORDANCE WITH THE CITY OF PROSPER CODE OF ORDINANCES.
3. ALL SIGNAGE WILL COMPLY WITH CITY OF PROSPER CODE OF ORDINANCES AND ON A SEPARATE PERMIT.
4. ALL PAVING MATERIALS WILL MEET MINIMUM CITY STANDARDS.
5. ALL FENCES, SIGNS, LIGHTING AND LUMINARIES SHALL COMPLY WITH CITY OF PROSPER ORDINANCES. EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE ON THE SITE PLAN.

BUILDING SQUARE FOOTAGE

FLOOR	AREA PER FLOOR SF
1ST FLOOR	27,780 SF +/-
2ND FLOOR	22,990 SF +/-
3RD FLOOR	22,990 SF +/-
4TH FLOOR	22,990 SF +/-
TOTAL	96,750 SF +/-

SITE LEGEND

- LANDSCAPE
- CONCRETE SIDEWALK
- BUILDING FOOT PRINT
- PAVERS
- PAVERS
- INDICATES TRAFFIC DIRECTION
- PROPERTY LINE
- EASEMENT LINE AS INDICATED

MAYSE & ASSOCIATES, INC.
Architecture • Planning • Construction Management
14881 Quorum Dr. Suite 800
Dallas, Texas 75254
Phone: (972) 386-0338 Fax: (972) 386-0578
www.MayseAssociates.com

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Engineer

RESIDENCE INN BY MARRIOTT

LOTS 15&16 WESTSIDE ADDITION, US 380/FM 1385, PROSPER, TX

Residence INN BY MARRIOTT

ATLANTIC HOTELS

ATLANTIC HOTEL GROUP
1601 BRYAN STREET, SUITE M-210, DALLAS, TEXAS 75201

Revisions:

#	No
1	
2	

date 01/03/2022
job no. 21122
sheet title EXHIBIT D-1
sheet no. A0.2A

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Z22-0001

EXHIBIT E
DEVELOPMENT SCHEDULE
WESTSIDE

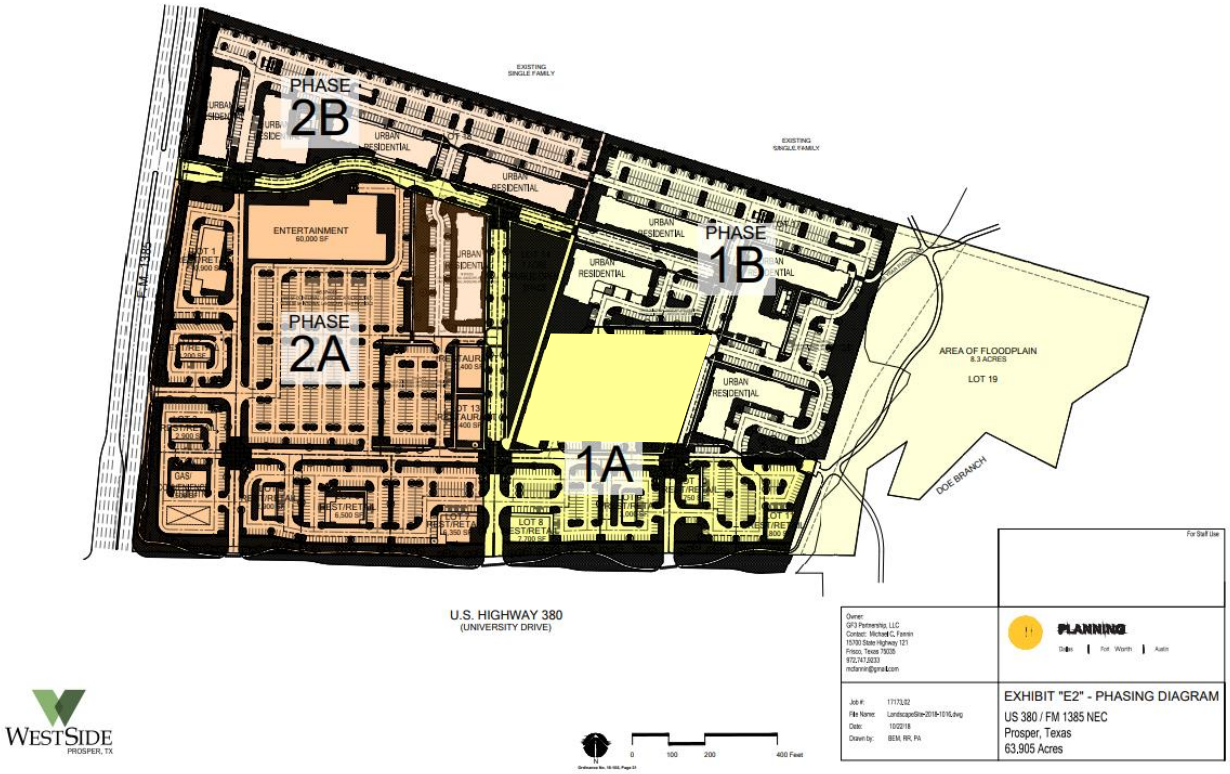
The phasing and development of this project is dependent upon both market conditions and the individual developers' timing. The anticipated schedule for the buildout will likely include a division of developmental increments. Upon commencement of development, the project construction is expected to require between 18 – 60 months. See Exhibit E2 for a graphic depiction.

Phase 1A: The central core of the property coupled with the construction of the central park. It would comprise both the physical heart of the project, plus individual pads inside the retail development. Vehicular access to the property will mostly be included in this phase. Depending on the schedule of the multi-family developer, Phase 1B could be developed in conjunction with Phase 1A.

Phase 1B: The initial phase of a two phase multi-family development.

Phase 2A: The second phase of a two phase commercial development, including retail/restaurant and entertainment uses to the west of the central park.

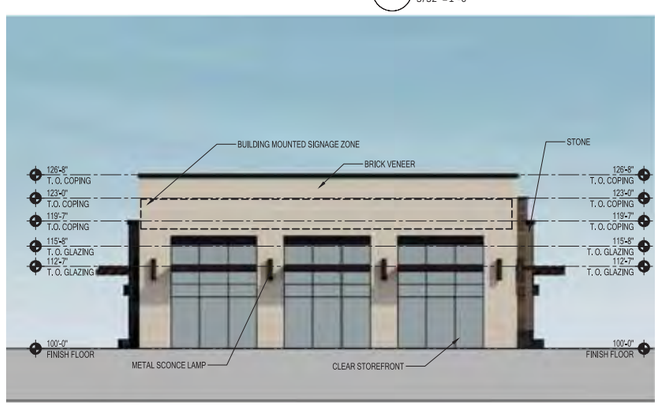
Phase 2B: The second phase of a multi-family development, located to the north of Phase 2A. Phase 2B could be developed in conjunction with Phase 2A.



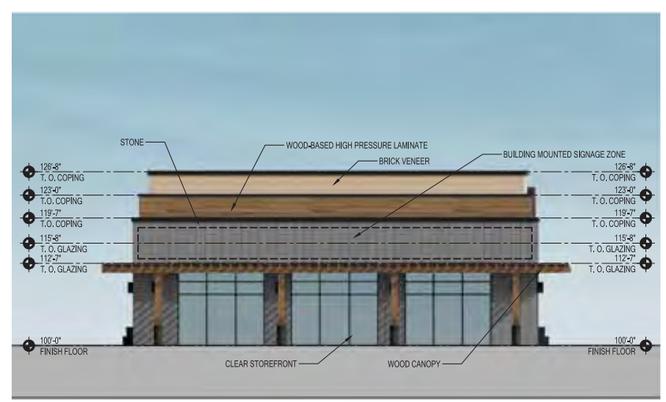
WESTSIDE
PROSPER, TX

1 EAST ELEVATION
3/32"=1'-0"

2 WEST ELEVATION
3/32"=1'-0"



3 NORTH ELEVATION
3/32"=1'-0"



4 SOUTH ELEVATION
3/32"=1'-0"

FACADE MATERIAL ANALYSIS

01 EAST ELEVATION

MATERIAL	AREA (SF)	%
BRICK VENEER	1220	46.90%
WOOD-BASED HIGH PRESSURE LAMINATE	509	19.60%
STONE	873	33.60%
TOTALS*	2602	100.00%
	*GLAZING NOT INCLUDED	

02 WEST ELEVATION

MATERIAL	AREA (SF)	%
BRICK VENEER	1220	47.50%
WOOD-BASED HIGH PRESSURE LAMINATE	511	19.90%
STONE	839	32.60%
TOTALS*	2570	100.00%
	*GLAZING NOT INCLUDED	

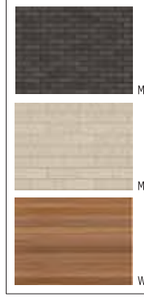
03 NORTH ELEVATION

MATERIAL	AREA (SF)	%
BRICK VENEER	1474	100.00%
WOOD-BASED HIGH PRESSURE LAMINATE	0	0.00%
STONE	0	0.00%
TOTALS*	1474	100.00%
	*GLAZING NOT INCLUDED	

04 SOUTH ELEVATION

MATERIAL	AREA (SF)	%
BRICK VENEER	161	10.70%
WOOD-BASED HIGH PRESSURE LAMINATE	186	12.40%
STONE	1157	76.90%
TOTALS*	1504	100.00%
	*GLAZING NOT INCLUDED	

MATERIALS TABLE



NOTES	
1	This Conceptual Elevation is for conceptual purposes only. All building plans require review and approval from the Building Inspection Division.
2	All mechanical equipment shall be screened from public view in accordance with the Zoning Ordinance
3	When permitted, exposed utility boxes and conduits shall be painted to match the building.
4	All signage areas and locations are subject to approval by the Building Inspection Department.
5	Windows shall have a maximum exterior visible reflectivity of (10) percent.

0 10'-8" 21'-4" 42'-8"
3/32" = 1'-0"

For Staff Use

Owner:
GF3 Partnership, LLC
Contact: Michael C. Fannin
15700 State Highway 121
Frisco, Texas 75035
972.747.9233
mcfannin@gmail.com

gff PLANNING
2808 Fairmount Street, Suite 300 Dallas, Texas 75201 | 214.303.1500
3300 West 7th Street, Suite 110 Fort Worth, Texas 76107 | 817.303.1500

Job #: 17173.02
File Name: RestaurantRetailElevations_2018-0928.dwg
Date: 09/28/18
Drawn by: BEM, LA, PA

EXHIBIT "F"
US 380 / FM 1385 NEC
Prosper, Texas
63.905 Acres

PERSPECTIVE - EAST VIEW

PERSPECTIVE - HOTEL MAIN ENTRY

PERSPECTIVE - NORTH VIEW

MAYSE & ASSOCIATES, INC.
Architecture • Planning • Construction Management

14881 Quorum Dr. Suite 800
Dallas, Texas 75254
Phone: (972) 386-0338 Fax: (972) 386-0578
www.MayseAssociates.com

Item 13.

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Engineer
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LOTS 15&16 WESTSIDE ADDITION, US 380/FM 1385, PROSPER, TX

Residence INN BY MARRIOTT

ATLANTIC HOTELS

ATLANTIC HOTEL GROUP

1601 BRYAN STREET, SUITE M-210, DALLAS, TEXAS 75201

Revisions:

#	No
1	
2	

date
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job no.
21122
sheet title
Z22-0001 EXHIBIT F
sheet no.
A0.4

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PERSPECTIVE - SOUTH WEST VIEW

PERSPECTIVE - WEST VIEW (FACING PARK)

PERSPECTIVE - SOUTH EAST VIEW

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14881 Quorum Dr. Suite 800
Dallas, Texas 75254
Phone: (972) 386-0338 Fax: (972) 386-0578
www.MayseAssociates.com

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RESIDENCE INN BY MARRIOTT

LOTS 15&16 WESTSIDE ADDITION, US 380/FM 1385, PROSPER, TX

ATLANTIC HOTEL GROUP

1601 BRYAN STREET, SUITE M-210, DALLAS, TEXAS 75201

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FACADE MATERIAL ANALYSIS

MATERIAL TABLE

BRICK COLOR 1
MANGANESE IRON SPOT - VELOR (BR-1)

STONE
COTTON WOOD HONED (ST)

BRICK COLOR 2
AUTUMN SAND (BR-2)

EIFS APPLIQUE
SAND BEACH (E-1)

BRICK COLOR 3
ARCTIC WHITE (BR-3)

NORTH ELEVATION

MATERIAL	AREA	%
STONE	2,580 SF +/-	25%
BRICK COLOR 1	3,560 SF +/-	34.5%
BRICK COLOR 2	1,735 SF +/-	16.8%
BRICK COLOR 3	1,220 SF +/-	11.9%
EIFS COLOR 1	1,215 SF +/-	11.8%
TOTAL	**10,310 SF +/-**	100%

SOUTH ELEVATION

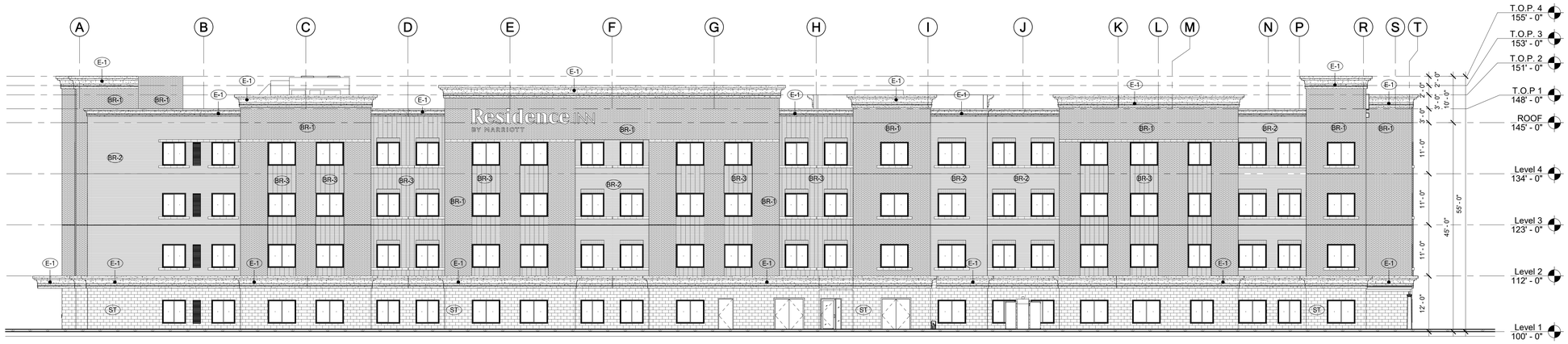
STONE	1,490 SF +/-	16.9%
BRICK COLOR 1	3,710 SF +/-	42%
BRICK COLOR 2	1,915 SF +/-	21.7%
BRICK COLOR 3	560 SF +/-	6.3%
EIFS COLOR 1	1,165 SF +/-	13.1%
TOTAL	**8,840 SF +/-**	100%

EAST ELEVATION

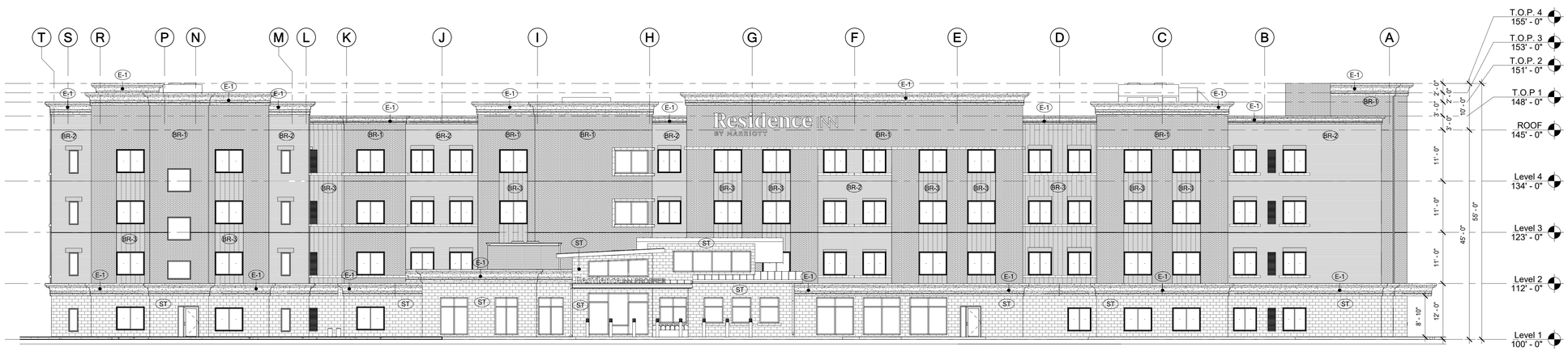
STONE	4,140 SF +/-	25%
BRICK COLOR 1	6,530 SF +/-	39.5%
BRICK COLOR 2	2,400 SF +/-	14.5%
BRICK COLOR 3	1,450 SF +/-	8.8%
EIFS COLOR 1	2,025 SF +/-	12.2%
TOTAL	**16,545 SF +/-**	100%

WEST ELEVATION

STONE	2,455 SF +/-	17.4%
BRICK COLOR 1	5,895 SF +/-	41.8%
BRICK COLOR 2	2,255 SF +/-	16%
BRICK COLOR 3	1,490 SF +/-	10.6%
EIFS COLOR 1	2,035 SF +/-	14.2%
TOTAL	**14,130 SF +/-**	100%



2 WEST BUILDING ELEVATION
A3.0 3/32" = 1'-0"



1 EAST BUILDING ELEVATION
A3.0 3/32" = 1'-0"

EXTERIOR ELEV. GEN. NOTES

1. ALL MATERIALS END ON INSIDE CORNER UNLESS NOTED OTHERWISE
2. STUCCO CONTROL JOINTS & REVEAL PATTERNS SHALL BE RETURNED TO INSIDE CORNERS AT FACES NOT SHOWN. VERIFY WITH ARCHITECT
3. REFER TO ELECTRICAL FOR EXTERIOR WALL MOUNTED FIXTURES
4. ALL STONE VENEER WALLS TO HAVE CONTROL JOINTS AT ALL INSIDE CORNERS AND AT MINIMUM OF 75 FT.
5. ALIGN WINDOWS AT HEAD ACROSS BUILDING (TYP.)

EXTERIOR FINISH LEGEND

- BRICK COLOR 1
- BRICK COLOR 2
- BRICK COLOR 3
- STONE
- EIFS COLOR 1

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LOTS 15&16 WESTSIDE ADDITION, US 380/FM 1385, PROSPER, TX

Residence INN BY MARRIOTT

ATLANTIC HOTELS

ATLANTIC HOTEL GROUP
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FACADE MATERIAL ANALYSIS

MATERIAL TABLE

BRICK COLOR 1
MANGANESE IRON SPOT - VELOR (BR-1)

STONE
COTTON WOOD HONED (ST)

BRICK COLOR 2
AUTUMN SAND (BR-2)

EIFS APPLIQUE
SAND BEACH (E-1)

BRICK COLOR 3
ARCTIC WHITE (BR-3)

NORTH ELEVATION

MATERIAL	AREA	%
STONE	2,580 SF +/-	25%
BRICK COLOR 1	3,560 SF +/-	34.5%
BRICK COLOR 2	1,735 SF +/-	16.8%
BRICK COLOR 3	1,220 SF +/-	11.9%
EIFS COLOR 1	1,215 SF +/-	11.8%
TOTAL	**10,310 SF +/-**	100%

SOUTH ELEVATION

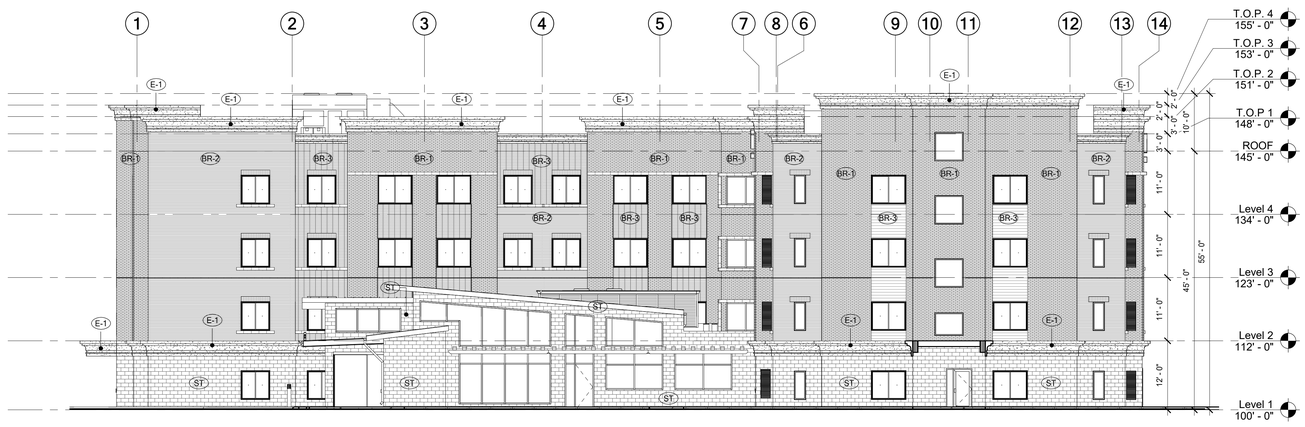
STONE	1,490 SF +/-	16.9%
BRICK COLOR 1	3,710 SF +/-	42%
BRICK COLOR 2	1,915 SF +/-	21.7%
BRICK COLOR 3	560 SF +/-	6.3%
EIFS COLOR 1	1,165 SF +/-	13.1%
TOTAL	**8,840 SF +/-**	100%

EAST ELEVATION

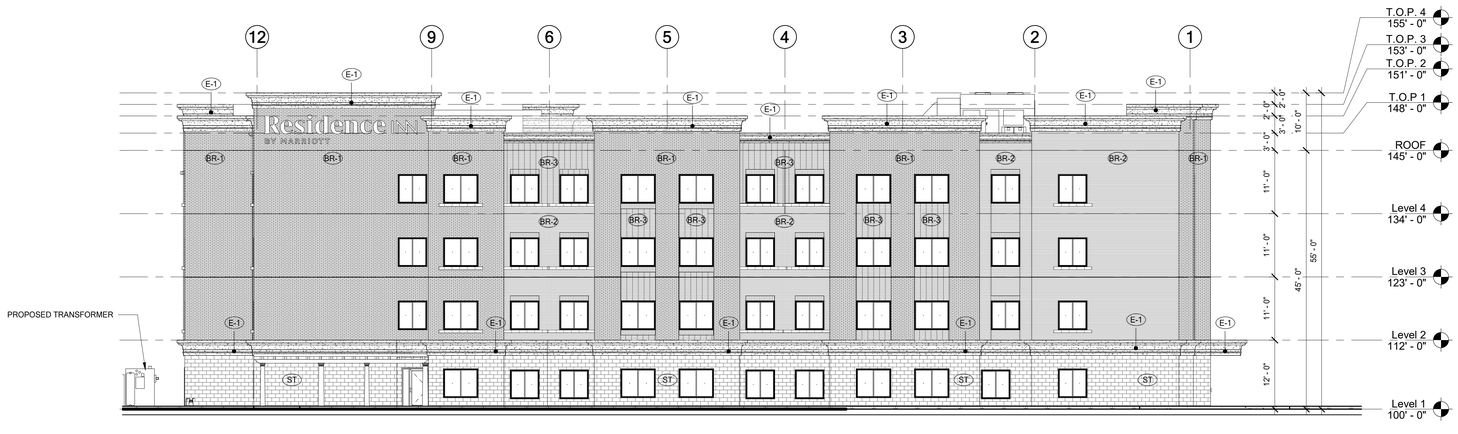
STONE	4,140 SF +/-	25%
BRICK COLOR 1	6,530 SF +/-	39.5%
BRICK COLOR 2	2,400 SF +/-	14.5%
BRICK COLOR 3	1,450 SF +/-	8.8%
EIFS COLOR 1	2,025 SF +/-	12.2%
TOTAL	**16,545 SF +/-**	100%

WEST ELEVATION

STONE	2,455 SF +/-	17.4%
BRICK COLOR 1	5,895 SF +/-	41.8%
BRICK COLOR 2	2,255 SF +/-	16%
BRICK COLOR 3	1,490 SF +/-	10.6%
EIFS COLOR 1	2,035 SF +/-	14.2%
TOTAL	**14,130 SF +/-**	100%



2 NORTH BUILDING ELEVATION
A3.1 3/32" = 1'-0"



1 SOUTH BUILDING ELEVATION
A3.1 3/32" = 1'-0"

EXTERIOR ELEV. GEN. NOTES

1. ALL MATERIALS END ON INSIDE CORNER UNLESS NOTED OTHERWISE
2. STUCCO CONTROL JOINTS & REVEAL PATTERNS SHALL BE RETURNED TO INSIDE CORNERS AT FACES NOT SHOWN. VERIFY WITH ARCHITECT
3. REFER TO ELECTRICAL FOR EXTERIOR WALL MOUNTED FIXTURES
4. ALL STONE VENEER WALLS TO HAVE CONTROL JOINTS AT ALL INSIDE CORNERS AND AT MINIMUM OF 75 FT.
5. ALIGN WINDOWS AT HEAD ACROSS BUILDING (TYP.)

EXTERIOR FINISH LEGEND

- BRICK COLOR 1
- BRICK COLOR 2
- BRICK COLOR 3
- STONE
- EIFS COLOR 1

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Residence INN BY MARRIOTT

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FACADE MATERIAL ANALYSIS

MATERIAL TABLE

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MANGANESE IRON SPOT - VELOR (BR-1)

STONE
COTTON WOOD HONED (ST)

BRICK COLOR 2
AUTUMN SAND (BR-2)

EIFS APPLIQUE
SAND BEACH (E-1)

BRICK COLOR 3
ARCTIC WHITE (BR-3)

NORTH ELEVATION

MATERIAL	AREA	%
STONE	2,580 SF +/-	25%
BRICK COLOR 1	3,560 SF +/-	34.5%
BRICK COLOR 2	1,735 SF +/-	16.8%
BRICK COLOR 3	1,220 SF +/-	11.9%
EIFS COLOR 1	1,215 SF +/-	11.8%
TOTAL	**10,310 SF +/-**	100%

SOUTH ELEVATION

STONE	1,490 SF +/-	16.9%
BRICK COLOR 1	3,710 SF +/-	42%
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EIFS COLOR 1	1,165 SF +/-	13.1%
TOTAL	**8,840 SF +/-**	100%

EAST ELEVATION

STONE	4,140 SF +/-	25%
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WEST ELEVATION

STONE	2,455 SF +/-	17.4%
BRICK COLOR 1	5,895 SF +/-	41.8%
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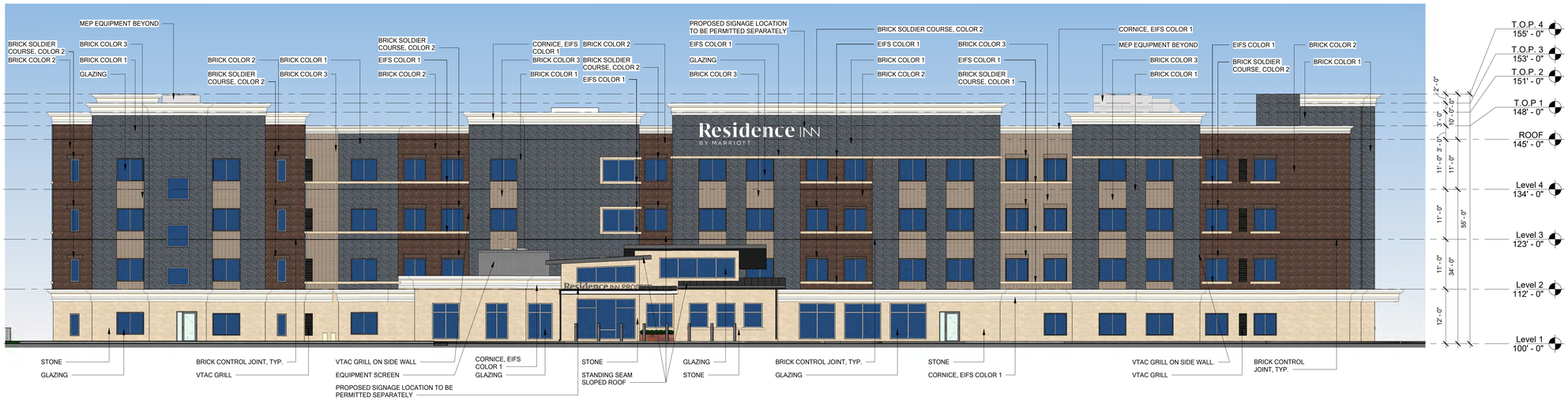

2 EAST BUILDING ELEVATION - COLOR
A3.2 3/32" = 1'-0"

1 WEST BUILDING ELEVATION- COLOR
A3.2 3/32" = 1'-0"

EXTERIOR FINISH LEGEND

- BRICK COLOR 1 (BR-1)
- BRICK COLOR 2 (BR-2)
- BRICK COLOR 3 (BR-3)
- STONE (ST)
- PERFORATED CORTEN PANEL (CR)
- EIFS COLOR 1 (E-1)

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COTTON WOOD HONED (ST)

BRICK COLOR 2
AUTUMN SAND (BR-2)

EIFS APPLIQUE
SAND BEACH (E-1)

BRICK COLOR 3
ARCTIC WHITE (BR-3)

NORTH ELEVATION

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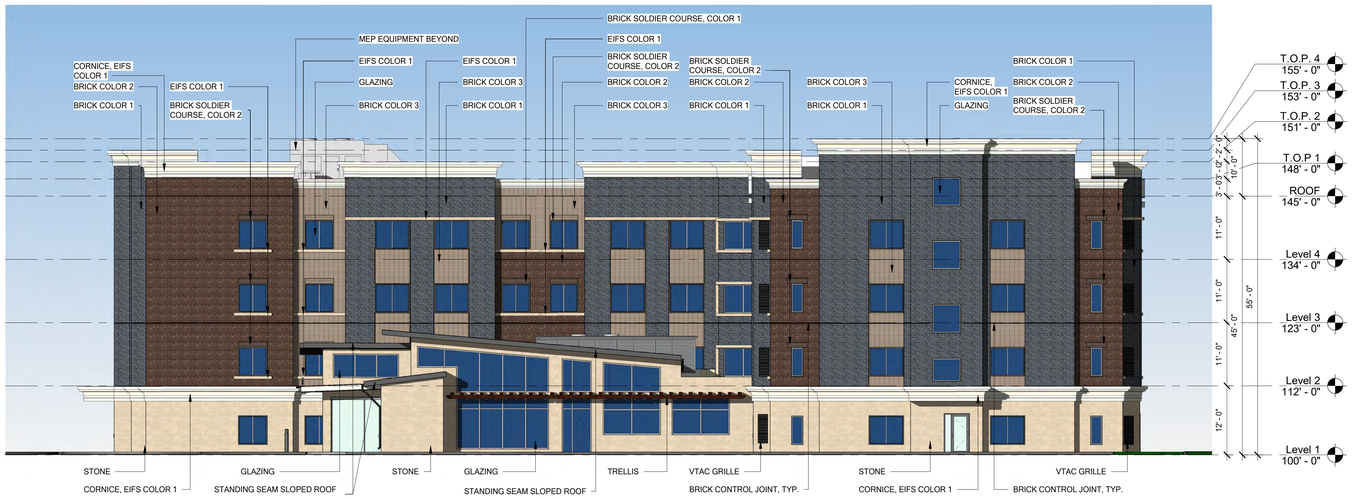

2 NORTH BUILDING ELEVATION- COLOR
A3.3 3/32" = 1'-0"

1 SOUTH BUILDING ELEVATION- COLOR
A3.3 3/32" = 1'-0"

EXTERIOR FINISH LEGEND

- BRICK COLOR 1 (BR-1)
- BRICK COLOR 2 (BR-2)
- BRICK COLOR 3 (BR-3)
- STONE (ST)
- PERFORATED CORTEN PANEL (CR)
- EIFS COLOR 1 (E-1)

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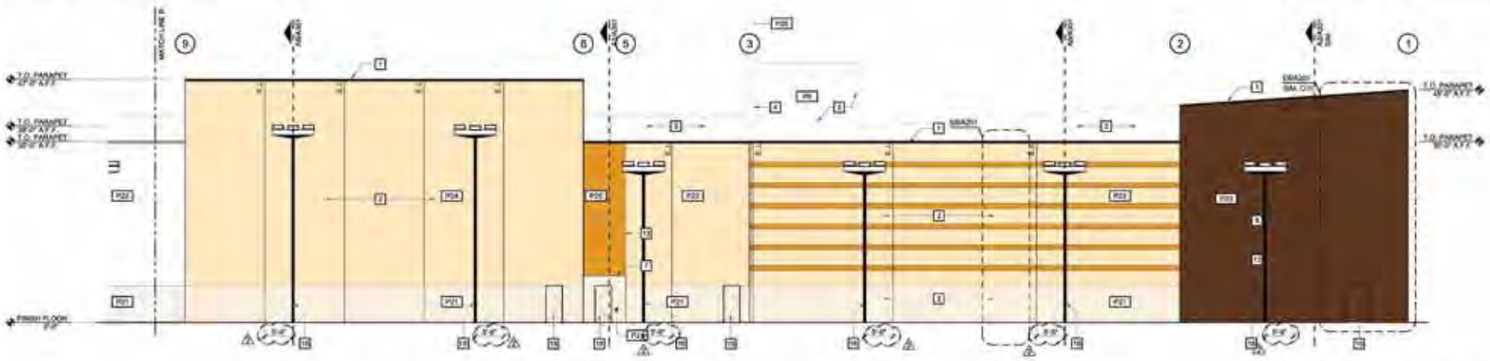
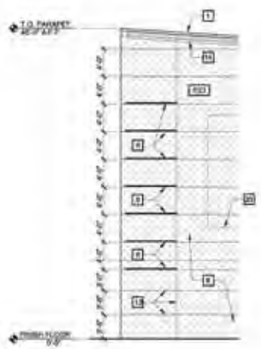
E6 PAINT DETAIL
SCALE: 1/8" = 1'-0"

D1 NORTH ELEVATION - AREA 'B'
SCALE: 3/32" = 1'-0"

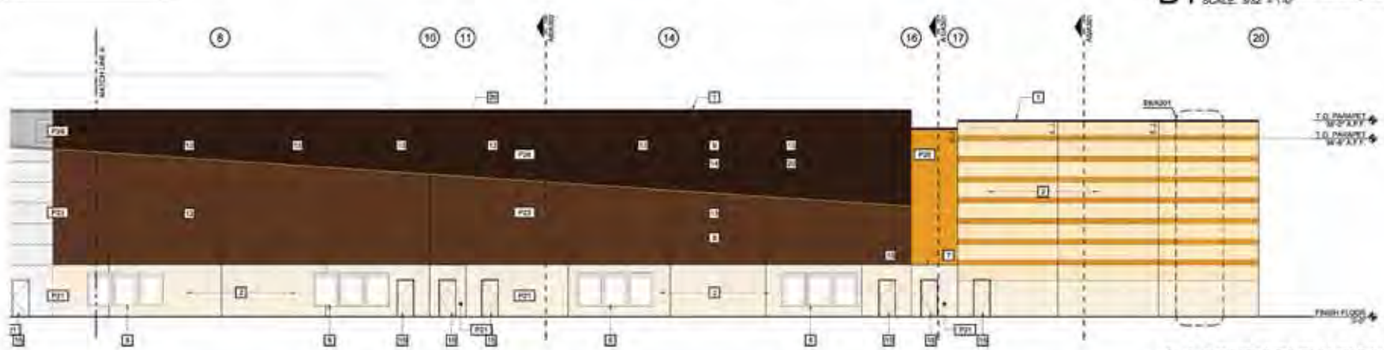


C1 NORTH ELEVATION - AREA 'A'
SCALE: 3/32" = 1'-0"



B6 EIFS DETAIL
SCALE: 3/32" = 1'-0"

B1 SOUTH ELEVATION - AREA 'A'
SCALE: 3/32" = 1'-0"



A1 SOUTH ELEVATION - AREA 'B'
SCALE: 3/32" = 1'-0"

KEY NOTES

1. FINE FINISHED METAL COPING PER SPECS.
2. EXPOSED TILT WALL PANEL, TEXTURED PAINT
3. PARAPET BEYOND
4. STUCCO FINISH - PAINT P25
5. POSTER CASE SUPPLIED BY OWNER'S VENDOR. G.C. TO INSTALL AND PROVIDE POWER AND BLOCKING.
6. COPING LIGHT, RE: MEP, E0A511
7. PAINT FACE OF SLOOPE PERPENDICULAR TO VIEW, P21
8. 2 1/2" ARCHITECTURALLY FINISHED CONCRETE, RE: WALL SECTIONS
9. 4" ARCHITECTURALLY FINISHED CONCRETE, RE: WALL SECTIONS
10. STAINLESS STEEL TILE - T11
11. STUCCO FINISHED CANOPY - PAINT P26
12. TILE FINISH - T3
13. REVEAL "R1" RE: C0A200
14. CONTINUOUS COPPER LIGHT MOUNTED ON WALL BY/STAM, RE: MEP & E0A511 SIM
15. HOLLOW METAL DOOR - PAINT TO MATCH ADJACENT COLOR, TYP.
16. TIED-IN METAL DOWNSPOUT WITH 2 OVERFLOW DRAINS TYP. PAINT TO MATCH P22. RE: C1A501, MEP, & CIVIL DRAWINGS.
17. TICKET KIOSKS SUPPLIED AND INSTALLED BY OWNER'S VENDOR. G.C. TO INSTALL, PROVIDE POWER DATA AND BLOCKING.
18. ANODIZED ALUMINUM STOREFRONT. RE: PLAN & WINDOW SCHEDULE
19. TICKET COUNTER - ANODIZED ALUMINUM WINDOW. RE: WINDOW SCHEDULE
20. DASHED LINE INDICATES SIGNAGE SUPPLIED AND INSTALLED BY OWNER'S VENDOR. G. C. TO PROVIDE POWER & BLOCKING.
21. REVEAL "R2" - C0A200
22. TILT WALL VERTICAL EXPANSION JOINTS "E.J.", RE: A501

GENERAL NOTES

A. PROVIDE EGRESS WALL PACK TO BE MOUNTED 1'-0" ABOVE EMERGENCY EXIT DOOR FRAME AND O.C. OF EACH DOOR OPENING, RE: A611

B. SEAL ALL EXTERIOR PENETRATIONS, CONTROL JOINTS AND JOINTS IN DISSIMILAR WALL ASSEMBLIES

C. SEAL TOP OF ALL EXTERIOR LIGHT FIXTURES WITH CAULK, FINISH TO MATCH FIXTURE COLOR, RE: SPECS

D. ALL EXTERIOR GROUND BUILDING AND ROOFTOP MECHANICAL EQUIPMENT SHALL BE SCREENED FROM PUBLIC VIEW ON ALL SIDES

E. ALL EXTERIOR MATERIALS TO MEET LOCAL REQUIREMENTS AND SPECIFICATIONS

F. ALL BOXES AND CONDUIT SHALL BE PAINTED TO MATCH ADJACENT FINISH MATERIALS.

G. INSTALL INTEGRALLY COLORED EXTERIOR CAULK AT ALL CONTROL JOINTS AFTER BUILDING HAS BEEN PAINTED. CAULK SHALL CHANGE COLORS AS REQUIRED TO MATCH ADJACENT MATERIAL FIELD COLOR COORDINATE EXACT COLORS WITH ARCHITECT. DO NOT PAINT CAULK.

H. SEAL TOP OF ALL EXTERIOR LIGHT FIXTURES WITH CAULK, FINISH TO MATCH FIXTURE COLOR. REFER TO SPECIFICATIONS

I. ALL EXTERIOR SIGNAGE IS SUBJECT TO APPROVAL BY LOCAL AUTHORITIES

SCREENING NOTE

ALL EXTERIOR GROUND, BUILDING, AND ROOFTOP MECHANICAL EQUIPMENT SHALL BE SCREENED FROM PUBLIC VIEW ON ALL SIDES. EQUIPMENT TO BE SCREENED INCLUDES, BUT IS NOT LIMITED TO: HEATING, AIR CONDITIONING AND REFRIGERATION EQUIPMENT, PLUMBING LINES, DUCTWORK, TRANSFORMERS, AND METER BANKS. SCREENING MATERIALS MAY BE SOLID CONCRETE, WOOD, LANDSCAPING, OR OTHER OPAQUE MATERIAL THAT IS COMPATIBLE WITH THE BUILDING ARCHITECTURE AND EFFECTIVELY SCREENS MECHANICAL EQUIPMENT SO THAT IT IS NOT VISIBLE FROM A PUBLIC STREET OR ADJOINING LOT. SCREENING MATERIAL MAY HAVE EVENLY DISTRIBUTED OPENINGS OR PERFORATIONS NOT EXCEEDING 50 PERCENT OF THE SURFACE AREA. ROOFTOP EQUIPMENT MAY BE SCREENED USING ENCLOSURE, PARTIAL SCREENS, OR PARAPET WALLS.

FACADE MATERIAL ANALYSIS

D1 NORTH ELEVATION-AREA 'B'

MATERIAL	AREA (SF)	%
2 1/2" ARCHITECTURALLY FINISHED CONCRETE	0	00
STAINLESS STEEL TILE-T11	0	00
STUCCO FINISH-PAINT P5	0	00
EXPOSED TILT WALL PANEL, TEXTURED PAINT	5827	100
4" ARCHITECTURALLY FINISHED CONCRETE	0	00
TOTAL	5827	100

C1 NORTH ELEVATION-AREA 'A'

MATERIAL	AREA (SF)	%
2 1/2" ARCHITECTURALLY FINISHED CONCRETE	1910	18.5
STAINLESS STEEL TILE-T11	0	00
STUCCO FINISH-PAINT P5	0	00
EXPOSED TILT WALL PANEL, TEXTURED PAINT	8389	81.5
4" ARCHITECTURALLY FINISHED CONCRETE	0	0.00
TOTAL	10,299	100

B1 SOUTH ELEVATION-AREA 'A'

MATERIAL	AREA (SF)	%
2 1/2" ARCHITECTURALLY FINISHED CONCRETE	5091	80.2
STAINLESS STEEL TILE-T11	0	00
STUCCO FINISH-PAINT P5	718	11.3
EXPOSED TILT WALL PANEL, TEXTURED	0	00
4" ARCHITECTURALLY FINISHED CONCRETE	542	8.5
TOTAL	6351	100

A1 SOUTH ELEVATION-AREA 'B'

MATERIAL	AREA (SF)	%
2 1/2" ARCHITECTURALLY FINISHED CONCRETE	2929	32.5
STAINLESS STEEL TILE-T11	0	00
STUCCO FINISH-PAINT P5	0	00
EXPOSED TILT WALL PANEL, TEXTURED	3961	43.9
4" ARCHITECTURALLY FINISHED CONCRETE	2113	23.5
TOTAL	9,003	100

NOTES

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3. When permitted, exposed utility boxes and conduits shall be painted to match the building.
4. All signage areas and locations are subject to approval by the Building Inspection Department.
5. Windows shall have a maximum exterior visible reflectivity of (10) percent.

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OWNER:

STRUCTURE:

MEP:

Keenon Rayner, AIA
STATE OF OKLAHOMA REGISTERED ARCHITECT #6954
111 Travis Street, Houston, Texas 77002 Voice 713.590.2100 Fax 713.590.2199

SHOWBIZ CINEMAS

NO.	DATE	REVISION ISSUE
	01/14/2019	ISSUE FOR PERMIT
	02/27/2019	OKC HEALTH DEPT. COMM. 01
	03/08/2019	CITY RESPONSES 01
	04/12/2019	ISSUE FOR CONSTRUCTION
1	05/06/2019	REVISION 2

PROJECT NAME AND ADDRESS:

SHOWBIZ EDMOND

NE CORNER OF N BOONER RD. AND E. COVELL RD.
EDMOND, OKLAHOMA 73034

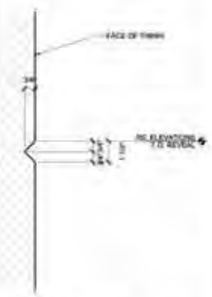
DRAWN: APPROVED:

REFERENCE NUMBER: 17017-01

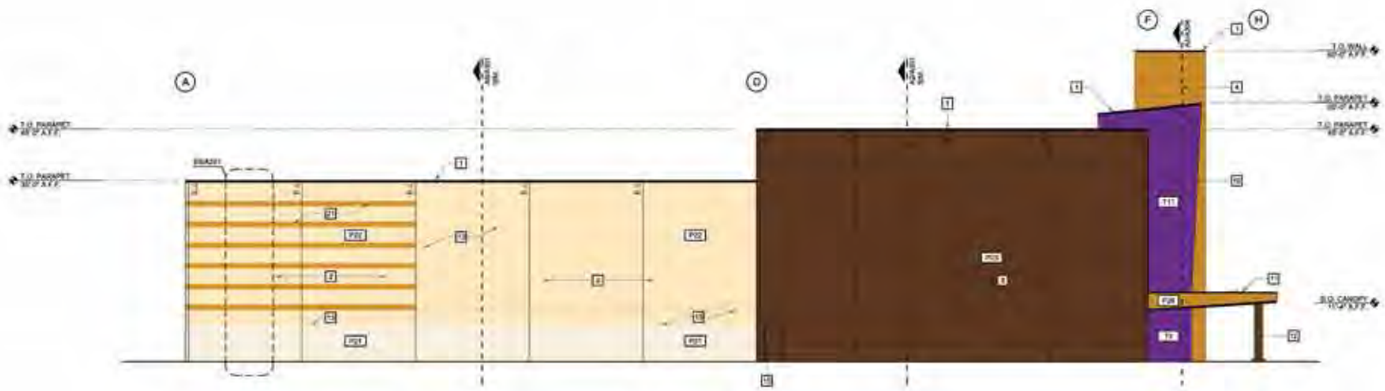
TITLE: EXTERIOR ELEVATIONS

DRAWING NUMBER: A201

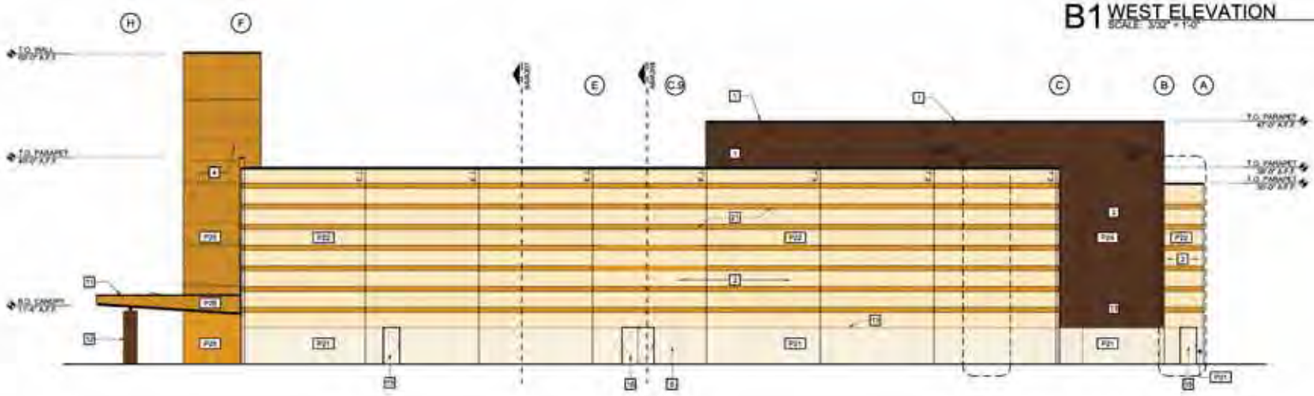
C2 REVEAL - PROFILE "R2"
SCALE: 3" = 1'-0"



C1 REVEAL - PROFILE "R1"
SCALE: 3" = 1'-0"



B1 WEST ELEVATION
SCALE: 3/32" = 1'-0"



A1 EAST ELEVATION
SCALE: 3/32" = 1'-0"

KEY NOTES

1. FINE FINISHED METAL COPING PER SPECS.
2. EXPOSED TILT WALL PANEL, TEXTURED PAINT
3. PARAPET BEYOND
4. STUCCO FINISH - PAINT P25
5. POSTER CASE SUPPLIED BY OWNER'S VENDOR. G.C. TO INSTALL AND PROVIDE POWER AND BLOCKING.
6. COPING LIGHT, RE: MEP, E0A511
7. PAINT FACE OF ALCOVE PERPENDICULAR TO VIEW, P21
8. 2 1/2" ARCHITECTURALLY FINISHED CONCRETE. RE: WALL SECTIONS
9. 4" ARCHITECTURALLY FINISHED CONCRETE. RE: WALL SECTIONS.
10. STAINLESS STEEL TILE - T11
11. STUCCO FINISHED CANOPY - PAINT P26
12. TILE FINISH - T2
13. REVEAL "R1" RE: C1A520
14. CONTINUOUS COPING LIGHT MOUNTED ON WALL SYSTEM. RE: MEP & E0A511 SIM
15. HOLLOW METAL DOOR - PAINT TO MATCH ADJACENT COLOR, TYP.
16. TIED IN METAL DOWNSPOUT WITH 3 IDENTIFLOW DRAINS, TYP. PAINT TO MATCH P22. RE: C1A521, MEP, & SWM DRAWINGS
17. TICKET KIOSKS SUPPLIED AND INSTALLED BY OWNER'S VENDOR. G. C. TO INSTALL, PROVIDE POWER DATA AND BLOCKING.
18. ANODIZED ALUMINUM STOREFRONT. RE: PLAN & WINDOW SCHEDULE
19. TICKET COUNTER - ANODIZED ALUMINUM WINDOW. RE: WINDOW SCHEDULE
20. DASHED LINE INDICATES SIGNAGE SUPPLIED AND INSTALLED BY OWNER'S VENDOR. G. C. TO PROVIDE POWER & BLOCKING.
21. REVEAL "R2" - C1A520
22. TILT WALL VERTICAL EXPANSION JOINTS "E.J.". RE: A501

GENERAL NOTES

A. PROVIDE EXPOSED WALL PACK TO BE MOUNTED 1'-0" ABOVE EMERGENCY EXIT DOOR FRAME, AND O.C. OF EACH DOOR OPENING. RE: MEP.

B. SEAL ALL EXTERIOR PENETRATIONS, CONTROL JOINTS AND JOINTS IN DISSIMILAR WALL ASSEMBLIES

C. SEAL TOP OF ALL EXTERIOR LIGHT FIXTURES WITH CAULK, FINISH TO MATCH FIXTURE COLOR. RE: SPECS.

D. ALL EXTERIOR GROUND BUILDING AND ROOFTOP MECHANICAL EQUIPMENT SHALL BE SCREENED FROM PUBLIC VIEW ON ALL SIDES.

E. ALL EXTERIOR MATERIALS TO MEET LOCAL REQUIREMENTS AND SPECIFICATIONS

F. ALL BOXES AND CONDUIT SHALL BE PAINTED TO MATCH ADJACENT FINISH MATERIALS.

G. INSTALL INTEGRALLY COLORED EXTERIOR CAULK AT ALL CONTROL JOINTS AFTER BUILDING HAS BEEN PAINTED. CAULK SHALL CHANGE COLORS AS REQUIRED TO MATCH ADJACENT MATERIAL. FIELD COLOR COORDINATE EXACT COLORS WITH ARCHITECT. DO NOT PAINT CAULK.

H. SEAL TOP OF ALL EXTERIOR LIGHT FIXTURES WITH CAULK, FINISH TO MATCH FIXTURE COLOR. REFER TO SPECIFICATIONS

I. ALL EXTERIOR SIGNAGE IS SUBJECT TO APPROVAL BY LOCAL AUTHORITIES.

SCREENING NOTE

ALL EXTERIOR GROUND, BUILDING, AND ROOFTOP MECHANICAL EQUIPMENT SHALL BE SCREENED FROM PUBLIC VIEW ON ALL SIDES. EQUIPMENT TO BE SCREENED INCLUDES, BUT IS NOT LIMITED TO: HEATING, AIR CONDITIONING, AND REFRIGERATION EQUIPMENT, PLUMBING LINES, DUCTWORK, TRANSFORMERS, AND METER BANKS. SCREENING MATERIALS MAY BE SOLID CONCRETE, WOOD, LANDSCAPING, OR OTHER OPAQUE MATERIAL THAT IS COMPATIBLE WITH THE BUILDING ARCHITECTURE AND EFFECTIVELY SCREENS MECHANICAL EQUIPMENT SO THAT IT IS NOT VISIBLE FROM A PUBLIC STREET OR ADJOINING LOT. SCREENING MATERIAL MAY HAVE EVENLY DISTRIBUTED OPENINGS OR PERFORATIONS NOT EXCEEDING 50 PERCENT OF THE SURFACE AREA. ROOFTOP EQUIPMENT MAY BE SCREENED USING ENCLOSURE, PARTIAL SCREENS, OR PARAPET WALLS.

FACADE MATERIAL ANALYSIS

B1 WEST ELEVATION

MATERIAL	AREA (SF)	%
2 1/2" ARCHITECTURALLY FINISHED CONCRETE	3415	42.9
STAINLESS STEEL TILE-T11	488	6.1
STUCCO FINISH-PAINT P5	238	3
2 1/2" ARCHITECTURAL TEXTURED PAINT	3812	48
4" ARCHITECTURALLY FINISHED CONCRETE	0	0
TOTAL	7,951	100

A1 EAST ELEVATION

MATERIAL	AREA (SF)	%
2 1/2" ARCHITECTURALLY FINISHED CONCRETE	0	0
STAINLESS STEEL TILE-T11	0	0
STUCCO FINISH-PAINT P5	746	8.7
2 1/2" ARCHITECTURAL TEXTURED PAINT	7799	91.3
4" ARCHITECTURALLY FINISHED CONCRETE	0	0
TOTAL	8,545	100

NOTES

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4. All signage areas and locations are subject to approval by the Building Inspection Department.
5. Windows shall have a maximum exterior visible reflectivity of (10) percent.

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OWNER:

STRUCTURE:

MEP:

Keenon Rayner, AIA
STATE OF OKLAHOMA REGISTERED ARCHITECT #6054
111 Travis Street, Houston, Texas 77002 Voice 713.590.2100 Fax 713.590.2199

SHOWBIZ CINEMAS

NO.	DATE	REVISION ISSUE
	01/15/2019	ISSUE FOR PERMIT
	02/27/2019	OKC HEALTH DEPT. COM 01
	03/06/2019	CITY RESPONSES 01
	04/15/2019	ISSUE FOR CONSTRUCTION

PROJECT NAME AND ADDRESS

SHOWBIZ EDMOND

NE CORNER OF N BOOMER RD. AND E. COVELL RD.
EDMOND, OKLAHOMA 73034

DRAWN: CHECK: MGH

REFERENCE NUMBER: 17017-01

TITLE: EXTERIOR ELEVATIONS

DRAWING NUMBER: A202

NOTES	
1	This Conceptual Elevation is for conceptual purposes only. All building plans require review and approval from the Building Inspection Division.
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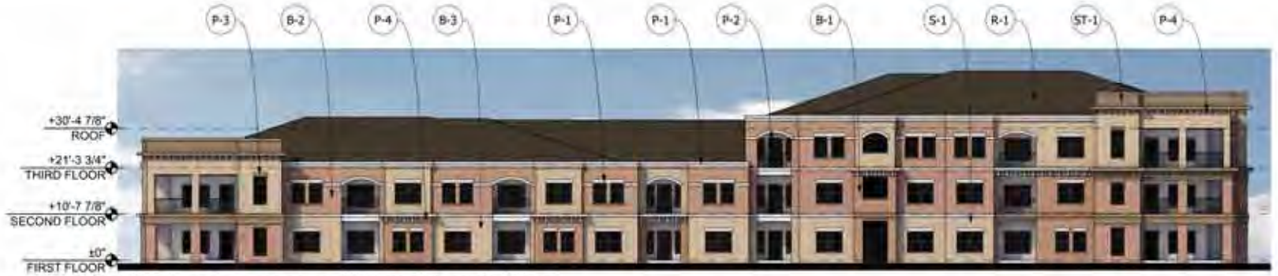
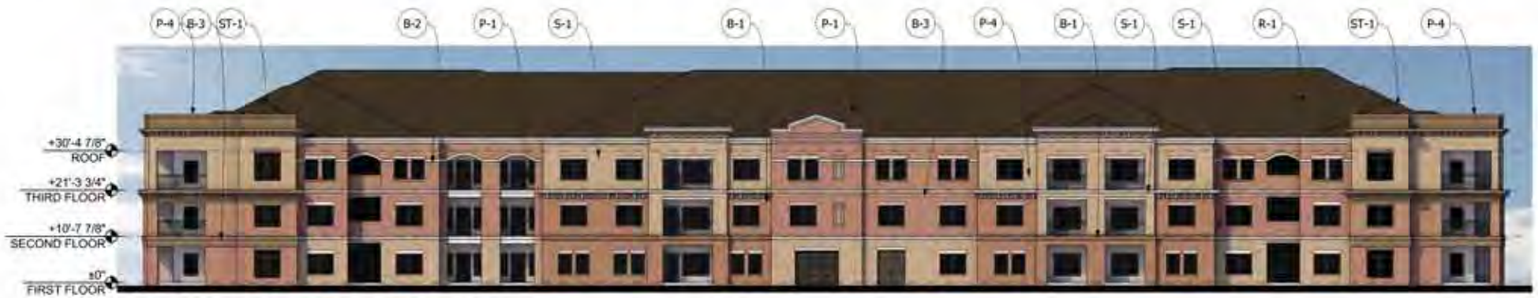
5	Windows shall have a maximum exterior visible reflectivity of (10) percent.



3 R-1 BUILDING ELEVATION - 2/3-STORY CONCEPT

MATERIAL CALCULATION (PHASE 2-BLDG. 1)		
TOTAL AREA (EXCLUDING GLAZING) IN SF: 4,675 = 100%		
MASONRY (BRICK/STONE) IN SF:	3,991 SF	85.2%
STUCCO IN SF: (TRIM/PARAPET)	634 SF	13.6%
FIBER CEMENT/OTHER IN SF: (BALCONY FASCIA)	58 SF	1.2%

GLA-ATL,LLC
649 11TH STREET
ATLANTA, GA 30318
PHONE: 404.228.1958
FAX: 404.328.8870
WWW.GLAATL.COM



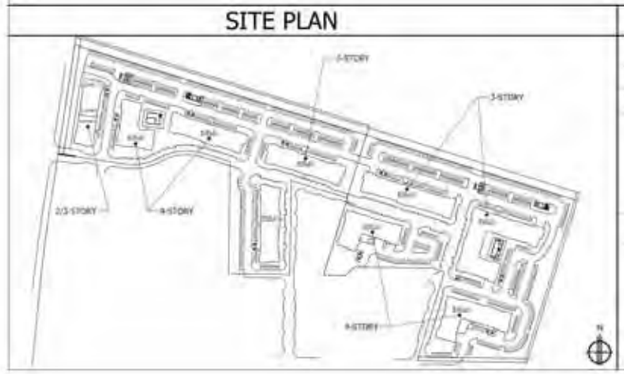
2 R-1 BUILDING ELEVATION - 3-STORY CONCEPT

MATERIAL CALCULATION (3-Story Concept)		
TOTAL AREA (EXCLUDING GLAZING) IN SF: 7,414 = 100%		
MASONRY (BRICK/STONE) IN SF:	6,557 SF	88.5%
STUCCO IN SF: (TRIM/PARAPET)	761 SF	10.3%
FIBER CEMENT/OTHER IN SF: (BALCONY FASCIA)	96 SF	1.2%

1 R-1 BUILDING ELEVATION - 4-STORY CONCEPT

MATERIAL CALCULATION (4-Story Concept)		
TOTAL AREA (EXCLUDING GLAZING) IN SF: 11,078 = 100%		
MASONRY (BRICK/STONE) IN SF:	10,037 SF	90.6%
STUCCO IN SF: (TRIM/PARAPET)	781 SF	7.0%
FIBER CEMENT/OTHER IN SF: (BALCONY FASCIA)	240 SF	2.2%

SITE PLAN



FACADE PLANS

NOTES

BUILDING HEIGHTS	
NUMBER OF STORIES	RIDGE HEIGHT
4	54'-11"
3	49'-5"
2/3	43'-7"

1. ALL MECHANICAL UNITS SHALL BE SCREENED FROM PUBLIC VIEW, OR AS REQUIRED BY ZONING GUIDELINES.
2. BUILDING RENDERINGS REFLECT THE DESIGN FORM AND INTENT OF THE REFERENCED BUILDINGS. ADDITIONAL DETAIL, GARAGE, TRASH SERVICES, AND OTHER ELEMENTS TO BE INCORPORATED AS DESIGN DEVELOPS.
3. SITE PLAN IS FOR GENERAL LOCATION PURPOSES ONLY AND MAY NOT FULLY REFLECT EXACT/CURRENT SITE DESIGN. PLEASE REFERENCE EXHIBIT D "CONCEPTUAL SITE PLAN".
4. MATERIAL CALCULATIONS DO NOT INCLUDE MINOR TRIM OR MATERIALS ABOVE THE COMMON ROOF BEARING PLANE.

ABBREVIATIONS

ALUM.	ALUMINUM
BLDG.	BUILDING
BRZWY.	BREEZEWAY
FF.	FINISHED FLOOR
STL.	STEEL

0'-0" ELEVATION HGT.
DWG.NO. DWG.TITLE
SCALE
TITLE

MATERIAL LEGEND

TAG	SWATCH	DESCRIPTION
S-1		VENDOR: BORAL CASTPT CUT: FRENCH GRAY COLOR: GRAY MATERIAL: NATURAL STONE
ST-1		VENDOR: SHERWIN WILLIAMS COLOR:STUDIO TAUPE NUMBER: SW7549 R:173, G:156, B:133 MATERIAL: STUCCO
B-1		VENDOR: BORAL BRICK COLOR: REMINGTON CLASSIC MATERIAL: CLAY-FIRED BRICK
B-2		VENDOR: BORAL BRICK COLOR: SUMMER HARVEST MATERIAL: CLAY-FIRED BRICK
B-3		VENDOR: BORAL BRICK COLOR: TARRYTOWN MATERIAL: CLAY-FIRED BRICK
P-1		VENDOR: SHERWIN WILLIAMS COLOR: WESTHIGHLAND WHITE NUMBER: SW7566 R:242, G:238, B:228 MATERIAL: TRIM & GUTTER
P-2		VENDOR: SHERWIN WILLIAMS COLOR: URBANE BRONZE NUMBER: SW7048 R:84, G:80, B:74 MATERIAL: RAILINGS & DOORS
P-3		VENDOR: SHERWIN WILLIAMS COLOR: SAN ANTONIO SAGE NUMBER: SW7731 R:167, G:151, B:120 MATERIAL: CORNER HEADERS
P-4		VENDOR: SHERWIN WILLIAMS COLOR: BARCELONA BEIGE NUMBER: SW7530 R:196, G:180, B: 158 MATERIAL: SUB-TRIM, CORNER CORBELS.
R-1		VENDOR: CERTAINTEED SERIES: LANDMARK COLOR: WEATHERED WOOD MATERIAL: ASPHALT SHINGLES

*EQUAL ALTERNATES MAY BE SUBSTITUTED WITH APPROVAL FROM ARCHITECT AND OWNER

PROJECT INFO.

Subdivision's Name: WestSide
Block / Lot Number: 6 / 1-19

Client: Davis Development
Phone: 770.474.5211
Address: 1050 Eagles Landing Parkway, Suite 500 Stockbridge, Georgia 30281

Architect: Gelfeldt Lewis Assoc.
Phone: 404.228.1958
Address: 649 11th St. Atlanta, Georgia 30318

Applicant: MCF Investments
Phone: (214) 619-4930
Address: 15700 S.H. 121 Frisco, Texas 75035

Scale: AS NOTED
Date: 11/07/2018
Drawn By: BT

NOT RELEASED FOR CONSTRUCTION www.gla649.com

1 R-2 REAR/INTERIOR ELEVATION

SCALE: 3/32" = 1'-0"

BUILDING LEGEND

MATERIAL	SQ. FT.	PERCENTAGE
BRICK	2650	58%
STONE	1310	29%
GLAZING	580	13%

1 R-2 REAR/INTERIOR ELEVATION

SCALE 3/32" = 1'-0"

NOTES

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3	When permitted, exposed utility boxes and conduits shall be painted to match the building.
4	All signage areas and locations are subject to approval by the Building Inspection Department.
5	Windows shall have a maximum exterior visible reflectivity of (30) percent.

NOTES

1. RENDERING AND ELEVATIONS ON SHEETS R-2, R-3, AND R-4 ARE REPRESENTATIVE. THE BUILDING DO NOT EXACTLY REFLECT THOSE OF THE PROPOSED PROJECT, BUT ARE INDICATIVE OF DESIGN INTENT AND SIMILAR CONDITIONS.

FACADE PLAN NOTES

1. ALL MECHANICAL UNITS SHALL BE SCREENED FROM PUBLIC VIEW, OR AS REQUIRED BY ZONING GUIDELINES.
2. BUILDING RENDERINGS REFLEC TTHE DESIGN FORM AND INTENT OF THE REFERENCED BUILDINGS. ADDITIONAL DETAIL, GARAGE, TRASH SERVICES, AND OTHER ELEMENTS TO BE INCORPORATED AS DESIGN DEVELOPS.
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4. MATERIAL CALCULATIONS DO NOT INCLUDE MINOR TRIM OR MATERIALS ABOVE THE COMMON ROOF BEARING PLANE.

ABBREVIATIONS

ALUM.	ALUMINUM	0-00	ELEVATION HGT.
BLDG.	BUILDING	DWG.NO.	DWG.TITLE
BRZWY.	BREEZEWAY	A1 DRAWING	SCALE
FF.	FINISHED FLOOR	A1 DWG.	TITLE
STL.	STEEL		

FACADE PLANS

MATERIAL LEGEND

TAG	SWATCH	DESCRIPTION
S-1		VENDOR: BORAL CASTFIT CUT: FRENCH GRAY COLOR: GRAY MATERIAL: NATURAL STONE
ST-1		VENDOR: SHERWIN WILLIAMS COLOR: STUDIO TAUPE NUMBER: SW7549 R:173, G:156, B:133 MATERIAL: STUCCO
B-4		VENDOR: BORAL BRICK COLOR: REMINGTON CLASSIC MATERIAL: CLAY-FIRED BRICK
B-5		VENDOR: BORAL BRICK COLOR: SUMMER HARVEST MATERIAL: CLAY-FIRED BRICK
B-6		VENDOR: BORAL BRICK COLOR: TARRYTOWN MATERIAL: CLAY-FIRED BRICK
P-1		VENDOR: SHERWIN WILLIAMS COLOR: WEB GRAY NUMBER: SW7075 R:97, G:102, B:105 MATERIAL: SIDING
P-2		VENDOR: SHERWIN WILLIAMS COLOR: REPOSE GRAY NUMBER: SW7015 R:204, G:201, B:192 MATERIAL: TRIM & GUTTER
P-3		VENDOR: SHERWIN WILLIAMS COLOR: URBANE BRONZE NUMBER: SW7048 R:84, G:80, B:74 MATERIAL: RAILINGS & DOORS
R-2		COLOR: BRONZE MATERIAL: WINDOWS (ALUM.)
R-2		VENDOR: CERTAINTEED SERIES: LANDMARK COLOR: HEATHER BLEND MATERIAL: ASPHALT SHINGLES

*EQUAL ALTERNATES MAY BE SUBSTITUTED WITH APPROVAL FROM ARCHITECT AND OWNER

PROJECT INFO.

Subdivision's Name: WestSide
Block / Lot Number: A / 1-19

Client: Davis Development
Phone: 770.474.5213
Address: 1050 Eagles Landing Parkway, Suite 300 Stockbridge, Georgia 30281

Architect: Geheber Lewis Assoc.
Phone: 404.228.1958
Address: 649 11th St. Atlanta, Georgia 30318

Applicant: MCF Investments
Phone: (214) 619-4930
Address: 15700 S.H. 121 Frisco, Texas 75035

Scale: AS NOTED
Date: 08/28/2018
Drawn By: BT

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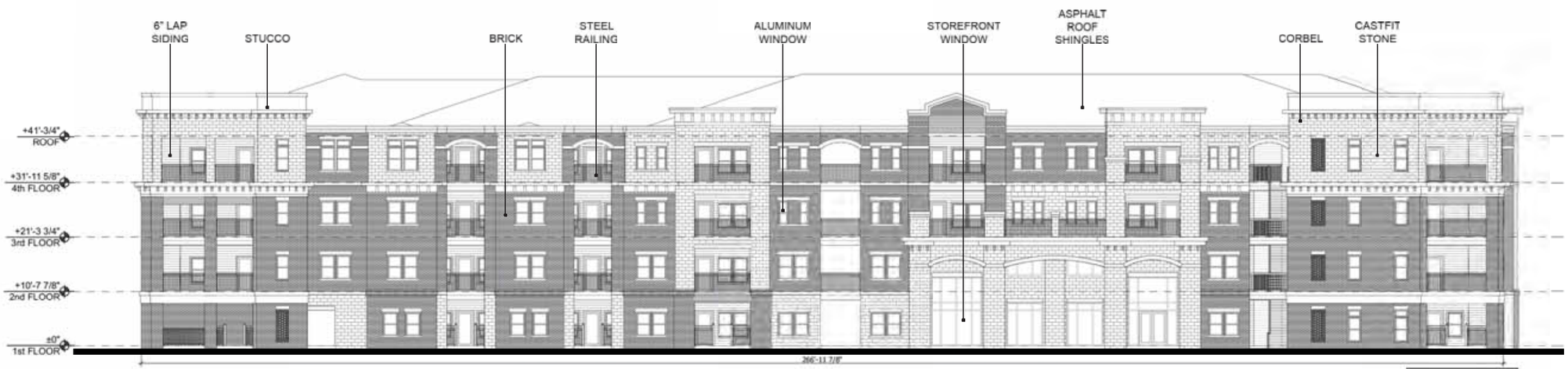
2 R-3 FRONT ELEVATION

SCALE: 3/32" = 1'-0"



BUILDING LEGEND

MATERIAL	SQ. FT.	PERCENTAGE
BRICK	3740	52%
STONE	2363	37%
GLAZING	1867	15%

1 R-3 FRONT ELEVATION

SCALE 3/32" = 1'-0"

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NOTES

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FACADE PLAN NOTES

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2. BUILDING RENDERINGS REFLEC TYPE DESIGN FORM AND INTENT OF THE REFERENCED BUILDINGS. ADDITIONAL DETAIL, GARAGE, TRASH SERVICES, AND OTHER ELEMENTS TO BE INCORPORATED AS DESIGN DEVELOPS.
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ABBREVIATIONS

ALUM.	ALUMINUM	0-00	ELEVATION HGT.
BLDG.	BUILDING	DWG.NO.	DWG.TITLE
BRZWY.	BREEZEWAY	A1 DRAWING	SCALE
FF.	FINISHED FLOOR	A1 DWG.	TITLE
STL.	STEEL		

FACADE PLANS

MATERIAL LEGEND

TAG	SWATCH	DESCRIPTION	TAG	SWATCH	DESCRIPTION	TAG	SWATCH	DESCRIPTION	TAG	SWATCH	DESCRIPTION
S-1		VENDOR: BORAL CASTFIT CUT: FRENCH GRAY COLOR: GRAY MATERIAL: NATURAL STONE	B-4		VENDOR: BORAL BRICK COLOR: REMINGTON CLASSIC MATERIAL: CLAY-FIRED BRICK	P-1		VENDOR: SHERWIN WILLIAMS COLOR: WEB GRAY NUMBER: SW7075 R:97, G:102, B:105 MATERIAL: SIDING	R-2		COLOR: BRONZE MATERIAL: WINDOWS (ALUM.)
ST-1		VENDOR: SHERWIN WILLIAMS COLOR: STUDIO TAUPE NUMBER: SW7549 R:173, G:156, B:133 MATERIAL: STUCCO	B-5		VENDOR: BORAL BRICK COLOR: SUMMER HARVEST MATERIAL: CLAY-FIRED BRICK	P-2		VENDOR: SHERWIN WILLIAMS COLOR: REPOSE GRAY NUMBER: SW7015 R:204, G:201, B:192 MATERIAL: TRIM & GUTTER			VENDOR: CERTAINTEED SERIES: LANDMARK COLOR: HEATHER BLEND MATERIAL: ASPHALT SHINGLES
			B-6		VENDOR: BORAL BRICK COLOR: TARRYTOWN MATERIAL: CLAY-FIRED BRICK	P-3		VENDOR: SHERWIN WILLIAMS COLOR: URBANE BRONZE NUMBER: SW7048 R:84, G:80, B:74 MATERIAL: RAILINGS & DOORS			

*EQUAL ALTERNATES MAY BE SUBSTITUTED WITH APPROVAL FROM ARCHITECT AND OWNER

PROJECT INFO.

Subdivision's Name: WestSide
Block / Lot Number: A / 1-19

Client: Davis Development
Phone: 770.474.5213
Address: 1050 Eagles Landing Parkway, Suite 300 Stockbridge, Georgia 30281

Architect: Geheber Lewis Assoc.
Phone: 404.228.1958
Address: 649 11th St. Atlanta, Georgia 30318

Applicant: MCF Investments
Phone: (214) 619-4930
Address: 15700 S.H. 121 Frisco, Texas 75035

Scale: AS NOTED
Date: 08/28/2018
Drawn By: BT

NOT RELEASED FOR CONSTRUCTION www.gla-arl.com

2 R-4 FRONT ELEVATION

SCALE: 1/32" = 1'-0"

1 R-4 FRONT ELEVATION

SCALE: 3/32" = 1'-0"

gla

GLA-ATL, LLC

649 11TH STREET
ATLANTA, GA 30318
VOICE: 404.228.1958
FAX: 404.228.8358

WWW.GLAATL.COM

FACADE PLANS

NOTES

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ABBREVIATIONS

ALUM.	ALUMINUM
BLDG.	BUILDING
BRZWY.	BREEZEWAY
FF.	FINISHED FLOOR
STL.	STEEL

0-00 ELEVATION HGT.

DWG.NO. DWG.TITLE
A1 DRAWING SCALE

A1 DWG. TITLE

MATERIAL LEGEND

TAG	SWATCH	DESCRIPTION
S-1		VENDOR: BORAL CASTFIT CUT: FRENCH GRAY COLOR: GRAY MATERIAL: NATURAL STONE
ST-1		VENDOR: SHERWIN WILLIAMS COLOR: STUDIO TAUPE NUMBER: SW7549 R:173, G:156, B:133 MATERIAL: STUCCO

TAG	SWATCH	DESCRIPTION
B-4		VENDOR: BORAL BRICK COLOR: REMINGTON CLASSIC MATERIAL: CLAY-FIRED BRICK
B-5		VENDOR: BORAL BRICK COLOR: SUMMER HARVEST MATERIAL: CLAY-FIRED BRICK
B-6		VENDOR: BORAL BRICK COLOR: TARRYTOWN MATERIAL: CLAY-FIRED BRICK

TAG	SWATCH	DESCRIPTION
P-1		VENDOR: SHERWIN WILLIAMS COLOR: WEB GRAY NUMBER: SW7075 R:97, G:102, B:105 MATERIAL: SIDING
P-2		VENDOR: SHERWIN WILLIAMS COLOR: REPOSE GRAY NUMBER: SW7015 R:204, G:201, B:192 MATERIAL: TRIM & GUTTER
P-3		VENDOR: SHERWIN WILLIAMS COLOR: URBANE BRONZE NUMBER: SW7048 R:84, G:80, B:74 MATERIAL: RAILINGS & DOORS

TAG	SWATCH	DESCRIPTION
		COLOR: BRONZE MATERIAL: WINDOWS(ALUM.)
R-2		VENDOR: CERTAINTEED SERIES: LANDMARK COLOR: HEATHER BLEND MATERIAL: ASPHALT SHINGLES

*EQUAL ALTERNATES MAY BE SUBSTITUTED WITH APPROVAL FROM ARCHITECT AND OWNER

PROJECT INFO.

Subdivision's Name: WestSide
Block / Lot Number: A / 1-19

Client: Davis Development
Phone: 770.474.5213
Address: 1050 Eagles Landing Parkway, Suite 300
Stockbridge, Georgia 30281

Architect: Geheber Lewis Assoc.
Phone: 404.228.1958
Address: 649 11th St.
Atlanta, Georgia 30318

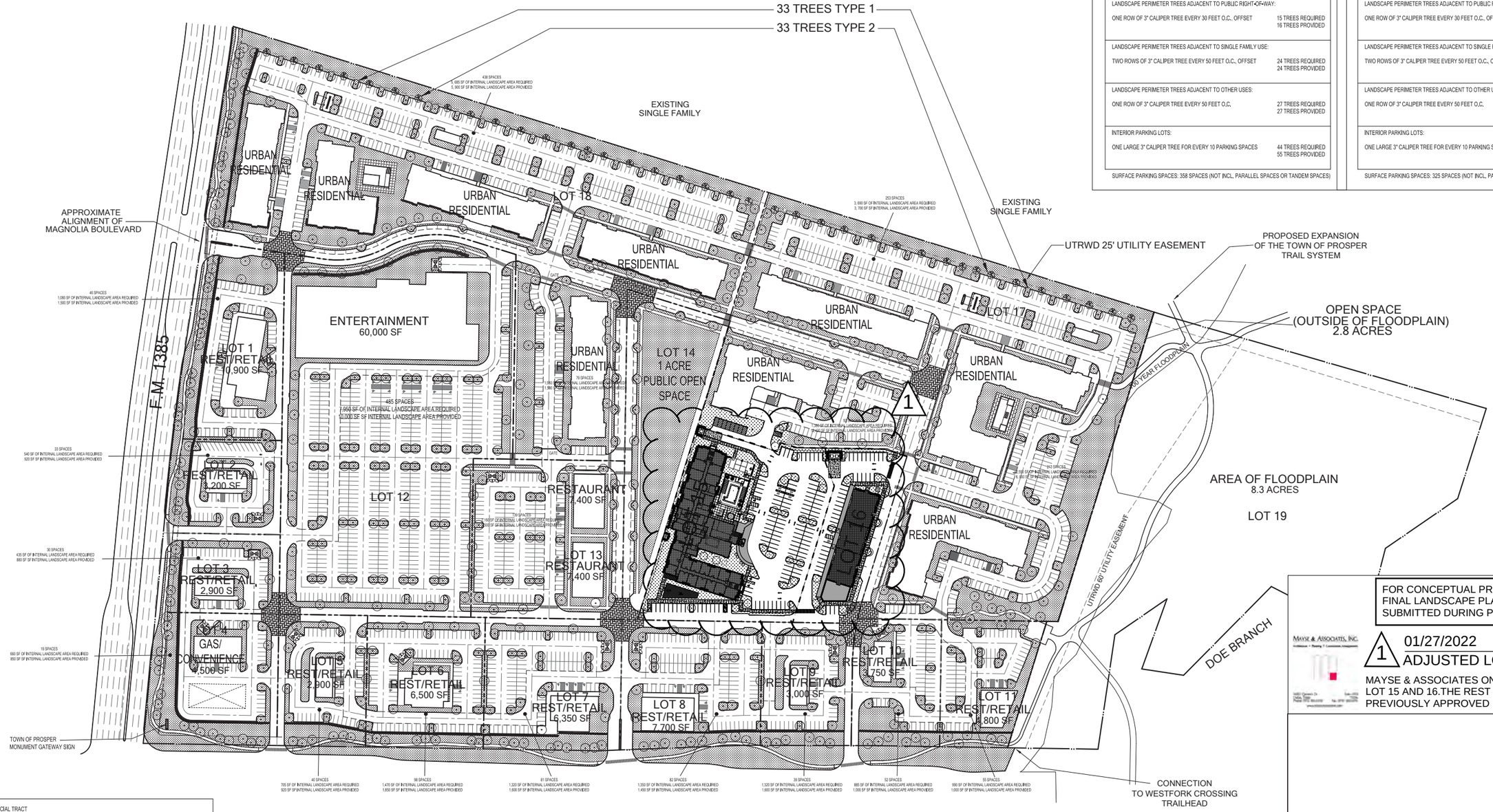
Applicant: MCF Investments
Phone: (214) 619-4930
Address: 15700 S.H. 121
Frisco, Texas 75035

Scale: AS NOTED
Date: 08/28/2018
Drawn By: BT

NOT RELEASED FOR CONSTRUCTION www.glaatl.com

MULTIFAMILY TRACT 1 LANDSCAPE DATA	
LANDSCAPE PERIMETER TREES ADJACENT TO PUBLIC RIGHT-OF-WAY:	
ONE ROW OF 3" CALIPER TREE EVERY 30 FEET O.C., OFFSET	15 TREES REQUIRED 16 TREES PROVIDED
LANDSCAPE PERIMETER TREES ADJACENT TO SINGLE FAMILY USE:	
TWO ROWS OF 3" CALIPER TREE EVERY 50 FEET O.C., OFFSET	24 TREES REQUIRED 24 TREES PROVIDED
LANDSCAPE PERIMETER TREES ADJACENT TO OTHER USES:	
ONE ROW OF 3" CALIPER TREE EVERY 50 FEET O.C.	27 TREES REQUIRED 27 TREES PROVIDED
INTERIOR PARKING LOTS:	
ONE LARGE 3" CALIPER TREE FOR EVERY 10 PARKING SPACES	44 TREES REQUIRED 55 TREES PROVIDED
SURFACE PARKING SPACES: 358 SPACES (NOT INCL. PARALLEL SPACES OR TANDEM SPACES)	

MULTIFAMILY TRACT 2 LANDSCAPE DATA	
LANDSCAPE PERIMETER TREES ADJACENT TO PUBLIC RIGHT-OF-WAY:	
ONE ROW OF 3" CALIPER TREE EVERY 30 FEET O.C., OFFSET	0 TREES REQUIRED 0 TREES PROVIDED
LANDSCAPE PERIMETER TREES ADJACENT TO SINGLE FAMILY USE:	
TWO ROWS OF 3" CALIPER TREE EVERY 50 FEET O.C., OFFSET	17 TREES REQUIRED 17 TREES PROVIDED
LANDSCAPE PERIMETER TREES ADJACENT TO OTHER USES:	
ONE ROW OF 3" CALIPER TREE EVERY 50 FEET O.C.	27 TREES REQUIRED 36 TREES PROVIDED
INTERIOR PARKING LOTS:	
ONE LARGE 3" CALIPER TREE FOR EVERY 10 PARKING SPACES	41 TREES REQUIRED 70 TREES PROVIDED
SURFACE PARKING SPACES: 325 SPACES (NOT INCL. PARALLEL SPACES OR TANDEM SPACES)	



COMMERCIAL TRACT LANDSCAPE DATA	
LANDSCAPE PERIMETER TREES ADJACENT TO MAJOR OR MINOR THOROUGHFARE:	
ONE ROW OF 3" CALIPER TREE EVERY 30 FEET O.C.	110 TREES REQUIRED 112 TREES PROVIDED
SURFACE PARKING SPACES: 1,561 SPACES (NOT INCL. PARALLEL SPACES)	

THIS TABLE IS NOT UPDATED FOR LOT 15 AND LOT 16 CHANGES

— SECURITY GATE
⊙ 3" CALIPER TREE-TYPE I
3" CALIPER EVERGREEN TREE-TYPE II
⊙ 15 GALLON SHRUB

Note: The minimum requirements for perimeter landscaping and parking terminus landscaping islands will be provided at the time of Site Plan, subject to Park and Recreation Department approval.

WESTSIDE
PROSPER, TX

FOR CONCEPTUAL PROPOSE ONLY. FINAL LANDSCAPE PLAN WILL BE SUBMITTED DURING PERMITTING.

MAYSE & ASSOCIATES, INC.

1 01/27/2022
ADJUSTED LOT 15&16
MAYSE & ASSOCIATES ONLY ADJUSTED LOT 15 AND 16.THE REST BY OTHERS AND PREVIOUSLY APPROVED

For Staff Use

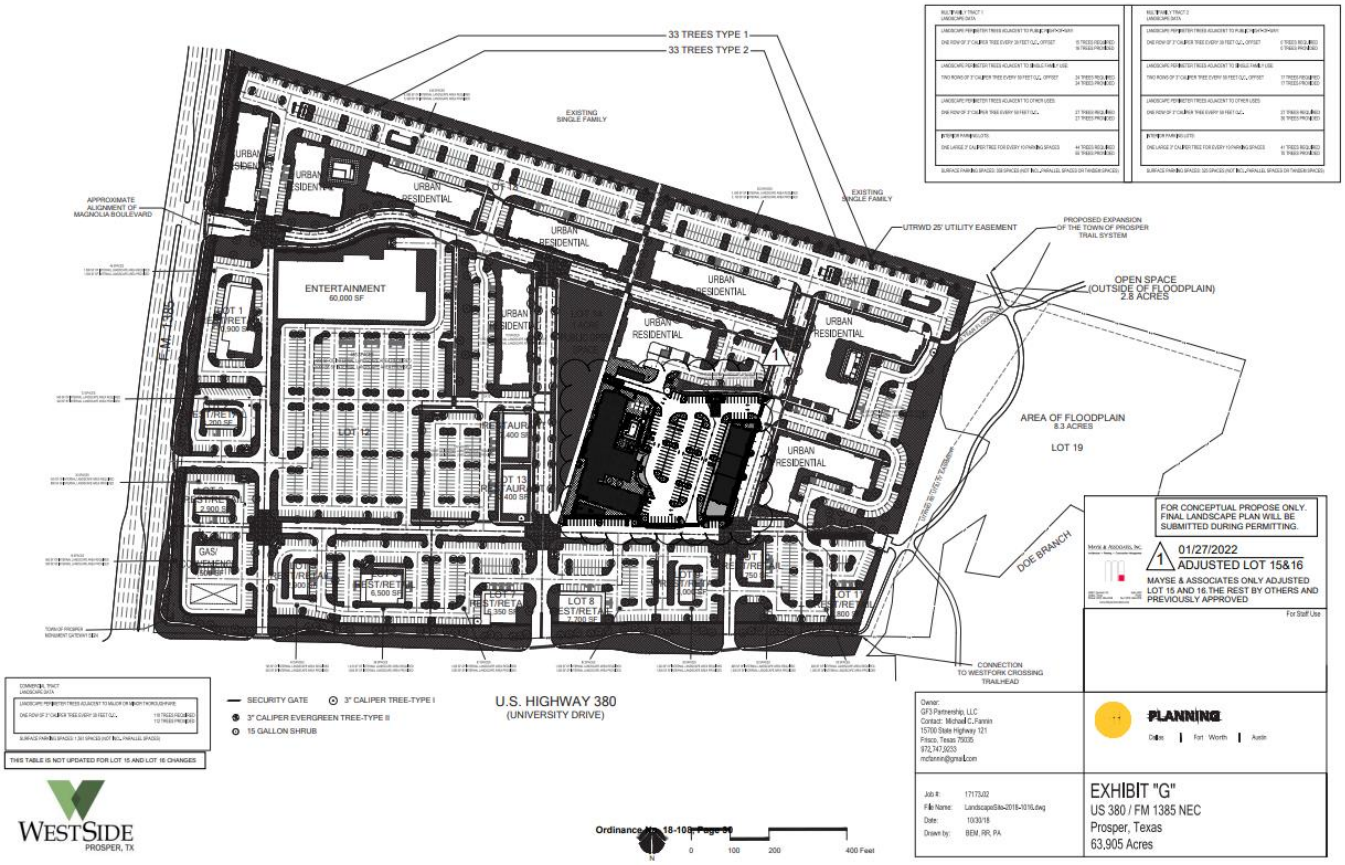
Owner:
GF3 Partnership, LLC
Contact: Michael C. Fannin
15700 State Highway 121
Frisco, Texas 75035
972.747.9233
mcfannin@gmail.com

gff **PLANNING**
Dallas | Fort Worth | Austin

Job #: 17173.02
File Name: LandscapeSite-2018-1016.dwg
Date: 10/30/18
Drawn by: BEM, RR, PA

EXHIBIT "G"
US 380 / FM 1385 NEC
Prosper, Texas
63.905 Acres

Exhibit G


33 TREES TYPE 1
33 TREES TYPE 2
EXISTING SINGLE FAMILY
APPROXIMATE ALIGNMENT OF MAGNOLIA BOULEVARD
UTRWD 25' UTILITY EASEMENT
PROPOSED EXPANSION OF THE TOWN OF PROSPER TRAIL SYSTEM
OPEN SPACE (OUTSIDE OF FLOODPLAIN) 2.8 ACRES
ENTERTAINMENT 60,000 SF
URBAN RESIDENTIAL
AREA OF FLOODPLAIN 8.3 ACRES
LOT 19
DOE BRANCH
CONNECTION TO WESTFORK CROSSING TRAILHEAD
FOR CONCEPTUAL PROPOSE ONLY. FINAL LANDSCAPE PLAN WILL BE SUBMITTED DURING PERMITTING.
01/27/2022
ADJUSTED LOT 15&16
MAYSE & ASSOCIATES ONLY ADJUSTED LOT 15 AND 16.THE REST BY OTHERS AND PREVIOUSLY APPROVED
For Staff Use
SECURITY GATE
3" CALIPER TREE-TYPE I
3" CALIPER EVERGREEN TREE-TYPE II
15 GALLON SHRUB
U.S. HIGHWAY 380
(UNIVERSITY DRIVE)
THIS TABLE IS NOT UPDATED FOR LOT 15 AND LOT 16 CHANGES
WESTSIDE
PROSPER, TX
PLANNING
Dallas | Fort Worth | Austin
EXHIBIT "G"
US 380 / FM 1385 NEC
Prosper, Texas
63.905 Acres
0 100 200 400 Feet

PLANNING

TOWN OF PROSPER

Prosper is a place where everyone matters.

To: **Mayor and Town Council**

From: **David Soto, Planning Manager**

Through: **Harlan Jefferson, Town Manager**
Hulon T. Webb, Jr., Interim Executive Director of Development and Infrastructure Services

Re: **Town Council Meeting – June 28, 2022**

Agenda Item:
Consider and act upon authorizing the Town Manager to execute a Development Agreement between Alpha3 Prosper RI, LLC, and the Town of Prosper, Texas, related to development on the Westside Development, located on the northeast corner of US 380 and FM 1385.

Description of Agenda Item:
On April 26, 2022, the Town Council approved a zoning request Z20-0001 by a vote of 6-0, subject to an amendment to the existing Development Agreement with the Town. The purpose of the Development Agreement is to amend the existing Development Agreement to prohibit certain business establishments for Lots 15 & 16. A Development Agreement has been prepared accordingly.

Legal Obligations and Review:
Town Attorney, Terrence Welch of Brown & Hofmeister, L.L.P., has reviewed the agreement as to form and legality.

Attached Documents:
1. Development Agreement

Staff Recommendation:
Staff recommends the Town Council authorizing the Town Manager to execute a Development Agreement between Alpha3 Prosper RI, LLC, and the Town of Prosper, Texas, related to development on the Westside Development, located on the northeast corner of US 380 and FM 1385.

Proposed Motion:
I move to authorizing the Town Manager to execute a Development Agreement between Alpha3 Prosper RI, LLC, and the Town of Prosper, Texas, related to development on the Westside Development, located on the northeast corner of US 380 and FM 1385.

DEVELOPMENT AGREEMENT

THIS DEVELOPMENT AGREEMENT ("Agreement") is entered into by and between the Town of Prosper, Texas ("Town"), and Alpha3 Prosper RI, LLC, a Texas limited liability company ("Developer"), collectively referred to as "Parties," to be effective on the date last executed by either of the Parties (the "Effective Date").

WHEREAS, the Town is a home-rule municipal corporation, located in Collin County and Denton County, Texas, organized and existing under the laws of the State of Texas; and

WHEREAS, Developer along with other developers are developing on an approximate 64.501-acre tract of land generally located at the northeast corner of U.S. Highway 380 and FM 1385 in Denton County, more particularly described and depicted in Exhibit A, attached hereto and incorporated by reference (the "Property"); and

WHEREAS, a portion of the foregoing Property being developed by Developer (identified as Lots 15 and 16, collectively, "the Lots," as depicted in Exhibit B, attached hereto and incorporated by reference) was rezoned by the Town Council on or about April 26, 2022, pursuant to Ordinance No. 2022-20, and this Agreement seeks to incorporate, in part, the negotiated and agreed upon development standards contained in said Ordinance, as may be amended, and/or this Development Agreement, to recognize Developer's reasonable investment-backed expectations in the development of Lots 15 and 16, as may be amended, and as more fully described herein; and

WHEREAS, subject to the terms of this Agreement, Developer agrees and acknowledges that it will not lease, sell or otherwise permit or authorize on the Lots any business enterprises engaging in those businesses referenced in Paragraph 1, below.

NOW, THEREFORE, in consideration of the foregoing premises, and for other good and valuable consideration the receipt and adequacy of which are hereby acknowledged, the Parties to this Agreement agree as follows:

1. Certain Business Establishments Prohibited. Developer agrees and acknowledges that it will not lease, sell or otherwise permit or authorize on the Lots any of the following business establishments: (1) credit access businesses, as defined in Texas Finance Code § 393.601, as amended, including but not limited to payday lending businesses, "cash for title" lenders, and credit services businesses, as defined in Texas Finance Code § 393.001, as amended); (2) body art facilities; (3) smoke or vape shops; (4) any business entity that sells drug paraphernalia; (5) any business establishment offering gaming or slot machines; (6) sex shops, including but not limited to business entities whose primary purpose is the sale of lewd merchandise; (7) pawn shops; and (8) business entities which primarily utilize outdoor storage or displays. Additionally, as to the Lots , Developer agrees and acknowledges that it will not lease, sell or otherwise permit or authorize on the Lots a package liquor store, which for purposes of this Agreement is defined as any business entity that is required to obtain a Package Store Permit (P) from the Texas Alcoholic Beverage Commission for the off-premises consumption of alcohol.

Nothing in this Agreement shall be deemed to modify or otherwise amend any zoning regulation duly adopted by the Town, previously or in the future.

2. **Covenant Running with the Land**. The terms, conditions, rights, obligations, benefits, covenants and restrictions of the provisions of this Agreement shall be deemed covenants running with the land, and shall be binding upon and inure to the benefit of the Developer and its heirs, representatives, successors and assigns. This Agreement shall be deemed to be incorporated into each deed and conveyance of the Property or any portion thereof hereafter made by any other owners of the Property, regardless of whether this Agreement is expressly referenced therein.

3. **Applicability of Town Ordinances**. Developer shall construct all structures on Lots 15 and 16 of the Property in accordance with all applicable Town ordinances and building/construction codes, whether now existing or arising prior to such construction in the future.

4. **Default**. No Party shall be in default under this Agreement until notice of the alleged failure of such Party to perform has been given (which notice shall set forth in reasonable detail the nature of the alleged failure) and until such Party has been given a reasonable time to cure the alleged failure (such reasonable time determined based on the nature of the alleged failure, but in no event less than thirty (30) days after written notice of the alleged failure has been given). In addition, no Party shall be in default under this Agreement if, within the applicable cure period, the Party to whom the notice was given begins performance and thereafter diligently and continuously pursues performance until the alleged failure has been cured. If either Party is in default under this Agreement, the other Party shall have the right to enforce the Agreement in accordance with applicable law, provided, however, in no event shall any Party be liable for consequential or punitive damages.

5. **Venue**. This Agreement shall be governed by and construed in accordance with the laws of the State of Texas, and all obligations of the Parties created hereunder are performable in Denton County, Texas. Exclusive venue for any action arising under this Agreement shall lie in Denton County, Texas.

6. **Notice**. Any notices required or permitted to be given hereunder (each, a "Notice") shall be given by certified or registered mail, return receipt requested, to the addresses set forth below or to such other single address as either party hereto shall notify the other:

If to the Town: The Town of Prosper
200 S. Main Street
P.O. Box 307
Prosper, Texas 75078
Attention: Town Manager

If to Developer: Alpha3 Prosper RI, LLC
1700 Pacific Avenue, Suite 1850
Dallas, Texas 75201
Attention: Arzu Molubhoy

7. **Prevailing Party**. In the event any person initiates or defends any legal action or proceeding to enforce or interpret any of the terms of this Agreement, the prevailing party in any such action or proceeding shall be entitled to recover its reasonable costs and attorney's fees (including its reasonable costs and attorney's fees on any appeal).

8. **Entire Agreement.** This Agreement contains the entire agreement between the Parties hereto with respect to development of the Property and supersedes all prior agreements, oral or written, with respect to the subject matter hereof. The provisions of this Agreement shall be construed as a whole and not strictly for or against any Party.

9. **Savings/Severability**. In the event any provision of this Agreement shall be determined by any court of competent jurisdiction to be invalid or unenforceable, the Agreement shall, to the extent reasonably possible, remain in force as to the balance of its provisions as if such invalid provision were not a part hereof.

10. **Binding Agreement**. A telecopied facsimile or pdf of a duly executed counterpart of this Agreement shall be sufficient to evidence the binding agreement of each party to the terms herein.

11. **Authority to Execute**. This Agreement shall become a binding obligation on the signatories upon execution by all signatories hereto. The Town warrants and represents that the individual executing this Agreement on behalf of the Town has full authority to execute this Agreement and bind the Town to the same. Developer warrants and represents that the individual executing this Agreement on behalf of Developer has full authority to execute this Agreement and bind Developer to the same. The Town Council hereby authorizes the Town Manager of the Town to execute this Agreement on behalf of the Town.

12. **Mediation**. In the event of any disagreement or conflict concerning the interpretation of this Agreement, and such disagreement cannot be resolved by the signatories hereto, the signatories agree to submit such disagreement to non-binding mediation.

13. **Notification of Sale or Transfer; Assignment of Agreement**. Developer has the right (from time to time without the consent of the Town, but upon written notice to the Town) to assign this Agreement, in whole or in part, and including any obligation, right, title, or interest of Developer under this Agreement, to any person or entity (an "Assignee") that is or will become an owner of any portion of the Property or that is an entity that is controlled by or under common control with Developer. Each assignment shall be in writing executed by Developer and the Assignee and shall obligate the Assignee to be bound by this Agreement. A copy of each assignment shall be provided to the Town within ten (10) business days after execution. Provided that the successor

owner assumes the liabilities, responsibilities, and obligations of the assignor under this Agreement, the assigning party will be released from any rights and obligations under this Agreement as to the Property that is the subject of such assignment, effective upon receipt of the assignment by the Town. No assignment by Developer shall release Developer from any liability that resulted from an act or omission by Developer that occurred prior to the effective date of the assignment. Developer shall maintain true and correct copies of all assignments made by Developer to Assignees, including a copy of each executed assignment and the Assignee's Notice information.

14. **Sovereign Immunity**. The Parties agree that the Town has not waived its sovereign immunity from suit by entering into and performing its obligations under this Agreement.

15. **Effect of Recitals**. The recitals contained in this Agreement: (a) are true and correct as of the Effective Date; (b) form the basis upon which the Parties negotiated and entered into this Agreement; (c) are legislative findings of the Town Council; and (d) reflect the final intent of the Parties with regard to the subject matter of this Agreement. In the event it becomes necessary to interpret any provision of this Agreement, the intent of the Parties, as evidenced by the recitals, shall be taken into consideration and, to the maximum extent possible, given full effect. The Parties have relied upon the recitals as part of the consideration for entering into this Agreement and, but for the intent of the Parties reflected by the recitals, would not have entered into this Agreement.

16. **Consideration**. This Agreement is executed by the parties hereto without coercion or duress and for substantial consideration, the sufficiency of which is forever confessed.

17. **Counterparts**. This Agreement may be executed in a number of identical counterparts, each of which shall be deemed an original for all purposes. A facsimile or pdf signature will also be deemed to constitute an original.

18. **Third Party Beneficiaries**. Nothing in this Agreement shall be construed to create any right in any third party not a signatory to this Agreement, and the Parties do not intend to create any third-party beneficiaries by entering into this Agreement.

19. **Amendment**. This Agreement shall not be modified or amended except in writing signed by the Parties. A copy of each amendment to this Agreement, when fully executed and recorded, shall be provided to each Party, Assignee and successor Developer of all or any part of the Property; however, the failure to provide such copies shall not affect the validity of any amendment.

20. **Miscellaneous Drafting Provisions**. This Agreement shall be deemed drafted equally by all Parties hereto. The language of all parts of this Agreement shall be construed as a whole according to its fair meaning, and any presumption or principle that the language herein is to be construed against any Party shall not apply.

IN WITNESS WHEREOF, the parties hereto have caused this document to be executed as of the date referenced herein.

TOWN:

THE TOWN OF PROSPER, TEXAS

By: _____
Name: Harlan Jefferson
Title: Town Manager, Town of Prosper

STATE OF TEXAS)
)
COUNTY OF COLLIN)

This instrument was acknowledged before me on the ___ day of _____, 2022, by Harlan Jefferson, Town Manager of the Town of Prosper, Texas, on behalf of the Town of Prosper, Texas.

_____
Notary Public, State of Texas
My Commission Expires: _____

DEVELOPER:

ALPHA3 PROSPER RI, LLC, a Texas limited liability company

By: Arzu Molubhoy
Arzu Molubhoy, Manager

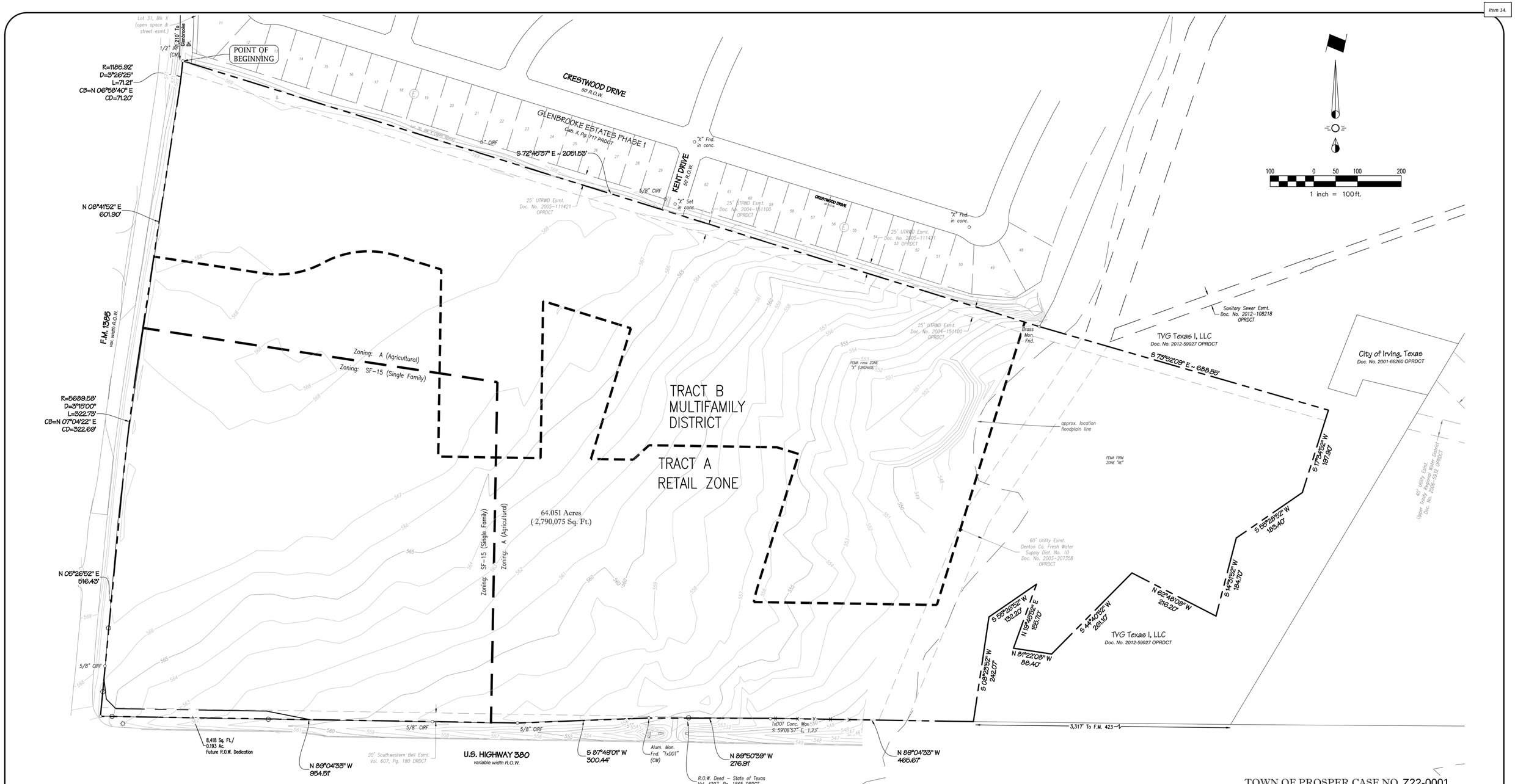
STATE OF TEXAS)
)
COUNTY OF COLLIN)

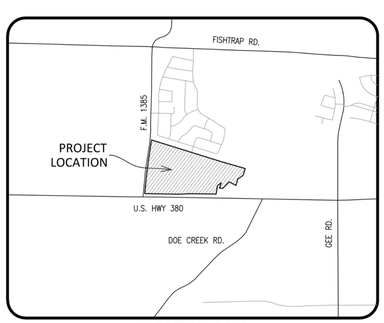
This instrument was acknowledged before me on the 26th day of MAY, 2022, by Arzu Molubhoy, in her capacity as Manager of Alpha3 Prosper RI, LLC, a Texas limited liability company, known to be the person whose name is subscribed to the foregoing instrument, and that she executed the same on behalf of and as the act of Developer.

ZACHARY FARRIS
Notary ID #132407395
My Commission Expires
March 17, 2024

Notary Public, State of Texas
My Commission Expires: MARCH, 17, 2024

EXHIBIT A
(Property Description)





LOCATION MAP
1" = 2000'

METES AND BOUNDS DESCRIPTION

BEING a tract of land situated in the J. Gonzalez Survey, Abstract No. 447, the B. Hodges Survey, Abstract No. 593, the P. Barnes Survey, Abstract No. 79, the R. Taylor Survey, Abstract No. 1671, the J. Haynes Survey, Abstract No. 573, and the Angus Jamison Survey, town of Prosper, Denton County, Texas, the subject tract being a portion of a tract conveyed to M. Taylor Hansel according to the deed recorded in Document No. 94-91793 of the Official Public Records, Denton County, Texas (OPRDCT), with the subject tract being more particularly described as follows:

BEGINNING at a 1/2" iron rod found on the east line of Farm to Market Road 1385 (F.M. 1385), a variable width right-of-way, for the southwest corner of Glenbrook Estates Phase 1, an addition recorded in Cabinet X, Page 717, Plat Records, Denton County, Texas;

THENCE S 72°45'37" E, 2051.53 feet along the south line of Glenbrook Estates Phase 1 to a U.S. Army Corps of Engineers brass monument found for the southeast corner thereof and a westerly corner of a tract conveyed to TVG Texas I, LLC, recorded in Document No. 2012-59927 OPRDCT;

THENCE along the common line thereof, the following:

S 73°52'09" E, 688.55 feet;

S 17°34'52" W, 197.90 feet;

S 55°28'52" W, 183.40 feet;

S 14°31'52" W, 184.70 feet;

N 62°48'08" W, 216.20 feet;

S 44°40'52" W, 261.10 feet;

N 81°22'08" W, 88.40 feet;

N 19°45'52" E, 155.70 feet;

S 55°26'52" W, 132.20 feet;

And S 08°23'52" W, 242.07 feet to the north line of U.S. Highway 380, a variable width right-of-way;

THENCE along the north line of U.S. Highway 380, the following:

N 89°04'33" W, 465.67 feet to a point from which a concrete right-of-way monument bears S 59°08'57" E, 1.23 feet;

N 89°50'39" W, 276.91 feet to an aluminum TxDOT monument found;

S 87°49'01" W, 300.44 feet to a 5/8" iron rod with plastic cap found;

And N 89°04'33" W, 954.51 feet to a 1/2" iron rod with plastic cap stamped "SPIARSENG" set for the intersection of the north line of U.S. Highway 380 with the east line of F.M. 1385;

THENCE along the east line of F.M. 1385, the following:

N 05°26'52" E, 516.43 feet;

A tangent curve to the right having a central angle of 03°15'00", a radius of 5689.58 feet, a chord of N 07°04'22" E - 322.69 feet, an arc length of 322.73 feet;

N 08°41'52" E, 601.90 feet;

And a tangent curve to the left having a central angle of 03°26'25", a radius of 1185.92 feet, a chord of N 06°58'40" E - 71.20 feet, an arc length of 71.21 feet to the POINT OF BEGINNING with the subject tract containing 2,790,075 square feet or 64.051 acres of land.

TOWN OF PROSPER CASE NO. Z22-0001
Exhibit A

WestSide

BEING 64.501 ACRES OF LAND (GROSS)
63.858 ACRES OF LAND (NET)
IN THE B. HODGES SURVEY, ABSTRACT NO. 593 &
IN THE J. GONZALEZ SURVEY, ABSTRACT NO. 447 &
IN THE P. BARNES SURVEY, ABSTRACT NO. 79 &
IN THE R. TAYLOR SURVEY, ABSTRACT NO. 1671 &
IN THE J. HAYNES SURVEY, ABSTRACT NO. 573 &
IN THE ANGUS JAMISON SURVEY
TOWN OF PROSPER, DENTON COUNTY, TEXAS

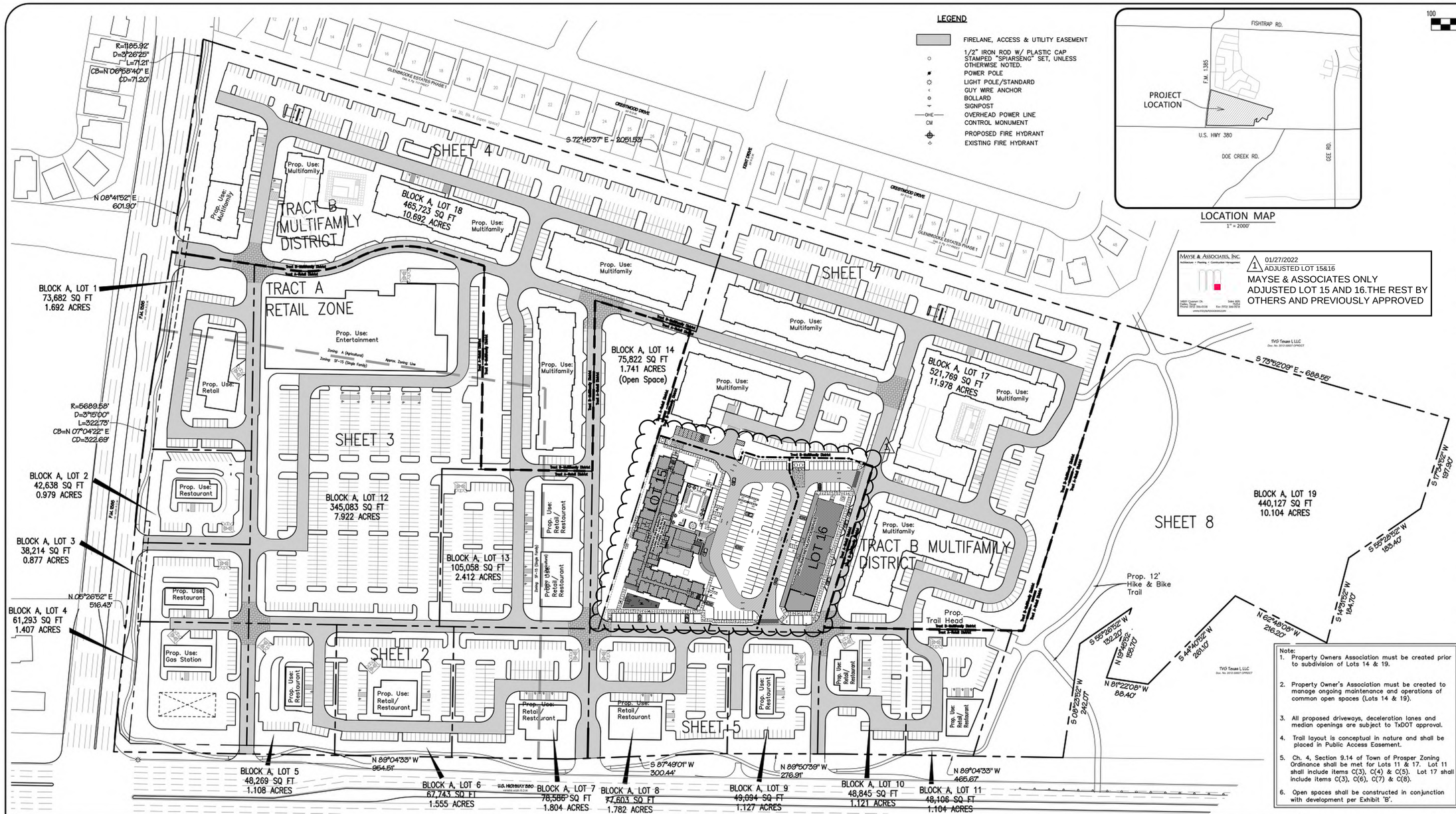
OWNER
Taylor Hansel
P.O. Box 770
Frisco, Texas 75034

APPLICANT
MCF Investments
15700 S.H. 121
Frisco, Texas 75035
Telephone (214) 619-4930
Contact: Mike Fannin

ENGINEER / SURVEYOR
Spiars Engineering, Inc.
765 Custer Road, Suite 100
Plano, TX 75075
Telephone: (972) 422-0077
TBPE No. F-2121 / TBPLS No. F-10043100
Contact: Kevin Wier

Scale: 1"=100' September, 2018 SEI Job No. 17-219

EXHIBIT B
(Depiction of Lots 15 and 16)



Town of Prosper Site Plan Notes:

1. Dumpsters and trash compactors shall be screened in accordance of the Comprehensive Zoning Ordinance.
2. Open storage, where permitted, shall be screened in accordance with the Comprehensive Zoning Ordinance.
3. Outdoor lighting shall comply with the lighting and glare standards contained within the Comprehensive Zoning Ordinance and Subdivision Regulation Ordinance.
4. Landscaping shall conform to landscape plans approved by the town.
5. All elevations shall comply with the standards contained within the Comprehensive Zoning Ordinance.
6. Buildings of 5,000 square feet or greater shall be 100% fire sprinkled. Alternative fire protection measures may be approved by the Fire Department.
7. Fire lanes shall be designed and constructed per town standards or as directed by the Fire Department.
8. Two points of access shall be maintained for the property at all times.
9. Speedbumps/humps are not permitted within a fire lane.
10. Handicapped parking areas and building accessibility shall conform to the Americans with Disabilities Act (ADA) and with the requirements of the current, adopted uniform Building Code.
11. All signage is subject to Building Official approval.
12. All fences and retaining walls shall be shown on the site plan and are subject to Building Official approval.
13. All exterior building materials are subject to Building Official approval and shall conform to the approved facade plan.
14. Sidewalks of not less than six (6') feet in width along thoroughfares and five (5') in width along collectors and residential streets, and barrier free ramps at all curb crossings shall be provided per Town standards.
15. Approval of the site plan is not final until all engineering plans are approved by the Town Engineer.
16. Site plan approval is required prior to grading release.
17. All new electrical lines shall be installed and/or relocated underground.
18. All mechanical equipment shall be screened from public view in accordance with the Comprehensive Zoning Ordinance.
19. Impact fees will be assessed in accordance with the land use classification(s) identified on the Site Data Summary Table; however, changes to the proposed land use at the time CO and/or finish-out permit may result in additional impact fees and/or parking requirements.

Note:
1. Property Owners Association must be created prior to subdivision of Lots 14 & 19.
2. Property Owner's Association must be created to manage ongoing maintenance and operations of common open spaces (Lots 14 & 19).
3. All proposed driveways, deceleration lanes and median openings are subject to TxDOT approval.
4. Trail layout is conceptual in nature and shall be placed in Public Access Easement.
5. Ch. 4, Section 9.14 of Town of Prosper Zoning Ordinance shall be met for Lots 11 & 17. Lot 11 shall include items C(3), C(4) & C(5). Lot 17 shall include items C(3), C(6), C(7) & C(8).
6. Open spaces shall be constructed in conjunction with development per Exhibit 'B'.

SITE DATA SUMMARY TABLE

LOT	ZONING	PROPOSED USE	LOT AREA SF	LOT AREA AC	FIRST FLOOR BUILDING AREA (SF)	TOTAL BUILDING AREA (SF)	UNIT COUNT	BUILDING HEIGHT (ft)	MAX. BUILDING HEIGHT (story)	COVERAGE (%)	FLOOR AREA RATIO	REQ. PARKING RATIO	PARKING REQUIRED	PARKING PROVIDED	REQUIRED HANDICAP PARKING	PROVIDED HANDICAP PARKING	INTERIOR LANDSCAPE REQUIRED (SF)	INTERIOR LANDSCAPE PROVIDED (SF)	IMPERVIOUS AREA (SF)	OPEN SPACE REQUIRED (SF)	OPEN SPACE PROVIDED (SF)
1	PD	RETAIL	73,682	1.69	10,950	10,950	N/A	40'	1	14.9%	0.1486:1	1:250	44	62	2	2	930	34,878	33,874	5,158	Provided in Lots 14/19
2	PD	RESTAURANT W/ D.T.	42,638	0.98	3,172	3,172	N/A	40'	1	7.4%	0.0744:1	1:100	32	33	1	1	495	13,906	25,754	2,985	Provided in Lots 14/19
3	PD	RESTAURANT W/ D.T.	38,214	0.88	2,872	2,872	N/A	40'	1	7.5%	0.0752:1	1:100	29	32	1	1	480	12,064	24,600	2,675	Provided in Lots 14/19
4	PD	GAS STATION	61,293	1.41	4,500	4,500	N/A	40'	1	7.3%	0.0734:1	1:250	18	28	1	1	420	21,561	35,374	4,291	Provided in Lots 14/19
5	PD	RESTAURANT W/ D.T.	48,269	1.11	2,880	2,880	N/A	40'	1	6.0%	0.0597:1	1:100	29	41	1	1	615	15,949	30,349	3,379	Provided in Lots 14/19
6	PD	RETAIL/RESTAURANT	67,743	1.56	6,447	6,447	N/A	40'	1	9.5%	0.0952:1	1:75	86	98	4	4	1,470	24,584	38,417	4,742	Provided in Lots 14/19
7	PD	RETAIL/RESTAURANT	78,586	1.80	6,321	6,321	N/A	40'	1	8.0%	0.0804:1	1:75	85	102	4	4	1,530	26,625	46,460	5,501	Provided in Lots 14/19
8	PD	RETAIL/RESTAURANT	77,603	1.78	7,700	7,700	N/A	40'	1	9.9%	0.0992:1	1:75	103	99	4	4	1,485	24,516	47,655	5,432	Provided in Lots 14/19
9	PD	RESTAURANT W/ D.T.	49,094	1.13	2,931	2,931	N/A	40'	1	6.0%	0.0597:1	1:100	30	44	2	2	660	16,273	29,209	3,437	Provided in Lots 14/19
10	PD	RETAIL/RESTAURANT	48,845	1.12	3,756	3,756	N/A	40'	1	7.7%	0.0769:1	1:75	51	53	3	3	795	18,171	27,255	3,419	Provided in Lots 14/19
11	PD	RETAIL/RESTAURANT	48,106	1.10	4,805	4,805	N/A	40'	1	10.0%	0.0999:1	1:75	65	65	3	3	975	20,260	24,479	3,367	Provided in Lots 14/19
12	PD	ENTERTAINMENT	345,083	7.92	56,000	56,000	N/A	50'	2	16.2%	0.1623:1	1:150	374	494	12	12	7,410	105,889	221,992	24,156	Provided in Lots 14/19
13	PD	RETAIL/RESTAURANT	105,058	2.41	14,819	29,638	N/A	40	1	14.1%	0.2821:1	1:250	119	152	6	6	2,280	35,118	62,586	7,354	Provided in Lots 14/19
14	PD	OPEN SPACE	75,822	1.74	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	20	N/A	N/A	N/A	N/A	11,20X	N/A	64,532
15	PD	HOTEL	123,227	1.85	27,780	96,750	124	55'	5	22.5%	0.78:1	1 SPACE PER GUESTROOM	124	163 SHARED PARKING	6	6	1,470	27,051+/-	96,176+/-	5,637	Provided in Lots 14/19
16	PD	RETAIL/RESTAURANT/ OFFICE	52,296	1.2	10,858	10,858	N/A	40'	1	20.7%	0.20:1	1:250; 1:100; 1:350; REFER TO SHEET A0.2A	63				1,830	6,229+/-	46,067+/-	5,949	Provided in Lots 14/19
17	PD	MULTIFAMILY	521,769	11.98	111,516	319,215	343 (316 - 1B, 103 - 2B, 24 - 3B)	65'	4	21.4%	0.6118:1	1.8 per 1B&2B unit 2.0 per 3B unit	443	529	10	10	7,935	141,562	214,547	156,531	Provided in Lots 14/19
18	PD	MULTIFAMILY	465,723	10.69	99,752	282,821	237 (119 - 1B, 93 - 2B, 25 - 3B)	65'	4	21.4%	0.6073:1	1.8 per 1B&2B unit 2.0 per 3B unit	432	443	10	10	6,645	160,528	210,529	139,717	Provided in Lots 14/19
19	PD	OPEN SPACE	440,127	10.10	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	16,996	N/A	440,127
		Total=	2753170	63.20	370,761	889,208														383,729	506,659

SHT. 1 OF 8
TOWN OF PROSPER CASE NO. Z22-0001
Exhibit D Conceptual Plan

WestSide

BLOCK A, LOTS 1-19
BEING 64.501 ACRES OF LAND (GROSS)
63.858 ACRES OF LAND (NET)
IN THE B. HODGES SURVEY, ABSTRACT NO. 593 &
IN THE J. GONZALEZ SURVEY, ABSTRACT NO. 447 &
IN THE P. BARNES SURVEY, ABSTRACT NO. 79 &
IN THE R. TAYLOR SURVEY, ABSTRACT NO. 1671 &
IN THE J. HAYNES SURVEY, ABSTRACT NO. 573 &
IN THE ANGUS JAMISON SURVEY
TOWN OF PROSPER, DENTON COUNTY, TEXAS

OWNER
Taylor Hansel
P.O. Box 770
Frisco, Texas 75034

APPLICANT
MCF Investments
15700 S.H. 121
Frisco, Texas 75035
Telephone (214) 619-4930
Contact: Mike Fannin

ENGINEER / SURVEYOR
Spiars Engineering, Inc.
765 Custer Road, Suite 100
Plano, TX 75075
Telephone: (972) 422-0077
TBPE No. F-2121 / TBPLS No. F-10043100
Contact: Kevin Wier

Scale: 1"=100' September, 2018 SEI Job No. 17-219

LIST OF HOTEL AMENITIES PROVIDED

AMENITIES	APPROX SQUARE FOOTAGE
01. HOTEL LOBBY/LOUNGE	855 SQ.FT. +/-
02. REGISTRATION DESK	165 SQ.FT. +/-
03. DINNING AREA & PANTRY	937 SQ.FT. +/-
04. FITNESS CENTER @ 1ST FLOOR	846 SQ.FT. +/-
05. MEETING ROOM/BOARD ROOM @ 1ST FLOOR	342 SQ.FT. +/-

PARKING TABULATION

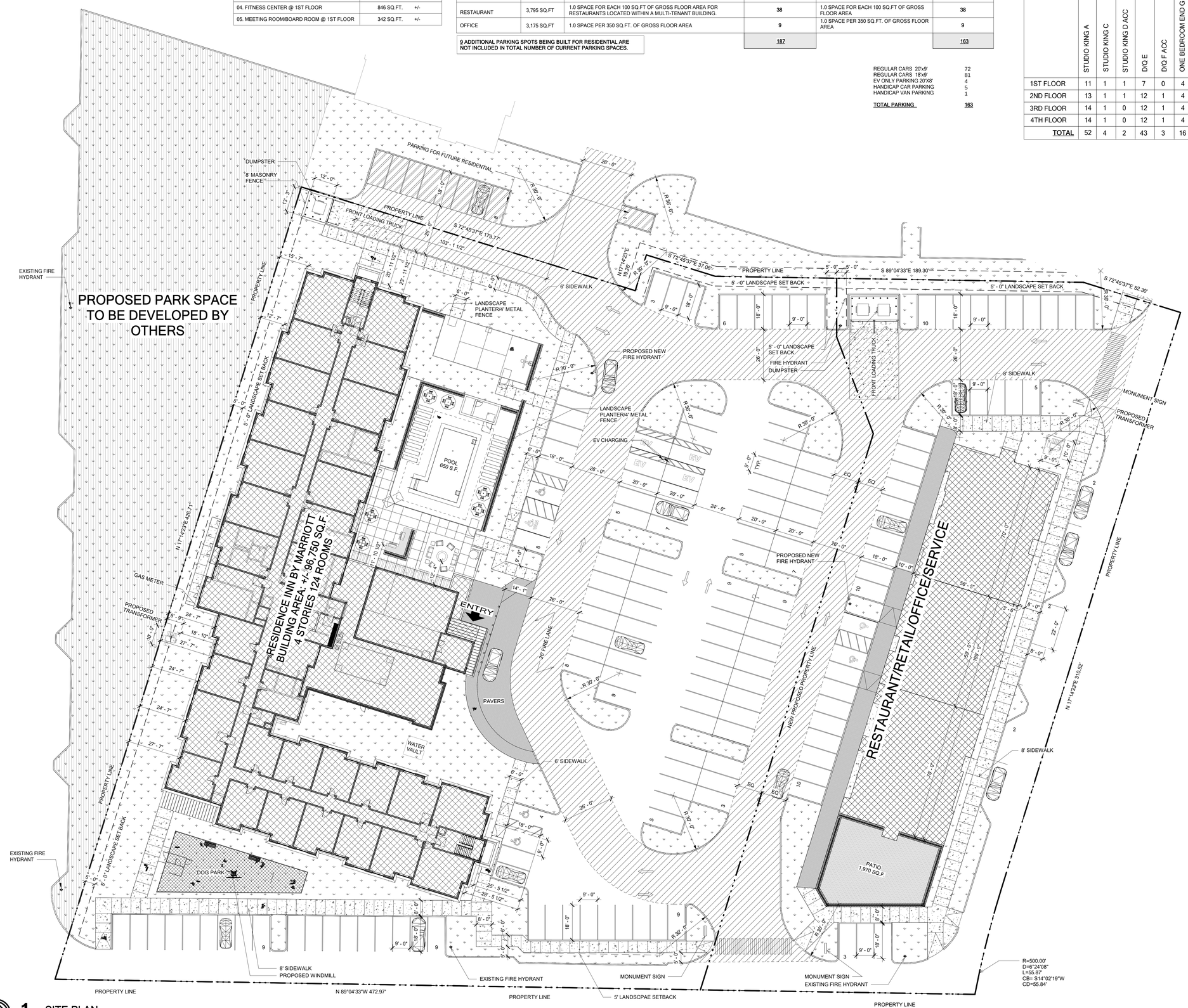
USE	QTY	REQUIRED PARKING RATIO	PARKING REQUIRED BY ORDINANCE	PROPOSED ACKNOWLEDGE SHARE PARKING	PROVIDED PARKING
HOTEL - GUESTROOMS	124 KEYS	1.0 SPACE PER GUEST ROOM PLUS (1) SPACE FOR EACH 200 SQ.FT. OF COMMERCIAL FLOOR AREA CONTAINED	124	0.8 SPACE PER GUEST ROOM	100
RETAIL	3,888 SQ.FT	1.0 SPACE PER 250 SQ.FT. OF GROSS FLOOR AREA	16	1.0 SPACE PER 250 SQ.FT. OF GROSS FLOOR AREA	16
RESTAURANT	3,795 SQ.FT	1.0 SPACE FOR EACH 100 SQ.FT OF GROSS FLOOR AREA FOR RESTAURANTS LOCATED WITHIN A MULTI-TENANT BUILDING.	38	1.0 SPACE FOR EACH 100 SQ.FT OF GROSS FLOOR AREA	38
OFFICE	3,175 SQ.FT	1.0 SPACE PER 350 SQ.FT. OF GROSS FLOOR AREA	9	1.0 SPACE PER 350 SQ.FT. OF GROSS FLOOR AREA	9
			187		163

9 ADDITIONAL PARKING SPOTS BEING BUILT FOR RESIDENTIAL ARE NOT INCLUDED IN TOTAL NUMBER OF CURRENT PARKING SPACES.

REGULAR CARS 20'x9'	72
REGULAR CARS 18'x9'	81
EV ONLY PARKING 20'X8'	4
HANDICAP CAR PARKING	5
HANDICAP VAN PARKING	1
TOTAL PARKING	163

SPECIFIC GUEST ROOM TYPE MATRIX

	STUDIO KING A	STUDIO KING C	STUDIO KING D ACC	D/Q E	D/Q F ACC	ONE BEDROOM END G	TWO BED ROOM H	TWO BED ROOM J ACC	TOTAL
1ST FLOOR	11	1	1	7	0	4	0	1	25
2ND FLOOR	13	1	1	12	1	4	0	1	33
3RD FLOOR	14	1	0	12	1	4	1	0	33
4TH FLOOR	14	1	0	12	1	4	1	0	33
TOTAL	52	4	2	43	3	16	2	2	124



1 SITE PLAN
A3.0/A0.2A 1" = 20'-0"

SITE PLAN GENERAL NOTES

1. ALL NEW UTILITIES WILL BE INSTALLED UNDERGROUND IN ACCORDANCE WITH CITY REQUIREMENTS.
2. ALL COMMERCIAL DUMPSTERS SHALL BE CONSTRUCTED, IN ACCORDANCE WITH THE CITY OF PROSPER CODE OF ORDINANCES.
3. ALL SIGNAGE WILL COMPLY WITH CITY OF PROSPER CODE OF ORDINANCES AND ON A SEPARATE PERMIT.
4. ALL PAVING MATERIALS WILL MEET MINIMUM CITY STANDARDS.
5. ALL FENCES, SIGNS, LIGHTING AND LUMINARIES SHALL COMPLY WITH CITY OF PROSPER ORDINANCES. EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE ON THE SITE PLAN.

BUILDING SQUARE FOOTAGE

FLOOR	AREA PER FLOOR SF
1ST FLOOR	27,780 SF +/-
2ND FLOOR	22,990 SF +/-
3RD FLOOR	22,990 SF +/-
4TH FLOOR	22,990 SF +/-
TOTAL	96,750 SF +/-

SITE LEGEND

- LANDSCAPE
- CONCRETE SIDEWALK
- BUILDING FOOT PRINT
- PAVERS
- PAVERS
- INDICATES TRAFFIC DIRECTION
- PROPERTY LINE
- EASEMENT LINE AS INDICATED

MAYSE & ASSOCIATES, INC.
Architecture • Planning • Construction Management
14881 Quorum Dr. Suite 800
Dallas, Texas 75254
Phone: (972) 386-0338 Fax: (972) 386-0578
www.MayseAssociates.com

SEAL:

CONCEPTUAL DRAWING NOT FOR CONSTRUCTION

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Engineer
..

RESIDENCE INN BY MARRIOTT

LOTS 15&16 WESTSIDE ADDITION, US 380/FM 1385, PROSPER, TX

Residence INN BY MARRIOTT

ATLANTIC HOTELS

ATLANTIC HOTEL GROUP
1601 BRYAN STREET, SUITE M-210, DALLAS, TEXAS 75201

Revisions:

#	No
1	
2	

date 01/03/2022
job no. 21122
sheet title EXHIBIT D-1
sheet no. A0.2A

© 2016 MAYSE & ASSOCIATES, INC.
UNAUTHORIZED DUPLICATION PROHIBITED.

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PLANNING

TOWN OF PROSPER

Prosper is a place where everyone matters.

To: **Mayor and Town Council**

From: **David Soto, Planning Manager**

Through: **Harlan Jefferson, Town Manager**
Hulon T. Webb, Jr., Interim Executive Director of Development and Infrastructure Services

Re: **Town Council Meeting – June 28, 2022**

Agenda Item:

Consider and act upon whether to direct staff to submit a written notice of appeal on behalf of the Town Council to the Development Services Department, pursuant to Chapter 4, Section 1.5(C)(7) and 1.6(B)(7) of the Town's Zoning Ordinance, regarding action taken by the Planning & Zoning Commission on any Site Plans and Preliminary Site Plans, including Westfork Crossing & Westfork Crossing Lot 7.

Description of Agenda Item:

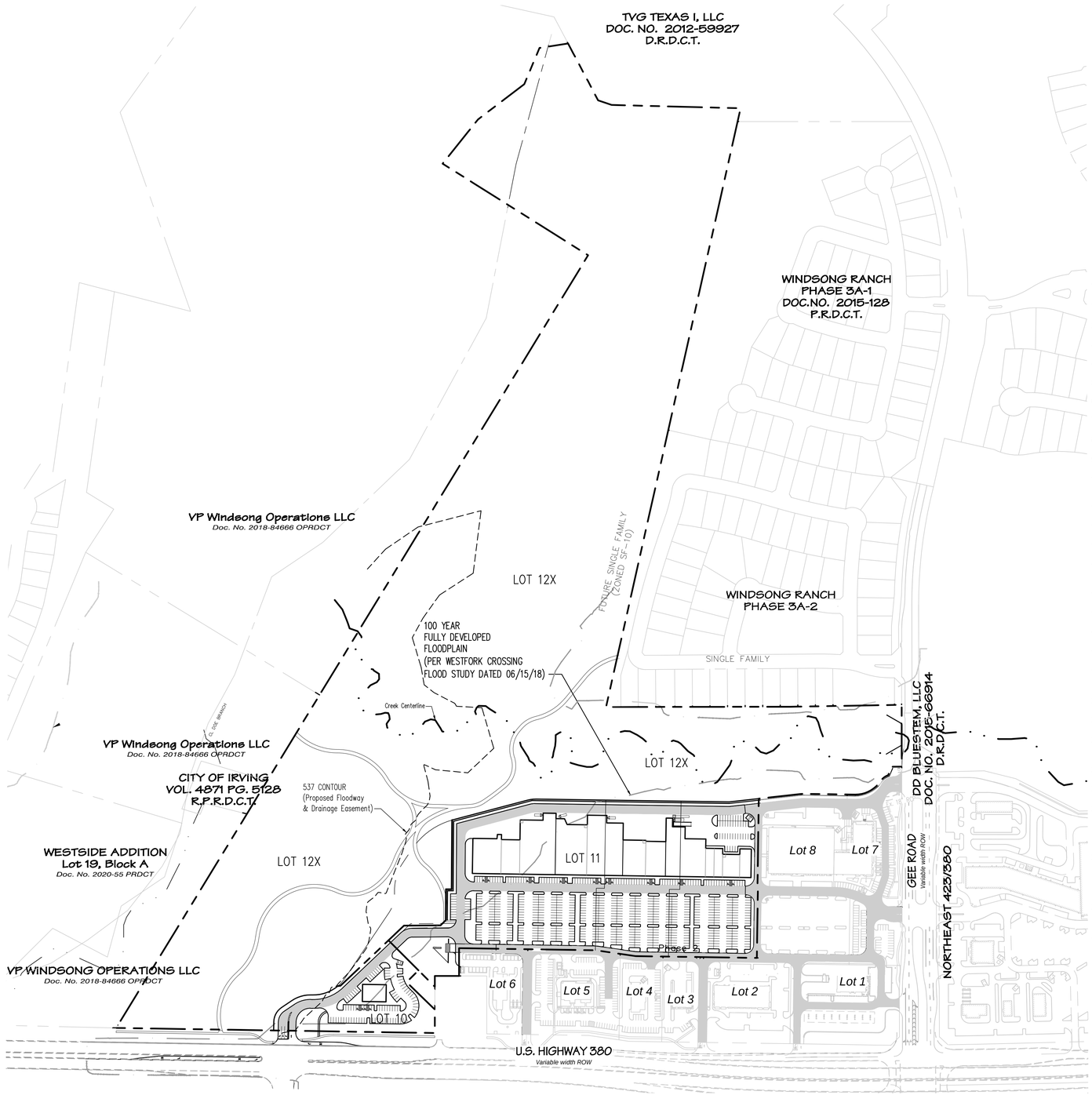
Attached are the Site Plans that were acted on by the Planning & Zoning Commission at their June 7, 2022, meeting. Per the Zoning Ordinance, the Town Council has the ability to direct staff to submit a written notice of appeal on behalf of the Town Council to the Development Services Department for any Preliminary Site Plan or Site Plan acted on by the Planning & Zoning Commission.

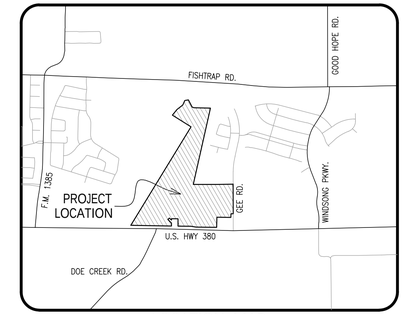
Attached Documents:

1. Preliminary Site Plan for Westfork Crossing
2. Site Plan for Westfork Crossing Lot 7

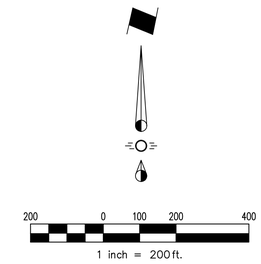
Town Staff Recommendation:

Town staff recommends the Town Council take no action on this item.





LOCATION MAP
1" = 2000'



Town of Prosper Site Plan Notes:

1. Dumpsters and trash compactors shall be screened in accordance of the Zoning Ordinance.
2. Open storage, where permitted, shall be screened in accordance with the Zoning Ordinance.
3. Outdoor lighting shall comply with the lighting and glare standards contained within the Zoning Ordinance and Subdivision Regulation Ordinance.
4. Landscaping shall conform to landscape plans approved by the town.
5. All elevations shall comply with the standards contained within the Zoning Ordinance.
6. Buildings of 5,000 square feet or greater shall be 100% fire sprinkled. Alternative fire protection measures may be approved by the Fire Department.
7. Fire lanes shall be designed and constructed per town standards or as directed by the Fire Department.
8. Two points of access shall be maintained for the property at all times.
9. Speedbumps/humps are not permitted within a fire lane.
10. Handicapped parking areas and building accessibility shall conform to the Americans with Disabilities Act (ADA) and with the requirements of the current, adopted uniform Building Code.
11. All signage is subject to Building Official approval.
12. All fences and retaining walls shall be shown on the site plan and are subject to Building Official approval.
13. All exterior building materials are subject to Building Official approval and shall conform to the approved facade plan.
14. Sidewalks of not less than six (6') feet in width along thoroughfares and five (5') in width along collectors and residential streets, and barrier free ramps at all curb crossings shall be provided per Town standards.
15. Approval of the site plan is not final until all engineering plans are approved by the Engineering Department.
16. Site plan approval is required prior to grading release.
17. All new electrical lines shall be installed and/or relocated underground.
18. All mechanical equipment shall be screened from public view in accordance with the Zoning Ordinance.
19. Lots shall have frontage on a common access drive or a public street. The common access drive shall be dedicated public access, utility and fire lane easement.
20. All Retaining walls along creek to be stone.
21. All landscape easements must be exclusive of any other type of easement.
22. Impact fees will be assessed in accordance with the land use classification(s) identified on the site data summary table; however, changes to the proposed land use at the time of CO and/or finish out permit may result in additional impact fees and/or parking requirements.
23. Public Hike and Bike Trail is conceptual. Final alignment to be determined at the time of final site plan to be approved by the Town.
24. All environmental studies required to reclaim floodplain shall be submitted at time of final plat to develop each lot.
25. The approval of a preliminary site plan shall be effective for a period of two (2) years from the date that the preliminary site plan is approved by the Planning & Zoning Commission, at the end of which time the applicant must have submitted and received approval of a site plan by the Planning & Zoning Commission. If a site plan is not approved within such (2) year period the preliminary site plan approval is null and void. If site plan approval is only for a portion of the property, the approval of the preliminary site plan for the remaining property shall be null and void.
26. Prior to the submission of a site plan for either Lot 7, 8, 9, 10 or 11, the owner of Lot 12X shall execute a right–of–way dedication and escrow agreement, subject to the approval of the Town Council, not to be unreasonably withheld, dedicating a 30–foot wide public right–of–way in fee simple for a hike and bike trail and establishing an escrow of funds to offset the Town's construction, maintenance and ownership obligations for the hike and bike trail and the right–of–way, and the owner shall have no liability relating to the construction, maintenance or use of the hike and bike trail and right–of–way.
27. Nothing shall prohibit the owner from attempting to reclaim a lot from the floodplain (and adjacent areas) in Lot 12X, subject to appropriate federal approvals to the extent required by law.
28. Per the Development Agreement, 10 parking spaces are dedicated for the proposed hike and bike trail.

SITE DATA SUMMARY TABLE

LOT	ZONING	PROPOSED USE	LOT AREA SF	LOT AREA AC	BUILDING AREA (SF)	BUILDING HEIGHT	COVERAGE (%)	FLOOR AREA RATIO	REQ. PARKING RATIO	PARKING REQUIRED	PARKING PROVIDED	REQUIRED HANDICAP PARKING	PROVIDED HANDICAP PARKING	INTERIOR LANDSCAPE REQUIRED (SF)	INTERIOR LANDSCAPE PROVIDED (SF)	IMPERVIOUS AREA (SF)	OPEN SPACE REQUIRED (SF)	OPEN SPACE PROVIDED (SF)
10	C	RETAIL	101,010	2.32	5,000	2 Story - Max. 40'	5.0%	0.0495:1	1/250	20	88	4	4	1,320	4,820	47,301	7,071	43,889
11	C	RETAIL/RESTAURANT	599,478	13.76	145,000	1 Story - Max. 40'	24.2%	0.2419:1	1/250(RETAIL) 1/100(RESTAURANT)	561	649	14	16	9,960	36,480	344,057	41,963	73,941
12X	C	OPEN SPACE	2,913,082	66.88	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	203,916	199,025

CASE No. - D22-0039

Sheet 1 of 3

REVISED PRELIMINARY SITE PLAN

WESTFORK CROSSING

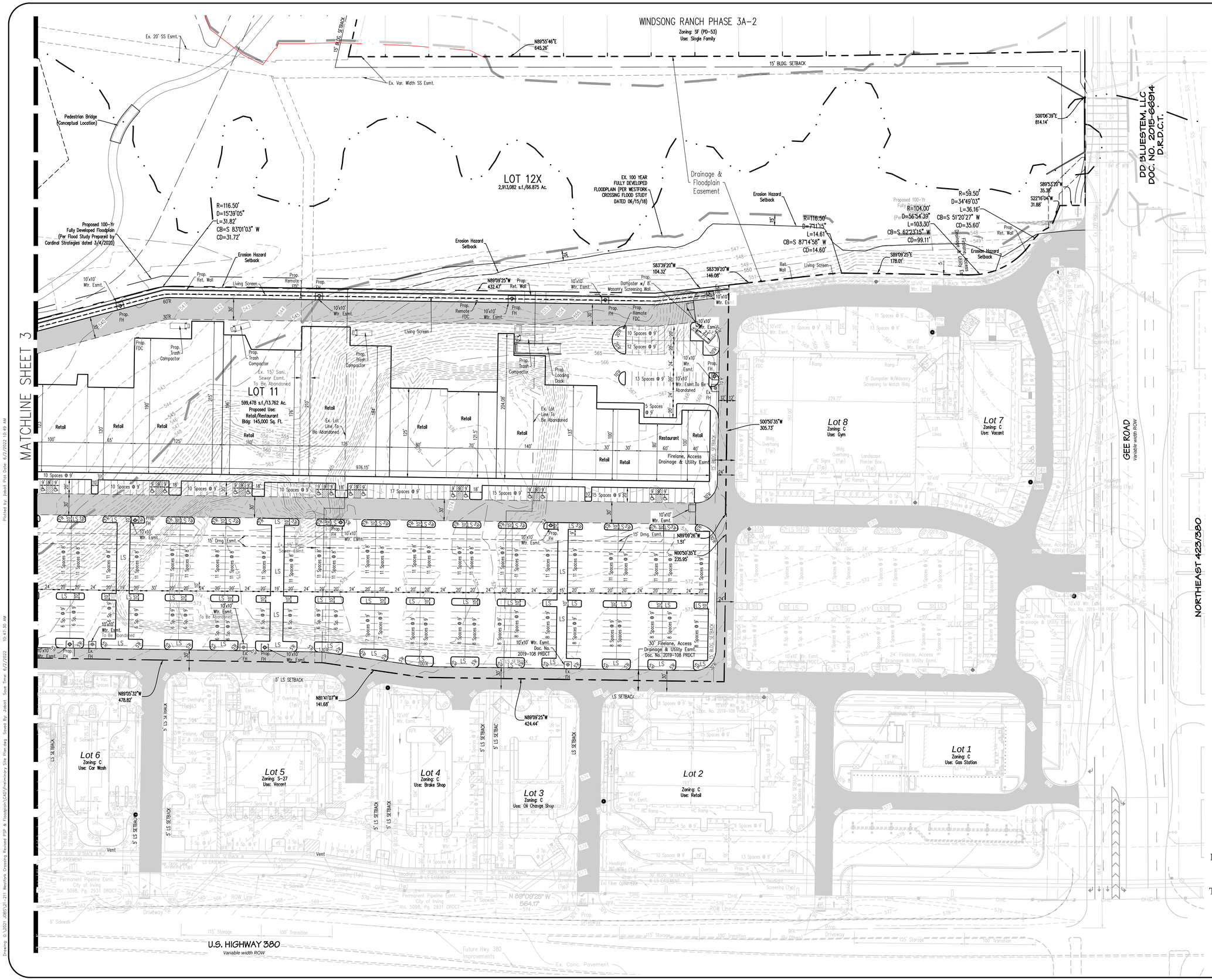
BLOCK A, LOTS 10, 11 & 12X
82.596 Acres
SITUATED IN THE
M.E.P. RAILROAD SURVEY, ABSTRACT NO. 1476
P. BARNES SURVEY, ABSTRACT NO. 79
A. JAMISON SURVEY, ABSTRACT NO. 672
TOWN OF PROSPER, DENTON COUNTY, TEXAS

OWNER / APPLICANT
Northwest 423/380 LP
7001 Preston Road, Suite 410
Dallas, Texas 75205
Telephone (214) 224-4600
Contact: Robert Dorazil

ENGINEER / SURVEYOR
Spiars Engineering, Inc.
TBPE No. F-2121
765 Custer Road, Suite 100
Plano, TX 75075
Telephone: (972) 422-0077
Contact: Kevin Wier

Scale: 1" = 200' April, 2022 SEI Job No. 21-211

Drawing: G:\2021 JOBS\21-211 Westfork Crossing Revised PSP & Floodplain\CAD\Preliminary Site Plan.dwg Saved By: jdaszt Save Time: 6/2/2022 10:47 AM Plotted by: jdaszt Plot Date: 6/2/2022 10:47 AM



60 0 30 60 120

1 inch = 60ft.

LEGEND

FIRELANE ACCESS, DRAINAGE & UTILITY EASEMENT

PROPOSED FIRE HYDRANT

CASE No. - D22-0039

Sheet 2 of 3

REVISED PRELIMINARY SITE PLAN

WESTFORK CROSSING

BLOCK A, LOTS 10, 11 & 12X

82.596 Acres

SITUATED IN THE

M.E.P. RAILROAD SURVEY, ABSTRACT NO. 1476

P. BARNES SURVEY, ABSTRACT NO. 79

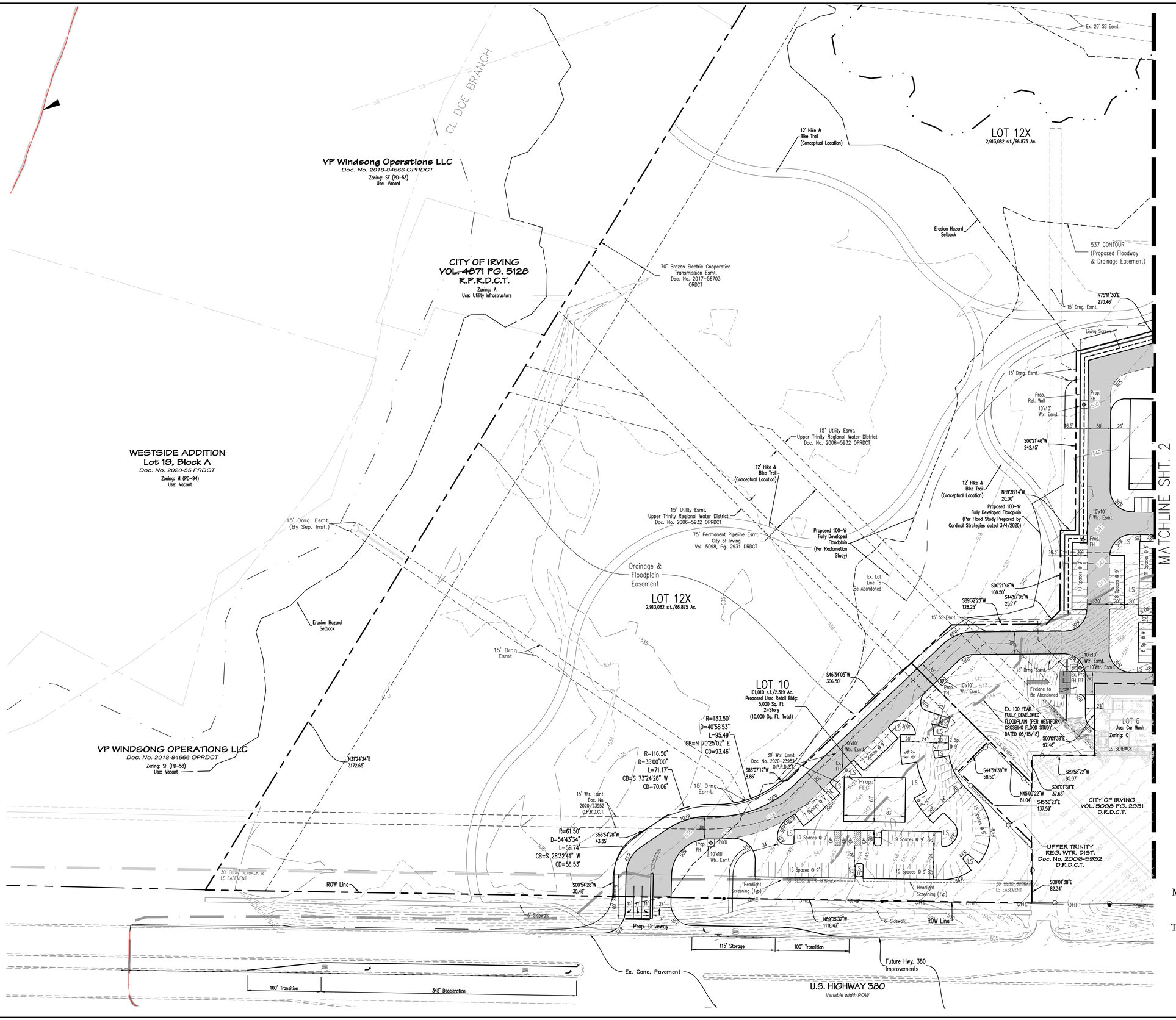
A. JAMISON SURVEY, ABSTRACT NO. 672

TOWN OF PROSPER, DENTON COUNTY, TEXAS

OWNER / APPLICANT
Northwest 423/380 LP
7001 Preston Road, Suite 410
Dallas, Texas 75205
Telephone (214) 224-4600
Contact: Robert Dorazil

ENGINEER / SURVEYOR
Spiars Engineering, Inc.
TBPE No. F-2121
765 Custer Road, Suite 100
Plano, TX 75075
Telephone: (972) 422-0077
Contact: Kevin Wier

Scale: 1" = 60' April, 2022 SEI Job No. 21-211



1 inch = 60 ft.

LEGEND

- FIRELANE ACCESS, DRAINAGE & UTILITY EASEMENT
- FUTURE HIGHWAY 380 IMPROVEMENTS
- PROPOSED FIRE HYDRANT

CASE No. - D22-0039
Sheet 3 of 3
REVISED PRELIMINARY SITE PLAN

WESTFORK CROSSING

BLOCK A, LOTS 10, 11 & 12X
82.596 Acres
SITUATED IN THE
M.E.P. RAILROAD SURVEY, ABSTRACT NO. 1476
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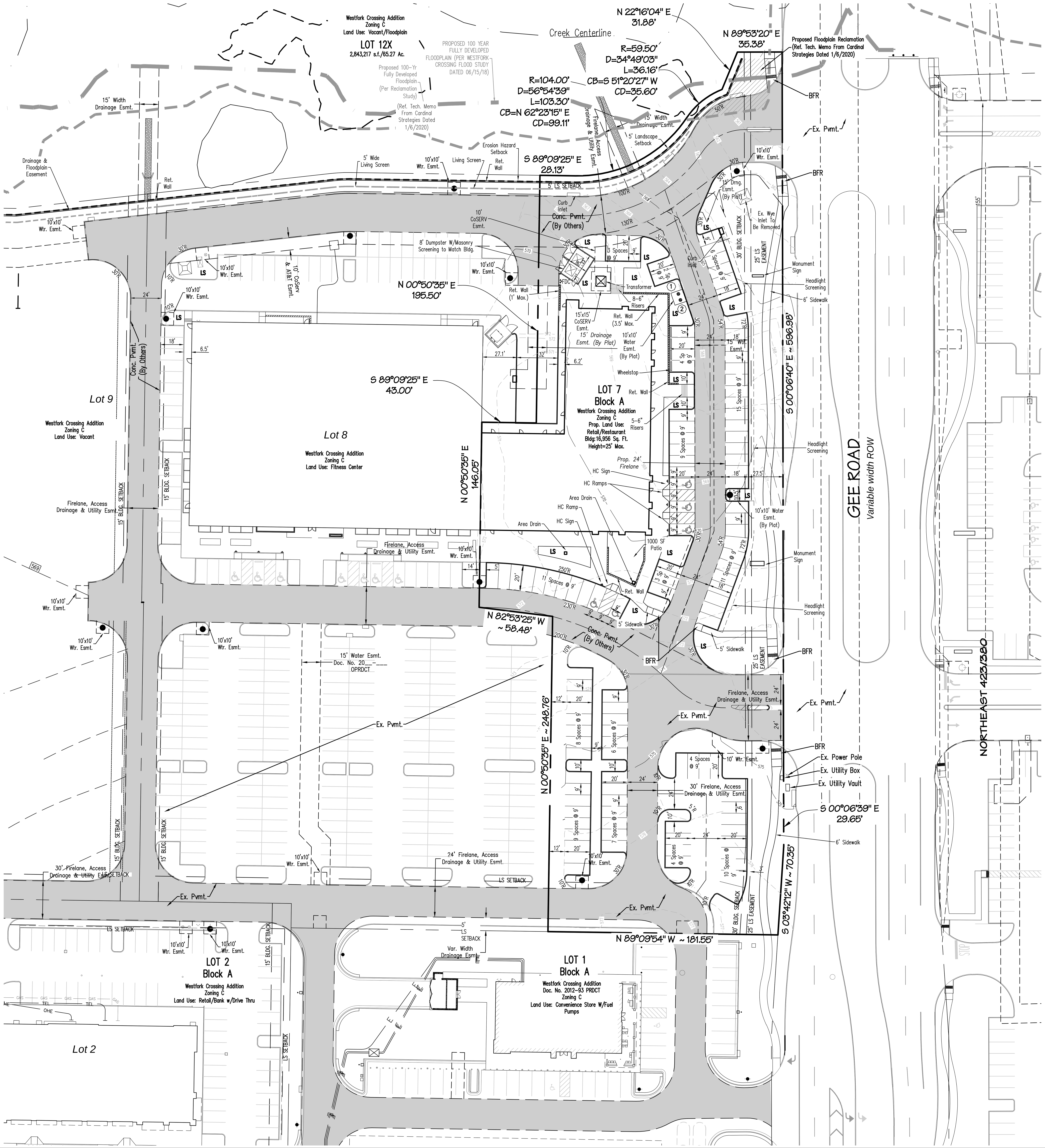
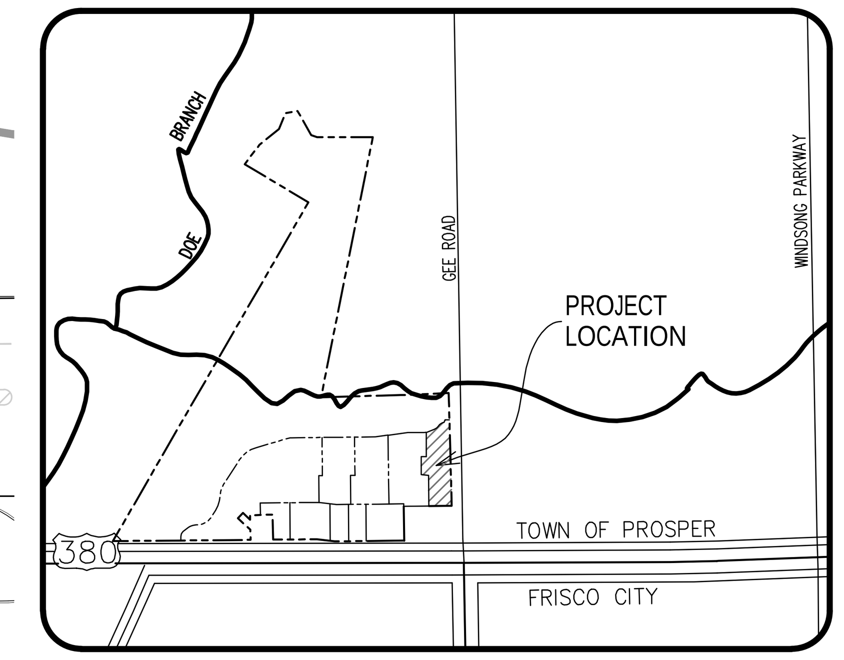




LOCATION MAP
NTS

40 0 20 40 80
1 inch = 40ft.

Site Data Summary Table

SITE DATA	BLOCK A, LOT 7
Zoning	C – Commercial
Proposed Use	Restaurant/Retail
Lot Area	2.918 Ac. (127,117 Sq. Ft.)
Building Area	5,500 Sq. Ft. (Restaurant)
	11,456 Sq. Ft. (Retail)
	16,956 Sq. Ft. Total
Patio Area	1,000 Sq. Ft.
Building Height:	1 Story, 25' Max.
Lot Coverage	13.34%
Floor Area Ratio	0.1334:1
Parking Ratio:	1 Sp./250 Sq. Ft. (Retail)
	1 Sp./100 Sq. Ft. (Restaurant)
	1 Sp./100 Sq. Ft. (Patio)
Total Parking Required	111 Sp.
Total Parking Provided	112 Sp. (Incl. 5 HC)
Total Impervious Surface	68,818 Sq. Ft.
Required Landscape Area	15 Sq. Ft Per Pkg Sp=1,515 Sq. Ft.
Provided Landscape Area	6,442 Sq. Ft.

Town of Prosper Site Plan Notes:

1. Dumpsters and trash compactors shall be screened in accordance of the Zoning Ordinance.
2. Open storage, where permitted, shall be screened in accordance with the Zoning Ordinance.
3. Outdoor lighting shall comply with the lighting and glare standards contained within the Zoning Ordinance and Subdivision Regulation Ordinance.
4. Landscaping shall conform to landscape plans approved by the Town.
5. All elevations shall comply with the standards contained within the Zoning Ordinance.
6. Buildings of 5,000 square feet or greater shall be 100% fire sprinkled. Alternative fire protection measures may be approved by the Fire Department.
7. Fire lanes shall be designed and constructed per town standards or as directed by the Fire Department.
8. Two points of access shall be maintained for the property at all times.
9. Speedbumps/humps are not permitted within a fire lane.
10. Handicapped parking areas and building accessibility shall conform to the Americans with Disabilities Act (ADA) and with the requirements of the current, adopted uniform Building Code.
11. All signage is subject to Building Official approval.
12. All fences and retaining walls shall be shown on the site plan and are subject to Building Official approval.
13. All exterior building materials are subject to Building Official approval and shall conform to the approved facade plan.
14. Sidewalks of not less than six (6') feet in width along thoroughfares and fire (5') in width along collectors and residential streets, and barrier free ramps at all curb crossings shall be provided per Town standards.
15. Approval of the site plan is not final until all engineering plans are approved by the Town Engineer.
16. Site plan approval is required prior to grading release.
17. All new electrical lines shall be installed and/or relocated underground.
18. All mechanical equipment shall be screened from public view in accordance with the Zoning Ordinance.
19. All landscape easements must be exclusive of any other type of easement.
20. Impact fees will be assessed in accordance with the land use classification(s) identified on the site data summary table; however, changes to the proposed land use at the time of CO and/or finish out permit may result in additional impact fees and/or parking requirements.
21. The approval of a site plan shall be effective for a period of eighteen (18) months from the date of approval by the Planning & Zoning Commission, at the end of which time the applicant must have submitted and received approval of engineering plans and building permits. If the engineering plans and building permits are not approved, the site plan approval, together with an preliminary site plan for the property, is null and void.

Note:

1. All curb radii are 3' unless otherwise noted.
2. All dimensions are to the face of curb, or the edge of building.

LEGEND

- FIRELANE, ACCESS, DRAINAGE & UTILITY EASEMENT
- PROPOSED FIRE HYDRANT
- LS — LANDSCAPE AREA

Water Meter Schedule

I.D.	Type	Size	No.	Sewer	Remarks
1	Domestic	2"	1	6"	Proposed
2	Irrigation	1"	1	N/A	Proposed

OWNER / APPLICANT
Northwest 423/380 LP
7001 Preston Road, Suite 410
Dallas, Texas 75205
Telephone (214) 224-4600
Contact: Robert Dorazil

ENGINEER / SURVEYOR
Spiars Engineering, Inc.
TBPE No. F-2121
765 Custer Road, Suite 100
Plano, TX 75075
Telephone: (972) 422-0077
Contact: Kevin Wier

CASE No. - D22-0041

SITE PLAN

WESTFORK CROSSING

BLOCK A, LOT 7
2.918 Acres
SITUATED IN THE
M.E.P. & P.R.R. SURVEY, ABSTRACT NO. 1476
TOWN OF PROSPER, DENTON COUNTY, TEXAS

Scale: 1" = 40' April, 2022 SEI Job No. 18-217

TOWN OF PROSPER

Prosper is a place where everyone matters.

To: **Mayor and Town Council**

From: **David Soto, Planning Manager**

Through: **Harlan Jefferson, Town Manager**
Hulon T. Webb, Jr., Interim Executive Director of Development and Infrastructure Services

Re: **Town Council Meeting – June 28, 2022**

Agenda Item:
Conduct a public hearing and consider and act upon a request for a Specific Use Permit (SUP) for a Day Care Center (Grace Chapel), on 5.4± acres, located on the southeast corner of FM 1385 and Denton Way. The property is zoned Agricultural (A). (S22-0005).

Description of Agenda Item:
The zoning and land use of the surrounding properties are as follows:

	Zoning	Current Land Use	Future Land Use Plan
Subject Property	Agricultural	Undeveloped	Low Density Residential
North	Agricultural	Undeveloped	Low Density Residential
East	Agricultural	Undeveloped	Low Density Residential
South	Agricultural	Undeveloped	Low Density Residential
West	City of Aubrey	City of Aubrey	City of Aubrey

Requested Zoning – The purpose of this request is to allow for a day care for Grace Chapel. The church is requesting a SUP to allow for the use upon development of the subject tract. Exhibit B shows the proposed layout, which consists of a one-story, 19,403 square-foot building. The depicted number of off-street parking spaces and outdoor play area meet the minimum standards of the Zoning Ordinance.

Exhibit C is a conceptual landscape plan, which depicts the location of required landscaping. The landscaping meets the minimum standards of the Town's Zoning Ordinance.

Exhibit D shows a conceptual rendering depicting the architectural look and style of the building. The conceptual design meets the non-residential design and development standards of the Zoning Ordinance.

The Zoning Ordinance contains four criteria to be considered in determining the validity of a SUP request, as follows:

1. *Is the use harmonious and compatible with its surrounding existing uses or proposed uses?*
2. *Are the activities requested by the applicant normally associated with the requested use?*
3. *Is the nature of the use reasonable?*
4. *Has any impact on the surrounding area been mitigated?*

Staff believes the applicant has satisfied the noted criteria and recommends approval of the request.

Future Land Use Plan – The Future Land Use Plan recommends Low Density Residential. The proposed zoning request conforms to the Future Land Use Plan.

Thoroughfare Plan – The property has direct access to Denton Way, a 60-foot, 2-lane divided thoroughfare, which connects to FM 1385 to the west and Fishtrap Road to the south. This request conforms to the Thoroughfare Plan.

Parks Master Plan – The Parks Master Plan does not indicate a park is needed on the subject property.

Legal Obligations and Review:

Notification was provided to neighboring property owners as required by the Zoning Ordinance and state law. To date, staff has not received any Public Hearing Notice Reply Forms in response to this request.

Attached Documents:

1. Aerial and Zoning Maps
2. Exhibits A-D

Planning & Zoning Commission Recommendation:

At their June 7, 2022, meeting, the Planning & Zoning Commission recommended the Town Council approve the request, by a vote of 7-0.

Town Staff Recommendation:

Staff recommends approval of the request for a Specific Use Permit (SUP) for a Day Care Center (Grace Chapel), on 5.4± acres, located on the southeast corner of FM 1385 and Denton Way. (S22-0005) subject to the following:

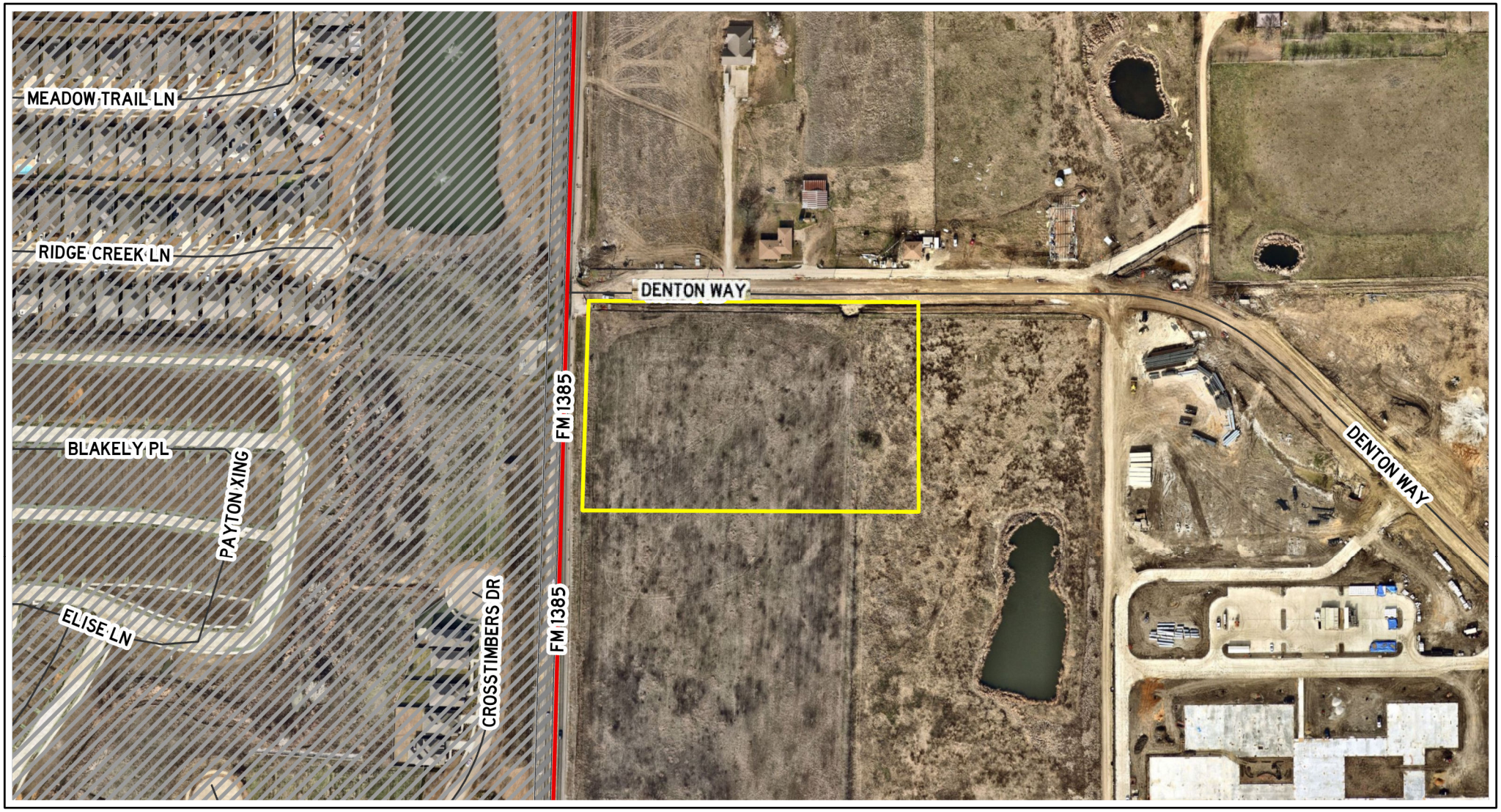
1. Town Council approval of a Development Agreement, including, but not limited to, architectural building materials.

Proposed Motion:

I move to approve the request for a Specific Use Permit (SUP) for a Day Care Center (Grace Chapel), on 5.4± acres, located on the southeast corner of FM 1385 and Denton Way. (S22-0005) subject to the following:

1. Town Council approval of a Development Agreement, including, but not limited to, architectural building materials.

S22-0005 - Grace Chapel Day Care



This map is for illustration purposes only.

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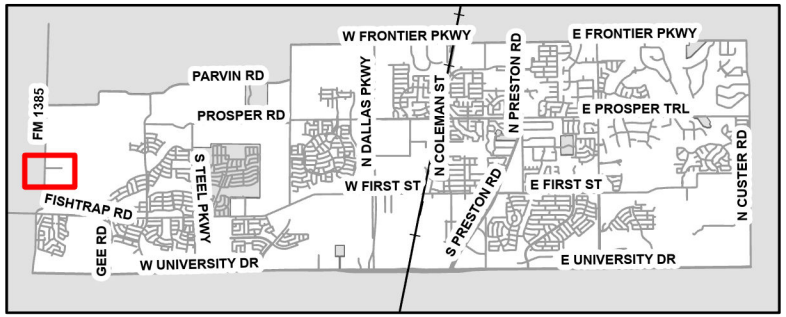
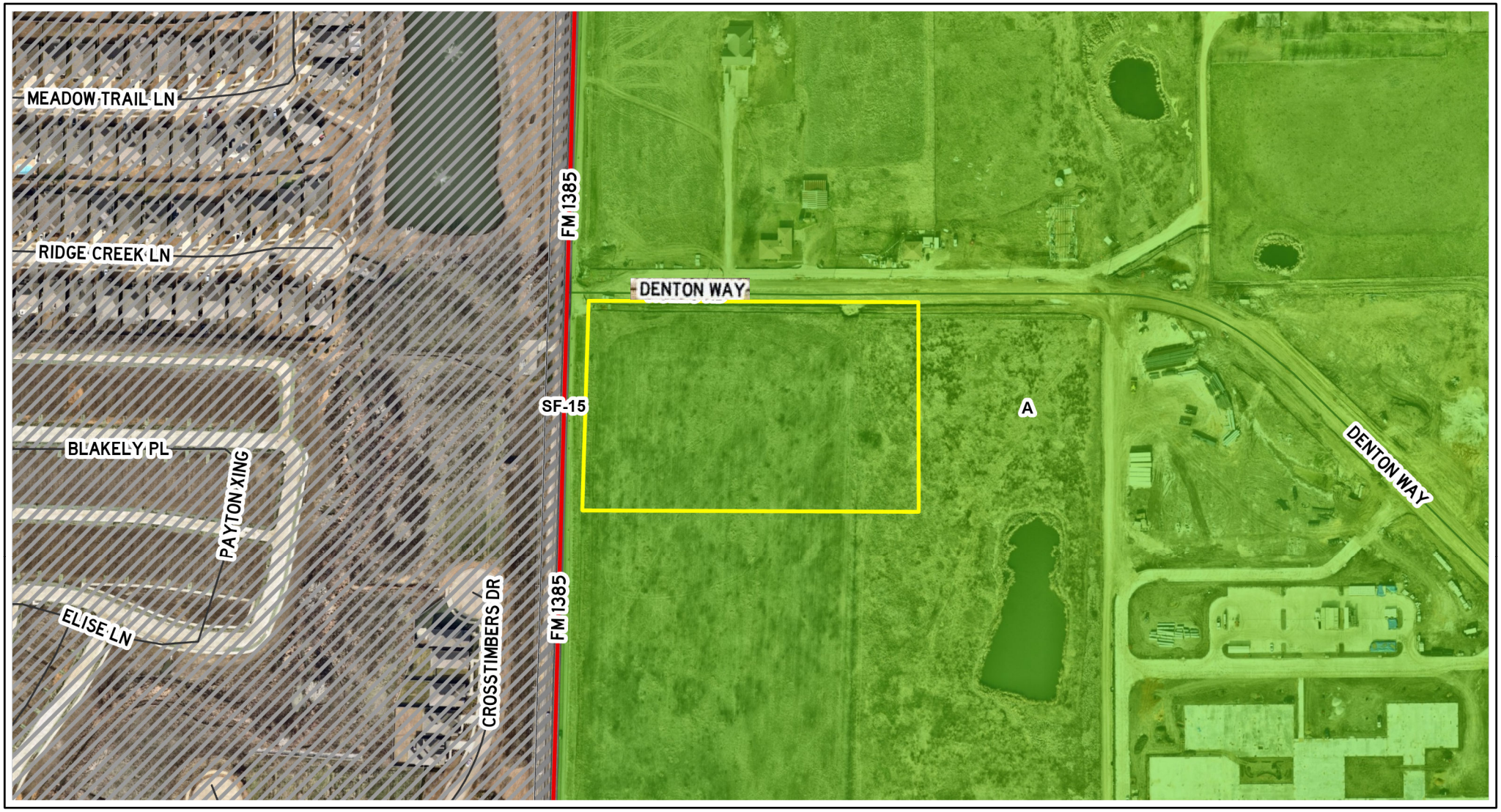


TOWN OF PROSPER

S22-0005 - Grace Chapel Day Care



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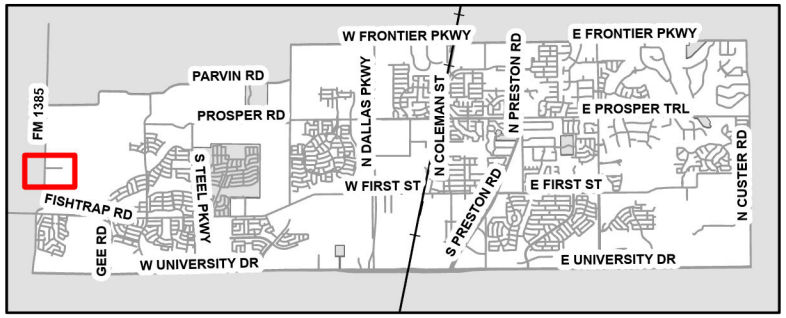
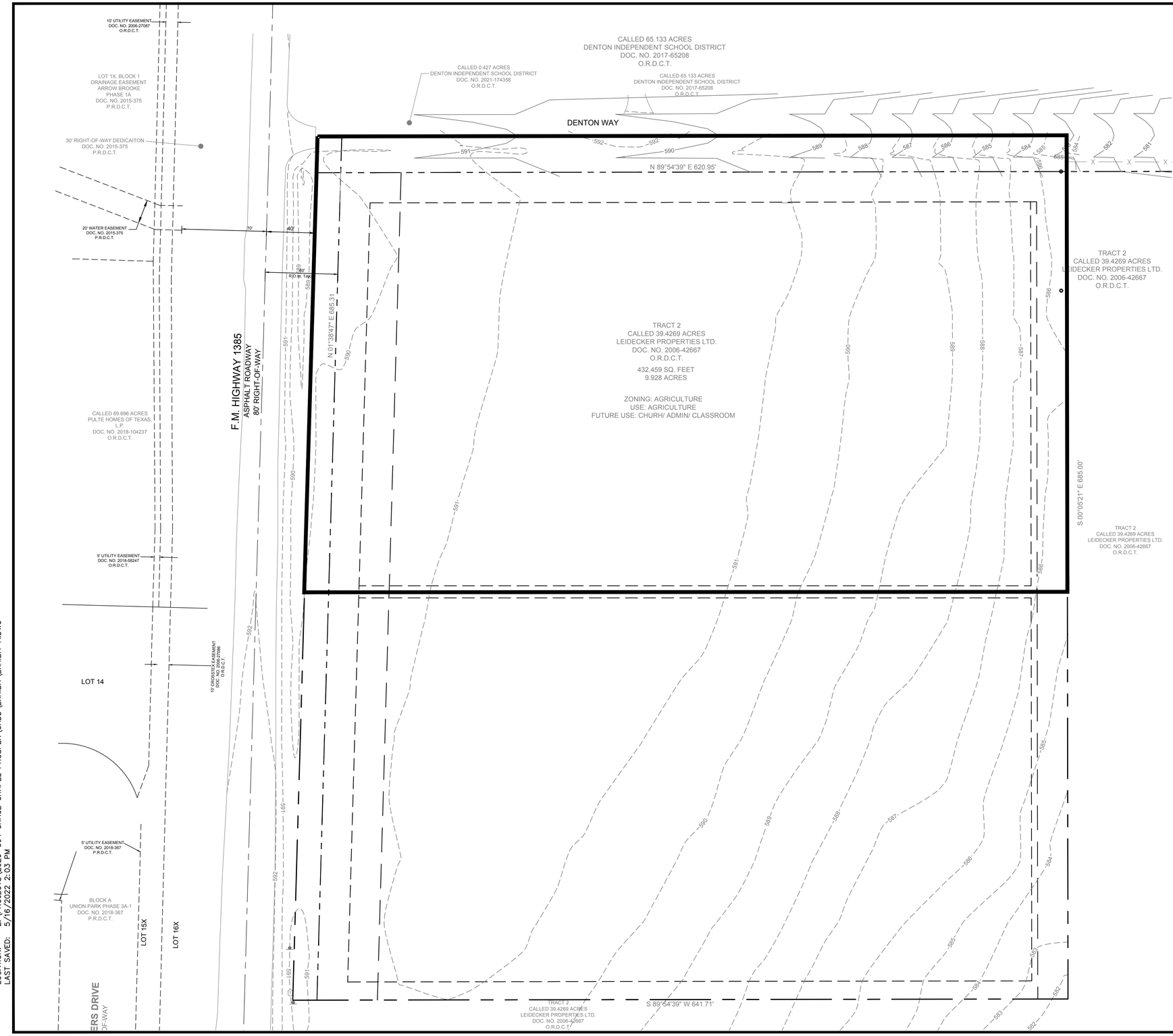
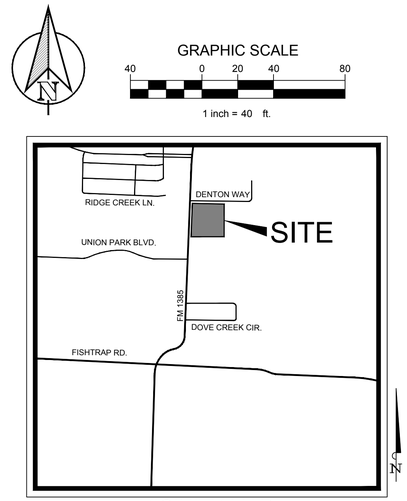


TOWN OF PROSPER





VICINITY MAP
N.T.S.

PLOTTED BY: MARK TORRES
PLOT DATE: 5/23/2022 5:18 PM
LOCATION: Z:\PROJECTS\2020-064 GRACE CHAPEL PROSPER\CADD\EXHIBIT\EXHIBIT A.DWG
LAST SAVED: 5/16/2022 2:03 PM

GRACE CHAPEL PROSPER

EXHIBIT A

OWNER/DEVELOPER:
NORTH TEXAS CONFERENCE OF THE
UNITED METHODIST CHURCH
PO BOX 866128
PLANO, TEXAS 75086 CONTACT NAME: KENNETH WOLVERTON

APPLICANT:
CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
PH: 817.281.0572 CONTACT NAME: DREW DONOSKY

SURVEYOR:
EAGLE SURVEYING, LLC
210 SOUTH ELM STREET,SUITE 104 ,
TX 75057
PH: 940.222.3009 CONTACT NAME: MASON DECKER

LEGAL DESCRIPTION:
LOTS 1 , BLOCK A
NORTH TEXAS CONFERENCE OF THE
METHODIST CHURCH ADDITION
GROSS AREA: 5.422 OR 236,172 SF

CITY:		STATE:
TOWN OF PROSPER		TEXAS
COUNTY	SURVEY:	ABSTRACT NO.
DENTON	JOHN MORTON SURVEY	793

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM

PRELIMINARY
FOR REVIEW ONLY
Not for construction purposes.
CLAYMOORE ENGINEERING
ENGINEERING AND PLANNING CONSULTANTS
Engineer: DREW DONOSKY
P.E. No. 125651 Date 5/23/2022

GRACE CHAPEL PROSPER
FM 1385 & DENTON WAY
PROSPER, TX

No.	DATE	REVISION	BY

EXHIBIT A

DESIGN:	MKT
DRAWN:	MKT
CHECKED:	ASD
DATE:	4/12/2022

SHEET
EXH-A

File No. 2020-064

TOWN OF PROSPER SITE PLAN GENERAL NOTES:

DEVELOPMENT PLAN REVIEW GUIDELINES

1. THE BUILDING HEIGHT, WIDTH, LENGTH, AND SQUARE FOOTAGE SHALL BE PROVIDED FOR ALL STRUCTURES ON THE DRAWING.
2. THE CLASSIFICATION OF EACH BUILDING SHALL BE IDENTIFIED IN THE DRAWING.
3. A MINIMUM OF TWO POINTS OF ACCESS TO THE PROPERTY SPACED NO LESS THAN 140 FEET APART. AMENDMENT 503.1.4
4. FIRE LANES SHALL BE PROVIDED WITHIN 150 FEET OF ALL EXTERIOR WALLS OF ANY BUILDING FOR HOSE LAY REQUIREMENTS. AMENDMENT 503.1.1
5. THE FIRE LANE SHALL BE A MINIMUM OF 24 FEET WIDE. AMENDMENT 503.2.1
6. BUILDINGS MORE THAN 30 FEET IN HEIGHT ARE REQUIRED TO HAVE A MINIMUM OF A 26-FOOT WIDE FIRE LANE IN THE IMMEDIATE VICINITY FOR FIREFIGHTING OPERATIONS OF THE BUILDING. ONE OF THE 26-FOOT WIDE FIRE LANES SHALL BE LOCATED A MINIMUM OF 15 FEET FROM THE BUILDING AND NO MORE THAN 30 FEET. APPENDIX D105
7. THE INSIDE TURNING RADIUS OF THE 24-FOOT FIRE LANE SHALL BE A MINIMUM OF 30 FEET. AMENDMENT 503.2.4
8. THE INSIDE TURNING RADIUS OF THE 26-FOOT FIRE LANE SHALL BE A MINIMUM OF 30 FEET. AMENDMENT 503.2.4
9. DEAD-END FIRE LANES ARE ONLY PERMITTED WITH APPROVED HAMMERHEADS.
10. FIRE HYDRANTS SHALL BE PROVIDED AT THE ENTRANCES AND INTERSECTIONS. AMENDMENT 507.5.1
11. AS PROPERTIES DEVELOP, FIRE HYDRANTS SHALL BE LOCATED AT ALL INTERSECTING STREETS, AND THE MAXIMUM SPACING SHALL BE EVERY 300 FEET (300') FOR ALL DEVELOPMENTS AND FACILITIES OTHER THAN R3. R-3 DEVELOPMENTS SHALL BE EVERY 500 FEET (500'). DISTANCES BETWEEN HYDRANTS SHALL BE MEASURED ALONG THE ROUTE THAT FIRE HOSE IS LAID BY A FIRE APPARATUS FROM A HYDRANT-TO-A HYDRANT, NOT AS THE "CROW FLIES." AMENDMENT 507.5.1
12. FIRE DEPARTMENT CONNECTION (FDC) FOR THE FIRE SPRINKLER SYSTEM SHALL BE LOCATED WITHIN 50 FEET OF A FIRE HYDRANT AND 50 FEET OF A FIRE LANE. 5" STORZ, 30-DEGREE DOWNWARD TURN WITH LOCKING CAP. AMENDMENT 507.5.1
13. FIRE HYDRANTS SHALL BE LOCATED 2 FOOT (2') TO 6 FOOT (6') BACK FROM THE CURB OR FIRE LANE AND SHALL NOT BE LOCATED IN THE BULB OF A CUL-DE-SAC. AMENDMENT 507.5.1
14. THERE SHALL BE A MINIMUM OF TWO (2) FIRE HYDRANTS SERVING EACH PROPERTY WITHIN THE PRESCRIBED DISTANCES LISTED ABOVE. A MINIMUM OF ONE FIRE HYDRANT SHALL BE LOCATED ON EACH LOT. AMENDMENT 507.5.1
15. A MINIMUM 10-FOOT UNOBSTRUCTED WIDTH SHALL BE PROVIDED AROUND A BUILDING FOR ADEQUATE FIRE DEPARTMENT ACCESS. A CONTINUOUS ROW OF PARKING AND LANDSCAPING SHALL BE CONSIDERED A BARRIER. AMENDMENT 503.1.1

    WHILE THERE IS AN ARRAY OF BENEFITS TO EMERGENCY RESCUE AND FIREFIGHTING TACTICS, THE FOLLOWING ARE A FEW BASIC SCENARIOS TO EXPLAIN THE RATIONALE.
    1.) LADDER ANGLE IN THE EVENT OF EMERGENCY RESCUE.
    2.) LADDER ANGLE IN THE EVENT OF ROOF VENTILATION.
    3.) 360° SIZE-UP IS A BASIC PROTOCOL AND PROCEDURE OF THE FIRST ARRIVING OFFICER. THIS ALLOWS FIREFIGHTERS TO SIZE UP THE DANGER(S) TO DETERMINE IF ADDITIONAL APPARATUS AND AID WILL BE NEEDED.
    4.) HOSE LAY MANEUVERABILITY IN THE EVENT OF A HOSE ATTACK; FIREFIGHTERS MUST PULL HOSE(S). IT IS COMMON PRACTICE THROUGHOUT THE INDUSTRY. UNFORTUNATELY, THERE IS NO ORDERLY OR SINGLE APPROACH TO STRETCHING HOSE OUT WHEN A BUILDING IS ON FIRE.
    5.) STAGING RESCUE EQUIPMENT AND VENTILATION FANS, TOOLS, THE MANEUVERABILITY OF EMS EQUIPMENT, AND SO FORTH.

16. AN AUTOMATIC FIRE SPRINKLER SYSTEM WILL BE REQUIRED FOR THE PROPOSED BUILDINGS IF THE SQUARE FOOTAGE EXCEEDS 5,000 SQUARE FEET TO THE DRIP LINE ON EACH LOT OR THE OCCUPANT LOAD WITHIN THE ASSEMBLY OCCUPANCY EXCEEDS 100 PEOPLE. AMENDMENT 903.2.11.9.

SITE SUMMARY TABLE:

BLOCK	LOT	ZONING	PROPOSED USED	LOT AREA		BUILDING AREA	MAX BUILDING HEIGHT	COVERAGE	FLOOR AREA RATIO	PARKING REQUIRED	PARKING PROVIDED	ADA PARKING REQUIRED	ADA PARKING PROVIDED	INTERIOR LANDSCAPE REQUIRED	INTERIOR LANDSCAPE PROVIDED	IMPERVIOUS AREA	OPEN SPACE REQUIRED (7%)	OPEN SPACE PROVIDED
				(SF)	(AC)	(SF)	(FT)	(%)						(SF)	(SF)	(SF)	(SF)	(SF)
A	1	A - AGRICULTURE	CHURCH/ADMIN /CLASSROOM	236,172	5.422	19,403	1 STORY - 25'11"	8.22	12.16:1	130	137	5	5	(15 SF PER SPACE) 2,145	3,490	120,409	(7% OF LOT AREA) 16,532	115,763
			Total	236,172	5.422	19,403		8.22		130	137	5	5	2,145	3,490	120,409	16,532	115,763

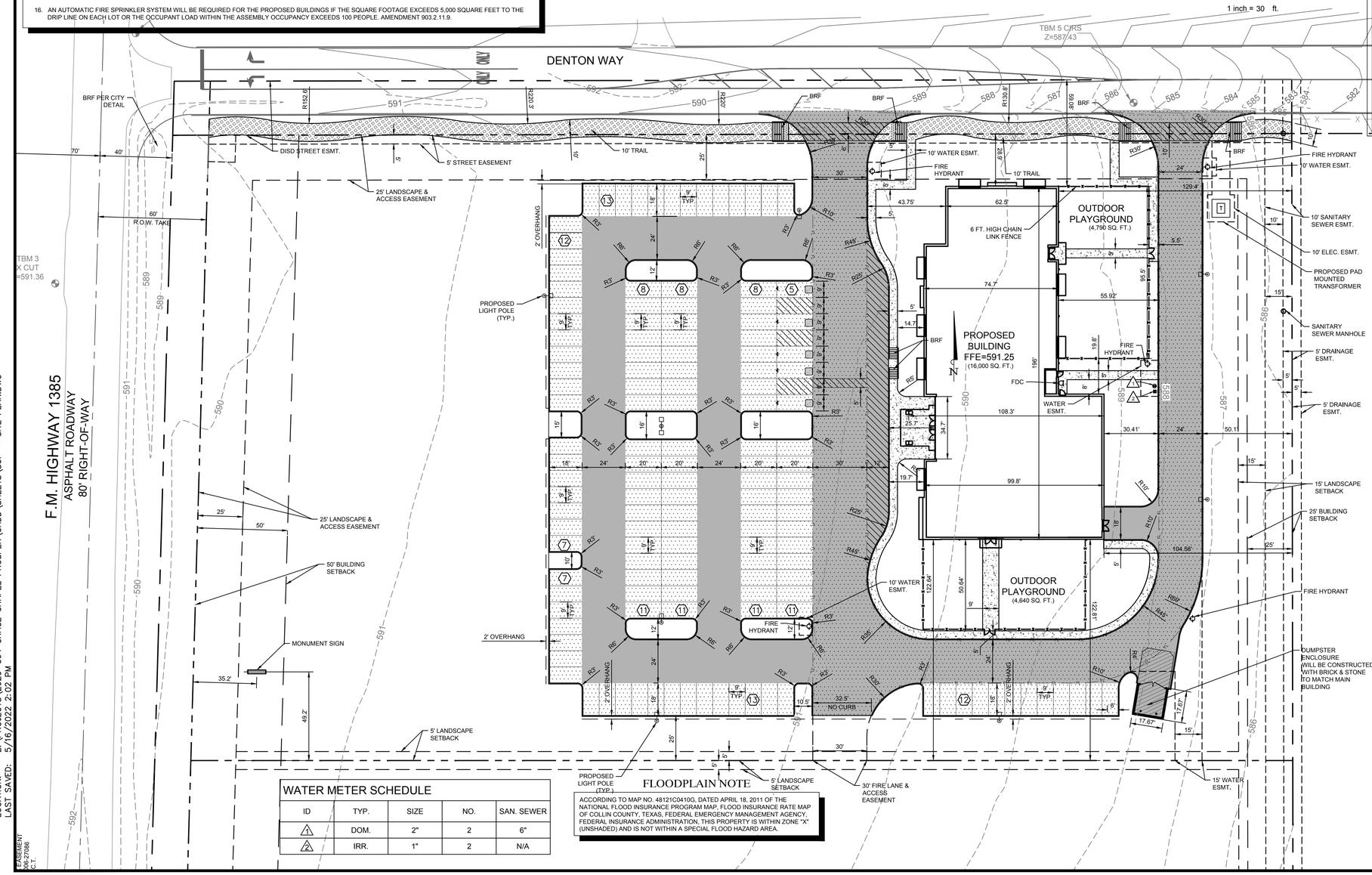
PARKING SUMMARY	
PARKING REQUIRED CHURCH = 300 / 3 SEATS = 100 CLASSROOM = 6*1.5 = 9 ADMIN/DAYCARE = 21 CHILDREN = 142	130 SPACES
PARKING PROVIDED	137 SPACES
ADA REQUIRED	5 SPACES
ADA PROVIDED	5 SPACES

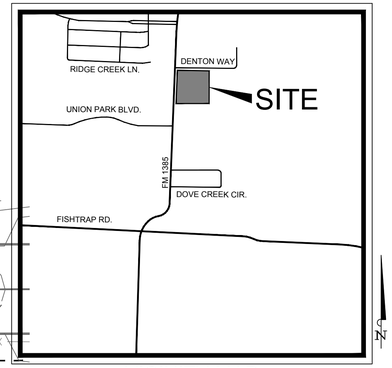
PLAYGROUND SUMMARY	
PLAYGROUND AREA REQUIRED = 65 SF / KID = 142 KIDS * 65 SF	9,230 SF
PLAYGROUND AREA PROVIDED	9,430 SF

GRAPHIC SCALE

30 0 15 30 60

1 inch = 30 ft.





VICINITY MAP
N.T.S.

LEGEND	
	FIRE LANE CONCRETE PAVEMENT PER TOWN OF PROSPER STANDARDS
	HEAVY DUTY CONCRETE PAVEMENT
	DUMPSTER DUTY CONCRETE PAVEMENT
	LIGHT DUTY CONCRETE PAVEMENT
	CONCRETE SIDEWALK
	PUBLIC CONCRETE SIDEWALK PER CITY DETAILS
	PROPOSED CONCRETE CURB AND GUTTER
— FL —	PROPOSED FIRE LANE STRIPING PER CITY STANDARDS
(10)	PARKING COUNT

Texas811
Know what's below. Call before you dig.

WATER METER SCHEDULE

ID	TYP.	SIZE	NO.	SAN. SEWER
1	DOM.	2"	2	6"
2	IRR.	1"	2	N/A

FLOODPLAIN NOTE

ACCORDING TO MAP NO. 48121C0410G, DATED APRIL 18, 2011 OF THE NATIONAL FLOOD INSURANCE PROGRAM MAP, FLOOD INSURANCE RATE MAP OF COLLIN COUNTY, TEXAS, FEDERAL EMERGENCY MANAGEMENT AGENCY, FEDERAL INSURANCE ADMINISTRATION, THIS PROPERTY IS WITHIN ZONE "X" (UNSHADED) AND IS NOT WITHIN A SPECIAL FLOOD HAZARD AREA.

PLOTTED BY: MARK TORRES
PLOT DATE: 5/23/2022 5:18 PM
LOCATION: Z:\PROJECTS\2020-064 GRACE CHAPEL PROSPER\CADD\SHEETS\SUP - SITE PLAN.DWG
LAST SAVED: 5/16/2022 2:02 PM

EASEMENT
2006-27086
O.P.R.

TEXAS REGISTRATION #14199
CLAYMOORE ENGINEERING
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM

PRELIMINARY
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CLAYMOORE ENGINEERING
ENGINEERING AND PLANNING CONSULTANTS
Engineer: DREW DONOSKY
P.E. No. 125651 Date 5/23/2022

GRACE CHAPEL PROSPER
FM 1385 & DENTON WAY
PROSPER, TX

NO.	DATE	REVISION	BY

GRACE CHAPEL PROSPER

SUP SITE PLAN

OWNER/DEVELOPER:
NORTH TEXAS CONFERENCE OF THE
UNITED METHODIST CHURCH
PO BOX 866128
PLANO, TEXAS 75086 CONTACT NAME: KENNETH WOLVERTON

APPLICANT:
CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 76021
PH: 817.281.0572 CONTACT NAME: DREW DONOSKY

SURVEYOR:
EAGLE SURVEYING, LLC
210 SOUTH ELM STREET,SUITE 104 ,
TX 75057
PH: 940.222.3009 CONTACT NAME: MASON DECKER

LEGAL DESCRIPTION:
LOTS 1 , BLOCK A
NORTH TEXAS CONFERENCE OF THE
METHODIST CHURCH ADDITION
GROSS AREA: 5.422 OR 236,172 SF

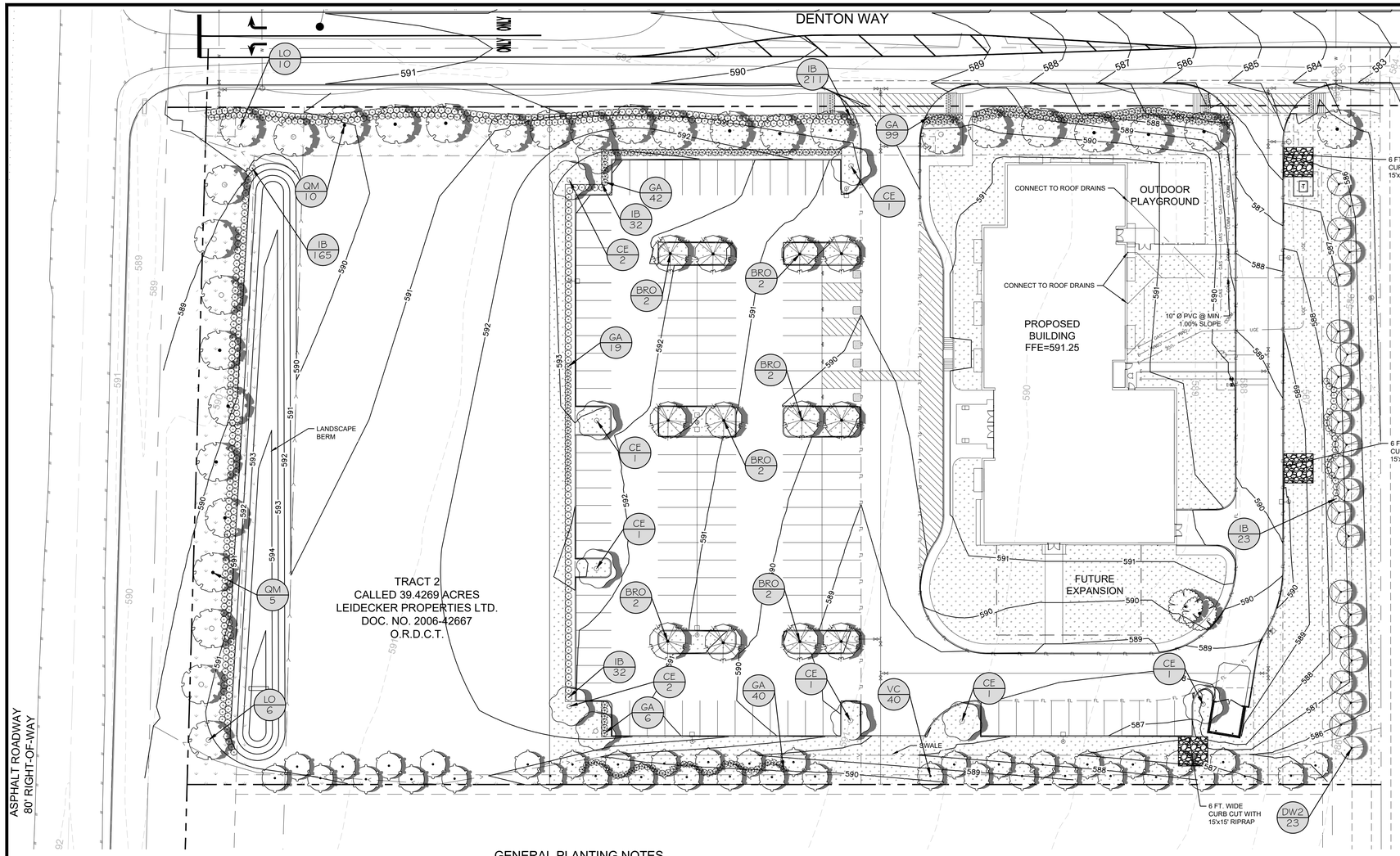
CITY:		STATE:
TOWN OF PROSPER		TEXAS
COUNTY	SURVEY:	ABSTRACT NO.
DENTON	JOHN MORTON SURVEY	793

EXHIBIT B

DESIGN:	MKT
DRAWN:	MKT
CHECKED:	ASD
DATE:	4/12/2022

SHEET
SUP

File No. 2020-064



GRAPHIC SCALE

30 0 15 30 60

1 inch = 30 ft.

PLANTING AND IRRIGATION GUARANTEE

THE LANDSCAPE CONTRACTOR SHALL GUARANTEE THAT ALL NEWLY INSTALLED AND EXISTING PLANTS SHALL SURVIVE FOR ONE YEAR AFTER FINAL OWNER ACCEPTANCE OF THE INSTALLATION WORK. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR APPROPRIATE WATERING OF THE LANDSCAPE THROUGH INSTALLATION OF A PROPERLY DESIGNED IRRIGATION SYSTEM. THE OWNER SHALL APPROVE THE SYSTEM DESIGN BEFORE INSTALLATION OF PLANTS OR IRRIGATION.

MULCHES

AFTER ALL PLANTING IS COMPLETE, CONTRACTOR SHALL INSTALL 3" THICK LAYER OF 1-1/2" SHREDDED WOOD MULCH OVER LANDSCAPE FABRIC IN ALL PLANTING AREAS (EXCEPT FOR TURF AND SEEDED AREAS). CONTRACTOR SHALL SUBMIT SAMPLES OF ALL MULCHES TO LANDSCAPE ARCHITECT AND OWNER FOR APPROVAL PRIOR TO CONSTRUCTION. ABSOLUTELY NO EXPOSED GROUND SHALL BE LEFT SHOWING ANYWHERE ON THE PROJECT AFTER MULCH HAS BEEN INSTALLED.

ROOT BARRIERS

THE CONTRACTOR SHALL INSTALL ROOT BARRIERS NEAR ALL NEWLY-PLANTED TREES THAT ARE LOCATED WITHIN FIVE (5) FEET OF PAVING OR CURBS. ROOT BARRIERS SHALL BE "CENTURY" OR "DEEP-ROOT" 24" DEEP PANELS (OR EQUAL). BARRIERS SHALL BE LOCATED IMMEDIATELY ADJACENT TO HARDSCAPE. INSTALL PANELS PER MANUFACTURER'S RECOMMENDATIONS. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR USE ROOT BARRIERS OF A TYPE THAT COMPLETELY ENCIRCLE THE ROOTBALL.

PLANT SCHEDULE

TREES	CODE	COMMON / BOTANICAL NAME	SIZE	CONTAINER	QTY
	EX	Existing Tree to Remain reference TD sheets	existing	existing	2
	DW2	Desert Willow / Chilopsis lineans min. 12' ht; buffer tree	CONT.	3"Cal	23
	BRO	Burr Oak / Quercus macrocarpa min. 12' ht; parking lot tree	CONT.	3"Cal	12
	QM	Texas Red Oak / Quercus texana min. 12' ht; street tree	CONT.	3"Cal	15
	LO	Live Oak / Quercus virginiana min. 12' ht; street Tree	CONT.	3"Cal	16
	CE	Cedar Elm / Ulmus crassifolia min. 12' ht; parking lot tree	CONT.	3"Cal	10
	VC	Chaste Tree / Vitex agnus-castus Purple; Multi-trunk	CONT.	3"Cal	40
SHRUBS	**CODE**	**COMMON / BOTANICAL NAME**	**SIZE**		**QTY**
	GA	Glossy Abelia / Abelia grandiflora 36" o.c.; min. 24" ht.	5 gal		206
	IB	Burford Holly / Ilex cornuta `Burfordii` min. 36" ht; 30" o.c.	10 gal.		462
GROUND COVERS	**CODE**	**COMMON / BOTANICAL NAME**	**SIZE**		**QTY**
	BG	Bermuda Grass / Cynodon dactylon	hydro		62,888 sf
	CD	Bermuda Grass / Cynodon dactylon `tif 419`	sod		54,282 sf

GENERAL PLANTING NOTES

1. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL EXISTING VEGETATION (EXCEPT WHERE NOTED TO REMAIN). BEFORE STARTING WORK, THE LANDSCAPE CONTRACTOR SHALL VERIFY THAT THE GRADE OF ALL LANDSCAPE AREAS ARE WITHIN +/-0.1' OF FINISH GRADE. THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY SHOULD ANY DISCREPANCIES EXIST. SEE SPECIFICATIONS FOR MORE DETAILED INSTRUCTION ON TURF AREA AND PLANTING BED PREPARATION.
2. CONSTRUCT AND MAINTAIN FINISH GRADES IN LANDSCAPE AREAS AS SHOWN ON GRADING PLANS, AND CONSTRUCT AND MAINTAIN SLOPES AS RECOMMENDED BY THE GEOTECHNICAL REPORT. ALL LANDSCAPE AREAS SHALL HAVE POSITIVE DRAINAGE AWAY FROM STRUCTURES AT THE MINIMUM SLOPE SPECIFIED IN THE REPORT, AND AREAS OF POTENTIAL PONDING SHALL BE REGRADED TO BLEND IN WITH THE SURROUNDING GRADES AND ELIMINATE PONDING POTENTIAL. SHOULD ANY CONFLICTS AND/OR DISCREPANCIES ARISE BETWEEN THE GRADING PLANS, GEOTECHNICAL REPORT, THESE NOTES, AND ACTUAL CONDITIONS, THE CONTRACTOR SHALL IMMEDIATELY BRING SUCH ITEMS TO THE ATTENTION OF THE LANDSCAPE ARCHITECT, GENERAL CONTRACTOR, AND OWNER.
3. ENSURE THAT THE GRADE IN SHRUB AREAS SHALL BE 2" BELOW FINISH GRADE AFTER INSTALLING SOIL AMENDMENTS, AND 1" BELOW FINISH GRADE IN SOD AREAS AFTER INSTALLING SOIL AMENDMENTS. MULCH COVER WITHIN 6" OF CONCRETE WALKS AND CURBS SHALL NOT PROTRUDE ABOVE THE FINISH SURFACE OF THE WALKS AND CURBS. MULCH COVER WITHIN 12" OF WALLS SHALL BE AT LEAST 3" LOWER THAN THE TOP OF WALL.
4. INSTALL 5 OUNCE, WOVEN, NEEDLE-PUNCHED POLYPROPYLENE FABRIC (DeWITT "PRO-5" OR EQUAL) UNDER ALL MULCHED AREAS AND INDIVIDUAL TREE RINGS.
5. INSTALL MULCH TOPDRESSING, TYPE AND DEPTH PER MULCH NOTE, IN ALL PLANTING BEDS AND TREE RINGS. DO NOT INSTALL MULCH WITHIN 6" OF TREE ROOT FLARE.
6. INSTALL 14G, GREEN STEEL EDGING BETWEEN ALL PLANTING BEDS AND TURF AREAS, AND BETWEEN GROUNDCOVERS AND OTHER PLANTS (WHERE INDICATED ON THE PLAN).
7. HYDROMULCH ALL DISTURBED AREAS OUTSIDE OF PROPERTY LIMITS (UNLESS SHOWN AS SOD).
8. ALL PLANT LOCATIONS ARE DIAGRAMMATIC. ACTUAL LOCATIONS SHALL BE VERIFIED WITH THE LANDSCAPE ARCHITECT OR DESIGNER PRIOR TO PLANTING. THE LANDSCAPE CONTRACTOR SHALL ENSURE THAT ALL REQUIREMENTS OF THE PERMITTING AUTHORITY ARE MET (I.E., MINIMUM PLANT QUANTITIES, PLANTING METHODS, TREE PROTECTION METHODS, ETC.).
9. THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR DETERMINING PLANT QUANTITIES; PLANT QUANTITIES SHOWN ON LEGENDS AND CALLOUTS ARE FOR GENERAL INFORMATION ONLY. IN THE EVENT OF A DISCREPANCY BETWEEN THE PLAN AND THE PLANT LEGEND, THE PLANT QUANTITY AS SHOWN ON THE PLAN (FOR INDIVIDUAL SYMBOLS) OR CALLOUT (FOR GROUNDCOVER PATTERNS) SHALL TAKE PRECEDENCE.
10. **NO SUBSTITUTIONS OF PLANT MATERIALS SHALL BE ALLOWED WITHOUT THE WRITTEN PERMISSION OF THE LANDSCAPE ARCHITECT.** IF SOME OF THE PLANTS ARE NOT AVAILABLE, THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT IN WRITING (VIA PROPER CHANNELS).
11. PLANTS MAY BE INSPECTED AND APPROVED OR REJECTED ON THE JOBSITE BY THE OWNER OR OWNER'S REPRESENTATIVE.
12. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL WORK SHOWN ON THESE PLANS FOR 90 DAYS BEYOND FINAL ACCEPTANCE OF ALL LANDSCAPE WORK BY THE OWNER. LANDSCAPE MAINTENANCE SHALL INCLUDE WEEKLY SITE VISITS FOR THE FOLLOWING ACTIONS (AS APPROPRIATE): PROPER PRUNING, RESTAKING OF TREES, RESETTING OF PLANTS THAT HAVE SETTLED, MOWING AND AERATION OF LAWNS, WEEDING, RESEEDING AREAS WHICH HAVE NOT GERMINATED WELL, TREATING FOR INSECTS AND DISEASES,REPLACEMENT OF MULCH, REMOVAL OF LITTER, REPAIRS TO THE IRRIGATION SYSTEM DUE TO FAULTY PARTS AND/OR WORKMANSHIP, AND THE APPROPRIATE WATERING OF ALL PLANTINGS. THE LANDSCAPE CONTRACTOR SHALL MAINTAIN THE IRRIGATION SYSTEM IN PROPER WORKING ORDER, WITH SCHEDULING ADJUSTMENTS BY SEASON TO MAXIMIZE WATER CONSERVATION.
13. SHOULD SEEDED AND/OR SODDED AREAS NOT BE COVERED BY AN AUTOMATIC IRRIGATION SYSTEM, THE LANDSCAPE CONTRACTOR SHAL BE RESPONSIBLE FOR WATERING THESE AREAS AND OBTAINING A FULL STAND OF GRASS AT NO ADDITIONAL COST TO THE OWNER.
14. TO ACHIEVE FINAL ACCEPTANCE AT THE END OF THE MAINTENANCE PERIOD, ALL OF THE FOLLOWING CONDITIONS MUST OCCUR:
    A. THE LANDSCAPE SHALL SHOW ACTIVE, HEALTHY GROWTH (WITH EXCEPTIONS MADE FOR SEASONAL DORMANCY). ALL PLANTS NOT MEETING THIS CONDITION SHALL BE REJECTED AND REPLACED BY HEALTHY PLANT MATERIAL PRIOR TO FINAL ACCEPTANCE.
    B. ALL HARDSCAPE SHALL BE CLEANED PRIOR TO FINAL ACCEPTANCE.
    C. SODDED AREAS MUST BE ACTIVELY GROWING AND MUST REACH A MINIMUM HEIGHT OF 1 1/2 INCHES BEFORE FIRST MOWING. HYDROMULCHED AREAS SHALL SHOW ACTIVE, HEALTHY GROWTH. BARE AREAS LARGER THAN TWELVE SQUARE INCHES MUST BE RESODDED OR RESEEDED (AS APPROPRIATE) PRIOR TO FINAL ACCEPTANCE. ALL SODDED TURF SHALL BE NEATLY MOWED.
15. SEE SPECIFICATIONS AND DETAILS FOR FURTHER REQUIREMENTS.

LANDSCAPE CALCULATIONS

STREET FRONTAGE:

FM 1385 346 LF

TREES @ 1 / 30 LF:	11 TREES REQUIRED
	11 TREES PROVIDED
SHRUBS @ 15 / 30 LF:	165 SHRUBS REQUIRED
	165 SHRUBS REQUIRED

NOLES ROAD 600 LF

1 / 30 LF:	20 TREES REQUIRED
	20 TREES PROVIDED
SHRUBS @ 15 / 30 LF:	300 SHRUBS REQUIRED
	300 SHRUBS REQUIRED

PARKING LOT

TOTAL PARKING SPACES:	144
REQUIRED INTERIOR LANDSCAPE AREA:	2,160 SF (15 SF / PARKING SPACE)
PROVIDED INTERIOR LANDSCAPE AREA:	3,225 SF

1 TREE PROVIDED AT THE TERMINUS OF EACH PARKING BAY
ADDITIONAL SHRUBS PROVIDED AS A SOLID LIVING SCREEN

PERIMETER LANDSCAPE

EAST PROPERTY LINE 346 LF

TREES REQUIRED	
(1 ORNAMENTAL TREE / 15 LF):	23
TREES PROVIDED:	23
SHRUBS REQUIRED (1 SHRUBS/15 LF):	23
SHRUBS PROVIDED:	23

SOUTH PROPERTY LINE 600 LF

TREES REQUIRED	
(1 ORNAMENTAL TREE / 15 LF):	40
TREES PROVIDED:	40
SHRUBS REQUIRED (1 SHRUBS/15 LF):	40
SHRUBS PROVIDED:	40

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BEDFORD, TX 76021
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM

REGISTERED LANDSCAPE ARCHITECT
DANIEL REECE
STATE OF TEXAS
3-31-22

GRACE CHAPEL PROSPER
FM 1385 & DENTON WAY
PROSPER, TX

No.	DATE	REVISION	BY

LANDSCAPE PLANTING

DESIGN:
DRAWN:
CHECKED:
DATE:

SHEET

LP-1

File No:

PLANTING SPECIFICATIONS

GENERAL

A. QUALIFICATIONS OF LANDSCAPE CONTRACTOR
1. ALL LANDSCAPE WORK SHOWN ON THESE PLANS SHALL BE PERFORMED BY A SINGLE FIRM SPECIALIZING IN LANDSCAPE PLANTING.
2. A LIST OF SUCCESSFULLY COMPLETED PROJECTS OF THIS TYPE, SIZE AND NATURE MAY BE REQUESTED BY THE OWNER FOR FURTHER QUALIFICATION MEASURES.
3. THE LANDSCAPE CONTRACTOR MUST HOLD A VALID NURSERY AND FLORAL CERTIFICATE ISSUED BY THE TEXAS DEPARTMENT OF AGRICULTURE, AS WELL AS OPERATE UNDER A COMMERCIAL PESTICIDE APPLICATOR LICENSE ISSUED BY EITHER THE TEXAS DEPARTMENT OF AGRICULTURE OR THE TEXAS STRUCTURAL PEST CONTROL BOARD.

B. SCOPE OF WORK
1. WORK COVERED BY THESE SECTIONS INCLUDES THE FURNISHING AND PAYMENT OF ALL MATERIALS, LABOR, SERVICES, EQUIPMENT, LICENSES, TAXES AND ANY OTHER ITEMS THAT ARE NECESSARY FOR THE EXECUTION, INSTALLATION AND COMPLETION OF ALL WORK, SPECIFIED HEREIN AND / OR SHOWN ON THE LANDSCAPE PLANS, NOTES, AND DETAILS.
2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS REQUIRED BY AUTHORITIES HAVING JURISDICTION OVER SUCH WORK, INCLUDING ALL INSPECTIONS AND PERMITS REQUIRED BY FEDERAL, STATE AND LOCAL AUTHORITIES IN SUPPLY, TRANSPORTATION AND INSTALLATION OF MATERIALS.
3. THE LANDSCAPE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITY LINES (WATER, SEWER, ELECTRICAL, TELEPHONE, GAS, CABLE, TELEVISION, ETC.) PRIOR TO THE START OF ANY WORK.

PRODUCTS

A. ALL MANUFACTURED PRODUCTS SHALL BE NEW.

B. CONTAINER AND BALLED-AND-BURLAPPED PLANTS:
1. FURNISH NURSERY-GROWN PLANTS COMPLYING WITH ANSI Z60.1-2004. PROVIDE WELL-SHAPED, FULLY BRANCHED, HEALTHY, VIGOROUS STOCK FREE OF DISEASE, INSECTS, EGGS, LARVAE, AND DEFECTS SUCH AS KNOTS, SUN SCALD, INJURIES, ABRASIONS, AND DISFIGUREMENT. ALL PLANTS WITHIN A SPECIES SHALL HAVE SIMILAR SIZE, AND SHALL BE OF A FORM TYPICAL FOR THE SPECIES. ALL TREES SHALL BE OBTAINED FROM SOURCES WITHIN 200 MILES OF THE PROJECT SITE, AND WITH SIMILAR CLIMACTIC CONDITIONS.
2. ROOT SYSTEMS SHALL BE HEALTHY, DENSELY BRANCHED, FIBROUS ROOT SYSTEMS, NON-POT-BOUND, FREE FROM ENCIRCLING AND/OR GIRDLING ROOTS, AND FREE FROM ANY OTHER ROOT DEFECTS (SUCH AS J-SHAPED ROOTS).
3. ANY PLANT DEEMED UNACCEPTABLE BY THE LANDSCAPE ARCHITECT OR OWNER SHALL BE IMMEDIATELY REMOVED FROM THE SITE AND SHALL BE REPLACED WITH AN ACCEPTBLE PLANT OF LIKE TYPE AND SIZE AT THE CONTRACTOR'S OWN EXPENSE. ANY PLANTS APPEARING TO BE UNHEALTHY, EVEN IF DETERMINED TO STILL BE ALIVE, SHALL NOT BE ACCEPTED. THE LANDSCAPE ARCHITECT AND OWNER SHALL BE THE SOLE JUDGES AS TO THE ACCEPTABILITY OF PLANT MATERIAL.
4. ALL TREES SHALL BE STANDARD IN FORM, UNLESS OTHERWISE SPECIFIED. TREES WITH CENTRAL LEADERS WILL NOT BE ACCEPTED IF LEADER IS DAMAGED OR REMOVED. PRUNE ALL DAMAGED TWIGS AFTER PLANTING.
5. CALIPER MEASUREMENTS FOR STANDARD (SINGLE TRUNK) TREES SHALL BE AS FOLLOWS: SIX INCHES ABOVE THE ROOT FLARE FOR TREES UP TO AND INCLUDING FOUR INCHES IN CALIPER, AND TWELVE INCHES ABOVE THE ROOT FLARE FOR TREES EXCEEDING FOUR INCHES IN CALIPER.
6. MULTI-TRUNK TREES SHALL BE MEASURED BY THEIR OVERALL HEIGHT, MEASURED FROM THE TOP OF THE ROOT BALL.
7. ANY TREE OR SHRUB SHOWN TO HAVE EXCESS SOIL PLACED ON TOP OF THE ROOT BALL, SO THAT THE ROOT FLARE HAS BEEN COMPLETELY COVERED, SHALL BE REJECTED.

C. SOD: PROVIDE WELL-ROOTED SOD OF THE VARIETY NOTED ON THE PLANS. SOD SHALL BE CUT FROM HEALTHY, MATURE TURF WITH SOIL THICKNESS OF 3/4" TO 1". EACH PALLET OF SOD SHALL BE ACCOMPANIED BY A CERTIFICATE FROM SUPPLIER STATING THE COMPOSITION OF THE SOD.

D. SEED: PROVIDE BLEND OF SPECIES AND VARIETIES AS NOTED ON THE PLANS, WITH MAXIMUM PERCENTAGES OF PURITY, GERMINATION, AND MINIMUM PERCENTAGE OF WEED SEED AS INDICATED ON PLANS. EACH BAG OF SEED SHALL BE ACCOMPANIED BY A TAG FROM THE SUPPLIER INDICATING THE COMPOSITION OF THE SEED.

E. TOPSOIL: SANDY TO CLAY LOAM TOPSOIL, FREE OF STONES LARGER THAN ½ INCH, FOREIGN MATTER, PLANTS, ROOTS, AND SEEDS.

F. COMPOST: WELL-COMPOSTED, STABLE, AND WEED-FREE ORGANIC MATTER, pH RANGE OF 5.5 TO 8; MOISTURE CONTENT 35 TO 55 PERCENT BY WEIGHT; 100 PERCENT PASSING THROUGH 3/4-INCH SIEVE; SOLUBLE SALT CONTENT OF 5 TO 10 DECISIEMENS/M; NOT EXCEEDING 0.5 PERCENT INERT CONTAMINANTS AND FREE OF SUBSTANCES TOXIC TO PLANTINGS. NO MANURE OR ANIMAL-BASED PRODUCTS SHALL BE USED.

G. PLANTING MIX: AN EQUAL PART MIXTURE OF TOPSOIL, SAND AND COMPOST.

H. FERTILIZER: GRANULAR FERTILIZER CONSISTING OF NITROGEN, PHOSPHORUS, POTASSIUM, AND OTHER NUTRIENTS IN PROPORTIONS, AMOUNTS, AND RELEASE RATES RECOMMENDED IN A SOIL REPORT FROM A QUALIFIED SOIL-TESTING AGENCY (SEE BELOW).

I. MULCH: SIZE AND TYPE AS INDICATED ON PLANS, FREE FROM DELETERIOUS MATERIALS AND SUITABLE AS A TOP DRESSING OF TREES AND SHRUBS.

J. WEED FABRIC: 5 OUNCE, WOVEN, NEEDLE-PUNCHED FABRIC, SUCH AS DEWITT PRO5 LANDSCAPE FABRIC (OR APPROVED EQUAL).

K. TREE STAKING AND GUYING
1. STAKES: 6' LONG GREEN METAL T-POSTS.
2. GUY AND TIE WIRE: ASTM A 641, CLASS 1, GALVANIZED-STEEL WIRE, 2-STRAND, TWISTED, 0.106 INCH DIAMETER.
3. STRAP CHAFING GUARD: REINFORCED NYLON OR CANVAS AT LEAST 1-1/2 INCH WIDE, WITH GROMMETS TO PROTECT TREE TRUNKS FROM DAMAGE.

L. STEEL EDGING: PROFESSIONAL STEEL EDGING, 14 GAUGE THICK X 4 INCHES WIDE, FACTORY PAINTED DARK GREEN. ACCEPTABLE MANUFACTURERS INCLUDE COL-MET OR APPROVED EQUAL.

M. PRE-EMERGENT HERBICIDES: ANY GRANULAR, NON-STAINING PRE-EMERGENT HERBICIDE THAT IS LABELED FOR THE SPECIFIC ORNAMENTALS OR TURF ON WHICH IT WILL BE UTILIZED. PRE-EMERGENT HERBICIDES SHALL BE APPLIED PER THE MANUFACTURER'S LABELED RATES.

METHODS

A. SOIL PREPARATION
1. BEFORE STARTING WORK, THE LANDSCAPE CONTRACTOR SHALL VERIFY THAT THE GRADE OF ALL LANDSCAPE AREAS ARE WITHIN +/-0.1' OF FINISH GRADE. THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY SHOULD ANY DISCREPANCIES EXIST.
2. SOIL TESTING:
   a. AFTER FINISH GRADES HAVE BEEN ESTABLISHED, CONTRACTOR SHALL HAVE SOIL SAMPLES TESTED BY AN ESTABLISHED SOIL TESTING LABORATORY FOR THE FOLLOWING: SOIL TEXTURAL CLASS, GENERAL SOIL FERTILITY, pH, ORGANIC MATTER CONTENT, SALT (CEC), LIME, SODIUM ADSORPTION RATIO (SAR) AND BORON CONTENT. EACH SAMPLE SUBMITTED SHALL CONTAIN NO LESS THAN ONE QUART OF SOIL.
   b. CONTRACTOR SHALL ALSO SUBMIT THE PROJECT'S PLANT LIST TO THE LABORATORY ALONG WITH THE SOIL SAMPLES.
   c. THE SOIL REPORT PRODUCED BY THE LABORATORY SHALL CONTAIN RECOMMENDATIONS FOR THE FOLLOWING (AS APPROPRIATE): GENERAL SOIL PREPARATION AND BACKFILL MIXES, PRE-PLANT FERTILIZER APPLICATIONS, AND ANY OTHER SOIL RELATED ISSUES. THE REPORT SHALL ALSO PROVIDE A FERTILIZER PROGRAM FOR THE ESTABLISHMENT PERIOD AND FOR LONG-TERM MAINTENANCE.
3. THE CONTRACTOR SHALL INSTALL SOIL AMENDMENTS AND FERTILIZERS PER THE SOILS REPORT RECOMMENDATIONS. ANY CHANGE IN COST DUE TO THE SOIL REPORT RECOMMENDATIONS, EITHER INCREASE OR DECREASE, SHALL BE SUBMITTED TO THE OWNER WITH THE REPORT.
4. FOR BIDDING PURPOSES ONLY, THE SOIL PREPARATION SHALL CONSIST OF THE FOLLOWING:
   a. TURF: INCORPORATE THE FOLLOWING AMENDMENTS INTO THE TOP 8" OF SOIL BY MEANS OF ROTOTILLING AFTER CROSS-RIPPING:
      i. NITROGEN STABILIZED ORGANIC AMENDMENT - 4 CU. YDS. PER 1,000 S.F.
      ii. AMMONIUM PHOSPHATE 16-20-0 - 15 LBS PER 1,000 S.F.
      iii. AGRICULTURAL GYPSUM - 100 LBS PER 1,000 S.F.
   b. TREES, SHRUBS, AND PERENNIALS: INCORPORATE THE FOLLOWING AMENDMENTS INTO THE TOP 8" OF SOIL BY MEANS OF ROTOTILLING AFTER CROSS-RIPPING:
      i. NITROGEN STABILIZED ORGANIC AMENDMENT - 4 CU. YDS. PER 1,000 S.F.
      ii. 12-12-12 FERTILIZER - 10 LBS. PER CU. YD.
      iii. AGRICULTURAL GYPSUM - 10 LBS. PER CU. YD.
      iv. IRON SULPHATE - 2 LBS. PER CU. YD.
5. CONTRACTOR SHALL ENSURE THAT THE GRADE IN SOD AREAS SHALL BE 1" BELOW FINISH GRADE AFTER INSTALLING SOIL AMENDMENTS, AND 2" BELOW FINISH GRADE IN SHRUB AREAS AFTER INSTALLING SOIL AMENDMENTS. MULCH COVER WITHIN 6" OF CONCRETE WALKS AND CURBS SHALL NOT PROTRUDE ABOVE THE FINISH SURFACE OF THE WALKS AND CURBS. MULCH COVER WITHIN 12" OF WALLS SHALL BE AT LEAST 3" LOWER THAN THE TOP OF WALL.
6. ONCE SOIL PREPARATION IS COMPLETE, THE LANDSCAPE CONTRACTOR SHALL ENSURE THAT THERE ARE NO DEBRIS, TRASH, OR STONES LARGER THAN 1" REMAINING IN THE TOP 6" OF SOIL.

B. GENERAL PLANTING
1. REMOVE ALL NURSERY TAGS AND STAKES FROM PLANTS.
2. EXCEPT IN AREAS TO BE PLANTED WITH ORNAMENTAL GRASSES, APPLY PRE-EMERGENT HERBICIDES AT THE MANUFACTURER'S RECOMMENDED RATE.
3. TRENCHING NEAR EXISTING TREES:
   a. CONTRACTOR SHALL NOT DISTURB ROOTS 1-1/2" AND LARGER IN DIAMETER WITHIN THE CRITICAL ROOT ZONE (CRZ) OF EXISTING TREES, AND SHALL EXERCISE ALL POSSIBLE CARE AND PRECAUTIONS TO AVOID INJURY TO TREE ROOTS, TRUNKS, AND BRANCHES. THE CRZ IS DEFINED AS A CIRCULAR AREA EXTENDING OUTWARD FROM THE TREE TRUNK, WITH A RADIUS EQUAL TO 1' FOR EVERY 1" OF TRUNK DIAMETER-AT-BREAST-HEIGHT (4.5' ABOVE THE AVERAGE GRADE AT THE TRUNK).
   b. ALL EXCAVATION WITHIN THE CRZ SHALL BE PERFORMED USING HAND TOOLS. NO MACHINE EXCAVATION OR TRENCHING OF ANY KIND SHALL BE ALLOWED WITHIN THE CRZ.
   c. ALTER ALIGNMENT OF PIPE TO AVOID TREE ROOTS 1-1/2" AND LARGER IN DIAMETER. WHERE TREE ROOTS 1-1/2" AND LARGER IN DIAMETER ARE ENCOUNTERED IN THE FIELD, TUNNEL UNDER SUCH ROOTS. WRAP EXPOSED ROOTS WITH SEVERAL LAYERS OF BURLAP AND KEEP MOIST. CLOSE ALL TRENCHES WITHIN THE CANOPY DRIP LINES WITHIN 24 HOURS.
   d. ALL SEVERED ROOTS SHALL BE HAND PRUNED WITH SHARP TOOLS AND ALLOWED TO AIR-DRY. DO NOT USE ANY SORT OF SEALERS OR WOUND PAINTS.

C. TREE PLANTING
1. TREE PLANTING HOLES SHALL BE EXCAVATED TO MINIMUM WIDTH OF TWO TIMES THE WIDTH OF THE ROOTBALL, AND TO A DEPTH EQUAL TO THE DEPTH OF THE ROOTBALL LESS TWO INCHES.
2. SCARIFY THE SIDES AND BOTTOM OF THE PLANTING HOLE PRIOR TO THE PLACEMENT OF THE TREE. REMOVE ANY GLAZING THAT MAY HAVE BEEN CAUSED DURING THE EXCAVATION OF THE HOLE.
3. FOR CONTAINER TREES, TO REMOVE ANY POTENTIALLY GIRDLING ROOTS AND OTHER ROOT DEFECTS, THE CONTRACTOR SHALL SHAVE A 1" LAYER OFF OF THE SIDES AND BOTTOM OF THE ROOTBALL OF ALL TREES JUST BEFORE PLACING INTO THE PLANTING PIT. DO NOT "TEASE" ROOTS OUT FROM THE ROOTBALL.
4. INSTALL THE TREE ON UNDISTURBED SUBGRADE SO THAT THE TOP OF THE ROOTBALL IS TWO TO THREE INCHES ABOVE THE SURROUNDING GRADE.
5. BACKFILL THE TREE HOLE UTILIZING THE EXISTING TOPSOIL FROM ON-SITE. ROCKS LARGER THAN 1" DIA. AND ALL OTHER DEBRIS SHALL BE REMOVED FROM THE SOIL PRIOR TO THE BACKFILL. SHOULD ADDITIONAL SOIL BE REQUIRED TO ACCOMPLISH THIS TASK, IMPORT ADDITIONAL TOPSOIL FROM OFF-SITE AT NO ADDITIONAL COST TO THE OWNER.
6. THE TOTAL NUMBER OF TREE STAKES (BEYOND THE MINIMUMS LISTED BELOW) WILL BE LEFT TO THE LANDSCAPE CONTRACTOR'S DISCRETION. SHOULD ANY TREES FALL OR LEAN, THE LANDSCAPE CONTRACTOR SHALL STRAIGHTEN THE TREE, OR REPLACE IT SHOULD IT BECOME DAMAGED. TREE STAKING SHALL ADHERE TO THE FOLLOWING GUIDELINES:
   a. 15 - 30 GAL TREES — TWO STAKES PER TREE
   b. 45 - 100 GAL TREES — THREE STAKES PER TREE
   c. MULTI-TRUNK TREES — THREE STAKES PER TREE MINIMUM, POSITIONED AS NEEDED TO STABILZE THE TREE
7. UPON COMPLETION OF PLANTING, CONSTRUCT AN EARTH WATERING BASIN AROUND THE TREE. COVER THE INTERIOR OF THE TREE RING WITH THE WEED BARRIER CLOTH AND TOPDRESS WITH MULCH (TYPE AND DEPTH PER PLANS).

D. SHRUB, PERENNIAL, AND GROUNDCOVER PLANTING
1. DIG THE PLANTING HOLES TWICE AS WIDE AND 2" LESS DEEP THAN EACH PLANT'S ROOTBALL. INSTALL THE PLANT IN THE HOLE. BACKFILL AROUND THE PLANT WITH SOIL AMENDED PER SOIL TEST RECOMMENDATIONS.
2. INSTALL THE WEED BARRIER CLOTH, OVERLAPPING IT AT THE ENDS. UTILIZE STEEL STAPLES TO KEEP THE WEED BARRIER CLOTH IN PLACE.
3. WHEN PLANTING IS COMPLETE, INSTALL MULCH (TYPE AND DEPTH PER PLANS) OVER ALL PLANTING BEDS, COVERING THE ENTIRE PLANTING AREA.

E. SODDING
1. SOD VARIETY TO BE AS SPECIFIED ON THE LANDSCAPE PLAN.
2. LAY SOD WITHIN 24 HOURS FROM THE TIME OF STRIPPING. DO NOT LAY IF THE GROUND IS FROZEN.
3. LAY THE SOD TO FORM A SOLID MASS WITH TIGHTLY FITTED JOINTS. BUTT ENDS AND SIDES OF SOD STRIPS - DO NOT OVERLAP. STAGGER STRIPS TO OFFSET JOINTS IN ADJACENT COURSES.
4. ROLL THE SOD TO ENSURE GOOD CONTACT OF THE SOD'S ROOT SYSTEM WITH THE SOIL UNDERNEATH.
5. WATER THE SOD THOROUGHLY WITH A FINE SPRAY IMMEDIATELY AFTER PLANTING TO OBTAIN AT LEAST SIX INCHES OF PENETRATION INTO THE SOIL BELOW THE SOD.

F. HYDROMULCHING
1. THE HYDROMULCH MIX (PER 1,000 SF) SHALL BE AS FOLLOWS:
   a. WINTER MIX (OCTOBER 1 - MARCH 31)
      50# CELLULOSE FIBER MULCH
      2# UNHULLED BERMUDA SEED
      2# ANNUAL RYE SEED
      15# 15-15-15 WATER SOLUBLE FERTILIZER
   b. SUMMER MIX (APRIL 1 - SEPTEMBER 30)
      50# CELLULOSE FIBER MULCH
      2# HULLED BERMUDA SEED
      15# 15-15-15 WATER SOLUBLE FERTILIZER

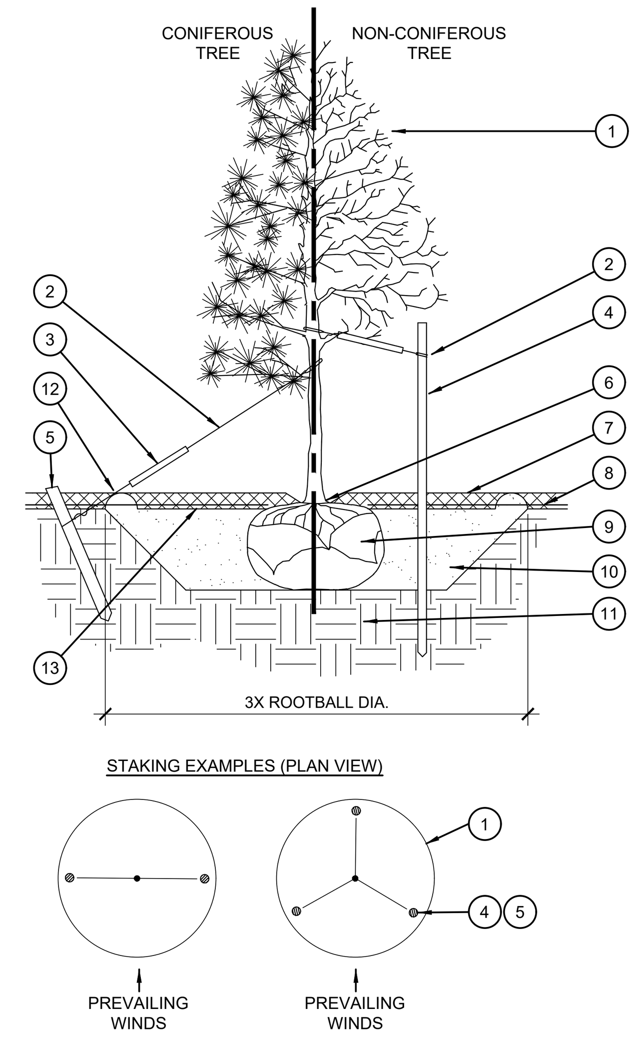
G. CLEAN UP
1. DURING LANDSCAPE PREPARATION AND PLANTING, KEEP ALL PAVEMENT CLEAN AND ALL WORK AREAS IN A NEAT, ORDERLY CONDITION.
2. DISPOSED LEGALLY OF ALL EXCAVATED MATERIALS OFF THE PROJECT SITE.

H. INSPECTION AND ACCEPTANCE
1. UPON COMPLETION OF THE WORK, THE LANDSCAPE CONTRACTOR SHALL PROVIDE THE SITE CLEAN, FREE OF DEBRIS AND TRASH, AND SUITABLE FOR USE AS INTENDED. THE LANDSCAPE CONTRACTOR SHALL THEN REQUEST AN INSPECTION BY THE OWNER TO DETERMINE FINAL ACCEPTABILITY.
3. WHEN THE INSPECTED PLANTING WORK DOES NOT COMPLY WITH THE CONTRACT DOCUMENTS, THE LANDSCAPE CONTRACTOR SHALL REPLACE AND/OR REPAIR THE REJECTED WORK TO THE OWNER'S SATISFACTION WITHIN 24 HOURS.
4. THE LANDSCAPE MAINTENANCE PERIOD WILL NOT COMMENCE UNTIL THE LANDSCAPE WORK HAS BEEN RE-INSPECTED BY THE OWNER AND FOUND TO BE ACCEPTABLE. AT THAT TIME, A WRITTEN NOTICE OF FINAL ACCEPTANCE WILL BE ISSUED BY THE OWNER, AND THE MAINTENANCE AND GUARANTEE PERIODS WILL COMMENCE.

I. LANDSCAPE MAINTENANCE
1. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL WORK SHOWN ON THESE PLANS FOR 90 DAYS BEYOND FINAL ACCEPTANCE OF ALL LANDSCAPE WORK BY THE OWNER. LANDSCAPE MAINTENANCE SHALL INCLUDE WEEKLY SITE VISITS FOR THE FOLLOWING ACTIONS (AS APPROPRIATE): PROPER PRUNING, RESTAKING OF TREES, RESETTING OF PLANTS THAT HAVE SETTLED, MOWING AND AERATION OF LAWNS, WEEDING, RESEEDING AREAS WHICH HAVE NOT GERMINATED WELL, TREATING FOR INSECTS AND DISEASES,REPLACEMENT OF MULCH, REMOVAL OF LITTER, REPAIRS TO THE IRRIGATION SYSTEM DUE TO FAULTY PARTS AND/OR WORKMANSHIP, AND THE APPROPRIATE WATERING OF ALL PLANTINGS. THE LANDSCAPE CONTRACTOR SHALL MAINTAIN THE IRRIGATION SYSTEM IN PROPER WORKING ORDER, WITH SCHEDULING ADJUSTMENTS BY SEASON TO MAXIMIZE WATER CONSERVATION.
2. SHOULD SEEDED AND/OR SODDED AREAS NOT BE COVERED BY AN AUTOMATIC IRRIGATION SYSTEM, THE LANDSCAPE CONTRACTOR SHAL BE RESPONSIBLE FOR WATERING THESE AREAS AND OBTAINING A FULL, HEALTHY STAND OF GRASS AT NO ADDITIONAL COST TO THE OWNER.
3. TO ACHIEVE FINAL ACCEPTANCE AT THE END OF THE MAINTENANCE PERIOD, ALL OF THE FOLLOWING CONDITIONS MUST OCCUR:
   a. THE LANDSCAPE SHALL SHOW ACTIVE, HEALTHY GROWTH (WITH EXCEPTIONS MADE FOR SEASONAL DORMANCY). ALL PLANTS NOT MEETING THIS CONDITION SHALL BE REJECTED AND REPLACED BY HEALTHY PLANT MATERIAL PRIOR TO FINAL ACCEPTANCE.
   b. ALL HARDSCAPE SHALL BE CLEANED PRIOR TO FINAL ACCEPTANCE.
   c. SODDED AREAS MUST BE ACTIVELY GROWING AND MUST REACH A MINIMUM HEIGHT OF 1 1/2 INCHES BEFORE FIRST MOWING. HYDROMULCHED AREAS SHALL SHOW ACTIVE, HEALTHY GROWTH. BARE AREAS LARGER THAN TWELVE SQUARE INCHES MUST BE RESODDED OR RESEEDED (AS APPROPRIATE) PRIOR TO FINAL ACCEPTANCE. ALL SODDED TURF SHALL BE NEATLY MOWED.

J. WARRANTY PERIOD, PLANT GUARANTEE AND REPLACEMENTS
1. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL TREES, SHRUBS, PERENNIALS, SOD, SEEDED/HYDROMULCHED AREAS, AND IRRIGATION SYSTEMS FOR A PERIOD OF ONE YEAR FROM THE DATE OF THE OWNER'S FINAL ACCEPTANCE (90 DAYS FOR ANNUAL PLANTS). THE CONTRACTOR SHALL REPLACE, AT HIS OWN EXPENSE AND TO THE SATISFACTION OF THE OWNER, ANY PLANTS WHICH DIE IN THAT TIME, OR REPAIR ANY PORTIONS OF THE IRRIGATION SYSTEM WHICH OPERATE IMPROPERLY.
2. AFTER THE INITIAL MAINTENANCE PERIOD AND DURING THE GUARANTEE PERIOD, THE LANDSCAPE CONTRACTOR SHALL ONLY BE RESPONSIBLE FOR REPLACEMENT OF PLANTS WHEN PLANT DEATH CANNOT BE ATTRIBUTED DIRECTLY TO OVERWATERING OR OTHER DAMAGE BY HUMAN ACTIONS.

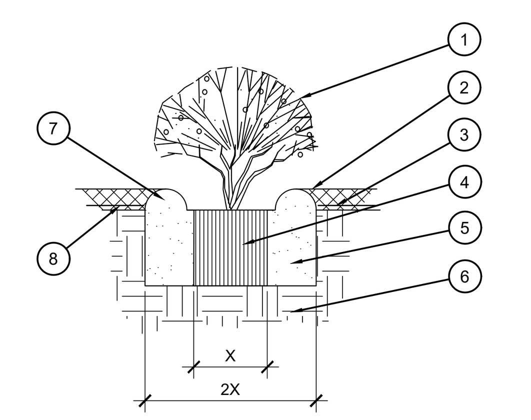
K. PROVIDE A MINIMUM OF (2) COPIES OF RECORD DRAWINGS TO THE OWNER UPON COMPLETION OF WORK. A RECORD DRAWING IS A RECORD OF ALL CHANGES THAT OCCURRED IN THE FIELD AND THAT ARE DOCUMENTED THROUGH CHANGE ORDERS, ADDENDA, OR CONTRACTOR/CONSULTANT DRAWING MARKUPS.



1. TREE CANOPY.
2. CINCH-TIES (24" BOX TREES AND SMALLER) OR 12 GAUGE GALVANIZED WIRE WITH NYLON TREE STRAPS AT TREE AND STAKE (36" BOX TREES AND LARGER). SECURE TIES OR STRAPS TO TRUNK JUST ABOVE LOWEST MAJOR BRANCHES.
3. 24" X 3/4" P.V.C. MARKERS OVER WIRES.
4. GREEN STEEL T-POSTS. EXTEND POSTS 12" MIN. INTO UNDISTURBED SOIL.
5. PRESSURE-TREATED WOOD DEADMAN, TWO PER TREE (MIN.). BURY OUTSIDE OF PLANTING PIT AND 18" MIN. INTO UNDISTURBED SOIL.
6. TRUNK FLARE.
7. MULCH, TYPE AND DEPTH PER PLANS. DO NOT PLACE MULCH WITHIN 6" OF TRUNK.
8. WEED FABRIC UNDER MULCH.
9. ROOT BALL.
10. BACKFILL. AMEND AND FERTILIZE ONLY AS RECOMMENDED IN SOIL FERTILITY ANALYSIS.
11. UNDISTURBED NATIVE SOIL.
12. 4" HIGH EARTHEN WATERING BASIN.
13. FINISH GRADE.

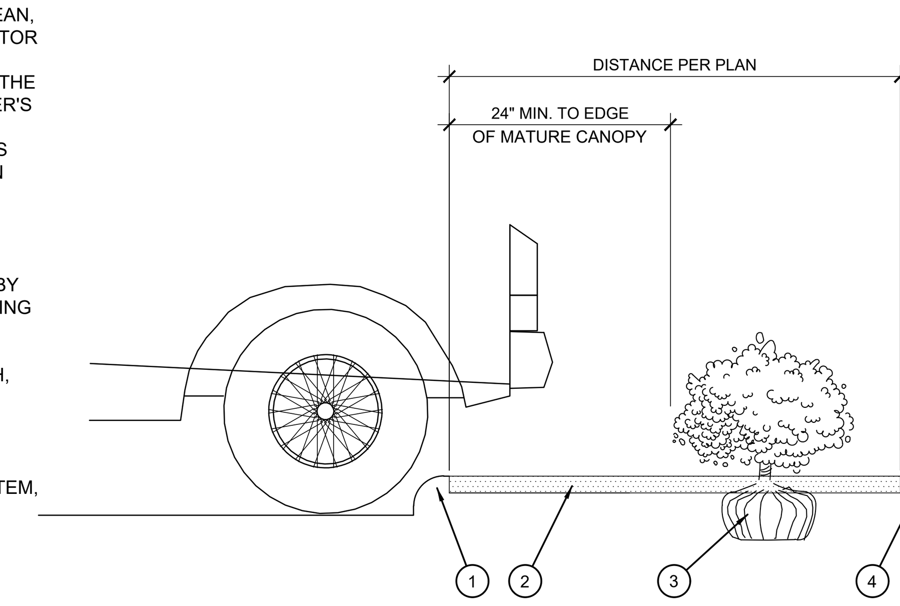
NOTES:
1. SCARIFY SIDES OF PLANTING PIT PRIOR TO SETTING TREE.
2. REMOVE EXCESS SOIL APPLIED ON TOP OF THE ROOTBALL THAT COVERS THE ROOT FLARE. THE PLANTING HOLE DEPTH SHALL BE SUCH THAT THE ROOTBALL RESTS ON UNDISTURBED SOIL, AND THE ROOT FLARE IS 2"-3" ABOVE FINISH GRADE.
3. FOR BALLED-AND-BURLAPPED TREES, REMOVE WIRE BASKET AND BURLAP BEFORE BACKFILLING.
4. REMOVE ALL NURSERY STAKES AFTER PLANTING.
5. FOR TREES OVER 3" CALIPER AND TREES 36" BOX AND LARGER, USE THREE STAKES OR DEADMEN (AS APPROPRIATE), SPACED EVENLY AROUND TREE.
6. STAKING SHALL BE TIGHT ENOUGH TO PREVENT TRUNK FROM BENDING, BUT LOOSE ENOUGH TO ALLOW SOME TRUNK MOVEMENT IN WIND.

A TREE PLANTING
SCALE: NOT TO SCALE



1. SHRUB, PERENNIAL, OR ORNAMENTAL GRASS.
2. MULCH, TYPE AND DEPTH PER PLANS. PLACE NO MORE THAN 1" OF MULCH WITHIN 6" OF PLANT CENTER.
3. FINISH GRADE.
4. ROOT BALL.
5. BACKFILL. AMEND AND FERTILIZE ONLY AS RECOMMENDED IN SOIL FERTILITY ANALYSIS.
6. UNDISTURBED NATIVE SOIL.
7. 3" HIGH EARTHEN WATERING BASIN.
8. WEED FABRIC UNDER MULCH.

B SHRUB AND PERENNIAL PLANTING
SCALE: NTS



1. CURB.
2. MULCH LAYER.
3. PLANT.
4. TURF (WHERE SHOWN ON PLAN).

E HEDGE PLANTING AT PARKING AREA
SCALE: NOT TO SCALE

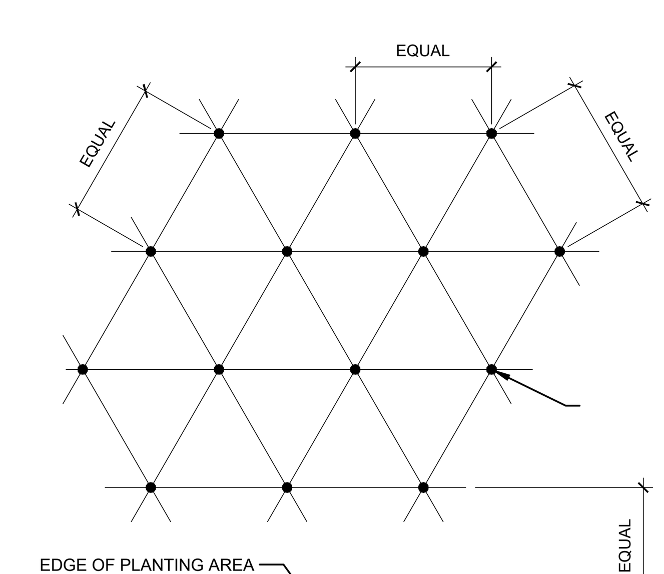
TOWN OF PROSPER GENERAL LANDSCAPE NOTES

1) Plant material shall be measured and sized according to the latest edition of the Texas Nursery & Landscape Association (TNLA) Specifications, Grades and Standards.
2) All plant substitutions are subject to Town approval and must be specified on the approved landscape plan.
3) All turf areas to be established prior to the Certificate of Occupancy, unless otherwise approved by the Town.
4) Ground covers used in lieu of turf grass must provide complete coverage within one (1) year of planting and maintain adequate coverage as approved by the Town.
5) Trees must be planted four (4) feet or greater from curbs, sidewalks, utility lines, screening walls, and/or other healthy root growth.
6) Tree pits shall have roughened sides and be two to three times wider than the root ball of the tree in order to facilitate healthy root growth.
7) Tree pits shall be tested for water percolation. If water does not drain out of tree pit within a 24-hour period, the contractor shall provide berming, or devise alternative drainage.
8) Trees shall not be planted deeper than the base of the "trunk flare".
9) The tree pit shall be backfilled with native topsoil free of rock and other debris.
10) Burlap, twine, and wire baskets shall be loosened and pulled back from the trunk of tree as much as possible.
11) Trees shall not be watered to excess that results in soil saturation. If soil becomes saturated, the watering schedule shall be adjusted to allow for drainage and absorption of the excess water.
12) A 3-4" layer of mulch shall be provided around the base of the planted tree. The mulch shall be pulled back 1-2" from the trunk of the tree.
13) No person(s) or entity may use improper or malicious maintenance or pruning techniques which would likely lead to the death of the tree. Improper or malicious techniques include, but are not limited to, topping or other unsymmetrical trimming of trees, trimming trees with a backhoe, or use of fire or poison to cause the death of a tree.
14) Topsoil shall be a minimum of eight (8) inches in depth in planting areas. Soil shall be free of stones, roots, and clods and any other foreign material that is not beneficial for plant growth.
15) All plant beds shall be top-dressed with a minimum of three (3) inches of mulch.
16) Trees overhanging walks and parking shall have a minimum clear trunk height of seven (7) feet. Trees overhanging public street pavement drive aisles and fire lanes shall have a minimum clear trunk height of fourteen (14) feet.
17) A visibility triangle must be provided at all intersections, where shrubs are not to exceed thirty (30) inches in height, and trees shall have a minimum clear trunk height of nine (9) feet.
18) Trees planted on a slope shall have the tree well at the average grad of slope.
19) No shrubs shall be permitted within areas less than three (3) feet in width. All beds less than three (3) feet in width shall be grass, groundcover, or some type of fixed paving.
20) The owner, tenant, and/or their agents, if any, shall be jointly and severally responsible for the maintenance, establishment, and permanence of plant material. All landscaping shall be maintained in a neat and orderly manner at all times. This shall include, but not limited to, mowing, edging, pruning, fertilizing, watering, and other activities necessary for the maintenance of landscaped areas.
21) All plant material shall be maintained in a healthy and growing condition as is appropriate for the season of the year. Plant material that is damaged, destroyed, or removed shall be replaced with plant material of similar size and variety within thirty (30) days unless otherwise approved in writing by the Town of Prosper.
22) Landscape and open areas shall be kept free of trash, litter, and weeds.
23) An automatic irrigation system shall be provided to irrigate all landscape areas. Overspray on streets and walks is prohibited. A permit from the Building Inspection Division is required for each irrigation system.
24) No plant material shall be allowed to encroach on right-of-way, sidewalks, or easements to the extent that the vision or route of travel for vehicular, pedestrian, or bicycle traffic is impeded.
25) No planting areas shall exceed 3:1 slope (3 ft Horizontal to 1 ft Vertical).
26) Earthen berms shall not include construction debris. Contractor must correct slippage or damage to the smooth finish grad of the berm prior to acceptance.
27) All walkways shall meet ADA and TAS requirements.
28) Contact Town of Prosper Parks and Recreation Division at (972) 569-1160 for landscape inspection. Note that landscape installation must comply with approved landscape plans prior to final acceptance by the Town and/or obtaining a Certificate of Occupancy.
29) Final inspection and approval of screening walls, irrigation, and landscape is subject to all public utilities, including but not limited to manholes, valves, water meters, cleanouts, and other appurtenances, to be accessible, adjusted to grade, and to the Town of Prosper's Public Works Department standards.
30) Prior to calling for a landscape inspection, the contractor is responsible for marking all manholes, valves, water meters, cleanouts, and other utility appurtenances with flagging for field verification by the Town.

TOWN OF PROSPER MAINTENANCE STANDARDS

A. THE OWNER, TENANT AND/OR THEIR AGENT, IF ANY, SHALL BE JOINTLY AND SEVERALLY RESPONSIBLE FOR THE MAINTENANCE OF ALL LANDSCAPING REQUIRED BY THIS ORDINANCE. ALL PLANT MATERIAL SHALL BE PERPETUALLY MAINTAINED IN A HEALTHY AND GROWING CONDITION AS IS APPROPRIATE FOR THE SEASON OF THE YEAR. PLANT MATERIALS THAT DIE SHALL BE REPLACED BY PROPERTY OWNER, TENANT OR AGENT WITH PLANT MATERIAL OF SIMILAR VARIETY AND SIZE, WITHIN THIRTY (30) DAYS OF NOTIFICATION BY THE TOWN OR A DATE APPROVED BY THE TOWN.

B. ALL TREES LOCATED ON TOWN PROPERTY SHALL BE CARED FOR BY THE TOWN UNLESS THAT RESPONSIBILITY IS TRANSFERRED TO ANOTHER ENTITY THROUGH A COUNCIL-APPROVED AGREEMENT. THE DIRECTOR OF THE PARKS AND RECREATION DEPARTMENT SHALL ENSURE THAT THE TOWN, OR ITS CONTRACTOR, MONITORS AND CARES FOR TREES IN A WAY THAT PROMOTES A HEALTHY AND GROWING URBAN FOREST, IS PERFORMED ACCORDING TO ANSI A300, "STANDARDS FOR TREE CARE OPERATIONS," AND TREE CARE BEST MANAGEMENT PRACTICES PUBLISHED BY THE INTERNATIONAL SOCIETY OF ARBORICULTURE. IT SHALL BE UNLAWFUL TO REMOVE, PRUNE, DAMAGE OR OTHERWISE HARM TREES ON TOWN PROPERTY WITHOUT PERMISSION FROM THE DIRECTOR OF THE PARKS AND RECREATION DEPARTMENT. THE PARKS AND RECREATION DEPARTMENT SHALL BE RESPONSIBLE FOR DEVELOPING AND UPDATING AN ANNUAL WORK PLAN. THIS WORK PLAN SHALL DOCUMENT WHAT MAINTENANCE ACTIVITIES ARE BEING PERFORMED AND SCHEDULED EACH YEAR. THE PARKS AND RECREATION BOARD MAY APPOINT AN ADVISORY COMMITTEE TO FOCUS ON ISSUES AND INITIATIVES THAT PERTAIN TO ANY URBAN FOREST THAT IS LOCATED ON PUBLIC LANDS.



NOTE: ALL PLANTS SHALL BE PLANTED AT EQUAL TRIANGULAR SPACING (EXCEPT WHERE SHOWN ON PLANS AS INFORMAL GROUPINGS). REFER TO PLANT LEGEND FOR SPACING DISTANCE BETWEEN PLANTS.

PLANT SPACING	AREA DIVIDER TO DETERMINE NO. OF PLANTS
6"	0.25
8"	0.45
10"	0.69
12"	1
15"	1.56
18"	2.25
24"	4
30"	6.25
36"	9

EXAMPLE: PLANTS AT 18" O.C. IN 100 SF OF PLANTING AREA = 100/2.25 = 44 PLANTS

C PLANT SPACING
SCALE: NTS

EVERGREEN DESIGN GROUP
(800) 680-6630
15455 Dallas Pkwy., Ste 600
Addison, TX 75001
www.EvergreenDesignGroup.com

TEXAS FIRM #14199
CLAYMOORE ENGINEERING
1903 CENTRAL DR. SUITE #406
BEDFORD, TX 76021
PHONE: 817.281.0572
WWW.CLAYMOOREENG.COM

REGISTERED LANDSCAPE ARCHITECT
DANIEL REECE
STATE OF TEXAS
3-31-22

GRACE CHAPEL PROSPER
FM 1385 & DENTON WAY
PROSPER, TX

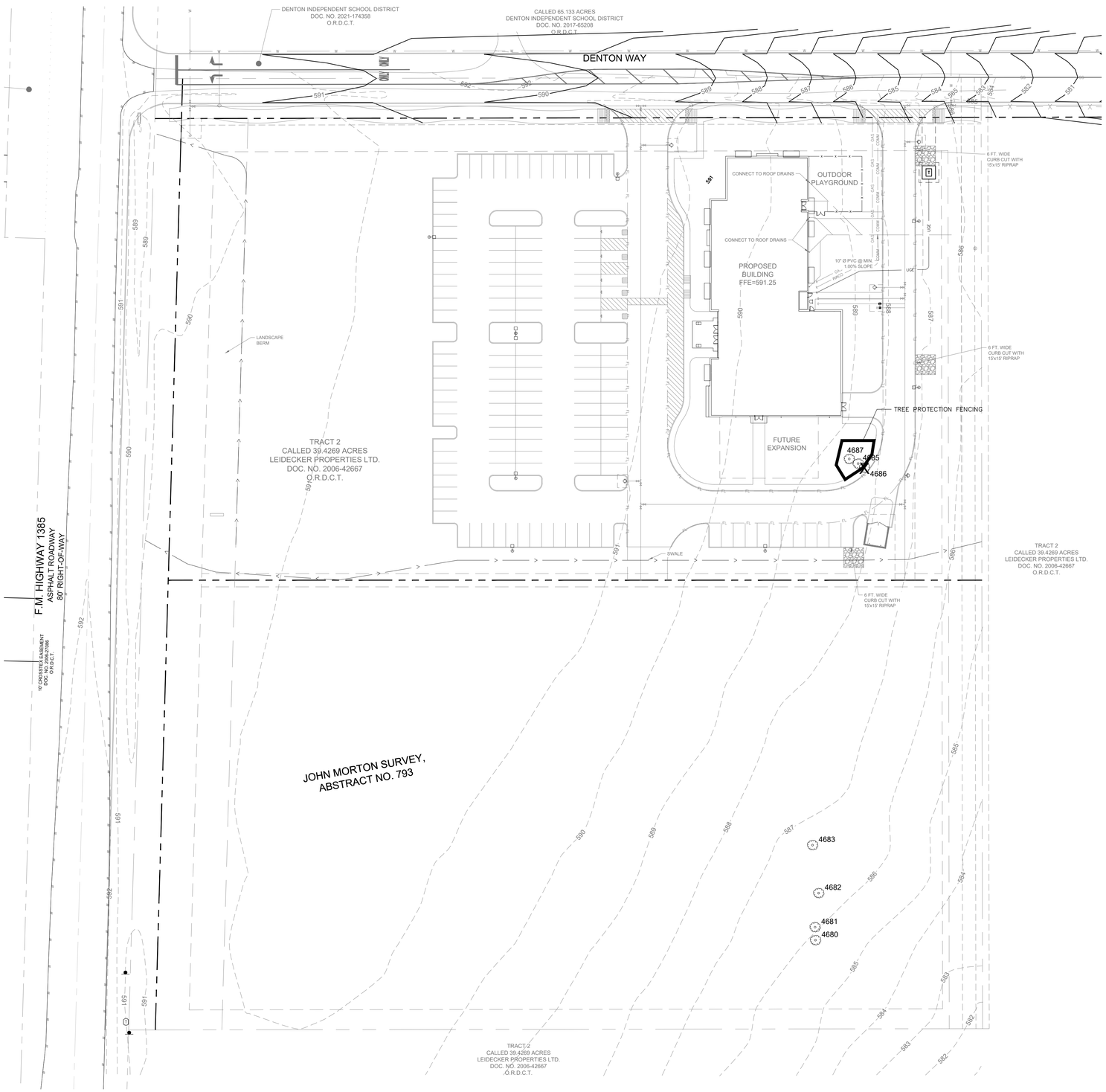
No.	DATE	REVISION	BY

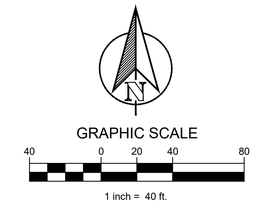
LANDSCAPE DETAILS & SPECIFICATIONS

DESIGN:
DRAWN:
CHECKED:
DATE:

SHEET
LP-2

File No:





LEGEND

EXISTING TREE TO BE RETAINED

EXISTING TREE TO BE REMOVED

TREE PROTECTION FENCING

TREE TABLE

ID NO.	SPECIES	DBH (INCHES)	STATUS	LOCATION	FLOODPLAIN	%	MITIGATION
734	BOIS D'ARC	12	RETAIN	OFF-SITE	NO	-	-
4680	HACKBERRY	6	RETAIN	OFF-SITE	NO	-	-
4681	HACKBERRY	6	RETAIN	OFF-SITE	NO	-	-
4682	HACKBERRY	6	RETAIN	OFF-SITE	NO	-	-
4683	HACKBERRY	10	RETAIN	OFF-SITE	NO	-	-
4685	BOIS D'ARC	12	RETAIN	ON-SITE	NO	-	-
4686	BOIS D'ARC	12	REMOVE	ON-SITE	NO	-	-
4687	BOIS D'ARC	36	RETAIN	ON-SITE	NO	-	-

NOTE:
NO MITIGATION REQUIRED DUE TO SPECIES OF REMOVED TREE.

"I Daniel Reece, being a Texas landscape architect attest that the identification and size of trees identified on this survey are correct and that all Protected Trees have been shown.

Signature: Dan Dua Date: 3-1-22

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DANIEL REECE
STATE OF TEXAS
3-31-22

GRACE CHAPEL PROSPER
FM 1385 & DENTON WAY
PROSPER, TX

No.	DATE	REVISION	BY

TREE DISPOSITION PLAN

DESIGN:
DRAWN:
CHECKED:
DATE:

SHEET
TD-1

File No:

TREE PROTECTION SPECIFICATIONS

MATERIALS

1. FABRIC: 4 FOOT HIGH ORANGE PLASTIC FENCING AS SHOWN ON THE PLANS AND SHALL BE WOVEN WITH 2 INCH MESH OPENINGS SUCH THAT IN A VERTICAL DIMENSION OF 23 INCHES ALONG THE DIAGONALS OF THE OPENINGS THERE SHALL BE AT LEAST 7 MESHES.
2. POSTS: POSTS SHALL BE A MINIMUM OF 72 INCHES LONG AND STEEL "T" SHAPED WITH A MINIMUM WEIGHT OF 1.3 POUNDS PER LINEAR FOOT.
3. TIE WIRE: WIRE FOR ATTACHING THE FABRIC TO THE T-POSTS SHALL BE NOT LESS THAN NO. 12 GAUGE GALVANIZED WIRE.
4. USED MATERIALS: PREVIOUSLY-USED MATERIALS, MEETING THE ABOVE REQUIREMENTS AND WHEN APPROVED BY THE OWNER, MAY BE USED.

CONSTRUCTION METHODS

ALL TREES AND SHRUBS (SHOWN TO REMAIN) WITHIN THE PROXIMITY OF THE CONSTRUCTION SITE SHALL BE PROTECTED PRIOR TO BEGINNING ANY DEVELOPMENT ACTIVITY.

EMPLOY THE SERVICES OF AN ISA (INTERNATIONAL SOCIETY OF ARBORICULTURE) CERTIFIED ARBORIST (AND OBTAIN ALL REQUIRED PERMITS) TO PRUNE THE EXISTING TREES FOR CLEANING, RAISING AND THINNING. ENSURE ALL TREES RECEIVE A COMMERCIAL-GRADE ROOT STIMULATOR APPLICATION AFTER PRUNING.

PROTECTIVE FENCING SHALL BE ERECTED OUTSIDE THE DRIPLINE AT LOCATIONS SHOWN IN THE PLANS OR AS DIRECTED BY THE LANDSCAPE CONSULTANT AND/OR CITY ARBORIST OR IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS AT THE DRIP LINE OF TREES (ROOT PROTECTION ZONE, RPZ) AND/OR LANDSCAPE PLANT MATERIAL INCLUDING NATURAL AREAS. FENCING SHALL BE MAINTAINED AND REPAIRED BY THE CONTRACTOR DURING SITE CONSTRUCTION.

PROTECTIVE FENCE LOCATIONS IN CLOSE PROXIMITY TO STREET INTERSECTIONS OR DRIVES SHALL ADHERE TO THE APPLICABLE JURISDICTION'S SIGHT DISTANCE CRITERIA.

THE PROTECTIVE FENCING SHALL BE ERECTED BEFORE SITE WORK COMMENCES AND SHALL REMAIN IN PLACE DURING THE ENTIRE CONSTRUCTION PHASE.

THE INSTALLATION POSTS WILL BE PLACED EVERY 6 FEET AROUND THE DRIP LINE OR RPZ AND EMBEDDED TO 18 INCHES DEEP. FABRIC ATTACHMENT SHALL BE ATTACHED TO THE INSTALLATION POSTS BY THE USE OF SUFFICIENT WIRE TIES TO SECURELY FASTEN THE FABRIC TO THE 'T-POSTS' TO HOLD THE FABRIC IN A STABLE AND UPRIGHT POSITION.

1. DO NOT CLEAR, FILL OR GRADE IN THE RPZ OF ANY TREE.
2. DO NOT STORE, STOCKPILE OR DUMP ANY JOB MATERIAL, SOIL OR RUBBISH UNDER THE SPREAD OF THE TREE BRANCHES.
3. DO NOT PARK OR STORE ANY EQUIPMENT OR SUPPLIES UNDER THE SPREAD OF THE TREE BRANCHES.
4. DO NOT SET UP ANY CONSTRUCTION OPERATIONS UNDER THE SPREAD OF THE TREE BRANCHES (EX. PIPE CUTTING AND THREADING, MORTAR MIXING, PAINTING OR LUMBER CUTTING).
5. DO NOT NAIL OR ATTACH TEMPORARY SIGNS METERS, SWITCHES, WIRES, BRACING OR ANY OTHER ITEM TO THE TREES.
6. DO NOT PERMIT RUNOFF FROM WASTE MATERIALS INCLUDING SOLVENTS, CONCRETE WASHOUTS, ASPHALT TACK COATS (MC-30 OIL), ETC. TO ENTER THE RPZ. BARRIERS ARE TO BE PROVIDED TO PREVENT SUCH RUNOFF SUBSTANCES FROM ENTERING THE RPZ WHENEVER POSSIBLE, INCLUDING IN AN AREA WHERE RAIN OR SURFACE WATER COULD CARRY SUCH MATERIALS TO THE ROOT SYSTEM OF THE TREE.

ROUTE UNDERGROUND UTILITIES TO AVOID THE RPZ. IF DIGGING IS UNAVOIDABLE, BORE UNDER THE ROOTS, OR HAND DIG TO AVOID SEVERING THEM.

THE CONTRACTOR SHOULD AVOID CUTTING ROOTS LARGER THAN ONE INCH IN DIAMETER WHEN EXCAVATION OCCURS NEAR EXISTING TREES. EXCAVATION IN THE VICINITY OF TREES SHALL PROCEED WITH CAUTION.

REMOVE ALL TREES, SHRUBS OR BUSHES TO BE CLEARED FROM PROTECTED ROOT ZONE AREAS BY HAND.

TREES DAMAGED OR LOST DUE TO CONTRACTOR'S NEGLIGENCE DURING CONSTRUCTION SHALL BE MITIGATED AT THE CONTRACTOR'S EXPENSE AND TO THE PROJECT OWNER'S SATISFACTION.

ANY TREE REMOVAL SHALL BE APPROVED BY THE OWNER PRIOR TO ITS REMOVAL.

COVER EXPOSED ROOTS AT THE END OF EACH DAY WITH SOIL, MULCH OR WET BURLAP.

IN CRITICAL ROOT ZONE AREAS THAT CANNOT BE PROTECTED DUING CONSTRUCTION AND WHERE HEAVY TRAFFIC IS ANTICIPATED, COVER THOSE AREAS WITH EIGHT INCHES OF ORGANIC MULCH TO MINIMIZE SOIL COMPACTION. THIS EIGHT INCH DEPTH OF MULCH SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.

WATER ALL TREES, MOST HEAVILY IMPACTED BY CONSTRUCTION ACTIVITIES, DEEPLY ONCE A WEEK DURING PERIODS OF HOT DRY WEATHER. SPRAY TREE CROWNS WITH WATER PERIODICALLY TO REDUCE DUST ACCUMULATION ON THE LEAVES.

WHEN INSTALLING CONCRETE ADJACENT TO THE ROOT ZONE OF A TREE, USE A PLASTIC VAPOR BARRIER BEHIND THE CONCRETE TO PROHIBIT LEACHING OF LIME INTO THE SOIL.

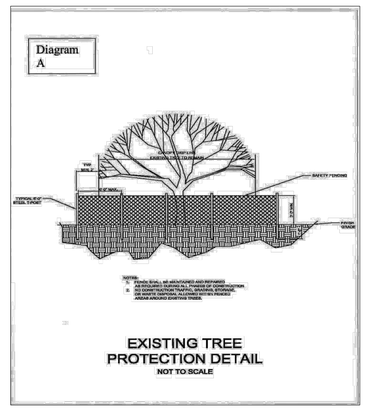
WHEN AN EXCAVATION OR EMBANKMENT IS PLACED WITHIN THE DRIPLINE OF ANY TREE GREATER THAN EIGHT INCHES IN DIAMETER, A TREE WELL SHALL BE CONSTRUCTED TO PROTECT THE TREE AS INDICATED, WHEN THE CUT OR FILL EXCEEDS EIGHT INCHES.

WHERE PAVING OR FILLING IS NECESSARY WITHIN THE DRIPLINE OF ANY TREE EIGHT INCHES OR GREATER, A PERMEABLE PAVEMENT AND AERATION SYSTEM MUST BE INSTALLED.

CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL TREE PROTECTION FENCING WHEN ALL THREATS TO THE EXISTING TREES FROM CONSTRUCTION-RELATED ACTIVITIES HAVE BEEN REMOVED.

TREE PROTECTION REQUIREMENTS

1. A ROOT PROTECTION ZONE WILL BE ESTABLISHED AROUND EACH TREE OR ANY VEGETATION TO BE PRESERVED. THE ROOT PROTECTION ZONE SHALL BE AN AREA DEFINED BY THE RADIUS EXTENDING OUTWARD FROM THE TRUNK OF THE TREE A DISTANCE OF ONE (1) LINEAR FOOT FOR EACH INCH DIAMETER INCH AT BREAST HEIGHT (4.5') OF THE TREE. EXAMPLE: A 10-INCH DIAMETER TREE WILL HAVE A 10 FOOT RADIUS ROOT PROTECTION ZONE.
2. NO WORK SHALL BEGIN WERE TREE PROTECTION FENCING HAS NOT BEEN COMPLETED AND APPROVED. TREE PROTECTION FENCING SHALL BE INSTALLED, MAINTAINED AND REPAIRED BY THE CONTRACTOR DURING CONSTRUCTION. THE FENCING WILL BE A MINIMUM OF 4' HEIGHT.
3. ALL ROOTS LARGER THAN ONE-INCH IN DIAMETER ARE TO BE CUT CLEANLY. FOR OAKS ONLY, ALL WOUNDS SHALL BE PAINTED WITH WOUND SEALER WITHIN 30 MINUTES.
4. EXPOSED ROOTS SHALL BE COVERED AT THE END OF THE WORK DAY USING TECHNIQUES SUCH AS COVERING WITH SOIL, MULCH OR WET BURLAP.
5. NO EQUIPMENT, VEHICLES OR MATERIALS SHALL BE OPERATED OR STORED WITHIN THE ROOT PROTECTION ZONE. NO CLEAN-OUT AREAS WILL BE CONSTRUCTED SO THAT THE MATERIAL WILL BE IN OR MIGRATE TO THE ROOT PROTECTION ZONE.
6. NO GRADE CHANGE MORE THAN 3" IS ALLOWED WITHIN THE ROOT PROTECTION ZONE.
7. ROOTS OR BRANCHES IN CONFLICT WITH CONSTRUCTION SHALL BE CUT CLEANLY ACCORDING TO PROPER PRUNING METHODS. ALL WOUNDS SHALL BE PAINTED WITHIN 30 MINUTES TO PREVENT OAK WILT INFECTION (OAK TREES ONLY).
8. ANY TREE REMOVAL SHALL BE APPROVED BY THE LOCAL JURISDICTION'S ARBORIST.
9. TREES WHICH ARE DAMAGED OR LOST DUE TO THE CONTRACTOR'S NEGLIGENCE DURING CONSTRUCTION SHALL BE REPLACED WITH TREE QUANTITIES AND SIZES ACCEPTABLE TO THE LOCAL JURISDICTION.
10. TREES MUST BE MAINTAINED IN GOOD HEALTH THROUGHOUT THE CONSTRUCTION PROCESS. MAINTENANCE MAY INCLUDE WATERING THE ROOT PROTECTION ZONE AND/OR WASHING FOLIAGE.
11. NO WIRES, NAILS OR OTHER MATERIALS MAY BE ATTACHED TO PROTECTED TREES.
12. THE ROOT PROTECTION ZONE SHALL BE PRESERVED AT NATURAL GRADE. NO CUTTING, FILLING, TRENCHING, ROOT DISTURBANCE, SOIL DISTURBANCE, OR CONSTRUCTION SHALL OCCUR CLOSER TO THE TRUNK THAN ONE-HALF (1/2) THE ROOT PROTECTION ZONE RADIUS EXCEPT IN PARKING AREAS, WHERE APPROVED ALTERNATIVE MATERIALS AND METHODS MAY BE USED AND CONSTRUCTION MAY OCCUR AS CLOSE AS FIVE (5) FEET FROM THE ROOT FLARES ON ONE SIDE OF THE TREE. NATIVE UNDERSTORY VEGETATION WITHIN THE ROOT PROTECTION ZONE SHALL BE PRESERVED, HOWEVER THE REQUIREMENT DOES NOT APPLY TO ROOT PROTECTION ZONE AREAS THAT HAVE BEEN LANDSCAPED. THE ROOT PROTECTION ZONE MAY BE SHIFTED AND CLUSTERED AS LONG AS THERE IS NO CONSTRUCTION CLOSER TO THE TRUNK THAN ONE-HALF (1/2) THE ROOT PROTECTION ZONE RADIUS. THE CONSTRUCTION OF SIDEWALKS SHALL BE ALLOWED IN THE ROOT PROTECTION ZONE, AS LONG AS EXCAVATION DOES NOT EXCEED THREE (3) INCHES.
13. DURING CONSTRUCTION ACTIVITY ON SITE, AT LEAST A SIX-INCH LAYER OF A COARSE MULCH SHALL BE PLACED AND MAINTAINED OVER THE ROOT PROTECTION ZONE. THE IMPERVIOUS COVER MAY ENCROACH WITHIN THE ROOT PROTECTION ZONE IF SAID ENCROACHMENT IS APPROVED BY THE ARBORIST.



A — TREE PROTECTION FENCE - ELEVATION

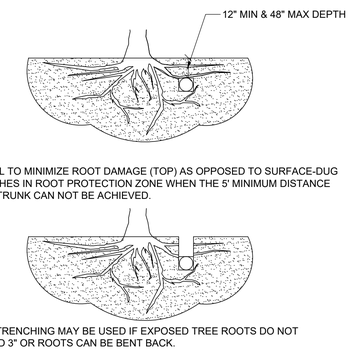
SCALE: NOT TO SCALE

TREES THAT ARE MARKED TO BE PRESERVED ON A SITE PLAN AND FOR WHICH UTILITIES MUST PASS TROUGH THEIR ROOT PROTECTION ZONES MAY REQUIRE TUNNELING AS OPPOSED TO OPEN TRENCHES. THE DECISION TO TUNNEL WILL BE DETERMINED ON A CASE BY CASE BASIS BY THE ENGINEER.

TUNNELS SHALL BE DUG THROUGH THE ROOT PROTECTION ZONE IN ORDER TO MINIMIZE ROOT DAMAGE.

TREES THAT ARE MARKED TO BE PRESERVED ON A SITE PLAN AND FOR WHICH UTILITIES MUST PASS TROUGH THEIR ROOT PROTECTION ZONES MAY REQUIRE TUNNELING AS OPPOSED TO OPEN TRENCHES. THE DECISION TO TUNNEL WILL BE DETERMINED ON A CASE BY CASE BASIS BY THE ENGINEER.

TUNNELS SHALL BE DUG THROUGH THE ROOT PROTECTION ZONE IN ORDER TO MINIMIZE ROOT DAMAGE.



B — BORING THROUGH ROOT PROTECTION ZONE

SCALE: NOT TO SCALE

EVERGREEN DESIGN GROUP
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15455 Dallas Pkwy., Ste 600
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TREE DISPOSITION SPECIFICATIONS

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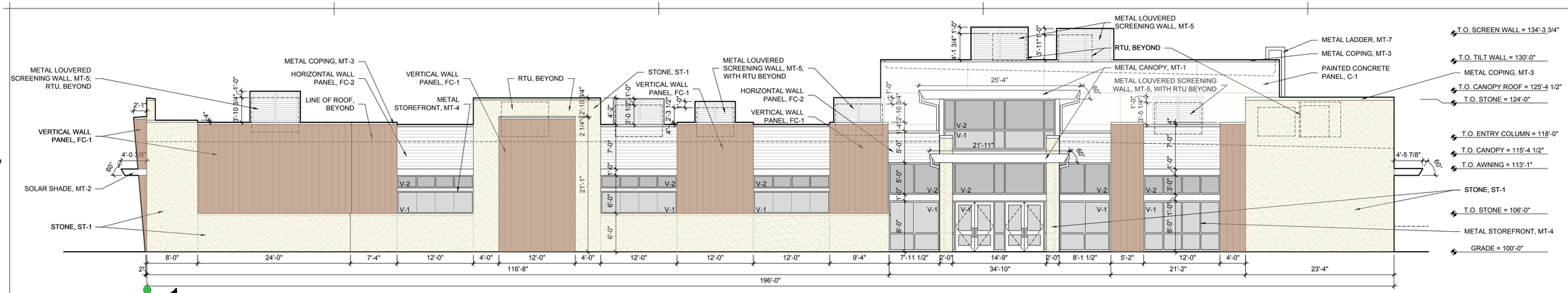
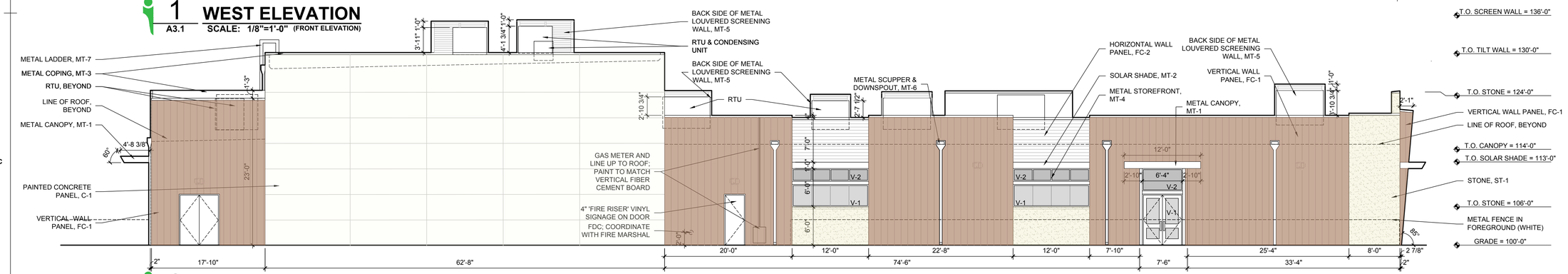
TD-2

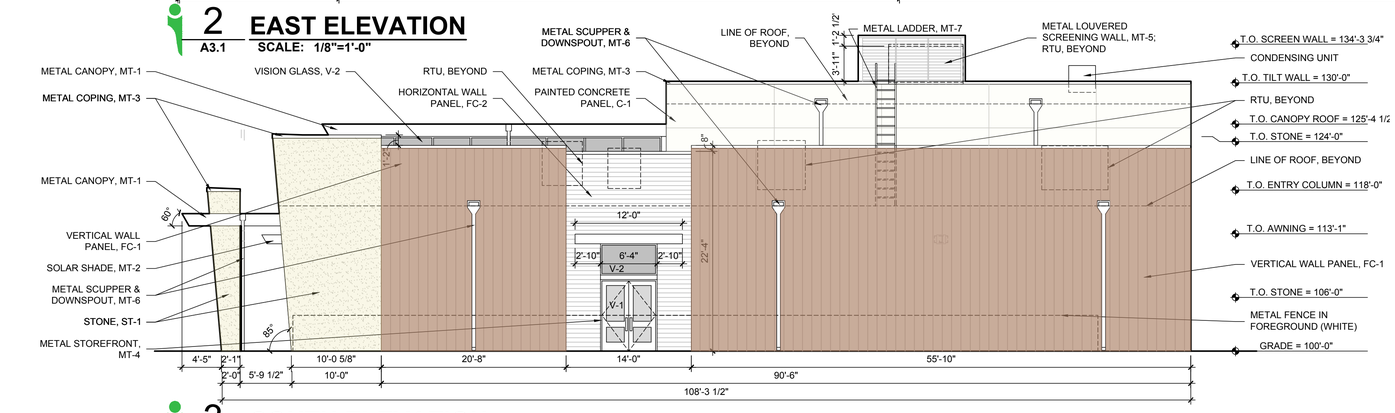
File No:



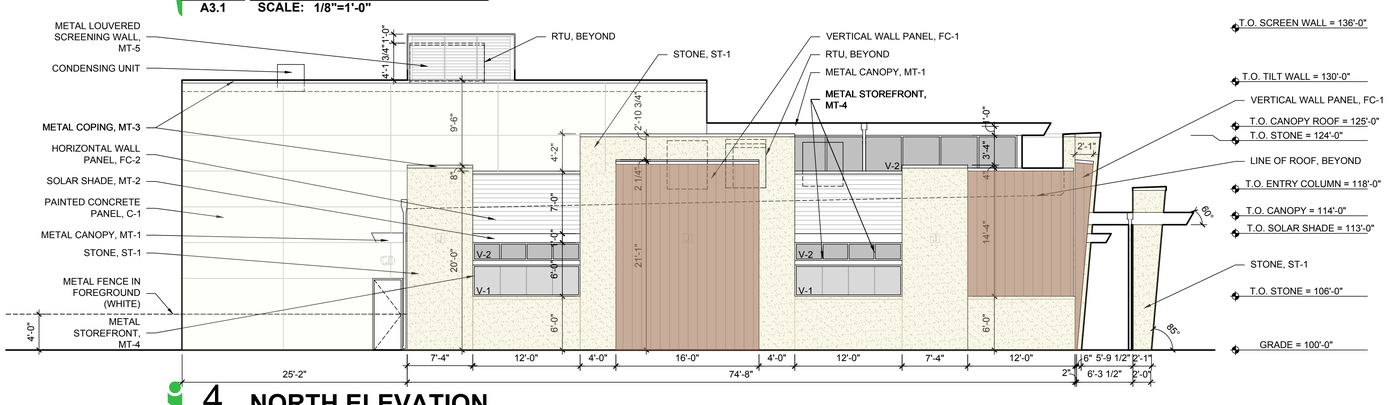
1 WEST ELEVATION
A3.1 SCALE: 1/8"=1'-0" (FRONT ELEVATION)



2 EAST ELEVATION
A3.1 SCALE: 1/8"=1'-0"



3 SOUTH ELEVATION
A3.1 SCALE: 1/8"=1'-0"



4 NORTH ELEVATION
A3.1 SCALE: 1/8"=1'-0"

MATERIAL LEGEND

- STONE; ST-1 (CREAM)
- CONCRETE PANEL; C-1 (WHITE)
- VERTICAL WOOD-LOOK WALL PANEL, FC-1 (BROWN)
- HORIZONTAL WALL PANEL, FC-2 (WHITE)
- METAL CANOPY, MT-1 (WHITE)
- METAL SOLAR SHADE, MT-2 (WHITE)
- METAL COPING, MT-3 (WHITE)
- METAL STOREFRONT, MT-4 (WHITE)
- METAL LOUVERED SCREENING WALL, MT-5 (WHITE)
- METAL SCUPPER & DOWNSPOUT, MT-6 (WHITE)
- METAL ROOF LADDER, MT-7 (WHITE)
- VISION GLASS, V-1 (GRAY)
- VISION GLASS, V-2 (DARKER GRAY)

* REFER SPECIFICATIONS FOR ADDITIONAL INFORMATION

FACADE PLAN NOTES

1. SEE FACADE PLAN SHEET A3.2 FOR NOTES, ABBREVIATIONS, AND MATERIAL CALCULATIONS.
2. SEE 11x17 SAMPLE BOARD [EXHIBIT A] FOR PROPOSED MATERIALS.

GRACE CHAPEL PROSPER

EXHIBIT 'D'

OWNER/DEVELOPER:
NORTH TEXAS CONFERENCE OF THE UNITED METHODIST CHURCH
PO BOX 866128
PLANO, TEXAS 75086
CONTACT NAME: KENNETH WOLVERTON

APPLICANT:
CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 46021
PH: 817.281.0572
CONTACT NAME: DREW DONOSKY

ARCHITECT:
EIKON CONSULTING GROUP, LLC
1405 WEST CHAPMAN DRIVE
SANGER, TX 76266
PH: 940.458.7503
CONTACT NAME: ANN PINKHAM

SURVEYOR:
EAGLE SURVEYING, LLC
210 SOUTH ELM STREET, SUITE #104
TX 75057
PH: 940.222.3009
CONTACT NAME: MASON DECKER

LEGAL DESCRIPTION:
LOTS 1, BLOCK A
NORTH TEXAS CONFERENCE OF THE METHODIST CHURCH ADDITION
GROSS AREA: 5.422 OR 236,172 SF

CITY:		STATE:
TOWN OF PROSPER		TEXAS
COUNTY:	SURVEY:	ABSTRACT NO.
DENTON	JOHN MORTON SURVEY	793

DATE: 04/18/2022

EIKON
www.eikoncg.com
Texas Firm F-12759
ARCHITECTS & ENGINEERS
EIKON Consulting Group
1405 West Chapman Drive
Sanger, Texas 76266
Phone 940.458.7503

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PROSPER, TEXAS

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Project No:	20086
Drawn By:	AMP
Checked By:	AMP
Designed By:	JBB

Issue Record

#	Description	Date

EXHIBIT 'D'
FACADE PLAN

BUILDING ELEVATIONS

A3.1

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BUILDING EXTERIOR ELEVATION MATERIAL CALCULATIONS

NORTH ELEVATION

	MATERIAL	AREA	PERCENTAGE*
1.	VERTICAL WALL PANELS	521 SQ. FT.	19%
2.	HORIZONTAL WALL PANELS	160 SQ. FT.	6%
3.	CONCRETE PANELS	983 SQ. FT.	35%
4.	MISCELLANEOUS DETAILING METALS	224 SQ. FT.	8%
5.	METAL SCREENING	85 SQ. FT.	3%
6.	STONE	818 SQ. FT.	29%
	NET SURFACE ELEVATION AREA	**2,792 SQ. FT**	**100%**
7.	GLAZING SURFACE AREA	196 SQ. FT.	
	TOTAL SURFACE ELEVATION AREA	**2,988 SQ. FT.**	

SOUTH ELEVATION

	MATERIAL	AREA	PERCENTAGE*
1.	VERTICAL WALL PANELS	1,710 SQ. FT.	59%
2.	HORIZONTAL WALL PANELS	220 SQ. FT.	7%
3.	CONCRETE PANELS	396 SQ. FT.	14%
4.	MISCELLANEOUS DETAILING METALS	208 SQ. FT.	7%
5.	METAL SCREENING	62 SQ. FT.	2%
6.	STONE	312 SQ. FT.	11%
	NET SURFACE ELEVATION AREA	**2,908 SQ. FT.**	**100%**
7.	GLAZING SURFACE AREA	73 SQ. FT.	
	TOTAL ELEVATION AREA	**2,981 SQ. FT.**	

EAST ELEVATION

	MATERIAL	AREA	PERCENTAGE*
1.	VERTICAL WALL PANELS	1,896 SQ. FT.	41%
2.	HORIZONTAL WALL PANELS	160 SQ. FT.	3%
3.	CONCRETE PANELS	1,870 SQ. FT.	40%
4.	MISCELLANEOUS DETAILING METALS	314 SQ. FT.	7%
5.	METAL SCREENING	118 SQ. FT.	2%
6.	STONE	312 SQ. FT.	7%
	NET SURFACE ELEVATION AREA	**4,670 SQ.FT.**	**100%**
7.	GLAZING SURFACE AREA	153 SQ. FT.	
	TOTAL ELEVATION AREA	**4,823 SQ. FT.**	

WEST ELEVATION

	MATERIAL	AREA	PERCENTAGE*
1.	VERTICAL WALL PANELS	1,167 SQ.FT.	28%
2.	HORIZONTAL WALL PANELS	394 SQ. FT.	9%
3.	CONCRETE PANELS	499 SQ. FT.	12%
4.	MISCELLANEOUS DETAILING METALS	422 SQ. FT.	10%
5.	METAL SCREENING	224 SQ. FT.	5%
6.	STONE	1,542 SQ. FT.	36%
	NET SURFACE ELEVATION AREA	**4,248 SQ. FT.**	**100%**
7.	GLAZING SURFACE AREA	715 SQ. FT.	
	TOTAL ELEVATION AREA	**4,963 SQ. FT.**	

OVERALL BUILDING

	MATERIAL	AREA	PERCENTAGE*
1.	VERTICAL WALL PANELS	5,294 SQ. FT.	36%
2.	HORIZONTAL WALL PANELS	934 SQ. FT.	6%
3.	CONCRETE PANELS	3,748 SQ. FT.	25%
4.	MISCELLANEOUS DETAILING METALS	1,168 SQ. FT.	8%
5.	METAL SCREENING	833 SQ. FT.	5%
6.	STONE	2,984 SQ. FT.	20%
	NET SURFACE ELEVATION AREA	**14,618 SQ. FT.**	**100%**
7.	GLAZING SURFACE AREA	1,137 SQ. FT.	
8.	**TOTAL ELEVATION AREA**	**15,755 SQ. FT.**	

***CALCULATED PERCENTAGE AREA OF EACH MATERIAL IS CALCULATED AGAINST THE NET SURFACE AREA**

MATERIAL LEGEND

- STONE; ST-1 (CREAM)
- CONCRETE PANEL; C-1 (WHITE)
- VERTICAL WOOD-LOOK WALL PANEL, FC-1 (BROWN)
- HORIZONTAL WALL PANEL, FC-2 (WHITE)
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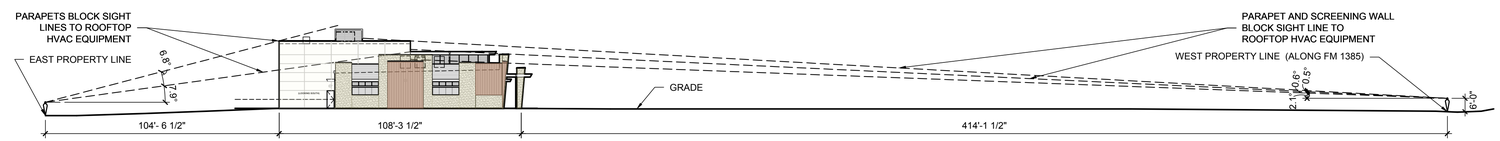
- METAL ROOF LADDER, MT-7 (WHITE)
- VISION GLASS, V-1 (GRAY)
- VISION GLASS, V-2 (DARKER GRAY)

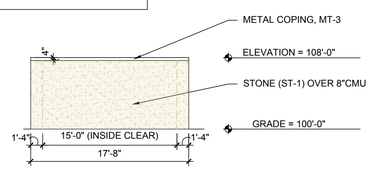
* REFER SPECIFICATIONS FOR ADDITIONAL INFORMATION

FACADE PLAN NOTES

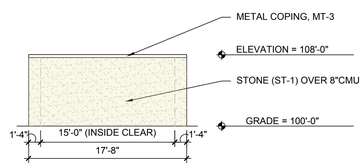
1. ABBREVIATIONS FOR ELEVATIONS:
   T.O. = TOP OF REFERENCE PLANE
   B.O. = BOTTOM OF REFERENCE PLANE
2. VARIATIONS IN DIMENSIONING MAY EXIST BETWEEN EDGE OF FOUNDATION AND FACE OF EXTERIOR BUILDING MATERIAL AT GRADE LEVEL. ON ELEVATIONS, THE INITIAL HORIZONTAL DIMENSION STRING IS FOR MATERIALS AND THE SECOND DIMENSION STRING TIES BACK TO THE EDGE OF FOUNDATION.
3. SIGHT LINES ARE ESTABLISHED FROM 6'-0" ABOVE GRADE AT PROPERTY LINE.
4. SEE 11x17 SAMPLE BOARD [EXHIBIT A] FOR PROPOSED MATERIALS.
5. THIS FACADE PLAN IS FOR CONCEPTUAL PURPOSES ONLY. ALL BUILDING PLANS REQUIRE REVIEW FROM BUILDING INSPECTIONS DIVISION.
6. ALL MECHANICAL EQUIPMENT SHALL BE SCREENED FROM PUBLIC VIEW. ROOFTOP MOUNTED EQUIPMENT SHALL BE SCREENED BY A PARAPET WALL OR SCREENING WALL. SCREENING WALLS SHALL BE THE SPECIFICATIONS OF THE ZONING ORDINANCE.
7. WHEN PERMITTED, EXPOSED UTILITY BOXES AND CONDUITS SHALL BE PAINTED TO MATCH THE BUILDING.
8. ALL SIGNAGE AREAS AND LOCATIONS ARE SUBJECT TO APPROVAL BY THE BUILDING INSPECTIONS DIVISION.
9. WINDOWS SHALL HAVE A MAXIMUM EXTERIOR VISIBLE REFLECTIVITY OF TEN PERCENT (10%).
10. ANY DEVIATION FROM THE APPROVED FACADE PLAN WILL REQUIRE RE-APPROVAL BY THE TOWN OF PROSPER.
11. A MINIMUM 4'-0" x 4'-0" BUILDING MATERIAL MOCK-UP BOARD MUST BE CONSTRUCTED AT WORK SITE AND INSPECTED BY THE PLANNING DIVISION PRIOR TO VERTICAL CONSTRUCTION.



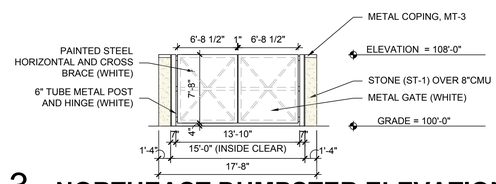
6 EAST/ WEST CROSS SIGHT LINE STUDY FROM PROPERTY LINES
A3.2 SCALE: 1/32 "= 1'-0" (LOOKING SOUTH)



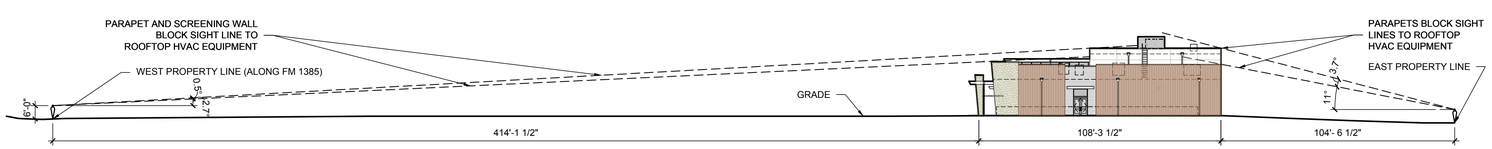
5 SOUTHWEST DUMPSTER ELEVATION
A3.2 SCALE: 1/8 "= 1'-0"



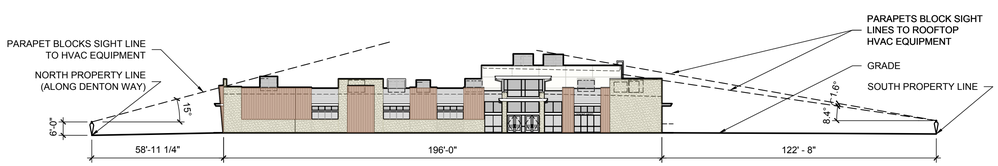
4 NORTHWEST DUMPSTER ELEVATION
A3.2 SCALE: 1/8 "= 1'-0"



3 NORTHEAST DUMPSTER ELEVATION
A3.2 SCALE: 1/8 "= 1'-0"



2 EAST/ WEST CROSS SIGHT LINE STUDY FROM PROPERTY LINES
A3.2 SCALE: 1/32 "= 1'-0" (LOOKING NORTH)



1 NORTH / SOUTH CROSS SIGHT LINE STUDY FROM PROPERTY LINES
A3.2 SCALE: 1/32" = 1'-0" (LOOKING EAST)

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www.eikoncg.com
Texas Firm F-12759
ARCHITECTS & ENGINEERS
EIKON Consulting Group
1405 West Chapman Drive
Sanger, Texas 76266
Phone 940.458.7503

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GRACE CHAPEL PROSPER
PROSPER, TX

GRACE CHAPEL PROSPER

EXHIBIT 'D'

OWNER/DEVELOPER:
NORTH TEXAS CONFERENCE OF THE
UNITED METHODIST CHURCH
PO BOX 866128
PLANO, TEXAS 75086 CONTACT NAME: KENNETH WOLVERTON

APPLICANT:
CLAYMOORE ENGINEERING, INC.
1903 CENTRAL DRIVE, SUITE #406
BEDFORD, TX 46021
PH: 817.281.0572 CONTACT NAME: DREW DONOSKY

ARCHITECT:
EIKON CONSULTING GROUP, LLC
1405 WEST CHAPMAN DRIVE
SANGER, TX 76266
PH: 940.458.7503 CONTACT NAME: ANN PINKHAM

SURVEYOR:
EAGLE SURVEYING, LLC
210 SOUTH ELM STREET, SUITE #104
TX 75057
PH: 940.222.3009 CONTACT NAME: MASON DECKER

LEGAL DESCRIPTION:
LOTS 1, BLOCK A
NORTH TEXAS CONFERENCE OF THE
METHODIST CHURCH ADDITION
GROSS AREA: 5.422 OR 236,172 SF

CITY:		STATE:
TOWN OF PROSPER		TEXAS
COUNTY:	SURVEY:	ABSTRACT NO.
DENTON	JOHN MORTON SURVEY	793

DATE: 04/18/2022

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Issued Date:	<Blank>
Project No:	20086
Drawn By:	AMP
Checked By:	AMP
Designed By:	JBB

Issue Record

#	Description	Date

EXHIBIT 'D'
FACADE PLAN

DUMPSTER ELEVATIONS, SIGHT LINE STUDY, & MATERIAL CALCULATIONS

A3.2

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PLANNING

TOWN OF PROSPER

Prosper is a place where everyone matters.

To: **Mayor and Town Council**

From: **David Soto, Planning Manager**

Through: **Harlan Jefferson, Town Manager**
Hulon T. Webb, Jr., Interim Executive Director of Development and Infrastructure Services

Re: **Town Council Meeting – June 28, 2022**

Agenda Item:

Conduct a Public Hearing, and consider and act upon a request to amend the Zoning Ordinance, Chapter 3, Section 1.3 Schedule of Uses, Chapter 3, Section 1.4 Conditional Development Standards, and Chapter 3, Section 2.2 Definitions, to include "Food Pantry", in the Agricultural, "A," zoning district. (MD22-0005).

Description of Agenda Item:

The purpose of this request is to amend the zoning ordinance to include a new use and definition "Food Pantry", in the Agricultural, "A," zoning district with conditional development standards as shown below.

Currently the Town of Prosper does not have a term for Food Pantry. Any food pantry use will be in allowed in the Agricultural District subject to the conditional development standards. The purpose of those standards is to allow flexibility, but also to have some standards that mitigate the use since it will be allowed in the Agricultural District. Staff has created some of these conditional standards based off an existing food pantry operation.

Chapter 3 Permitted Uses and Definition

1.3 – Schedule of Uses.

SECTION 1.3(C) EDUCATIONAL, INSTITUTIONAL, PUBLIC, AND SPECIAL USES	Residential Districts							Non-Residential Districts								
	A - Agricultural	SF – Single Family (E – 10)	DTSF – Downtown SF	TH - Townhome	2F – Two Family	MF – Multifamily	MH – Mobile Home	O – Office	DTO – Downtown Office	NS – Neighborhood Service	DTR – Downtown Retail	R – Retail	DTC – Downtown Commercial	C – Commercial	CC – Commercial Corridor	I – Industrial
Food Pantry	48															

"1.4 Conditional Development Standards

* * *

48. Food Pantry

A food pantry shall be subject to the following development standards:

a) All food in storage must meet Town public health regulations.

b) Food must be distributed in its original packaging, except fresh produce may be distributed unpackaged.

c) Hours of operation must be clearly displayed on or near its entrance.

d) It is not allowed for money or services to be required as a condition of receiving food.

e) No outside storage of food shall be permitted.

f) Except for fresh produce, food distribution shall occur no more than two (2) days per calendar week for no more than five (5) hours each day.

g) Distribution of fresh produce shall be authorized once per week when available, and fresh produce distribution may occur no more than once per calendar week."

Section 2, 2.2 – Definitions

Food Pantry – A non-profit organization authorized pursuant to § 501(c)(3) of the Internal Revenue Code, not affiliated with a religious land use, that provides food directly to individuals and families in need at no cost to those individuals and families. Food pantries may receive, buy, store and/or distribute food; however, on-site preparation of food is not permitted.

Legal Obligations and Review:

Notice of the Town Council Public Hearing was provided in the newspaper as required by the Zoning Ordinance and state law. To date, Town staff has not received any correspondence.

Planning & Zoning Commission Recommendation:

At their June 21, 2022, meeting, the Planning & Zoning Commission recommended the Town Council approve the request, by a vote of 7-0 subject to the following:

1. Revise condition e) to state "no food shall be stored on the exterior of the facility"
2. Remove conditions f) and g).

Town Staff Recommendation:

Staff recommends approval of the request to amend the Zoning Ordinance, Chapter 3, Section 1.3 Schedule of Uses, Chapter 3, Section 1.4 Conditional Development Standards, and Chapter 3, Section 2.2 Definitions, to include "Food Pantry", in the Agricultural, "A," zoning district. (MD22-0005).

1. Revise condition e) to state "No food shall be stored on the exterior of the facility."
2. Remove condition g).

Proposed Motion:

I move to approve the request to amend the Zoning Ordinance, Chapter 3, Section 1.3 Schedule of Uses, Chapter 3, Section 1.4 Conditional Development Standards, and Chapter 3, Section 2.2 Definitions, to include “Food Pantry”, in the Agricultural, “A,” zoning district per Town Staff Recommendation. (MD22-0005).

Economic Development Corporation

TOWN OF PROSPER
Prosper is a place where everyone matters.

To: **Mayor and Town Council**

From: **Mary Ann Moon, Economic Development Executive Director**

Through: **Harlan Jefferson, Town Manager**

Re: **Town Council Meeting – June 28, 2022**

Agenda Item:
Receive an update of the Downtown Master Plan.

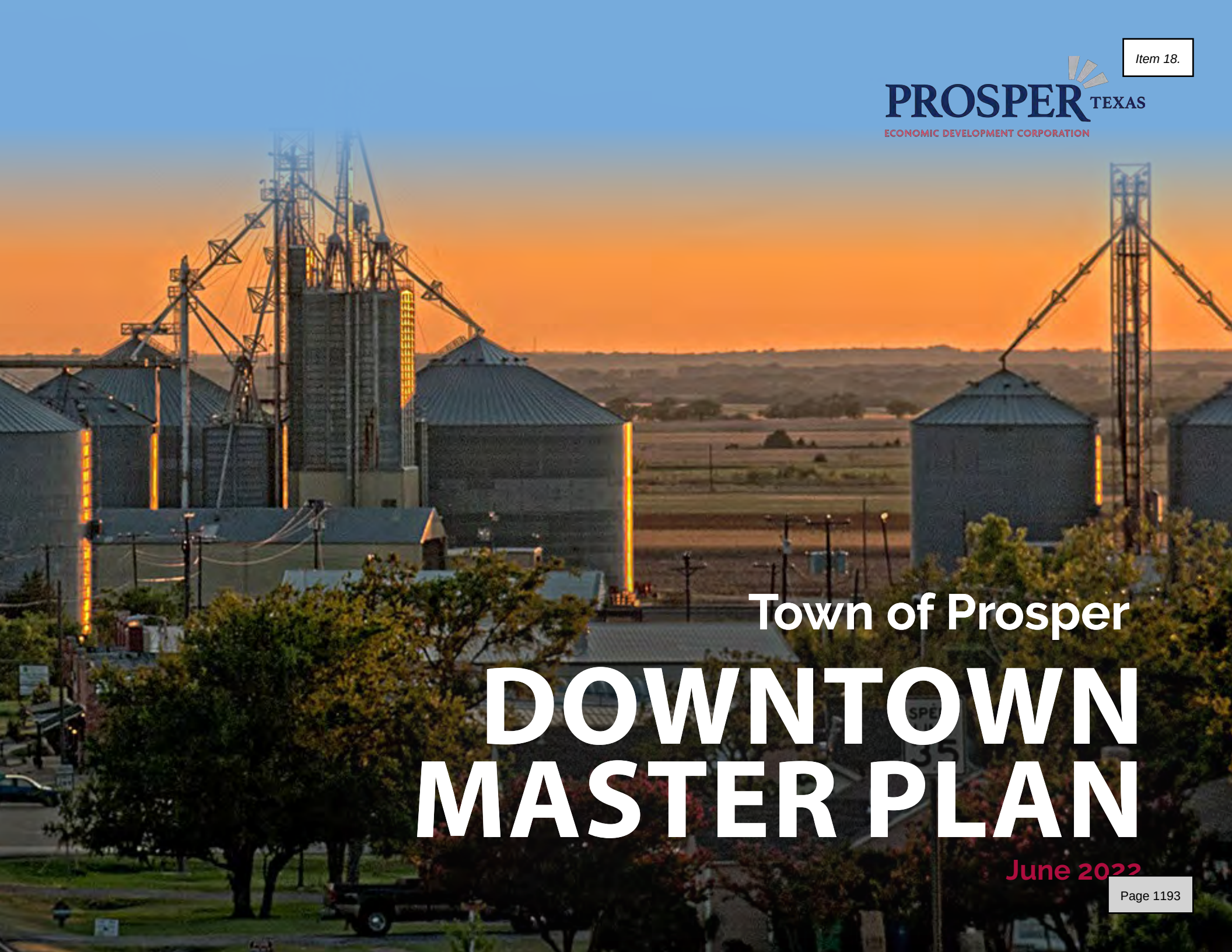
Description of Agenda Item:
After numerous requests by the community's residents to expand and enhance Prosper's Downtown, the Town Council and Prosper Economic Development Corporation (PEDC) joined forces to fund a Downtown Master Plan. Under the leadership of a Downtown Master Plan Development Committee comprised of David Bristol, Ray Smith, Craig Andres, Charles Cotten, Teague Griffin, Mike Pettis, Seth Ringley, David Blom, Scott Shipp, Matt Moore, and Roger Thedford (John Webb, Rebecca Zook, Khara Dodds, Jason Dixon), an RFP was done with fifteen (15) consultants responding to the RFP. The Committee rated each based upon specific criteria and scope of work deliverables. Stantec was selected to conduct the comprehensive analysis and provide recommendations.

The Committee held work sessions, obtained public input, conducted public and private interviews and meetings, as well as provided an interactive website. Monthly updates were sent out from Prosper's residents, developers, and business owners for the final plan. Drafts were given to the Committee and members of the Town staff and Council for comments, editing and recommendations. The final product is thorough and provides specific recommendations for a path forward which, if embraced, will result in the continued growth of Prosper's Historic Downtown. It is the desire of the Committee that the plan become an integral part of Prosper's Comprehensive Plan for the community. In addition, that a permanent Downtown Committee be established and the PEDC and Town Staff work in partnership to establish programs, policy, and possible incentives to spur additional growth and investment, supporting existing businesses and new ones.

Attached Documents:
1. Assessment

Town Staff Recommendation:
Town staff recommends that the Town Council give staff feedback and direction on the Downtown Master Plan.

PROSPER TEXAS
ECONOMIC DEVELOPMENT CORPORATION



Town of Prosper

DOWNTOWN MASTER PLAN

June 2022

ACKNOWLEDGMENT

A special thanks to the Town of Prosper stakeholders, developers, business owners,property owners, residents; Without your help, none of this would be possible.

PDDC

Roger Thedford
Craig Andres
Teague Griffin
Jason Dixon*
David Bristol
David Blom
Ray Smith
Charles Cotton
Scott Shipp
Khara Dodds
Seth Ringley
Matt Moore
Mike Pettis

PEDC Board Members

David F. Bristol
Jordan Simms
Roger Thedford
Don Perry
Ray Smith
Reno Jones
David Blom

Technical Advisory Team

Khara Dodds, Director of Development Services
Alex Glushko, Planning Manager
David Soto, Senior Planner
Pamela Clark, Planning/GIS Analyst
Evelyn Mendez, Planning Technician

** Term ended as Councilman*

PEDC Staff

Mary Ann Moon
Jordyn Williams
Susanne Barney

Town Council

Ray Smith
Marcus E. Ray
Craig Andres
Amy Bartley
Meigs Miller
Jeff Hodges
Charles Cotten

Consultant Team Members

Bradley Cowan
Steven Chaffer
Mark Maldonado
Mona Hashemi Yazdi
Ami Parikh
Angus MacInnis
Jared Beck

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01 Executive Summary

02 Where We Are At

03 What We Want

04 Where We Are Going

05 How We Get There

06 Appendix

TOWN OF
PROSPER

01

EXECUTIVE SUMMARY

A PLACE WHERE **EVERYONE** MATTERS

Executive Summary

The Downtown Master Plan sets the course for the Town and its partners in the upcoming years to re-imagine its historic commercial downtown and surrounding neighborhood. Developed from the vision that this community articulated so clearly through the public engagement process, and refined with the Master Plan committee, this plan harnesses the existing assets of downtown and identifies the catalytic opportunities to spur ongoing redevelopment.

Among those catalytic opportunities is public investment in three signature public realm spaces that will create activity and event destinations; Town Green, Downtown Connector, and Downtown Plaza. These opportunities also include four private development sites that will introduce restaurant, retail, office, maker space, and housing. Preliminary financial proformas identify the need for proactive incentives to attract private investment, and the ways in which to do that have been identified.

In addition to catalytic opportunities, this plan identifies other factors that may be limiting the redevelopment of downtown today, and addresses these with a range of actions for the Town to consider.

The plan includes an implementation program that was developed in support of the vision, and built on six primary pillars; political, organizational, regulatory, financial, physical and market. Within each of these pillars, the recommended actions have been identified along with a priority, approximate cost magnitude, and sponsors. Over time, these will change with new actions added, priorities and costs adjusted, and new sponsors added to help implement.

Downtown redevelopment is an ambitious and lengthy process. Maintaining consistent political support, developing a broad network of community organizations and stakeholders to take part in implementing it, and thoughtfully organizing the funding mechanisms will make this plan a success!

02

WHERE WE ARE AT: COMMUNITY SNAPSHOT

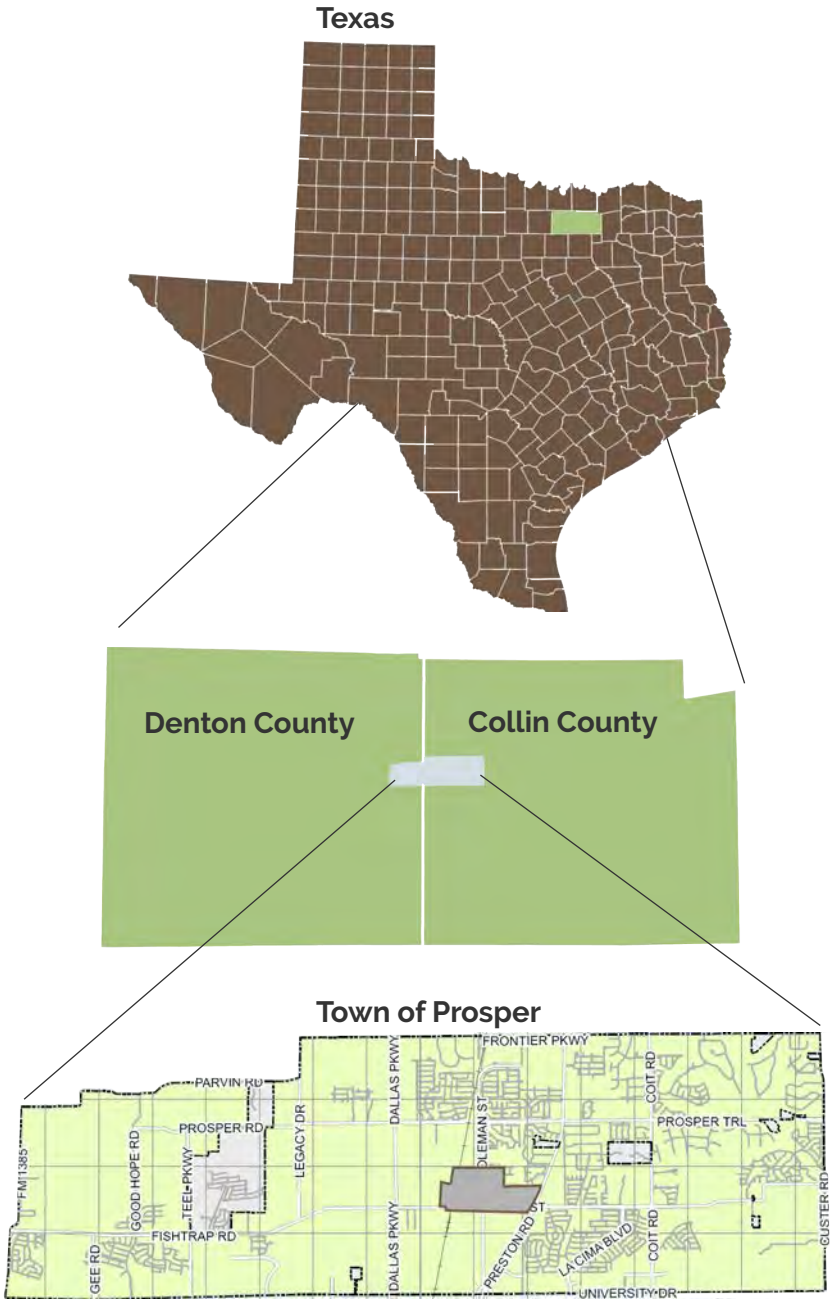
About This Plan

The Downtown Master Plan is a tool that captures the community driven hopes and vision for creating a dynamic and authentic downtown Prosper. This plan has been developed from the community, built on past planning efforts, and designed for implementation.

Spanning the entire downtown area this plan is based on six pillars that will guide implementation of strategies that will have broad impact on all aspects of downtown and it's various features. This plan also recognizes the opportunity larger private or public investments can serve as catalysts for redevelopment.

As a key part of this plan, four private development catalyst sites have been identified, and working with the Master Plan committee and design team, physical and financial models have been developed based on current market data that help guide and portray the community vision and representation of potential character. This plan also identifies three significant public projects that compliment and support private redevelopment while also providing much needed quality space for community gathering, programming, and active use.

The following pages will tell the downtown Prosper story by identifying where we a re at, what we want, where we are going, and how we get there.


Texas
Denton County
Collin County
Town of Prosper
PARVIN RD
PROSPER RD
FISHTRAP RD
FM 1385
GOOD HOPE RD
GEE RD
TEEL PKWY
LEGACY DR
DALLAS PKWY
FRONTIER PKWY
OLEMAN ST
PRESTON RD
LA CIMA BLVD
COIT RD
PROSPER TRL
UNIVERSITY DR
GUSTER RD

Settled in 1902

The Prosper Story

The Town of Prosper grew from two early settlements, Rockhill and Richland. In 1902 the two settlements were united when the St. Louis & San Francisco built its line through Western Collin County. Railroad officials named the Town Prosper because of the prosperous living conditions the area provided. Soon after the tracks reached the area the residents and businesses of nearby Rockhill moved to the new railroad community. Prosper incorporated in 1914 with the commission form of government and a population of 500. It served as a farm market center for area farmers, who produced primarily cotton and corn in the rich agricultural region of the Blackland Prairie. After decades of growth, the Great Depression halted the growth of the community and population dropped to 271 by 1940 and continued to decline until the late 1950s. The number of residents did not surpass that of the mid-1920s until 1970, when it reaches 501. In 1980, when light industrial uses were introduced to the Town to support the overall development boom in the North Texas area the next period of growth for Prosper occurred and has continued up to now.

The history of Prosper is rooted within downtown area. During the early 20th century, this area was a commercial "heart" of the community with multiple grocery / dry good stores, drug stores, banks, a flour mill, a cotton gin and numerous other shops servicing the community. While many of the historic structures that existed during Old Town's heyday are now gone, a small core area of commercial uses still exists there along a two-block area on Broadway Street. This core area will provide the inspiration and a basic framework for future development of the downtown area.

During the early 20th century, Prosper was a commercial "heart" of the community

Previous Planning Efforts

2010
Parking Ordinance

2011
Dangerous Structure Ordinance

2012
Town of Prosper Comprehensive Plan (Whole Town)

Sign Ordinance, updated

2014
Prosper Master Thoroughfare Plan (Whole Town)

Future Land Use Plan (Whole Town)

2015
Old Town Transportation Plan

Parks, Recreation and Open Space Master Plan (Whole Town)

2016
Residential Standards (Whole Town),

Zoning Ordinance (Whole Town), updated

2017
Prosper Old Town Area Assessment:

- Community Vision
- Physical Conditions Assessment
- Market Assessment
- Stakeholder Interviews
- Development Framework Plan
- Community Workshop
- Implementation Priorities

2021 Downtown Master Plan

- Define Boundaries of Old Town Prosper
- Field Research and Existing Conditions
- Transportation Assessment
- Parking Inventory and Analysis
- Market Assessment
- Public Engagement
- Downtown Development Committee
- Land Use and Development Framework Plan
- Redevelopment Concepts
- Urban Design and Character Plan
- Transportation Plan
- Public and Open Space Design Concepts
- Streetscape and Wayfinding Plan
- Placemaking Audit
- Pop Up Events (Test Recommendations in Real Time)
- Interactive Online Survey
- Development Proforma Analysis
- Implementation Strategy
- Funding Strategy

Timeline of External Forces

2010 | 2011 | 2012 | 2014 | 2015 | 2016 | 2017 | 2020 - 2021

Great Recession

COVID-19

Starting in 2010, previous planning efforts in the Town of Prosper and continuing forward to now have focused largely on the quality of life as well as access to key amenities in the Town. Key plans during this time were the Old Town Transportation Plan (2015), Parks, Recreation, and Open Spaces Master Plan (2015), Prosper Comprehensive Plan (2012) and Update (2020), and the Hike and Bike Trail Master Plan (2020). These Plans showcase four (4) common themes: Identity, Neighborhoods, Infrastructure, and Parks, Trails, and Open Space. Studying these plans will assist with the coordination of recommendations that should be included in the downtown plan.

OLD TOWN TRANSPORTATION PLAN (2015)

The Old Town Transportation plan seeks to provide a better pedestrian experience along major throughway's in the Old Town district. The Old Town district largely consist of single-family housing and office space as the second largest use type in the area.

PARKS, RECREATION, AND OPEN SPACES MASTER PLAN (2015)

The purpose of the Town of Prosper Parks Master Plan is to provide Prosper the parks and recreation needs of a growing community over the next 10 years. The existing parks are inventoried and compares them to park industry standards. Along with community and stakeholder input recommendations were developed to identify future needs, including land acquisition. In addition, this plan recognizes a path to update and maintain the facilities the Town already has and identifies priorities for actual park improvements.

PROSPER COMPREHENSIVE PLAN (2012) & UPDATE (2020)

Prosper's 2012 Comprehensive Plan's aim is to create an overarching vision and guide for the Town's development for the coming years. The Plan seeks to focus on joint efforts between citizens, decision makers, Town staff, and other stakeholders I a means to preserve the character of the Town while it expands to meet the demand of new arrivals to the area.

HIKE AND BIKE TRAIL MASTER PLAN (2020)

The Hike and Bike Trail Master Plan was adopted in late 2020. It's primary focus is to evaluate the existing trails and planned trails, assess the need for additional trails, and recommend potential trail corridors and connections. This plan recommends future bikeway accommodations on Broadway, Main Street, McKinley Street.

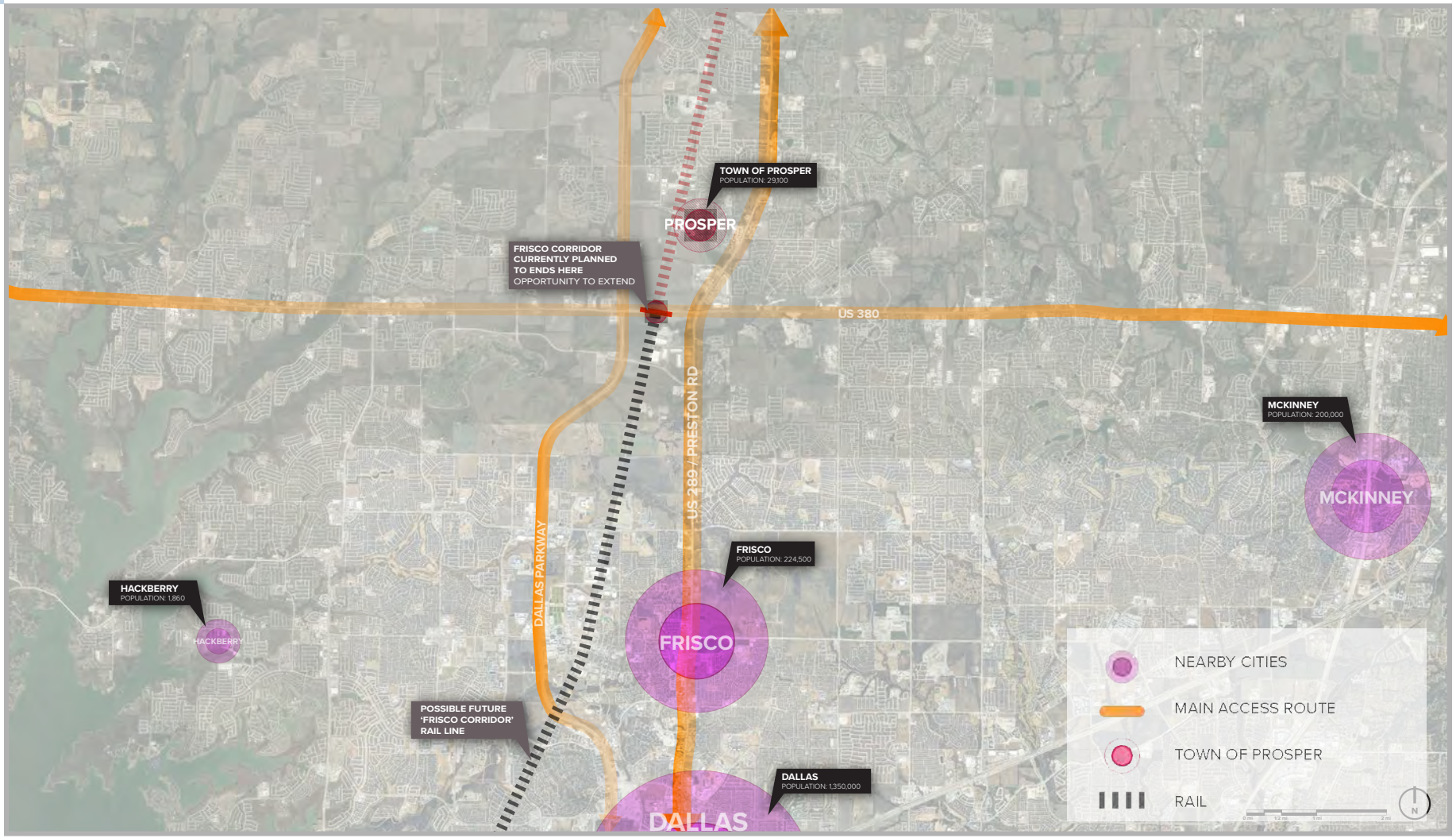
Growth Pressures:
Past, Present, and Future

The Town of Prosper of the last decade has experience explosive growth, going from 9,700 residents to approximately 31,700 residents in 2021. With this, the Town on average has welcomed 18,810 residents each year to the Town, a 300% increase in the Towns from the past decade. Likewise, this strong growth for the Town will most likely continue into the future with the affects of Covid-19 creating a resurge of interest towards suburban and rural living, away from urban locations.

The large explosion of the Town growth is in most part to its proximity to the Dallas North Tollway which provides quick access to downtown Dallas. During Prospers large growth from 2010 – 2020 Dallas population also increased by 100 thousand to give the city a population of 1.3 million residents.

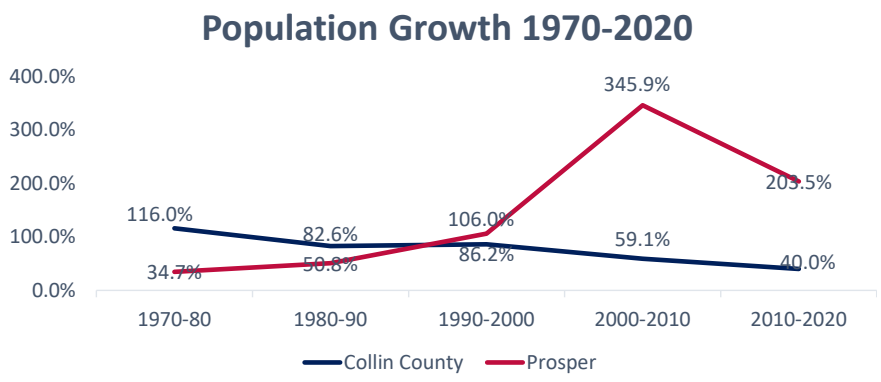
This shift in population has created significant opportunity for downtown Propser. The intent of this Master Plan is to provide the basic framework to help attract and support the redevelopment of downtown.

REGIONAL LOCATION MAP



About the People

The Town of Prosper is located at the northern edge of the Dallas/Fort Worth Metropolitan area, in western Collin County and eastern Denton County which are fast growing counties within the Dallas-Fort Worth Metroplex. From 2000 to 2010, the Town has experienced very rapid and robust growth with growth rate of 345.9%. In more recent years, population growth has slowed slightly but continues to expand at a considerable rate which is 291% from 2010 to 2020. Generally speaking, this is a high rate of growth for a community which was not an accident but is indicative of the rapid northern expansion of the DFW metropolitan area. Downtown has experienced comparable growth pattern, the population grew by 91.8% from 2000 to 2010 and then has slowed down. In 2020 the downtown population was 561, which represented a 19.3% increase since 2010. According to the NCTCOG population projection for 2040, Collin and Denton Counties will continue growing, thus will be the case for Prosper and its downtown. The extension of Dallas North Tollway by construction of a new bridge over U.S. 380 toward First Street, will bring more development and population to the area.



31,700 2021 Population

34 Median Age

9,532 Households

4% No High School Diploma

14% High School Graduate

18% Some College

64% Bachelor's/ Grad/Prof Degree

$478,284 Median Home Value

96% Population 16+ Employed

82% White Collar Jobs

77% White Dominant Race

$143,583 Median Household Income

151 Housing Affordability Index

About the People

According to ESRI 2020 population data for downtown of Prosper, individuals between the ages of 25 and 54 which are considered the working age cohort collectively made up the largest percentage of the population at 44.7%. The portion of the population aged 15 years and younger make up 28.3% of the population. Having a significant percentage of the population 15 years old and younger and the large percentage of labor force cohort indicates the strong presence of families living in downtown Prosper. Males and their female counterparts comprise equal percentage of the downtown population. The median age of downtown residents in 2020 was 35 years, which is closely aligned with the median age for all of Texas at 34.4 years but is slightly younger than the median age for the nation as a whole at 37.8 years. Young population of downtown Prosper reflects younger families moving to the area.

Downtown racial composition in 2020 was similar to the Town of Prosper racial makeup which significant majority were White population (80.5%). The second largest cohort identified as some other race alone (8.8%). The Hispanic origin population changed from 19.8% in 2010 to 22.6% in 2020. The diversity index which summarizes racial and ethnic diversity and range from 0 (no diversity) to 100 (completely diverse) changed from 50.7 to 57.8 over the last 10 years.

Prosper is a well-educated Town. Nearly 95 percent of Prosper residents have a high school diploma, and nearly 55 percent have a bachelor's degree. The Town's education profile continues to improve. Since 2010 the percentage of people with graduate degrees has grown from 10.4% to 18% in 2020. That's a significant increase over the course of ten years. More than 70% of the downtown's population work in management, business, science, sales and administrative support occupations.

Demographics describe quantifiable characteristics of individuals and groups of people. Psychographics build on demographic characteristics, helping identify preferences for certain types of products or activities based on a person's values, attitudes, lifestyle, and other factors. Two people might be demographically identical – the same age, household size, profession, income, etc. – but one might prefer canned domestic beer, for example, while the other prefers bottled imports. To better understand some of the general lifestyle characteristics and consumer preferences of Prosper, we used data from ESRI. ESRI has developed a proprietary classification system, called Tapestry, to classify residential neighborhoods in the US into 14 major "LifeMode" groups, then into 67 more detailed segments, or subgroups, based on demographic and socioeconomic characteristics. It then identifies concentrations, or clusters, of individuals and households throughout the US according to these characteristics. On the following, we have summarized ESRI's description of each of the major Tapestry LifeMode groups and the detailed subsegments in downtown Prosper. In brief, ESRI has identified two clusters in the area: Soccer Moms (4A) and Up and Coming Families(7A).

Soccer Moms (4A)

73.7% of The Prosper Downtown HH

- Go jogging, biking, golfing, boating
- Carry high level of debt
- Visit theme parks, zoos
- Shop, bank online
- Family-oriented purchases
- Own 2+ vehicles (minivans, SUVs)

Household: **Married Couples**

Average Household Size: **2.96**

Median Income: **90K**

Median Age: **37.0**

Housing: **Single Family**

Up and Coming Families (7A)

26.3% of The Prosper Downtown HH

- Visit theme parks, zoos
- Hold student loans, mortgages
- Contract for home and landscaping services
- Go online to shop, bank, for entertainment
- Own late model compact car, SUV
- Careful shoppers, aware of prices, willing to shop around for the best deals

Household: **Married Couples**

Average Household Size: **3.12**

Median Income: **72K**

Median Age: **31.4**

Housing: **Single Family**

Market

Demographics and Trade Area

Demographics

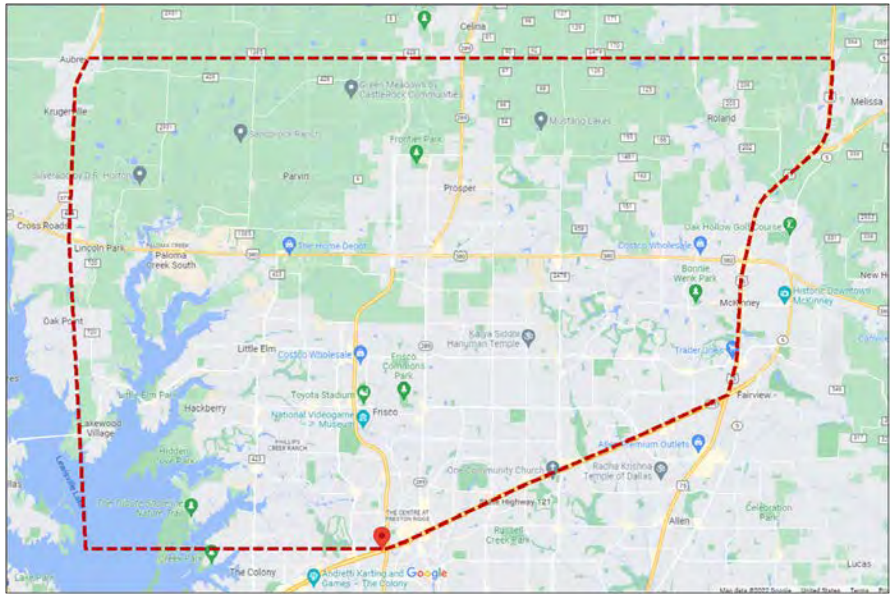
The demographic story in Prosper over the last decade is growth. Household and population numbers more than tripled. That growth is a demand driver for housing, retail goods and services, and office and industrial development.

Prosper households tend to be family households rather than roommate or single person households. They are higher income, more educated and less diverse than Collin County as a whole. A very high proportion (87%) of Prosper households own their homes.

Trade Area

The market analysis conducted for downtown Prosper focused on identifying market opportunities within a trade area that was identified for this analysis. A trade area is defined as an area from which a project(s) or locale will draw the majority of its residents (housing), patrons (retail), employees (office, industrial, institutional), and visitors (lodging). The boundaries of a trade area are often irregular as they are influenced by the following conditions physical barriers, location of competing developments, proximity to population and/ or employment concentrations, zoning, market factors, drive times, and spending and community patterns. For the downtown Prosper

2020 Indicator (unless otherwise noted)	Town of Prosper	Prosper Trade Area	Collin County
2010 Households	2,855	125,500	283,759
2021 Households	9,532	222,900	399,654
Annual Household Growth Rate (2021 to 2031)	11.0%	3.3%	3.0%
Average Household Size	3.21	2.89	2.84
Percent Non-Family Households	20%	23%	26%
Percent Renters	13%	29%	35%
Percent Age 65+	7%	9%	11%
Percent With Bachelors Degree	57%	58%	52%
Median Household Income	$146,733	$110,700	$96,900
Percent Hispanic	7%	15%	16%
Percent Black/African-American	7%	9%	13%
Percent Asian American	5%	9%	6%



Residential

Housing Production

Over the past 10 years, annual residential construction in the Town of Prosper has averaged 721units, representing approximately 8% of the residential development in the trade area. Multifamily housing was only part of that growth. Multifamily development in the Town of Prosper represented less than 1% of total Trade Area construction, despite the demographic predictors of high demand for these types of products.

Multi-family Production

In the trade area as a whole, the inventory of multifamily housing has grown dramatically. About 40% of all existing multifamily housing in the trade area was developed in just the last five years. The current vacancy rate of 9.4% reflects the presence of new apartment buildings that are still in their initial rent-up period. Similarly, the 16.1% increase in apartment rents over the past year is primarily a consequence of newer properties coming on line which charge higher rents than existing properties.

Trade Area Projected Growth

The North Central Texas Council of Governments projects a growth of 52,027 households in the trade area over the next ten years—an annual growth of around 4.0%. Taking into consideration vacancy rates and the demand for second homes, we estimate a demand for 53,355 housing units over the period.

If preferences for rental vs ownership housing is assigned by income levels, and 30% of all ownership housing is assumed to be in attached formats such as Townhomes and condominiums, housing demand in the Trade Area for three major housing types is as illustrated in Figure xx, and further summarized in Table xx.

Similarly, the 16.1% increase in apartment rents over the past year is primarily a consequence of newer properties coming on line which charge higher rents than existing properties.

Total Trade Area Residential Demand by Type

28,105

Single Family Homes

12,045

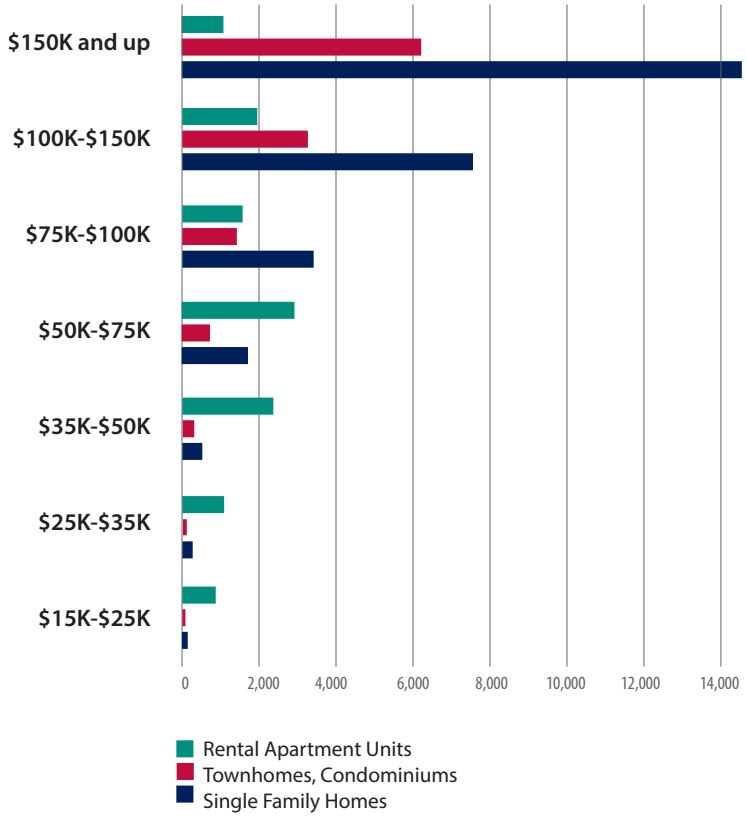
Townhomes, Condominiums

12,138

Rental Apartment Units

Trade Area Residential Demand

Ten Years, 2022-2031



Retail

Retail Market

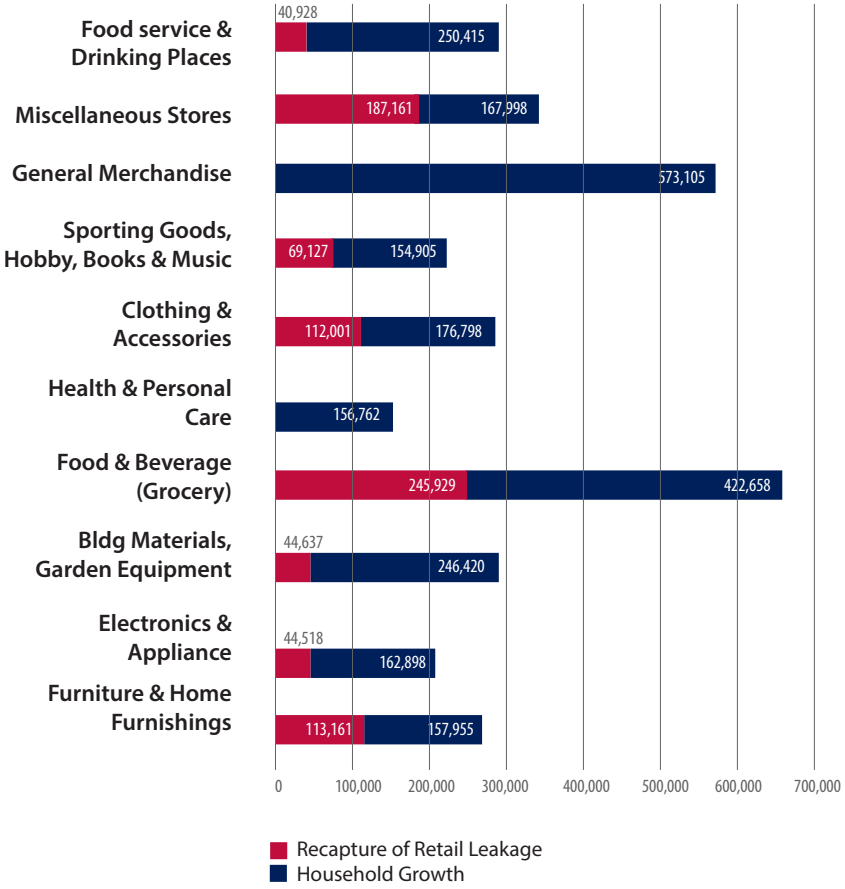
Responding to the rapid growth in homes and office developments, retail development has been occurring at a rapid pace. Much of the inventory is centered in the Frisco area, anchored by the retail centers in the Stonebriar Centre area. But the sizable new Gates of Prosper reflects the market reality that residential growth in and around Prosper requires retail support.

Retail Demand

Figure xx illustrates the estimated retail demand in the Trade Area over the next decade by retail category. The primary driver of retail growth will be anticipated household growth, as illustrated by the green bars in the chart. The red bars show the opportunity for retail stores and services to recapture the spending of trade area households that occurs outside of the trade area.

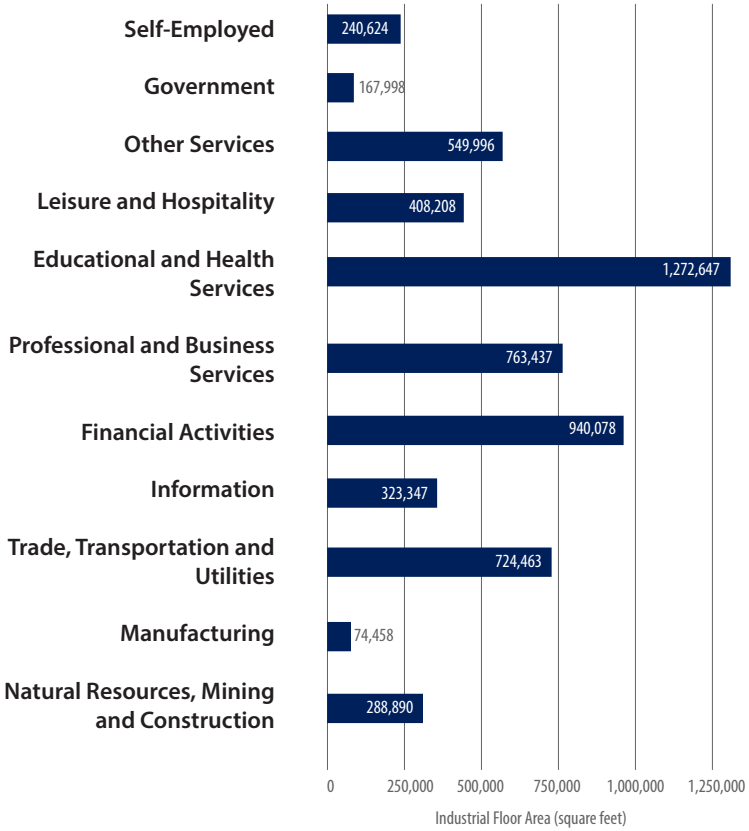
Trade Area Retail Demand

Ten Years, 2022-2031



Trade Area Office and Industrial Demand

Ten Years, 2022-2031



Employment Sectors

Office Market

Office growth in the Trade Area has been dramatic, with its center of gravity in the Frisco Area. The flagship office center is the Star at Frisco, which houses the Dallas Cowboys headquarters and a cluster of other office buildings. The Town of Prosper benefits from the DFW north metro reputation for office development, and when the north suburban freeway improvements are completed it may well become attractive for large-scale office development.

Industrial Market

Industrial growth in the trade area has matched the growth in other market sectors. Ongoing demand is demonstrated by relatively high rents. Continued population growth offers a labor pool that will support business growth, and require warehousing and distribution support.

Office and Industrial Demand

Demand for employment (office and industrial) space runs in two directions. Growth in population represents a labor pool which is attractive to businesses. And the business dynamism of the area stimulates housing growth so that employees can live near where they work. Based on an overall annual employment growth of 3.5%, the Trade Area could support an additional 5.7 million square

Downtown Prosper Development Demand

Downtown Prosper has the potential to capture a fair share of the trade area growth over the next 10 years for a variety of residential, retail/restaurant/service and employment land uses. The supported land use mix focuses on redevelopment and reinvestment in central and infill downtown neighborhoods, with real estate products appropriate for those areas.

Downtown Prosper Market Support by Residential Land Use Type

Land Use Type	Trade Area Demand (Dwelling Units)	Downtown Prosper Demand			
		Market Share		Absorption (Dwelling Units)	
		Low	High	Low	High
Single Family Detached	28,100	0%	0%	0	0
Single Family Attached	12,000	3%	5%	360	600
Rental Apartments	12,100	3%	5%	363	605
Total	**52,200**			**723**	**1,205**

Downtown Prosper Market Support by Residential Land Use Type

Land Use Type	Trade Area Demand (Square Feet)	Downtown Prosper Demand			
		Market Share		Absorption (Square Feet)	
		Low	High	Low	High
Retail	3,300,000	2%	4%	66,000	132,000
Employment (Office / Industrial)	5,700,000	2%	4%	114,000	228,000
Total	**9,000,000**			**180,000**	**360,000**

In general, the majority of development within Prosper has occurred over the past decade, in conjunction with the rapid increase in population. The vast majority of development has been single family residential, although some retail has been added along main roads, thus is the case in the downtown which single- family residential is the dominant land use (23%) in the area. The other uses in downtown include a mix of retail, office, civic (Town Hall, police department, churches, public library etc.), multi-family residential, open space and some light industrial which indicates that mixed uses are permitted within the area; however, there are a significant number of parcels (30%) that are vacant or underutilized which provide great sites for new residential, commercial and gathering spaces within the growing city.

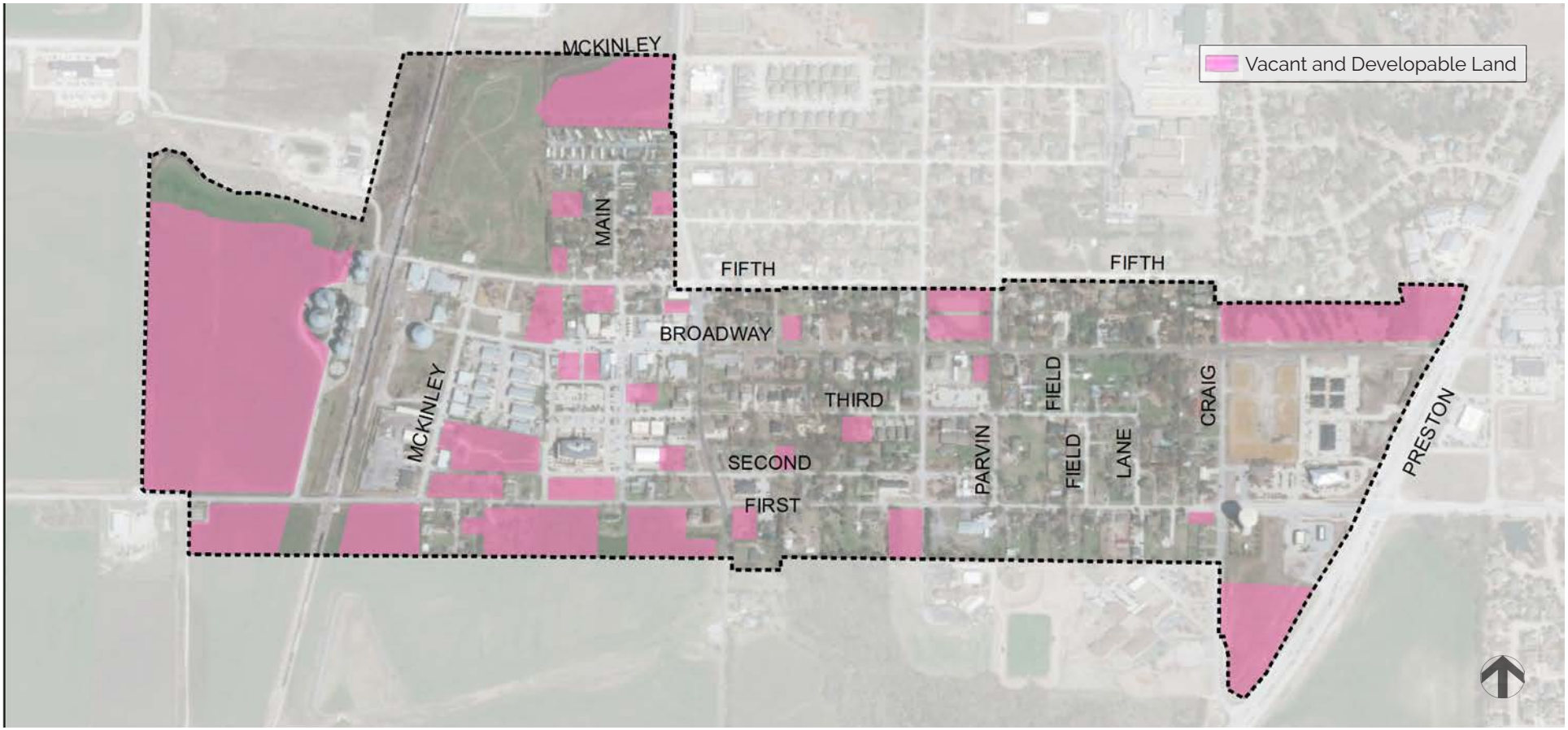
There is a retail core along Broadway and Coleman Street which is remained from t Town' heyday. Coleman Street serves as a divider between residential uses to the east and non-residential uses to the west. The western side of Coleman is the primary area for mixed use developments, retail, restaurants offices and civic uses and the eastern side is dominated by single-family residential units. The Town of Prosper has a significant presence in the area with the Town Hall, Town Hall Annex Municipal Court, Police Department, Development Services and Public Works which are located nearby. Additionally, the new multi-purpose Town Hall, which includes the Library, on the west side of Main Street provided an important employment and destination base in the area.

Currently, some of parcels along First street on the western side of Coleman street are vacant.

Downtown Prosper Existing Land Use

By construction and expansion of Dallas North Tollway toward First street, this area would flourish and attract regional attention and investments. Additionally, in the appeal of the historic character of downtown that would attract more residents from the outlying region, for specialty shopping, dining and entertainment.

BNSF Railway is passing through the area and some light industries and manufactures have located along the railway. The Prosper Business Park with light industrial, commercial warehousing, office storage and commercial uses and outside storage will be located in the western side of the railway and will bring more population and employment.



Downtown Prosper Vacant Developable Land

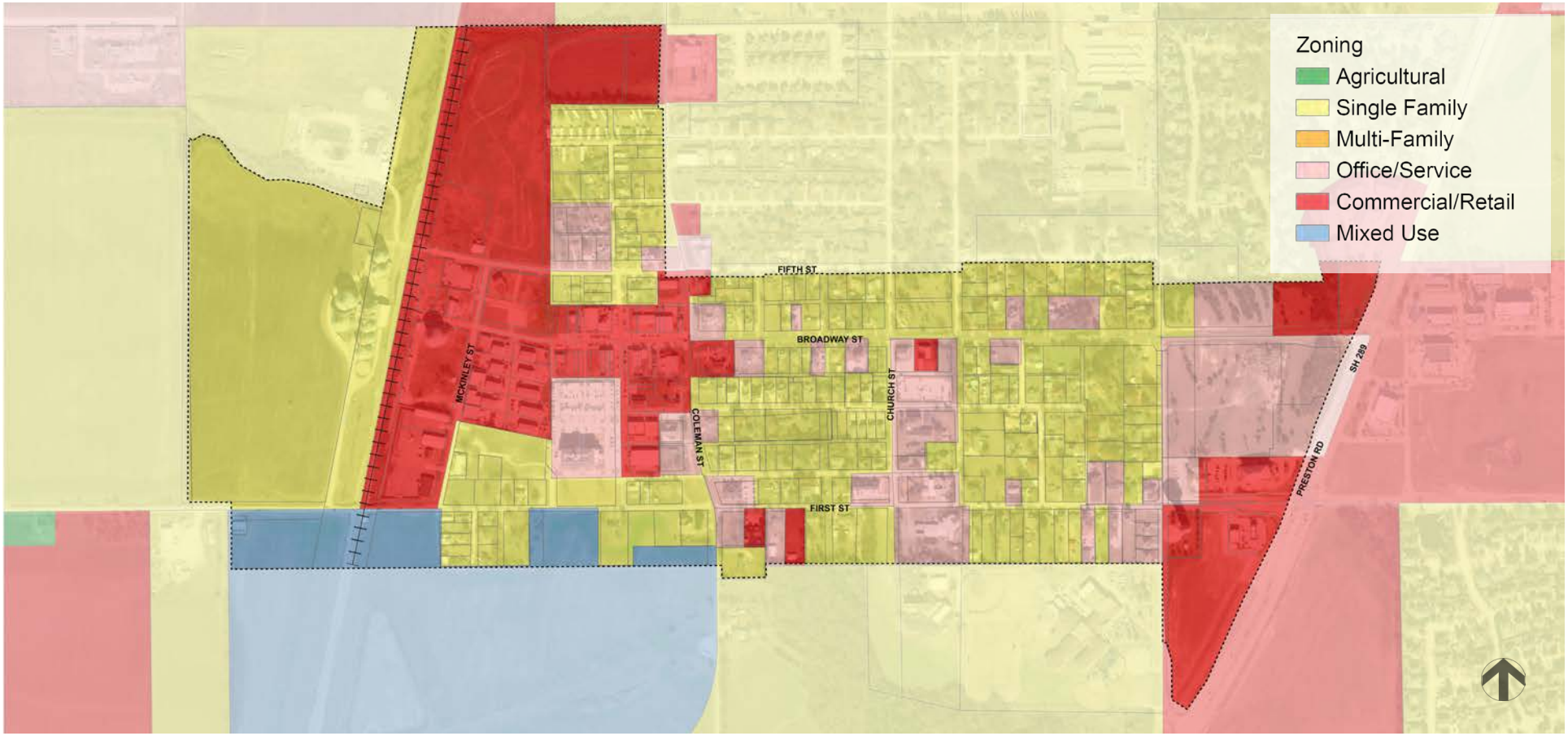
Zoning

Currently, there are five different zoning districts in downtown Prosper. The majority of land is in the single family, commercial/retail and Office/Service zones. Comparison between existing land use and existing zoning indicates that there is a conformity between them, and properties are being utilized according to its main zoning designation. Corresponding zoning regulations could encourage development more consistent with the downtown Vision and allow for more market-driven development. The following is the brief description of each zone:

SF-15 - SINGLE FAMILY-15 DISTRICT: This District will provide for development of single family detached dwelling units on a minimum lot size of fifteen thousand (15,000) square feet. Other uses, such as religious and educational facilities, parks, and open spaces will be provided for to maintain a balanced, orderly, convenient, and attractive residential area

DTO - DOWNTown OFFICE DISTRICT: This District is established to maintain existing and encourage additional office development in the original downtown portion of the Town.

DTC - DOWNTown COMMERCIAL DISTRICT: This District is established to maintain existing and encourage additional retail and commercial development in the original downtown portion of the Town.



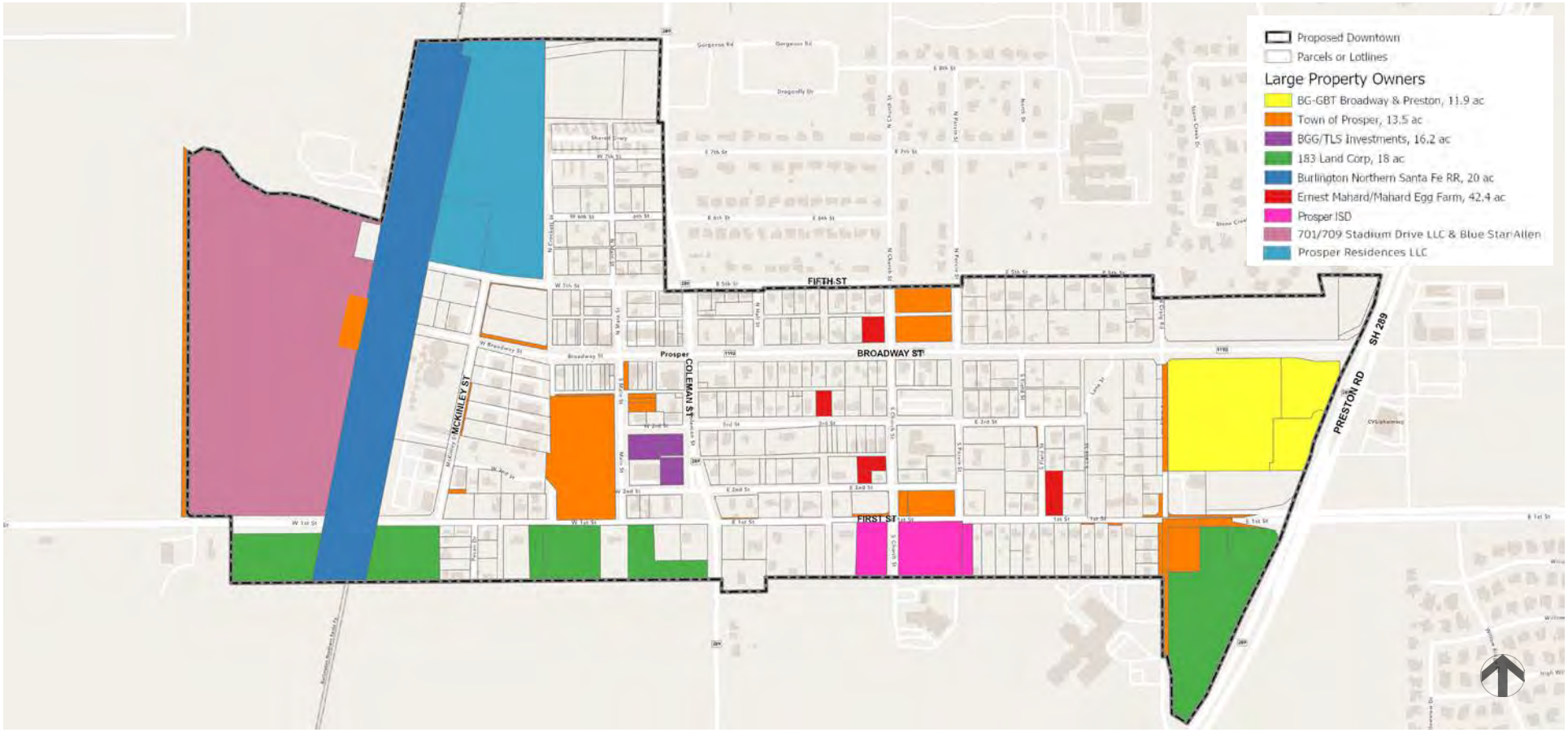
Downtown Prosper Existing Zoning

C - COMMERCIAL DISTRICT: This District is intended predominately for heavy retail, service, light intensity wholesale and commercial uses, but excluding warehousing uses.

R - RETAIL DISTRICT: This District is established to provide locations for various types of general retail and service uses for one or more neighborhoods. To encourage reinvestment in the Old Town Area, the Town created Neighborhood Empowerment Zone No. 1 (NEZ) for the commercial core of downtown in 2009. This is a tool to generate tax increment financing which is then reinvested in downtown through community improvement projects. It is only applicable to property owners in the downtown area for the construction of new, non-residential development.

Property Ownership

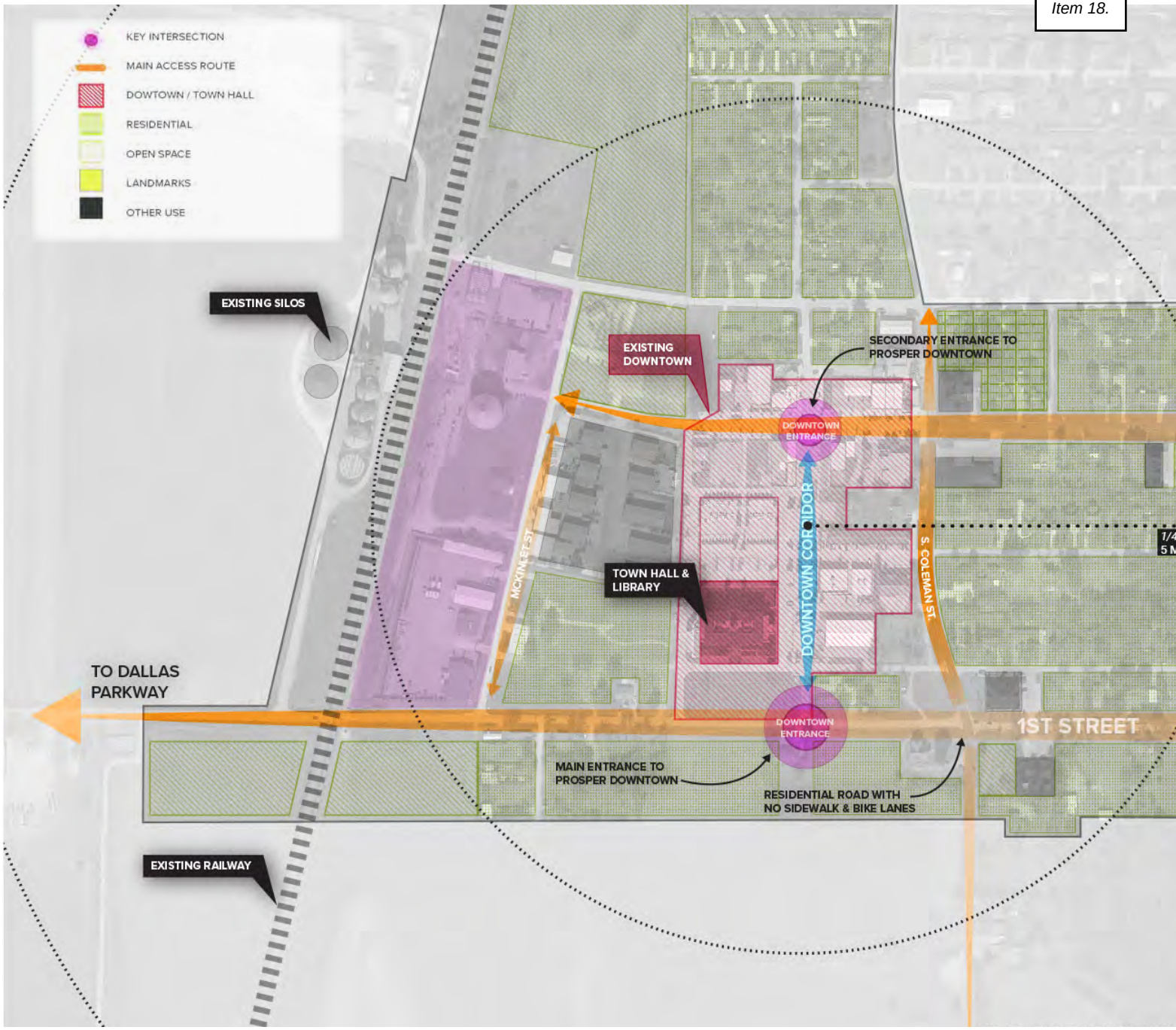
Most of downtown parcels are less than two acres in size, they are under private ownership and the majority of these private-owned properties are already built out. There are several larger than two acres lands that most of them are vacant. Map shows the large property owners in the area and for those vacant developable lands. Consolidated parcels under single ownership would make the process of land acquisition and further development easier and faster.



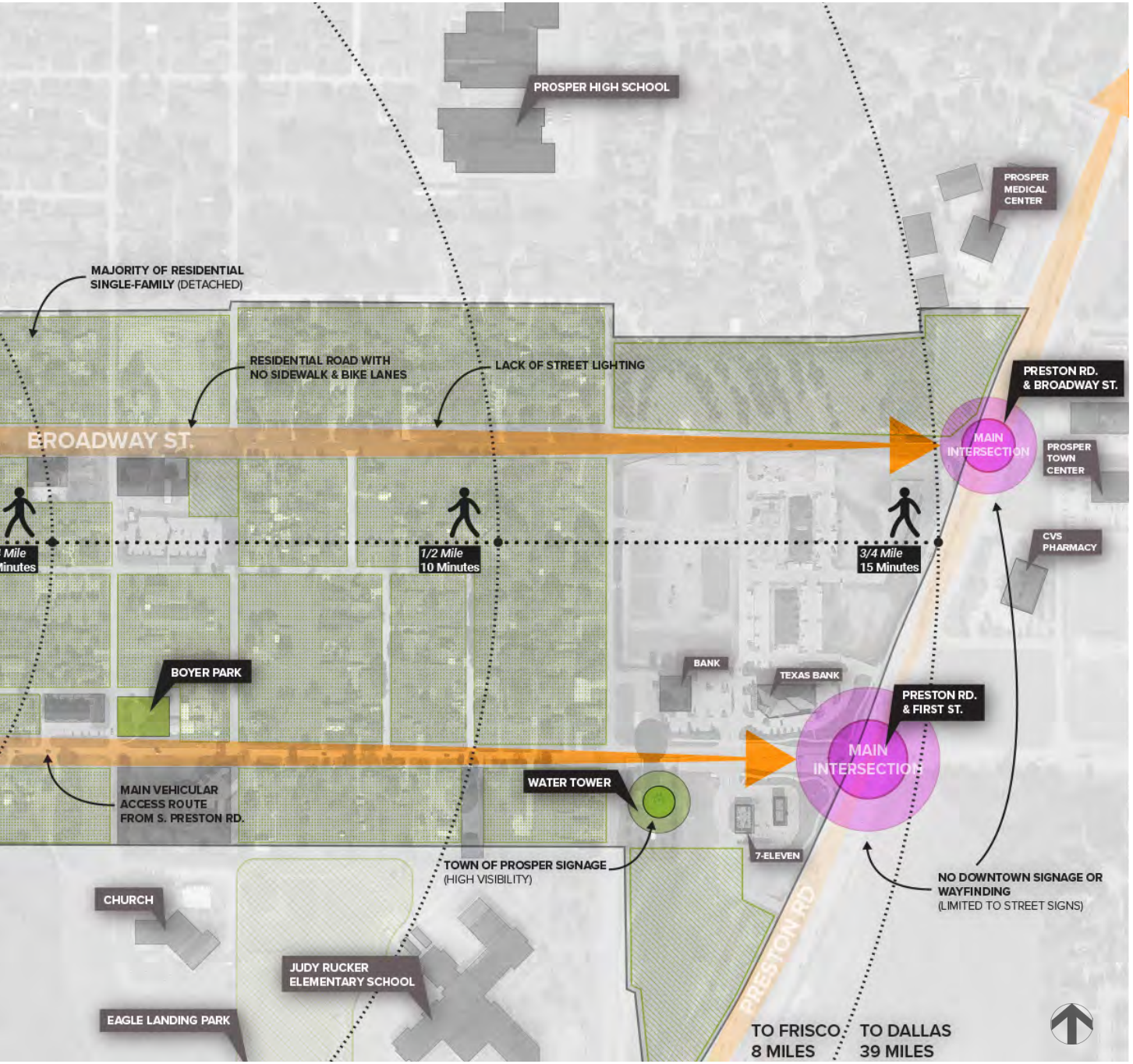
Downtown Prosper Property Ownership

Accessibility

Both the Dallas Parkway / N. Dallas Tollway and US 289 / Preston Rd. are the primary vehicular circulators accessing Prosper from southern cities like Frisco and Dallas. The planned 'Frisco Corridor' will put public transit close to Prosper with the possibility to extend the rail in future plans. Intersections at 1st St. & Preston Rd. and Broadway St. & Preston Rd are the main vehicular intersections leading to downtown. Both 1st St. and Broadway St. are the primary access routes to Main St. in downtown, approximately ¾ miles east of both intersections. These are rural residential streets with no pedestrian sidewalks or bike lanes integrated into the street design. There is also a lack of street lighting which is important for safety and security. The surrounding residences also lack a sidewalk network disconnecting them from the downtown area. Currently, most of Prosper's sidewalks are constrained to the downtown area. Implementing sidewalks and bike lanes along 1st St. and Broadway St. will give people more alternate options to access downtown and will ultimately promote more activity.



Where We Are At: Main Accessibility and Intersections


PROSPER HIGH SCHOOL
PROSPER MEDICAL CENTER
MAJORITY OF RESIDENTIAL SINGLE-FAMILY (DETACHED)
RESIDENTIAL ROAD WITH NO SIDEWALK & BIKE LANES
LACK OF STREET LIGHTING
PRESTON RD. & BROADWAY ST.
BROADWAY ST.
MAIN INTERSECTION
PROSPER TOWN CENTER
CVS PHARMACY
1/2 Mile 10 Minutes
3/4 Mile 15 Minutes
BOYER PARK
BANK
TEXAS BANK
PRESTON RD. & FIRST ST.
MAIN INTERSECTION
WATER TOWER
MAIN VEHICULAR ACCESS ROUTE FROM S. PRESTON RD.
7-ELEVEN
TOWN OF PROSPER SIGNAGE (HIGH VISIBILITY)
NO DOWNTOWN SIGNAGE OR WAYFINDING (LIMITED TO STREET SIGNS)
CHURCH
JUDY RUCKER ELEMENTARY SCHOOL
EAGLE LANDING PARK
PRESTON RD
TO FRISCO 8 MILES
TO DALLAS 39 MILES

Placemaking

There are existing conditions hinting at branded placemaking and signage moments scattered throughout Prosper and the streets leading up to it. Through our studies we've identified these key projects that reflect Prosper's updated signage with selected colors and material palette:

- Town Entry Monument
- Town of Prosper Sign on the 'Water Tower'
- Boyer Park
- Downtown Monument

All these key moments provide the foundation to create a more comprehensive signage program directing visitors and residents to the downtown area. There is currently no wayfinding signage directing people to downtown. The Town of Prosper 'Water Tower' sign is the only sign in the downtown area indicating that you are in Prosper. This is also the largest existing placemaking moment in Prosper. The downtown area lacks any signage or wayfinding and there are no entry monuments upon arrival to Main St. or Broadway St.

Street signs and streetlights along Main St. and Broadway St., in

Where We Are At: Placemaking & Views Diagram

downtown, are updated w Town of Prosper logo and decorative banners. These are good components in creating a more pedestrian-focused place but there needs to be a more robust application and a more diverse kit-of-parts to pull from. This will create more intimate environments that reflect Prosper's identity, resulting in more enjoyable and walkable places.

The silos are another intriguing piece that seems integral to downtown Prosper's identity. They are large and draw a lot of visual attention. The views alone could garner great backdrops to a vibrant pedestrian-oriented Main St and Broadway St.

Downtown & Public Realm

Town Hall

The downtown area in Prosper is slowly getting updated. The new 'Town Hall & Library' reflects a material palette and general 'look and feel' of architectural character that seems appropriate for Prosper. It also aligns well with the newer signage installments at 'Gates of Prosper' and Boyer Park. These precedents might help establish building material guidelines in the downtown area.

The new 'Town Hall & Library' is an important placemaking anchor along Main St., but it is isolated in a sea of parking and lacks any retail and community buildings/parks adjacent to it. There is an open space located directly south of Town Hall, but it seems unused and inactivated. Encouraging more dense and diverse mixed-use developments around Town Hall will put people in the middle of downtown activating it on a regular basis. Building around community and civic landmarks in downtown will help define a 'look and feel' unique to Prosper's identity, creating a sense of place and arrival.

Retail

Most of the retail in downtown is located off the intersection of Main St. and Broadway St. There is a limited selection of food and beverage retailers in the entire downtown area, and they seem constrained to the northern part of downtown along Broadway St. There is currently little to no outdoor seating for restaurants and no retail spill out, i.e., supplemental signage and product displayed outside. These are key components that contribute to the vibrancy and overall vitality of a successful human-focused downtown. Activating the sidewalks and allowing retail to spill out of storefronts creates a pleasant and inviting place that piques curiosity and makes people want to stay. It's also important to consider the types of retail that are in downtown. As Prosper grows, the downtown area will begin to naturally transform from a small downtown into an area of regional appeal and community focused commerce. Retail can also be a key contributor to creating an increased regional appeal. Curating certain types and brands of retail, i.e., food and beverage, brewery, are great opportunities that allow retail to tell the story of Prosper while simultaneously contributing to vibrancy of place. There could also be a series of tenant improvement guidelines that helps retailers successfully align with the architectural character and 'look and feel' of downtown.

Pedestrian & Bike Access

Sidewalks are limited to downtown. There is a lack of sidewalks extending beyond downtown into adjacent neighborhoods and no pedestrian connections to the larger community outside of the area. In downtown, the sidewalks are wide and inactive. These areas are prime real-estate for retail spill-out to occur. Successful downtowns tend to let people and retail create the colorful vibrancy of place. An active storefront with lots of people is the ultimate people magnet for more activity.

There is currently a lack of bike lanes and trail networks throughout the Town of Prosper. It is important to provide multi-modal transportation alternatives not only for non-vehicular access but integrating bike lanes and sidewalks into street programs can help slow traffic down and create more enjoyable environments for those not driving.

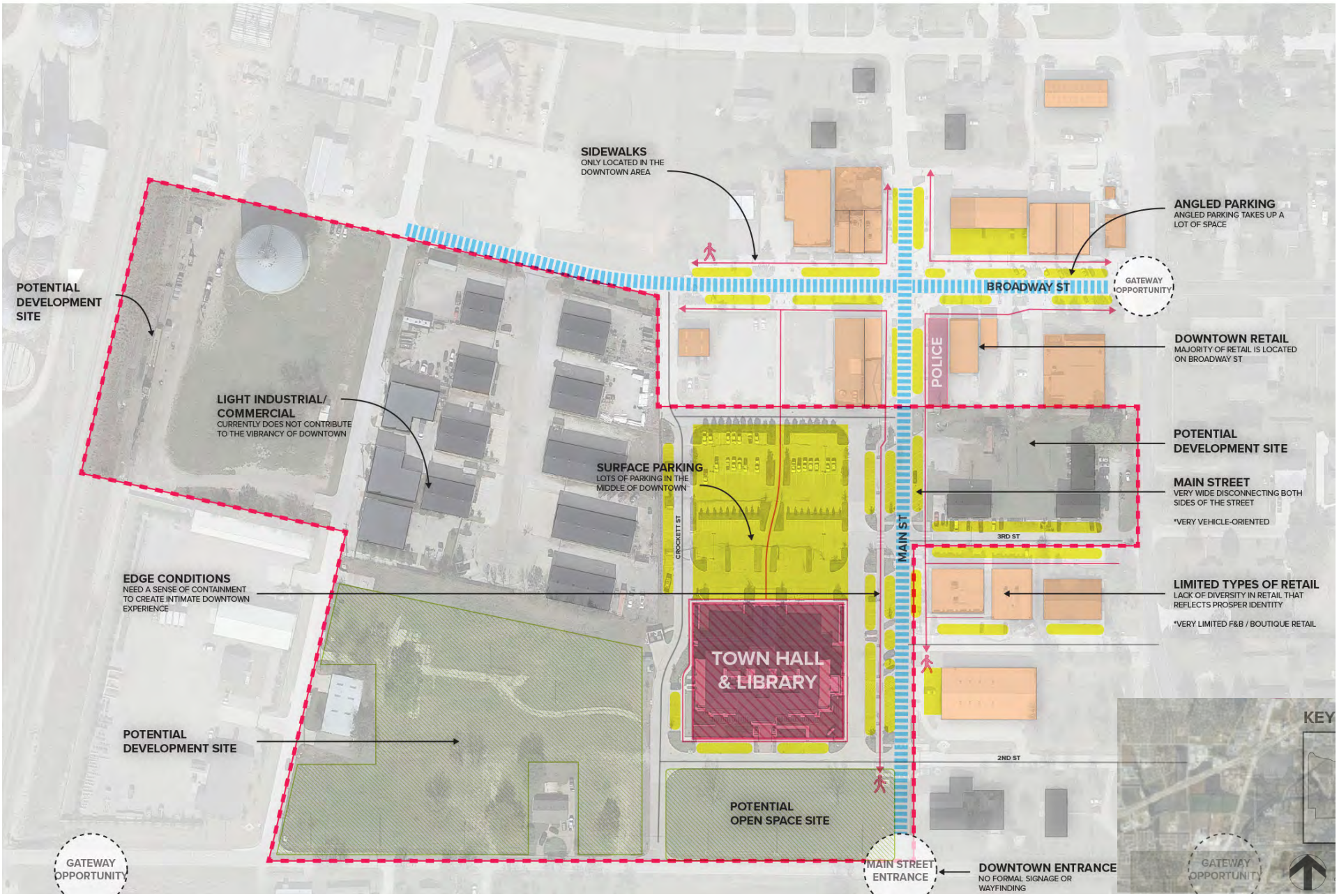
Street Furniture & Tree Program

Along Broadway St. close to the intersection at Main St., there appears to be an updated street furniture and tree program. Light poles, street signs, stop sign poles, potted plants, and outdoor seating have been installed along Broadway St. and demonstrate the beginning of a comprehensive street furniture program. Currently, it feels like it's lacking vitality. This might be due to the lack of retail activation on sidewalks as well as a lack of quantity of street furniture.

Trees along Broadway St. in downtown are placed in rhythm and seem like they will take some time to mature. Larger trees create more impactful places where people want to stay. Being such a critical component to placemaking, it might be worthwhile to place some more mature trees in key areas around downtown. This can create an iconic moment that the community can easily rally behind.

Downtown Parking & Streets

Aside from the parking at Town Hall, there is a lot of angled parking throughout downtown. This is more efficient than 90-degree pull-in parking, but it still takes up a lot of space and is more vehicle-centric than pedestrian-focused. Decreasing the depth of street parking will give more space back to the public realm and allow for more retail to spill-out. This also creates space for restaurant patios and terraces. More visible storefront activation is critical for retail too succeed and is also a key part in creating lovely and enjoyable places.



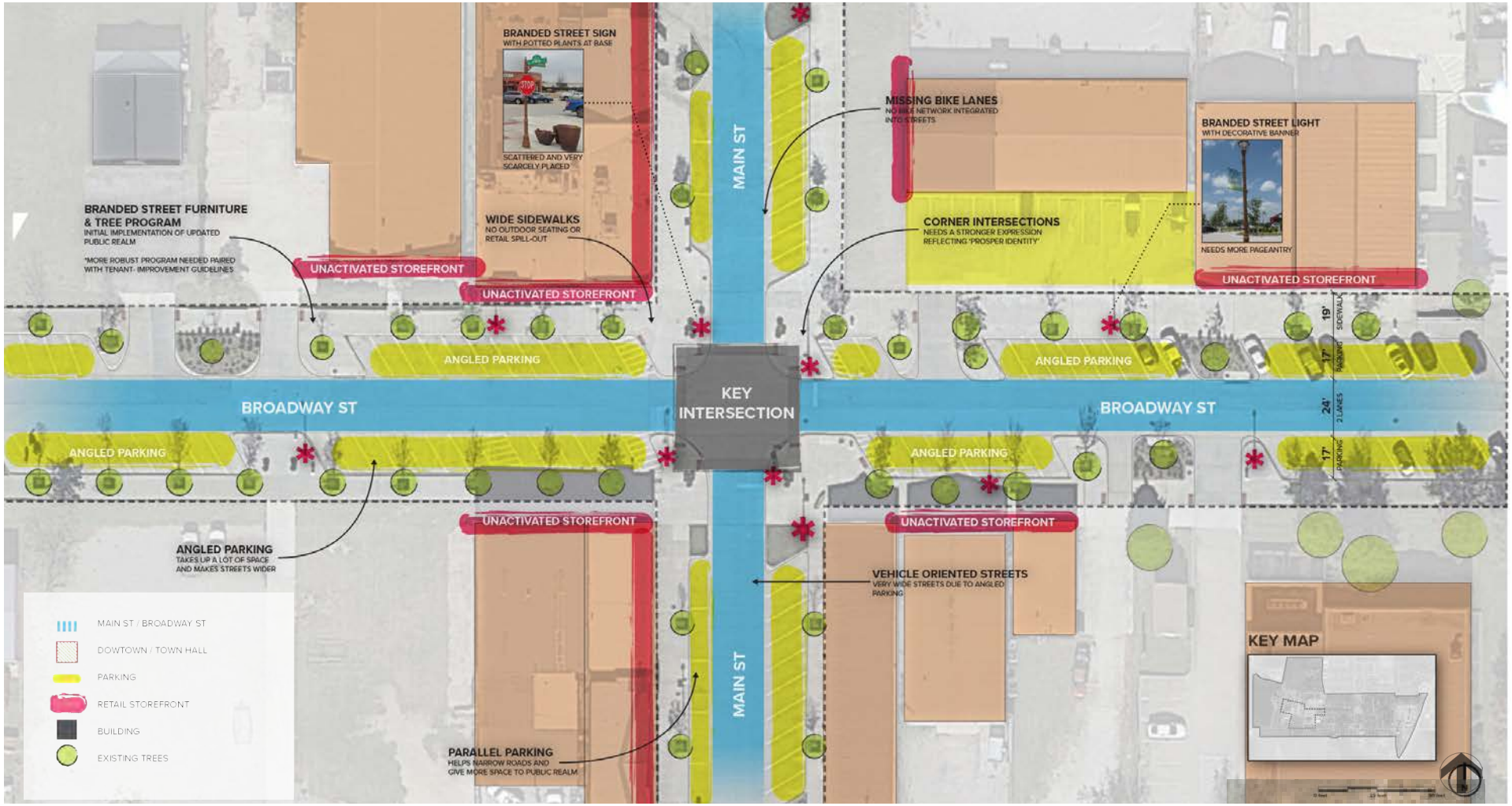
Where We Are At: Downtown Placemaking Opportunities

Many downtowns, at all scales, are trying to decrease the amount of vehicle traffic and parking in key community-oriented commerce areas like Main Street. Shifting to a different approach focused more on the pedestrian experience will help improve footfall and improve the types and brands of retail attracted to downtown.

The street paving in downtown is typical throughout the Town of Prosper. It's standard concrete paving with a few brick pedestrian crosswalks. Key intersections and downtown paving materials are also key components to placemaking that help define place. Changing the paving material at main intersections and key areas along streets helps break up visual monotony and indicates specialness of place. It also is a visual tool to help mitigate high car speeds.

Community Space

It seems like Prosper is missing a key component integral to community and sense of place. There is no iconic outdoor community space. Whether that be an iconic park, or a quaint main street drag that captures your heart. This is a space that functions as the 'go to' place



Where We Are at: Public Realm Placemaking Opportunities

for all community events and becomes a venue for the Town of Prosper to express itself to the greater Frisco/Dallas community. There are lots of opportunities to alter and massage all the existing placemaking assets in the downtown area, but it will take a much more comprehensive approach in synthesis with mobility, retail, architecture, and urban planning. Through our studies we've identified a few trends that have begun to give us insight into what/where community placemaking and identity can be explored:

Areas of Opportunity

Community Space/Event Venue/Programmed Park

- Front Porch Park: Activate the south side of Town Hall with a community amenity/park.
- Back Porch Park: Turn the parking field on the north side of Town Hall into an iconic programmed park rivaled by neighboring communities.

Downtown

- Main Street: Transform Main St. & Broadway St. into vibrant 'Main Streets' where people want to live and enjoy fantastic food and retail.
- Regional Attraction: Create a regional destination as well as strengthen existing community principles/vision.
- Pedestrian-Focused Place: Create a safe and accessible place for everyone.
- Equity for All: Integrate key principles into the planning process that gives everyone access to equity at all levels, i.e., community gardens, affordable housing, diverse affordable food offerings.

Placemaking & Identity

- Legacy & Prophecy: Important for the brand identity of downtown to root itself in the historic context of Prosper while communicating ambitions for future visions.
- Placemaking Follies: Series of curated art or iconic wayfinding moments will help tell the story of Prosper.
- Sign Monuments & Pageantry: There is a big gap in signage and overall pageantry in the downtown area. Creating a more robust signage program with supplemental pageantry will bring more charm to downtown.
- Breadcrumb Effect: The 'Silos' are the most iconic placemaking element in Town. There needs to be more of these moments and at a variety of scale to. This will naturally direct people towards downtown.

Existing Constraints

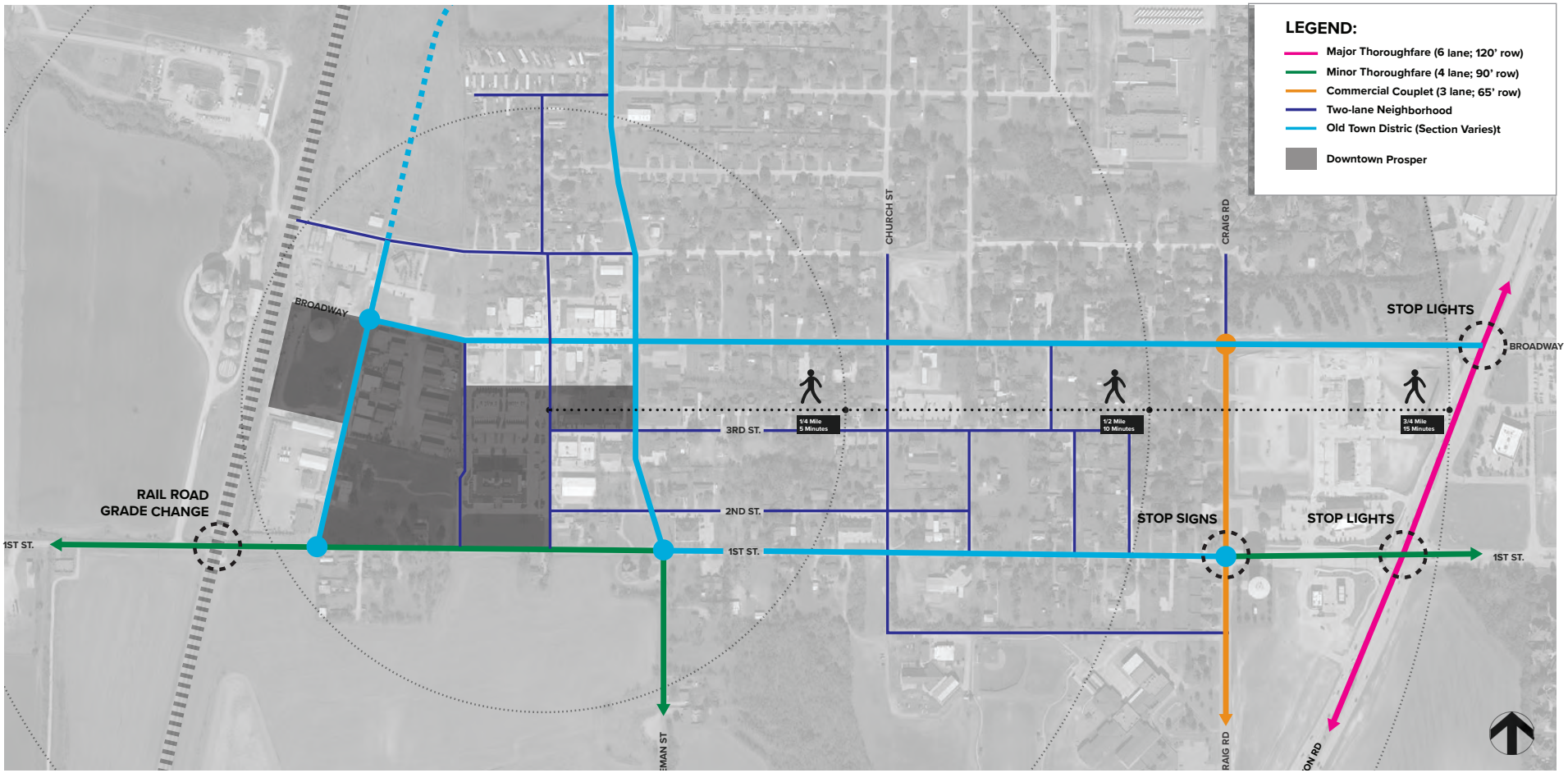
- Lack of Street Development: Many streets don't have sidewalks, bike lanes, or dedicated landscaping.
- Architectural Character: There is a lack of 'look and feel'/architectural character in all building types in the downtown area. This will be important in creating a cohesive downtown experience.
- Lots of Parking: So much parking taking up a lot of space. Parking fields are a great opportunity to develop more density in the downtown area creating edges in downtown that help contain energy and place.
- Retail Tenants: Challenge in getting the right tenants in that will benefit the community the most.

Mobility

Downtown mobility is an important asset for creating a safe, pedestrian friendly place for all people. The 1800's brought Prosper mule-drawn wagon and horse-drawn buggy. Since, the downtown area has been used in ways that did not necessitate development of a pedestrian network, thus creating a more vehicular-centric environment. Moving forward with this plan, downtown Prosper will work to ensure that the future of downtown is an environment that is a pedestrian friendly place and supports multi-modal transportation.

Street Network

The existing downtown street network is mostly built on a traditional grid with varying roadway and right-of-way widths. The local street network is very auto dominated with single lanes in each direction. Broadway Street and First Street form the primary east-west and Coleman Street as the north-south vehicular corridors. Coleman Street provides connection between Lovers Lane to Prosper Trail and further north. First Street is the only street in the downtown area traveling west, past the railroad tracks, providing the connection between



Where We Are At: Downtown Mobility Plan Today

Dallas North Tollway (DNT) and Preston Road (SH 289). Preston Road provides regional connection between downtown and surrounding areas. The completion of Cook Lane provides an alternate connection between Prosper Trail and First Street as well as a more direct connection to the Police headquarters.

Recently built sidewalks and bump-outs in some downtown blocks provide pleasant walking experience with wide sidewalks along with on-street parking. The existing rail corridor on the

Street Name	Direction	Existing ROW	ROW Utilized
Coleman St.	North-South	72′ to 195′	22′ to 27′
Main St.	North-South	50′ to 86′	24′ to 85′
McKinley St.	North-South	50′ to 55′	25′ to 27′
Broadway	East-West	63′ to 106′	27′ to 100′
First St.	East-West	30′ to 45′	24′ to 45′
Fifth St.	East-West	25.5′ to 62′	22′ to 26′
Preston Rd.	North-South	172′ to 208′	-
Craig St.	North-South	27′ to 62′	22′ - 49′
Church St.	North-South	50′ to 64′	23′
6th St.	East-West	42′ to 44′	23′

First Street

Fifth Street

Main Street

Broadway

western side of the downtown creates an opportunity for a future rail station while at the same time becoming a barrier for future connections. With the shift from residential to retail and office along the major corridors, it is crucial to have provision for multiple modes as well as on-street parking.

Traffic Volumes

Downtown area streets are mostly 25-35 mph posted speed limit with relatively low vehicular traffic. The main north-south artery in downtown, Coleman Street, carries 2,430 vehicles per day at 30-mph which increases to 5,025 vehicles north of Old Town area which is also identified as minor thoroughfare. Broadway Street carries 2,280 vehicles per day serving as primary east-west corridor with 35-mph speed limit. Preston Road forms the eastern boundary of the downtown providing north-south regional connection to neighboring communities carrying more than 42,000 vehicles per day. First Street forms the southern edge traveling almost parallel to US 380, from Preston Road crossing Dallas North Tollway to FM 1385 in the west carrying about 4,300 vehicles per day. The design for reconstruction of First Street is underway that would expand the existing two-lane roadway to four-lane divided suburban arterial between Dallas North Tollway and Coleman Street. The completion of Cook Lane construction will provide another north-south connection between First Street and Prosper Trail, besides Coleman Street, which could possibly shift some traffic volumes.

Crashes in Downtown Area

The crashes in the study area are mainly along the major roadways with highest along Preston Road correlating with the amount of vehicular traffic. The intersections of Broadway Street and First Street at Preston Road appear, the only two signalized intersections in the study area, have high crashes. About 50 percent of the intersection related crashes at Preston Road involved turning vehicle.

Majority of the crashes on the area roadways were caused by driver inattention or following too closely of vehicles traveling in the same direction. While majority of the crashes in the study area only involved property damages, there was one fatal crash reported at Broadway Street/Preston Road intersection. Gateway elements, enhanced signage, landscape, lighting, and other streetscape elements will likely increase driver awareness and help reduce potential crashes.

Pedestrian Network

Pedestrian network is limited, disconnected and inconsistent in the study area. Recent improvements along portions of Broadway Street include on-street parking, bump-outs and wider sidewalk space that encourages patio seating and other sidewalk activities. Since the construction of the new Town Hall and library on Main Street, it has become the focal point with increased pedestrian activity making it a much more active street.

However, most of the downtown roadways being auto dominated have narrow or absent sidewalks. Some of the newer developments have sidewalks, however, most of the roadway network is single lane in each direction with limited or no pedestrian facility making it an unsafe and uncomfortable walking environment.

The Old Town Area Transportation Plan recommends different cross-sections for the area street network with 8-10 feet wide sidewalks on major roadways and on-street parking on Broadway Street and segment of First Street between Coleman Street and Craig Street. McKinley Street is also proposed with 10' wide sidewalk facility and on-street parking extending further north and turning to end at Coleman Street.

Bicycle Facility

Besides few blocks with wide sidewalks, the bicycle facility in downtown Prosper is mostly non-existent. Previous planning studies identified connector trails and developable trails connecting downtown. McKinley Street, Main Street, Sixth Street, Broadway Street, Church Street and part of Craig Street were identified for future bikeway accommodations. While none of the corridors currently have bikeway accommodations future expansion could include a separate bike lane, shared lane marking, signed route, or bicycle boulevard connecting other area trails. The existing street network utilizes limited right-of-way with room for expansion to include such facilities.

Transit

Currently there is no fixed route transit serving the Town of Prosper. In 2019, Town of Prosper partnered with Collin County Transit – a partnership between City of McKinney, the McKinney Urban Transit District (MUTD)and the Denton County Transportation Authority (DCTA) to begin operating in the Town. The service is a subsidized taxi voucher program providing transportation for older adults, individuals with disabilities as well as low-income residents.

As part of a long-term multimodal vision for the Dallas-Fort Worth Region identified under NCTCOG's Mobility 2045, the Frisco Corridor was identified as a potential passenger rail corridor. This corridor along predominantly BNSF freight rail right-of-way extends up to US-380 in Frisco however, there is no identified funding for this project. This corridor provides an opportunity for Prosper by extending this rail line north to a potential future stop located in downtown. This should be studied further as port of the long-term multimodal vision.

Parking

Parking is provided with on-street parking spaces, Town owned parking lots (predominantly at the Town Hall), and on private parking lots. The current inventory observed indicates there are approximately 514 spaces within the commercial downtown area available for parking. Of these spaces, approximately 225 parking spaces are located on street, with additional 185 parking spaces located at the Town Hall property. The remaining spaces are located in parking lots adjacent to existing businesses.

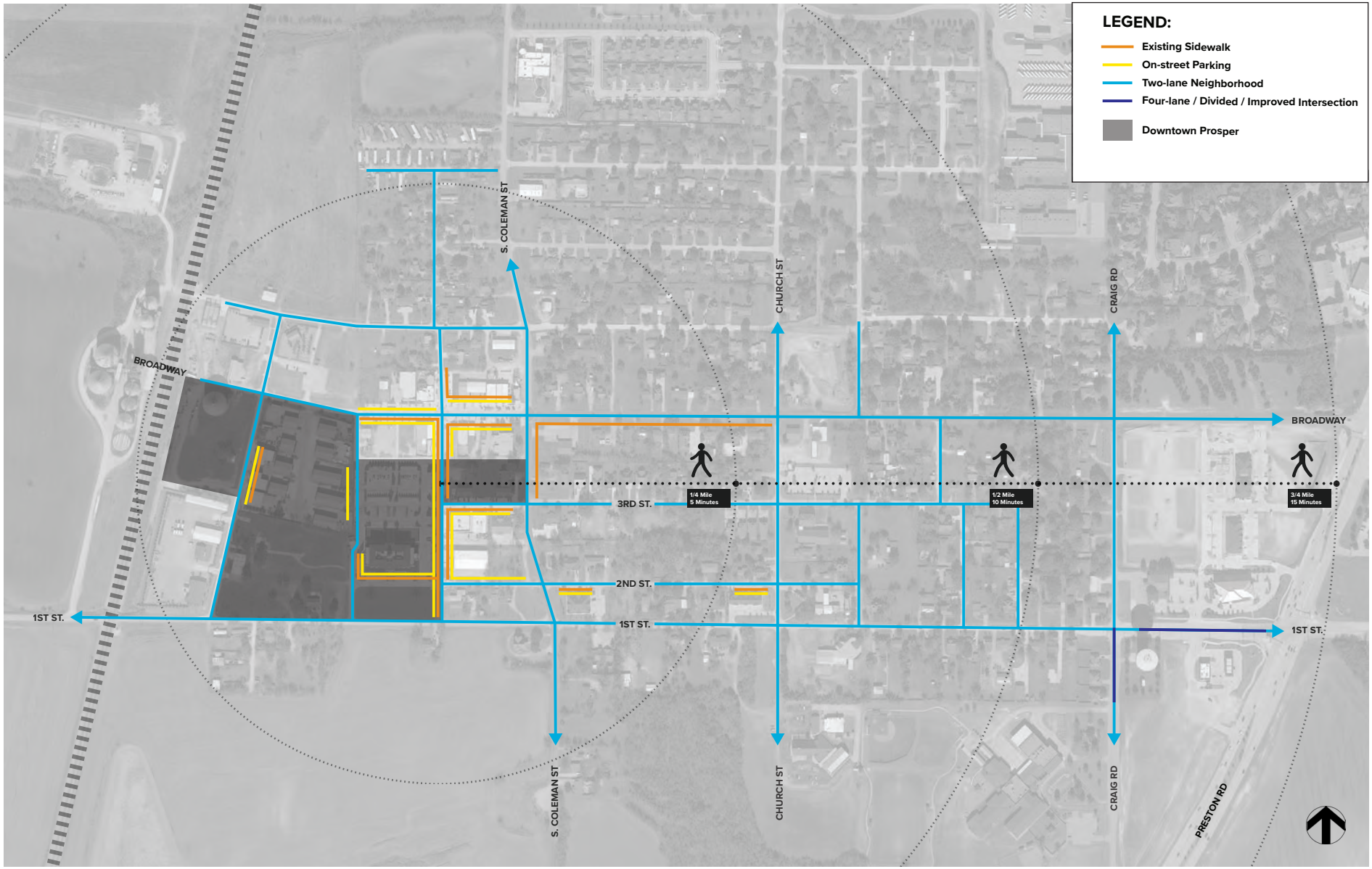
Actual parking use inventories had been completed in June and September of 2019. While this data is aging it appears to be generally reflective of parking demand reviewed during the planning process. These inventories identified a peak daytime use of approximately 113 and 102 spaces between on-street, public parking lot, and private parking lots.

Conventional parking requirements are based on single-use peak demand, or that every single use is maximizing it's total parking requirements at all times. This is a challenging approach in many projects as the peak demand varies by the type of use and hours of operation. For example, a shopping plaza a with a medical office and a movie theater will not both be fully utilized at the same. The medical office will have peak demand during weekday daytime hours whereas the movie theater will have peak demand during evening and weekend hours. While this concept of "shared parking" is accommodated in Prosper's code, it is very restricted, requiring studies, supplemental approvals and only one parcel to be involved. However, the potential benefit of sharing is significant. The Urban Land Institute (ULI) produces a guide called "Shared Parking" (now in its 3rd Edition), which ITE also supports, that estimates the varying peak demands of many land uses. Applying ULI's methodology to a fully-occupied downtown Prosper would result in only 561 parked cars, and reductions for the frequency of people to park once and visit more than one destination on foot based on the local context further reduces this to 531 cars. While this suggests only a small parking shortage if all existing uses in downtown were fully occupied and utilized, existing building occupancies produce a peak demand of over 400 fewer cars.

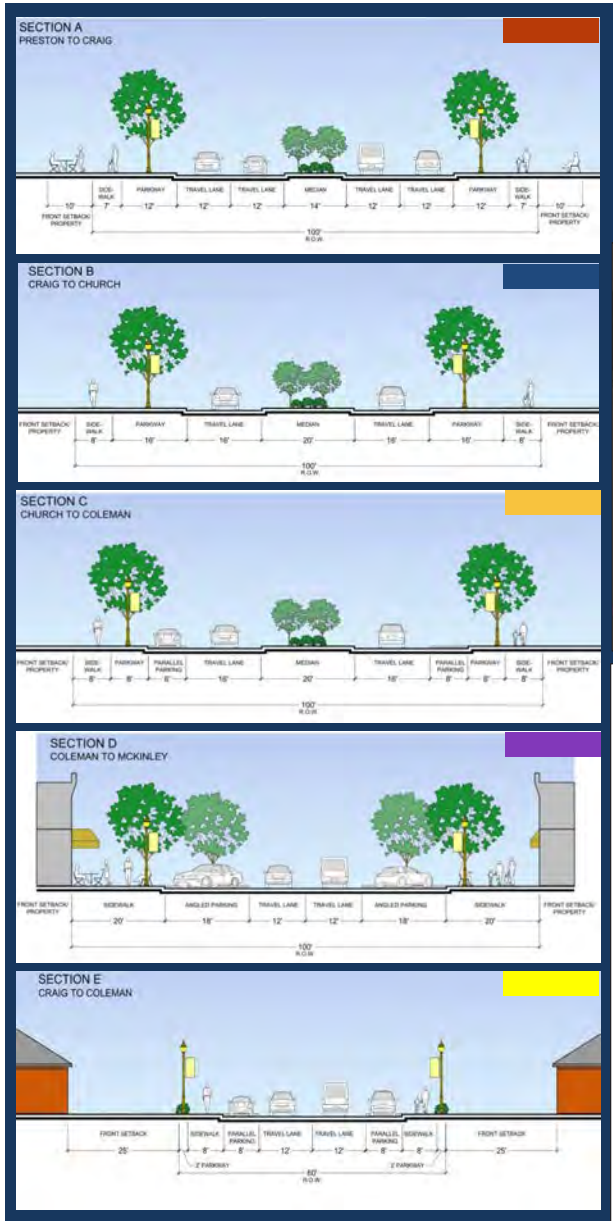
Current Uses and Parking Demand Modeling

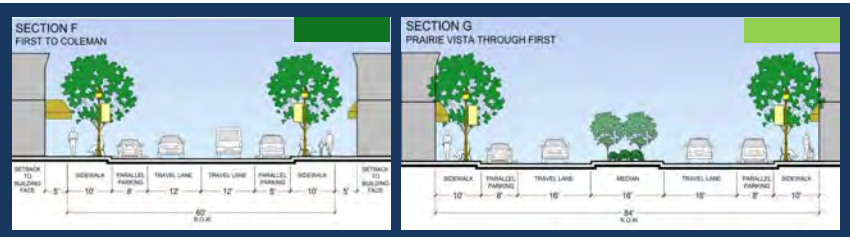
Land Use Type (field survey)	Units	Total
Office	Sq. Ft.	41,500
Govt. Office	Sq. Ft.	25,500
Retail	Sq. Ft.	32,000
Apartments	Units	12
Warehouse	Sq. Ft.	79,000
Light Industrial	Sq. Ft.	450,000
Gym	Sq. Ft.	9,000
Church	Sq. Ft.	3,500
Auto Pars / Service Center	Sq. Ft.	4,000
Existing Parking	**Spaces**	**514**

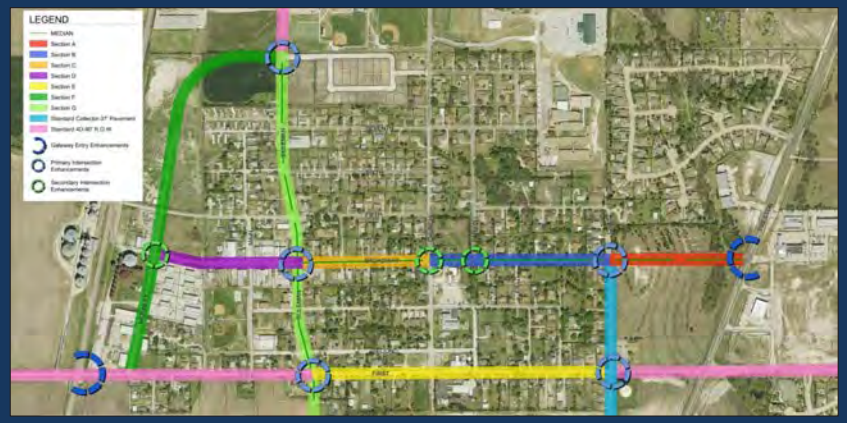
Parking Condition	Units	Total
Unshared Peak Demand	Vehicles	1,136
Shared Peak Demand (no context)	Vehicles	783
Shared Peak Demand (context)	Vehicles	710
Observed Peak Demand	Vehicles	11



Where We Are At: Downtown Mobility Today







Old Town Transportation Plan

Section A: Four lane divided roadway with a landscaped median and a landscaped parkway separating pedestrians from traffic. This section serves as a major entrance into Old Town from the east. No on-street parking.

Section B: Two lane divided boulevard with a large center median containing landscaping. Wide travel lanes allow for bicycle accommodation and a landscaped parkway separates pedestrians from traffic. No on-street parking.

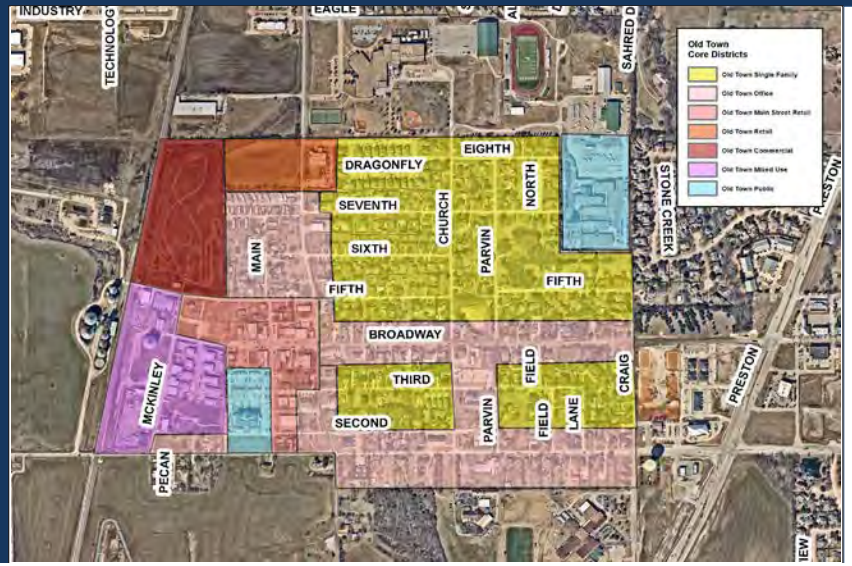
Section C: Two lane divided boulevard with a large center median containing landscaping. On-street parallel parking is permitted and a landscaped parkway separates pedestrians from traffic.

Section D: Two lane undivided urban roadway. Wide 20' sidewalks accommodate patio seating, pedestrian traffic and street trees. On-street angled parking is permitted and bulb-outs are located at intersections to enhance pedestrian visibility at crosswalks.

Section E: Two lane undivided roadway with on-street parallel parking and an immediately adjacent 8' sidewalk. A large private setback of 25' is included.

Section F: Two lane undivided roadway with on-street parallel parking and a 15' sidewalk. 10' of the sidewalk will be located within the right-of-way and the additional 5 feet will be a 5' setback to building face.

Section G: Two lane divided roadway with a center median containing landscaping. On-street parallel parking and a 10' sidewalk are included.



Land Use

The predominant land use within Old Town will be **single-family** residential. All infill development within such areas should conform to the architectural guidelines established for the Old Town district. Such guidelines are created to protect the continuity of look and feel within Old Town.

Along Broadway and First Street, single-family uses will gradually transition to boutique, cottage-style **office** and/or specialty retail uses. Broadway west of Coleman, will be the retail core of the downtown.

Shops, restaurants, and small office uses may be located within the **main street retail** area. This area is intended to be the heart and main activity center of the Old Town Area. As redevelopment occurs, building frontages should be brought to the property line to be consistent with ultimate streetscape improvements.

Adjacent to the retail core, a **mixed-use** district incorporating mixed use lofts/apartments will serve as a buffer between the Business Park and the core of Old Town. This area will also provide rooftops that service adjacent retail establishments.

Niche **retail** is recommended along Preston Road and at the northern end of Coleman. Retail development within these areas should fit within the architectural framework of the Old Town area. Setbacks should be reduced, when possible, along Coleman and Broadway to frame the roadways.

Where We Are At: Adopted Old Town Transportation Plan

Streets

In previous planning efforts, an overall transportation plan has been prepared for the Town including detailed roadway sections within the Downtown Area as shown in the image to the left. This plan, the "Old Town Transportation Plan" has been formally adopted by the Town.

During this Master Plan process and review of the adopted transportation plans, a recommendation has been included to re-evaluate theses sections prior to detailed design and funding for construction for the various segments.

Infrastructure

As a well established downtown the core infrastructure exists throughout. Much of the commercial downtown has benefited from recent streetscape replacement projects that include sidewalks, lighting, landscape and furnishings. Beyond the commercial core streets are of varying age with some improvements occurring. As noted in previous sections there is a general lack of sidewalks, pedestrian scale lighting, and other elements in the residential portion of downtown.

Power is served throughout the Town by Oncor throughout with some powerlines visible overhead.

There are existing sanitary sewer and water lines throughout downtown, and based on discussions with Town staff, there is sufficient capacity to continue serving the ongoing redevelopment of downtown. The existing lines do not necessary follow the same network however, it

Sanitary Sewer Lines

Water Main Lines

03

WHAT WE WANT: COMMUNITY ENGAGEMENT

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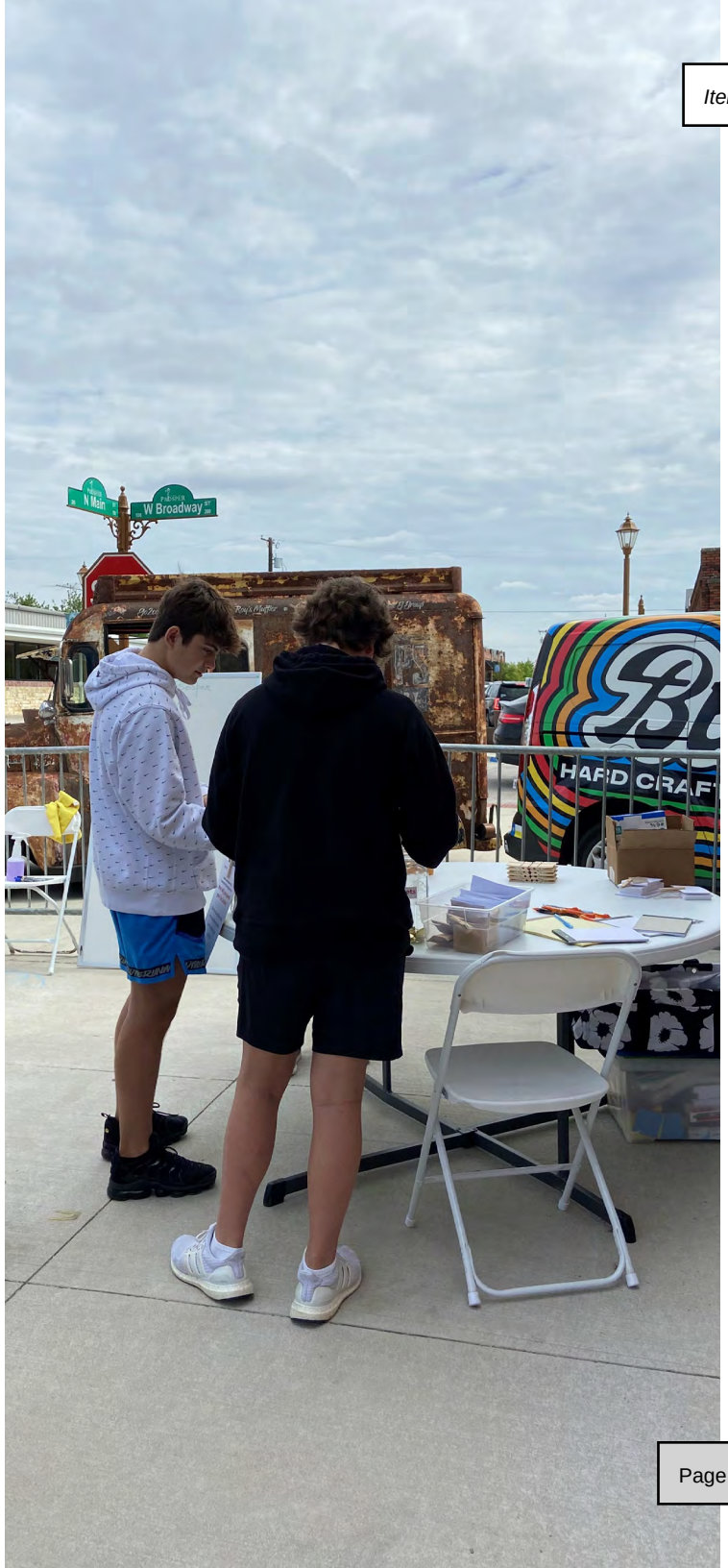
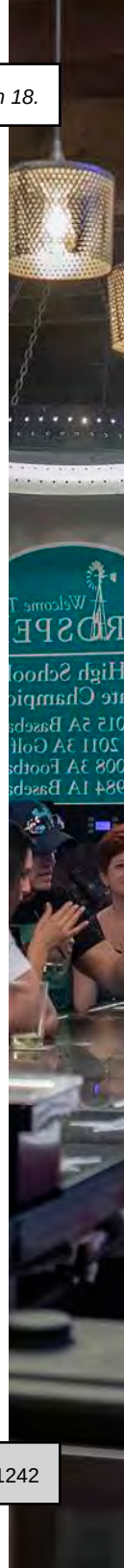

W Broadway
HAND CRAF



3-1 Overview

Prosper's downtown plans need to be the community's plans.

We provided a comprehensive and varied set of engagement tools. These provided two-way communication. They informed the planning process and helped stakeholders understand the process and its implications and provide input. This helped win early support by residents, property owners, business owners, area developers, and regional/public development partners. Community engagement happened during every phase of the downtown Prosper planning process.

Overview

This section provides details of engagement activities and tools our team used to engage community in the planning process and the summary of feedbacks and responses we received in each phase. The exact combination of activities and tools for this project were developed in collaboration with the PEDC staff.

The engagement activities for this study were focused around the four major stages of the planning process:

- Phase1- Discovery: Understanding what exists, what has been done, and what is planned
- Phase 2- Development: Exploring Alternatives
- Phase 3- Design: Implementation Strategies
- Phase 4- Delivery

01	02	03	04
Discovery	**Development**	**Design**	**Delivery**
Engagement Plan	PDDC Meeting	PDDC Meeting	Draft Plan Document
Review of Existing Plans, Projects, and Programs	**Plan Development**	**Open Space Concepts**	Stakeholder Review
Boundary Determination	Virtual Townhall	**Catalyst Site Concepts**	Final Plan Document
Data Collection	Focused Design Sessions - 8	**Site Specific Meetings**	Approval Process
Market Assessment	Online Feedback	Pop-up Event	
Community Visioning	Online Survey and Interactive Map	Funding Opportunities	
Listening Sessions - 8	Vision and Goals Document	Implementation Sessions - 2	
Existing Condition Summary	Plan Framework Document		

3-2 Phase 1 Engagement

The purpose of the discovery phase is to set a baseline of existing conditions upon which the plan may build. As part of a series of stakeholder listening sessions, online surveying and interactive mapping, and a large community workshop, more than 400 people kicked off the downtown Prosper Master Plan. This gave the project team an opportunity to hear from people in small group discussions, during community events (Crawfish Boil), on their own time at home via downtown Prosper Website, or in a fun and interactive big event. Participants told us what they loved about downtown Prosper and how it could be better and they shared their future visions. The feedback led to a refined understanding of the existing conditions in downtown, what participants wanted us to focus on in the plan, and more than anything, a vision for downtown Prosper. In the following we provide more details about each engagement activities including developing the project website, holding 8 listening sessions , and facilitating community visioning workshop.

Engagement

Phase 1 Public Engagement

- Community Visioning
- Listening Sessions-8
- Project Website

Phase 2 Public Engagement

- Virtual Townhall
- Focused Design Sessions-8
- Online Feedback
- Online Survey and Interactive Map

Phase 3 Public Engagement

- Pop-up Event
- Implementation Sessions-2

Phase4 Public Engagement

- Stakeholder Review
- Plan Adoption

Planning

Phase 1:

Discovery- Foundation Building

Phase 2:

Development - Plan Framework and Opportunity Analysis

Phase 3:

Design - Catalyst Investment Areas & development Strategies

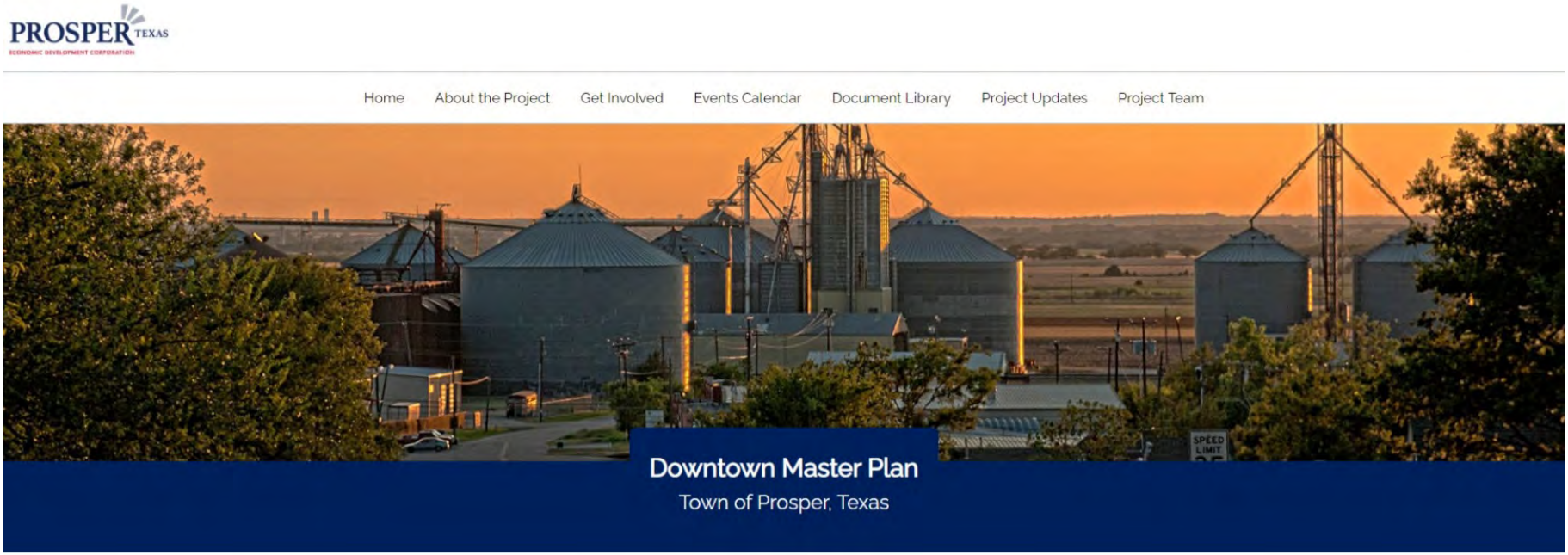
Phase 4:

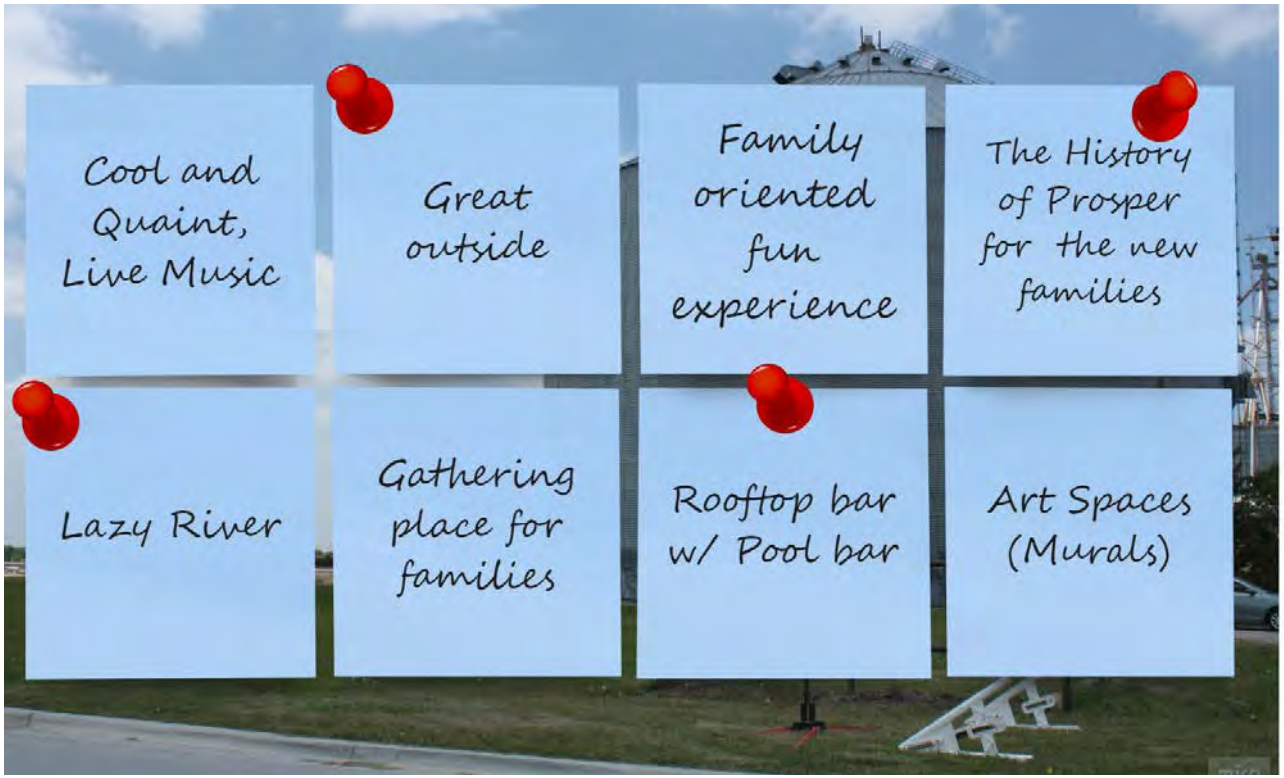
Delivering the Tools – Final Document

Project Website

Our team developed and maintained a project-specific website throughout the duration of the Project. The project website had been developed to match the project graphic standards and it included a location for the public to give on-line comments, answer surveys, sign-up for project notifications, read interim reports, review public documents, and stay up to date on upcoming public engagement/outreach events. Here is the link to the Prosper Downtown website: https://downtown-prosper.com/

Online engagement activities in phase 1 included :Survey, Idea wall and Interactive Mapping.





Community Visioning Workshop

The Stantec Team joined the Crawfish boil community event which was held on April 17th outside the Gin. A three hours of community activities and discussions allowed our team to explore ideas, themes, and preferred outcomes for the downtown area through Six Word Story, Budget Exercise, and Drawing a Boundary Exercises. We wanted to know their thoughts and ideas for downtown to ensure that this is truly the community's plan and creates a downtown where they want to live, work, and play. In the Six Word Story Exercise, the community were asked to write their downtown Prosper story in 6 words on the card and pin it to the string; in the Budget Exercise, the participants were asked to distribute the dollars in the envelop between the four jars to show us their priorities; and a large scale map had been provided to allow them to draw their desired boundary of the downtown. The following is the summary of what we heard.

We wanted to know their thoughts and ideas for downtown to ensure that this is truly the community's plan.

Listening Sessions

Once the planning effort for downtown was underway, a list of key stakeholders with the assist of The Prosper Economic Development Corporation was drafted. They were selected from community leaders, Town staff, business owners, developers, employees, residents and students. Our team met with up to eight (8) groups or individuals as part of this step. The purpose of this task is to meet with individuals and groups with the potential to impact future investment and reinvestment in downtown Prosper, as well as vet the Vision concept and stated goals. In each session, participants were asked to discuss about what they like or do not like about the area, their wish for the downtown and the Prosper newspaper headline which would describe downtown Prosper in 2030. These sessions provided valuable insight from those that have an interest in and a deep knowledge of the community. The table shows the detail of each session:

Listening Session 1	Listening Session 2	Listening Session 3	Listening Session 4
Town Staff	Seniors	Residents	Students
What We Heard:	What We Heard:	What We Heard:	What We Heard:
• The Town is an open canvas • Town Hall is a place and (for) events • There is no hook or draw to people • Town needs a bold vision not just an easy win • Small business owners so the process for permits is restrictive for temporary signs and events • Cost complaints from small business • Need a better way to get event information required by permits to the public • Walkability is key • Small Town feel • The community is proud and ready for growth	Wishes: • Develop everything around the Town hall (food and entertainment) - make it the main draw • Spots for food and entertainment (small business) • Family oriented boutique business • Maintain the character • Pickle ball, games, activities, etc. • Activity center for all age groups to start development Important: • Historic character • Family feel • Arts and Music • Compliment existing nearby development	Wishes: • Organic farmers market - rules too strict • Small business office space • Be able to live and work in Town • No major destination downtown and connections are just not there from outside of downtown • A mixed-use development like South Lake Town Center • Town Square or place to put small business and events • Outdoor music, eating, events, and lighting • Water feature, green space, shade - something to draw people after eating • Convert existing buildings instead of demolishing to keep character	Wishes: • A book store plus cafe - talk and read books • In-n-out, Trader Joe's (healthy grocery store) • Pedestrian friendly, bike lanes • Place you can take a walk with your family • Good blend of restaurants and stores • Outdoor eating area, green open spaces with benches • Signs to navigate downtown and make it look nice (wayfinding) at the entrances to downtown • Downtown events (fairs, rides, smaller scale of state fair), rodeo • Hard to find downtown - cannot walk there

My Wish for Downtown Prosper ...

The most popular wishes that we heard in different sessions are combined in the follow

- A place to Live, work, and Play
- A safe walkable unique downtown
- Connected, all inclusive
- Maintain the character
- Make the Town hall the cornerstone of Downtown
- Strong foundation for the future
- Attractive destinations
- Outdoor music, eating, events
- A good blend of local restaurants and stores
- Place you can take a walk with your family
- Pedestrian and bike friendly
- Activities for all age groups
- A good place for small businesses and startups
- A better version of downtown Celina and McKinney.

PROSPER NEWS

www.dailynews.com THE WORLD'S FAVOURITE NEWSPAPER - Since 1917

Downtown Prosper- A Place to Live, Work, and Play

Downtown Prosper now Complete - A place where every family is welcome!

Downtown Prosper voted Best Downtown in Collin County.

Prosper becomes a regional destination point.

Prospering in Prosper!

Visitors from Mars visit downtown Prosper because it was voted the best small-town downtown in Texas.

Town breaks ground near the Town hall

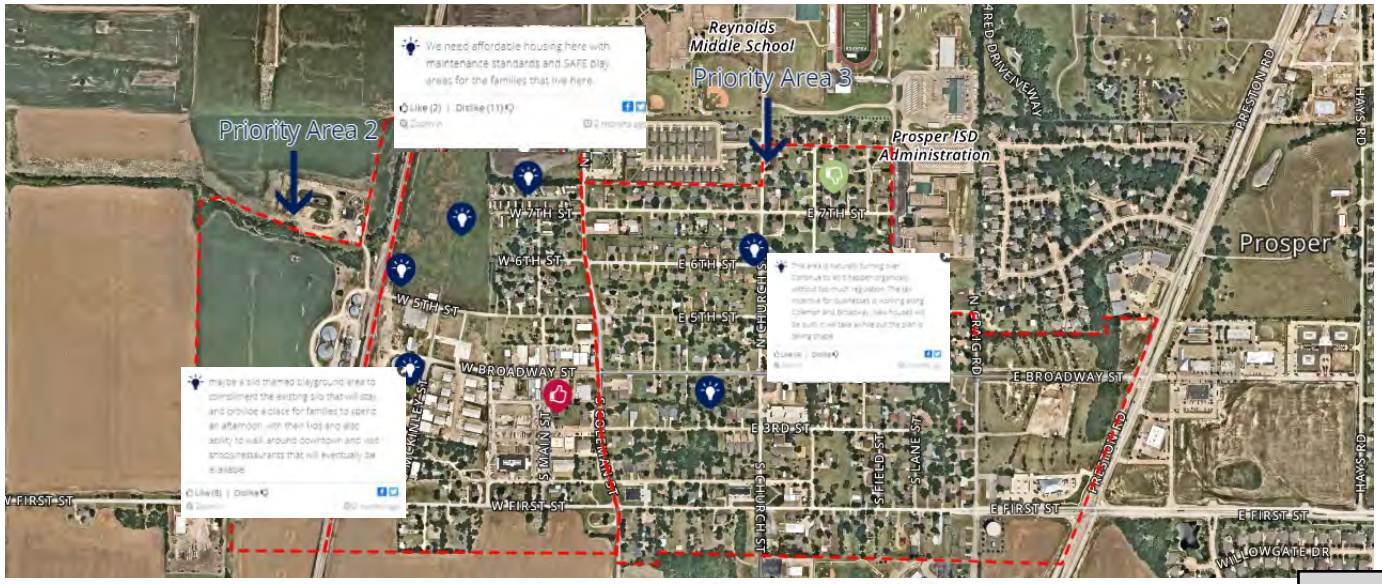
Phase 2 Engagement

Prosper's downtown plans needs to be the community's plans. We provided a comprehensive and varied set of engagement tools. These provided two-way communication and informed the planning process while helping stakeholders understand the process and its implications and provide input. This helped win early support by residents, property owners, business owners, area developers, and regional/ public development partners. This section provides details of engagement activities and tools our team used to engage community in the planning process and the summary of feedbacks and responses we received in each phase.

Online Feedback

Located at https://downtownprosper.mysocialpinpoint.com/Town-of-prosper-downtown-plan/ideas#/ online feedback is crafted into a blog board were residents can suggest and like popular ideas for the plans development. The format and use of the board allows for individuals who wouldn't normally be able to add input or subjections the access to do so. The online nature of the board also allows for opportunities for younger individuals to provide input into planning phase.

An interactive map is a powerful tool that enables the community to virtually walk through the downtown Prosper, show or draw their ideas for the area, mark the areas of opportunities and challenges and discover the others discussions and comments through an online platform. This map showed us the areas that participants wanted us to focus on in the plan.



Interactive Map

Drag to comment > Ideas and Suggestions | Opportunities | Challenges | Draw it

Idea Wall

The ideas wall allows Prosper residents to post their comments along with photos and respond to others using discussions. Figure .... shows the most popular comments that had been posted in the website.

In summary, people like to see the downtown Prosper as a walking location like downtown McKinney or Celina with more local restaurants, bars, coffee shops, moms and pops stores, boutiques, farmer markets and event venues with a unique historic style. A place with charming outdoor seating areas and green landscape that could draw local residents out of the house and offer them a good community gathering spot with live music and events and provide the opportunity to spend their dollars in their community. Keeping the small Town/ village type flavor with the silos setting was another bold ideas for downtown Prosper that was repeated.

Online Survey

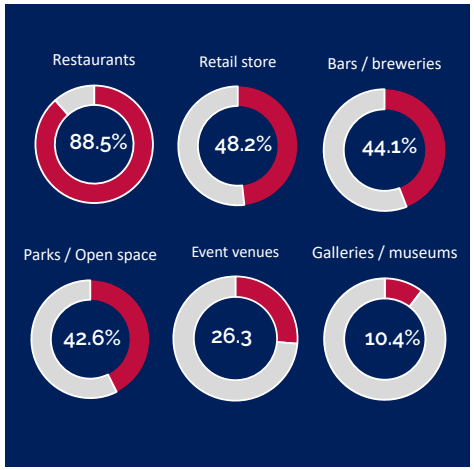
In the early steps of the Project, a survey was posted in the website with 15 multiple-choice questions to discover the community's attitudes, opinions, experiences, and needs about downtown Prosper. Questions were organized in three main sections including: Relationship to downtown, Feedback and Vision, and Demographics. A total of 345online surveys were completed during the response period. Many questions included an optional open response – "Other" – and a space for other comments.

As anticipated, restaurants prove the largest draw in bringing people into the downtown, but they desired for more signature restaurants and bars to anchor the downtown area and attract other businesses. They believed restaurants and retail shops are pillars of downtown's success, but not just any establishments are welcome. They emphasized on diverse local shops that are associated with the small Town atmosphere and historical character of downtown Prosper. Praise was awarded to the preservation and adaptation of Silos and the Gin. Public space where people can meet without spending money and for cultural institutions like galleries and event venues also received heavy attention. In identifying opportunities, respondents pointed out that preserving the historic feel is essential to the ongoing atmosphere of what most commenter's preferred to call "Old Town". The arts and culture sector is also highlighted as an area of opportunity by participants

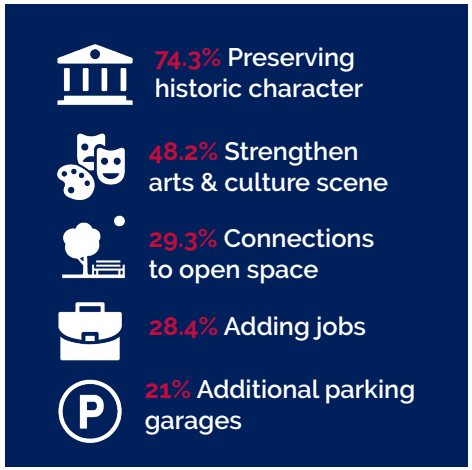
I love Downtown Prosper because:

Top three reasons for visiting Downtown:

Amenities that I would add:



Top opportunities:



Top challenges facing Downtown:

Community Crawfish Boil:

- Winery
- Cool & quaint live music
- Dog friendly restaurants
- Art spaces (murals)
- Local business
- Multi-family complexes
- Dancing & sports
- Farmers market
- High rise apartments
- Open air markets
- Sidewalks and bike lanes
- Green space
- Live music
- Outdoor space

THE GIN
RESERVED
PARKING
VAN
ACCESSIBLE

WHERE WE ARE GOING: VISION, GOALS & PRINCIPLES

04

TOWN OF
PROSPER
Farmers
MARKET
hello!
COFFEE & ESPRESSO
LOCAL FOOD
ARTISAN BREAD

Vision

"Downtown will be an authentic and appealing destination for people who want to work, shop, and gather with friends and neighbors in a unique place that reflects Prosper's proud rural heritage and its support for local people and businesses."

Future policy and strategic investment decisions should be made in consideration of this statement of intent - developed during the 2017 Old Town Plan process.

MARKET
PROSPER

Guiding Principles

1. Investment and reinvestment will have sustained value and reflect the authenticity and distinctive character of a downtown environment.

2. Regulations or standards intended to advance the long-term vision for downtown that increase development costs and widen the economic feasibility gap, will be offset by corresponding economic incentives.

3. Uses will be marketed and maintained as a single district with a consistent brand reflected in a cohesive system of public and open spaces and gathering places, signage, and community amenities.

4. Particular efforts will be made to keep street level spaces occupied by a healthy mix of commercial and service businesses.

5. Public expenditures will prioritize investment in shared facilities and infrastructure to effectively leverage limited resources and increase the potential of private properties to generate municipal revenues.

6. Capital improvements in downtown will facilitate easy vehicular and non-vehicular access while also preserving the area's autonomy as a stand-alone mixed-use district that compliments, rather than competes with other commercial concentrations in the community.

7. The downtown physical form will balance the role of vehicles, pedestrians, and other modes of transportation.

8. Preference will be given to projects that further a greater diversity of uses and attract a broader market.

9. Vacant and underdeveloped properties will be expeditiously put into productive use in a manner consistent with the vision expressed herein.

10. Criteria will inform the location of community facilities, particularly those deemed essential for the success of this Master Plan.

Downtown Prosper Looking Forward

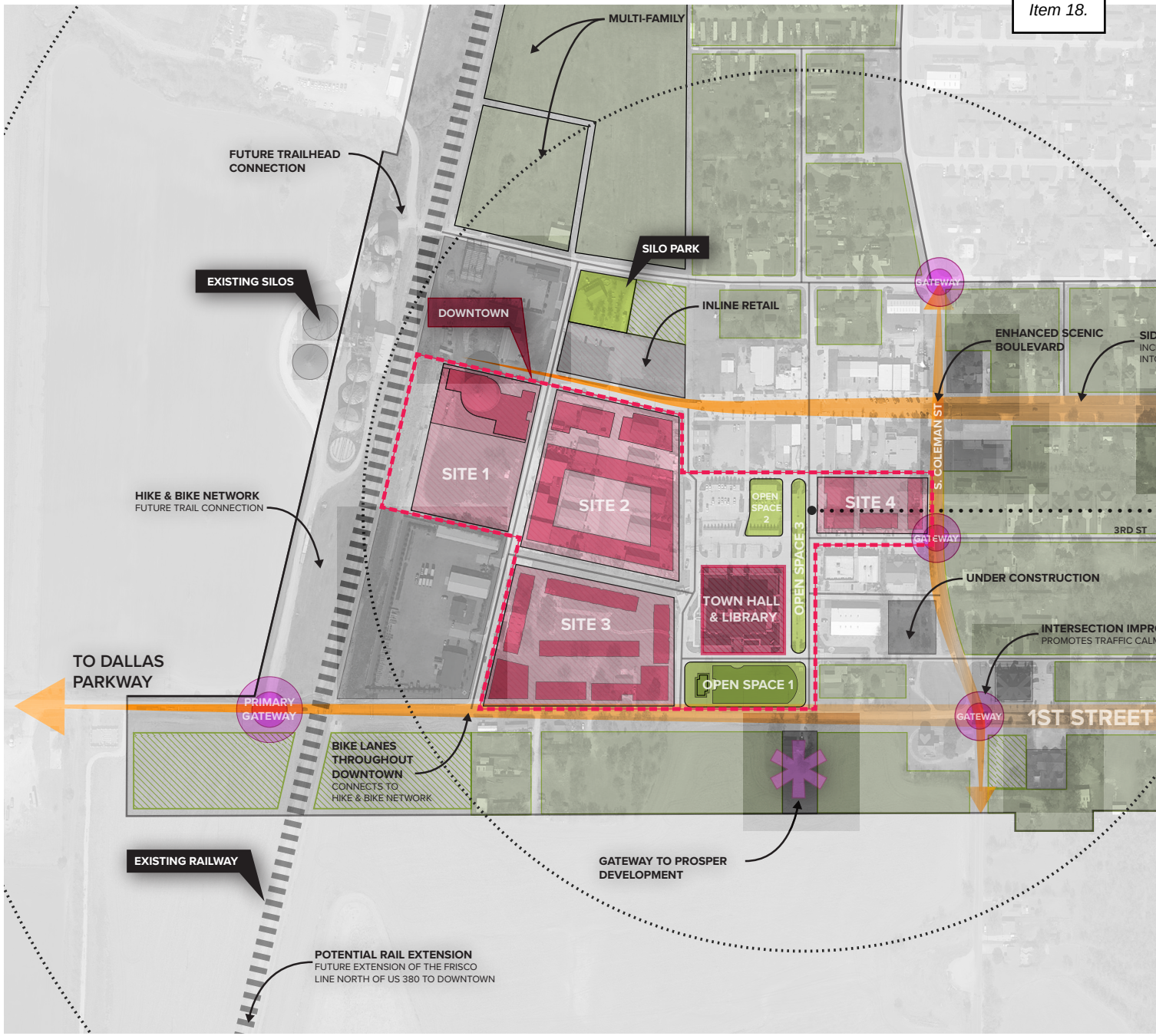
As investment takes hold and both public and private projects begin they will reshape downtown while building upon its unique history and the character that has defined it for decades.

With this new development, restaurants and retail will line the Towns streets creating activity and appeal, while offices will support further economic growth. More people will call downtown home with the introduction of new housing units, and this will in turn help support new business development. Downtown will become a destination for visitors and residents alike.

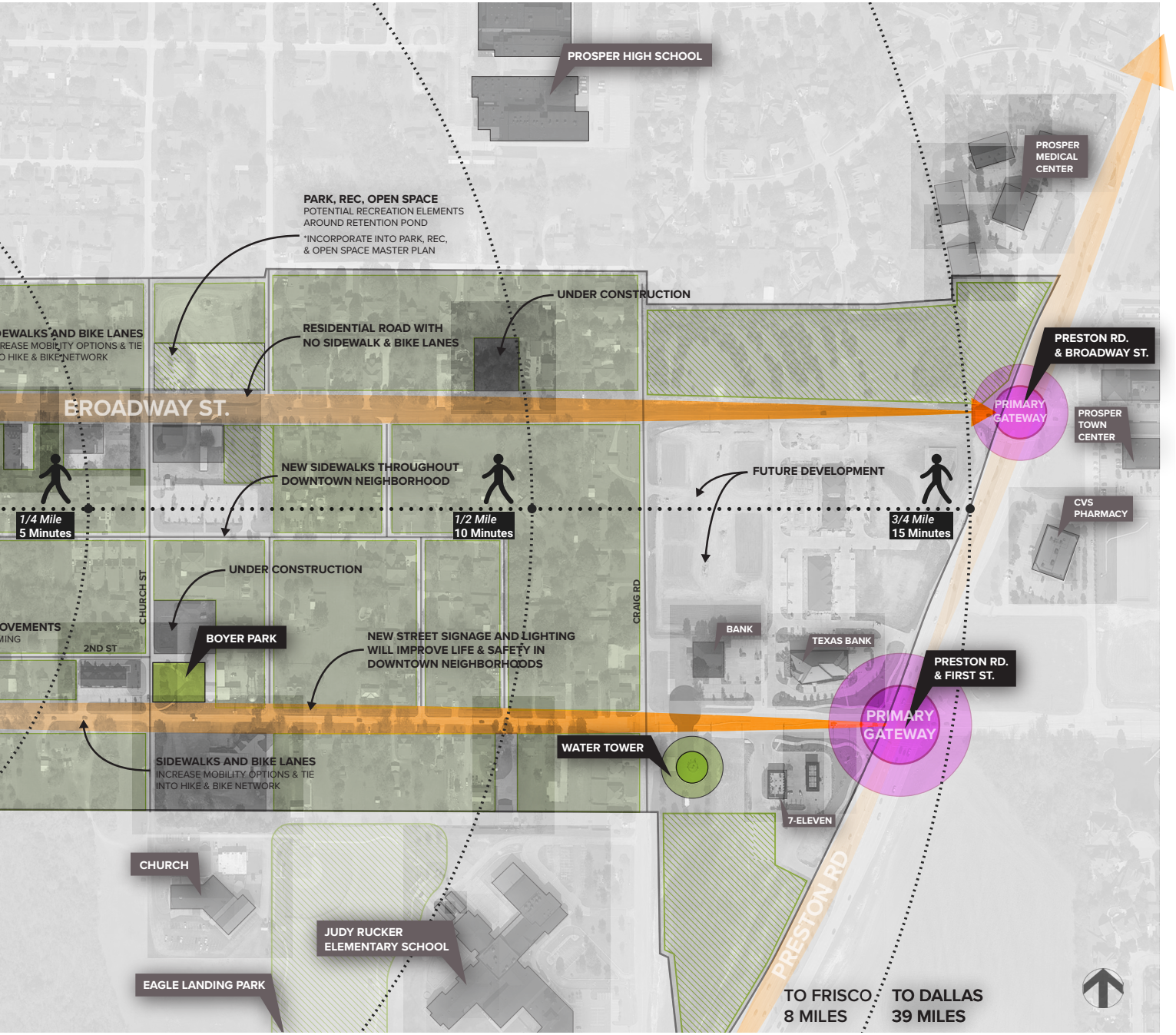
Public improvements will create special places for gathering, socializing, and providing the Town greater opportunity for programming events and activities for the community to celebrate throughout the year.

Streetscape improvements will help unify the old and the new - building upon the theme that has already begun with furnishings, lighting and landscape.

Overall, access, mobility, and connectivity accompanied by new signage and wayfinding will make downtown easier to visit and more functional for those already here.



Where We Are Going: Imagine Downtown

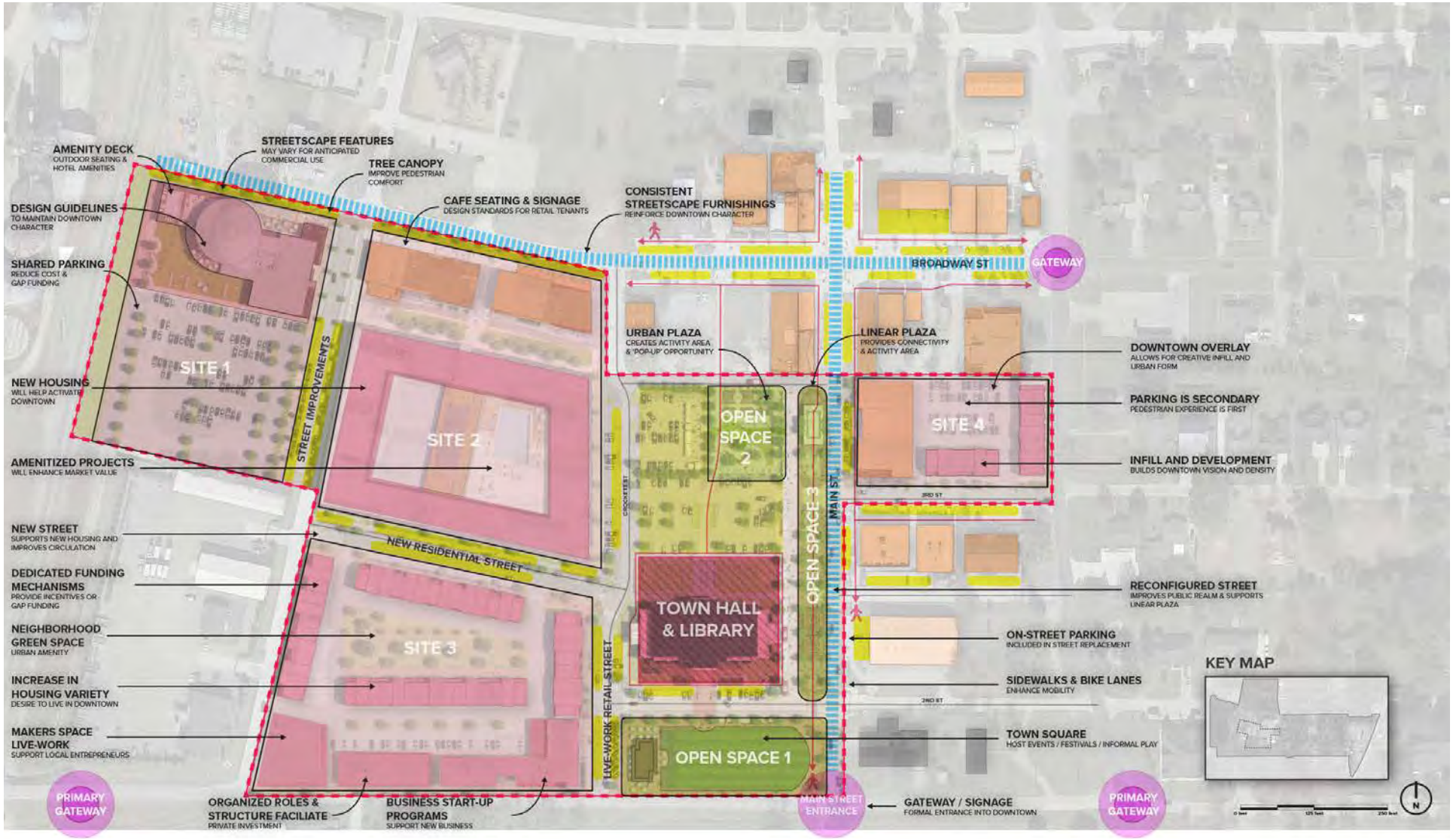


- KEY INTERSECTION
- MAIN ACCESS ROUTE
- DOWTOWN / TOWN HALL
- RESIDENTIAL
- OPEN SPACE
- LANDMARKS
- OTHER USE

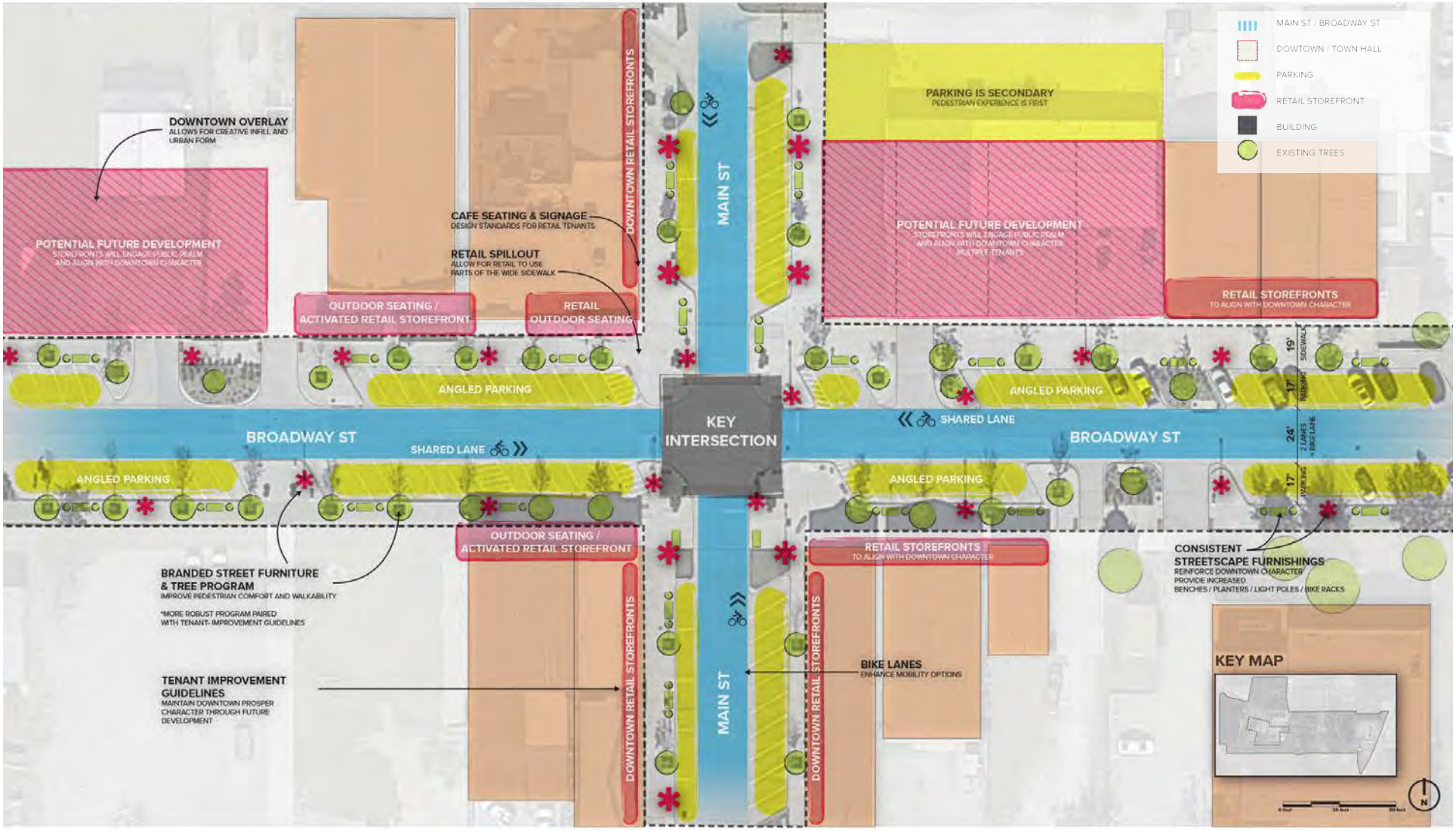
Downtown has big visions for the future, and it will take a community effort to do realize this. The Town will have a central role on some level in nearly all aspects of implementing the Master Plan. It will need to be supported by organizations such as the PEDC, the Downtown Business Alliance, and the Chamber of Commerce to assist in implementing initiatives, assisting in securing funding, helping to build and maintain momentum, and work to attract investment.

Business and property owners will have a key role as well - understanding the realistic opportunity for their properties if they want to see redevelopment, and invest in them to support the vision. Business owners will need to continue developing their Downtown Business Alliance, and over time will take an increasing role in promoting and attracting visitors and residents to downtown.

Lastly, residents - downtowns can become a "living room" for a community and the vision for downtown Prosper has been crafted by this community. Residents must support the businesses, attend the events and programs, and continue to believe in downtown.



Where We Are Going: Imagine Downtown



Where We Are Going: Imagine Downtown

TOWN OF PROSPER

TOWN OF
PROSPER

hello
Farmers
MARKET

Character, Placemaking & Open Space

Public investment in quality public open spaces and placemaking downtown drives private investment, attracts business development, and improves the quality of life for the Town's residents. "Big picture" thinking should be layered into any capital projects to maximize these benefits:

1. Large public capital projects, such as a streetscape replacement project should also include upgrading capacity of existing utilities if what is in place will not support the entire build-out of downtown. This will minimize future disruption, reduces overall cost, and removes private development hurdles;
2. Functional design such as incorporating on-street parking make easier for visitors to be there;
3. Quality hardscape, landscape – including shade trees, pedestrian lighting, signage and wayfinding, and furnishings make an area more comfortable, attractive, and appealing for people to visit;
4. Designing spaces for multiple uses – an urban park or plaza shouldn't be thought of as only a gathering space, but should incorporate elements for active programming, such as dimensions that will allow for event tents, art or farmers markets, access to power, loading and unloading for event setup, public restrooms, trash and recycling, sound systems and lighting;
5. Support future development impacts by incorporating blue green spaces to accommodate excess stormwater and plan for temporary overflow parking areas for special events;

The Town has been investing in public realm improvements and placemaking in recent years and has the opportunity to expand that investment into the broader vision that will, in addition to the public benefits, act as a catalyst for additional private development and activity within downtown.

Three key public projects have been identified and conceptually developed that will help downtown do this:

TOWN GREEN

Creates a large activity center for programmed and passive use.

DOWNTOWN PLAZA

Creates an urban open space for public gathering, and programming for smaller events, activities, and allows for a higher level of detailed placemaking to attract visitors.

DOWNTOWN CONNECTOR

Creates a functional, attractive public connection between the Town Green and Downtown Plaza that has been designed to both attract visitors by its placemaking elements and provide additional space for programming events and activities.

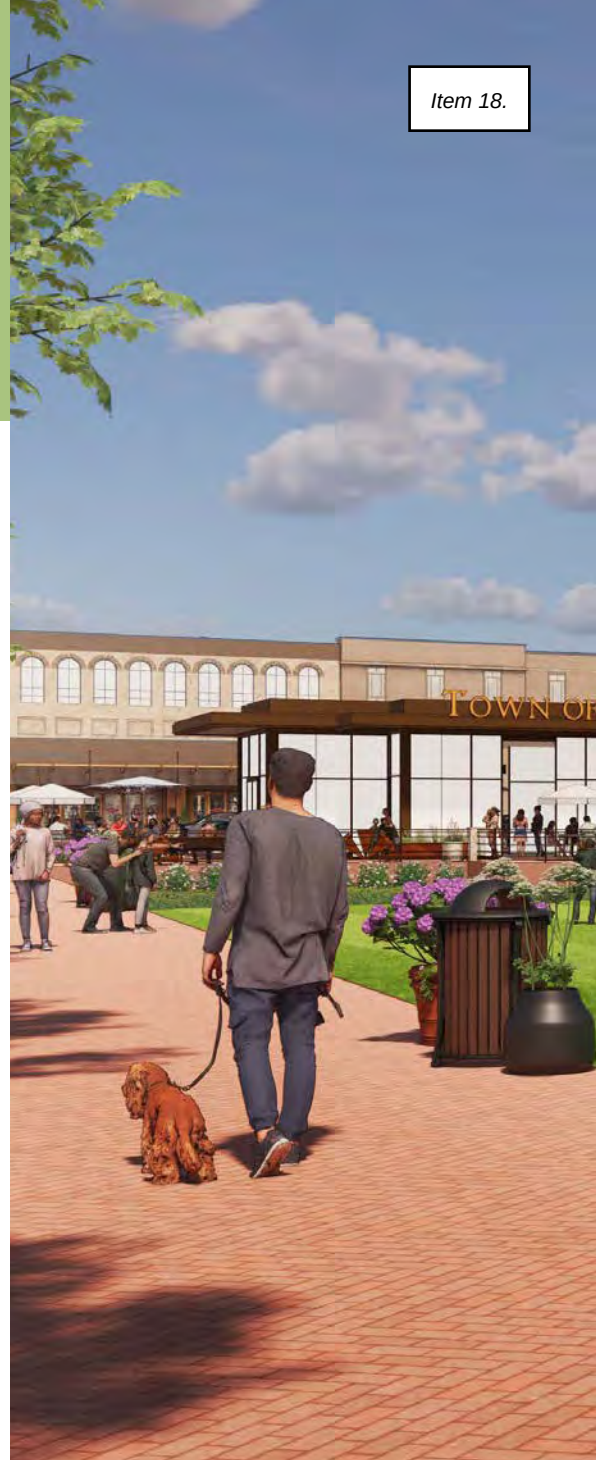
The following pages expand on these and illustrate the detailed vision for each.

CHARACTER, PLACEMAKING & OPEN SPACE
Town Green

Development of the Town Green will create both a "backyard" for the Town Hall, while also creating a terrific new gathering space for both active and programmed uses as well as create a terrific large open play and recreation spaces for residents.

Large events, festivals and community celebrations that characterize Prosper will occur here, as will concerts from the performance area on the western end. It will be a "backyard" for the community as well - become a favorite for a pick up Saturday morning soccer game or flying kites on a Sunday afternoon.

The park numerous areas for residents and visitors to gather, shade to help keep it comfortable, and all of it will be branded to reflect downtown Prosper.



PROSPER
Stantec

CHARACTER, PLACEMAKING & OPEN SPACE

Downtown Plaza

The Downtown Plaza will become a special place for visitors to gather, relax, and catch up on life. Detailed design features and elements from specialty paving patterns to public art will create interest and further reinforce the character of downtown. Shaded seating areas, furnishings, a small open lawn, and flower gardens will add the charm and comfort that will help activate it.

It also serves as an addition space local for small events and programming. The Downtown Plaza will become the places everyone wants to pass by just in case there's an impromptu art show, area musician playing or a street performer in the act.

TOWN OF
PROSPER

CHARACTER, PLACEMAKING & OPEN SPACE

Downtown Connector

Friday night food trucks, a weekend farmer's market, or a Saturday art show are examples of low-cost events that could be routinely programmed in the Downtown Connector to help create routine visitation downtown. This linear public plaza would feature large, paved areas for things such as event tents, vendors, and allow for the supporting equipment smaller events require. Numerous smaller and more intimate gathering spaces have been incorporated for informal use, and to provide a place to sit and socialize.

A pavilion adds protection from rain and sun, while a flower garden creates more interest and softens the plaza. Ample space is here to support things the Town may later desire - an information kiosk, public restrooms, or a docking for a bike rentals. Equally important as the design, the Downtown Connector links the Town Green with the Downtown Plaza while also creating great visual interest along the street.

TOWN OF
PROSPER

The GARDEN

ROCKRUNNER

Pettis' Plaza

Urban Farm
Urban Farm

Catalyst Redevelopment Sites

The robust growth in Prosper and existing developer interest will help the Town realizing downtown redevelopment sooner rather than later. Four sites within downtown have been identified as ideal catalyst projects to build momentum. One of these, Catalyst Site #1 is currently in the development planning process.

These sites have been conceptually developed in the following pages and developed within the broader framework of this Master Plan. These sites build off the previously identified public open space and placemaking projects, and will require changes within the existing zoning code and development parameters.

Detailed recommendations contained within the next chapter provide all of the action steps necessary to support these sites however, they are primarily related to frontages, design standards, and may likely require some form of gap funding or incentive to initiate.

In addition to the design and overall aesthetics of these sites, changes to the current parking requirements and establishing a shared parking strategy (further outlined in the following pages and in the recommendations) will help in minimizing cost to developers, construction of excess parking, and reduce the amount of gap funding or incentive required.

Each of these sites have been developed to be stand alone developments however, they collectively have a range and mix of uses that will support the overall redevelopment of downtown.

Combined, the four catalyst sites will create a compact critical mass of residents and expand the existing business community to have meaningful impact on the activation of downtown.

The table below summarizes the overall development impact these sites will have, and the following pages elaborate further.

DEVELOPMENT USE:	SQ. FT.	UNITS
RETAIL / RESTAURANT	95,200	N/A
OFFICE / EMPLOYMENT	25,000	N/A
RESIDENTIAL	105,60	277
HOTEL / LODGING	24,000	30

CATALYST SITES
Site 1

The redevelopment of Catalyst Site #1, including it's silo renovation into a hotel with design and development plans underway will stimulate additional development interest and add activity to the terminus of Broadway Street. Incorporating retail and restaurants will expand the offerings of downtown, help active nightlife, and be an amenity for hotel guests.

The outdoor dining and bar area will help add street activity and attract others visiting downtown. Overflow into the planned open lawn and gathering area will create a unique appeal to this development site and allow for programming by the businesses located in it.

Site Features:

Site Area:	139,697 sq. ft.
	3.21 acres
Uses:	
Retail / Restaurant / Ent.	30,200 sq. ft.
Hotel / Lodging	30 keys / rooms
	24,000 sq. ft.
Gross Floor Area:	54,200 sq. ft.
Floor Area Ratio:	39%
Surface Parking:	211 spaces
	73,920 sp. ft.
	1.70 acres

unflower Grill
SILO PARK
HOTEL

CATALYST SITES
Site 1- alt.

During the master plan process, the owner of Catalyst Site 1 has begun plans for future redevelopment. Many of the features included in these plans reflect the vision developed during this planning process. Key features will included a central lawn, adjacent multi-story "container" buildings with view below, preservation of the silo as an identifying feature, and will include a hotel along with restaurants and retail.

Pettis' Plaza
Danies

CATALYST SITES
Site 2

The second catalyst site is the largest of the four private projects identified in the Master Plan and has the greatest amount of development opportunity. This site is preliminarily programmed to include 200 residential units which will help in adding daily foot traffic and spending within downtown. This project, due to it's size, will also help increase the awareness of market opportunity in downtown as a true mixed-use community.

A modest amount of ground-floor retail has been included in the proforma to continue increasing opportunity downtown. This project will line a parking garage that will serve its residents and could be developed in conjunction with the Town to also provide public parking. Overall parking spaces within the garage could be reduced by utilizing a shared use parking approach.

Site Features:

Site Area:	215,021sq. ft.
	4.94 acres
Uses:	
Retail / Restaurant / Ent.	24,000 sq. ft.
Residential	200 units
	117,600 sq. ft.
Gross Floor Area:	201,600 sq. ft.
Floor Area Ratio:	94%
Structured Parking:	490 spaces
	3.93 acres

The GARDEN
PROSPER
EVERYONE MATTERS
Stantec

The GARDEN
Stantec

CATALYST SITES
Site 3

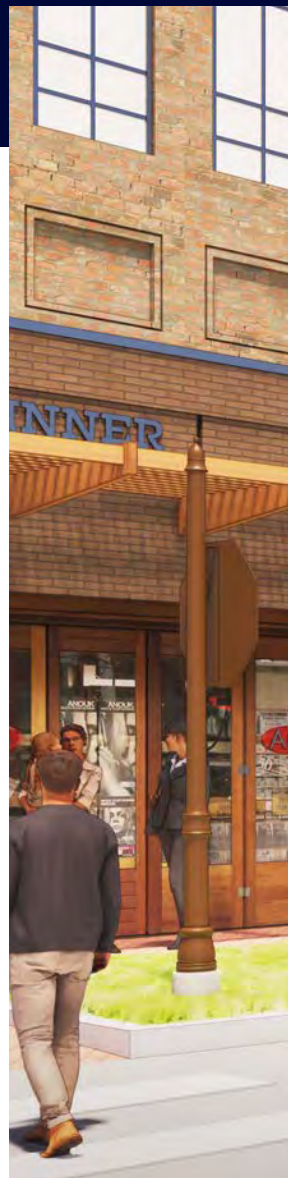
New retail, office and maker space will expand downtown with development of Catalyst Site #3. Unique to this development program is the maker space and the live-work Townhomes proposed that would help in fostering new business startup beyond restaurant and traditional retail. This will also provide an additional type of housing product within downtown and expand it's overall appeal as a place to live too!

At the south end of downtown it will not have the same foot traffic other parts of downtown receive and should be designed with a frontage along First Street that attracts passer-by's to stop with features like storefronts and outdoor cafe seating. Commercial tenants in this development will likely benefit from events and programs at the Town Green and the frontage along Crockett Street should be designed to welcome them.

Site Features:

Site Area:	201,813 sq. ft.
	4.6 acres
Uses:	
Retail / Office / Flex	50,000 sq. ft.
Residential	49 units
(Live-work / Townhome)	108,600 sq. ft.
Gross Floor Area:	158,600 sq. ft.
Floor Area Ratio:	79%
Surface Parking:	270 spaces*
	98,814 sq. ft.
	2.26 acres

*Townhomes are self-parked.



ROCKRUNNER

CATALYST SITES
Site 4

The last of the private development catalyst sites will provide commercial street frontage along Main Street and incorporate an additional 32 residential units.

Commercial uses in this development are anticipated to include both retail and office. The incorporation of both Townhomes and lofts, somewhat similar to the previous site, will continue expanding the residential product mix within downtown. The preliminary program assumes some portion of these will be rental units and suitable for Airbnb or similar short term rental program. Nightly or other short term rentals (such as hotel rooms) can be beneficial for a downtown as visitors typically spend throughout the day from morning coffee to evening dinner and drinks.

Site Features:

Site Area:	88,566 sq. ft.
	2.03 acres
Uses:	
Retail / Restaurant / Ent.	16,000 sq. ft.
Townhomes (rental):	20 units
	32,000 sq. ft.
Lofts / Airbnb (rental):	8 units
	12,800 sq. ft.
Gross Floor Area:	60,800 sq. ft.
Floor Area Ratio:	69%
Surface Parking:	140 spaces
	49,060 sq. ft.
	1.13 acres

Urban Farm

Urban Farm
small
TOWN
big

Land Use & Housing

Downtown Mixed-Use District

Zoning districts within the downtown area are primarily Single-Family, Commercial / Retail, and Office / Service. Multi-Family development is currently underway with more anticipated in the future. These districts are each subject to urban design standards that are applied on a parcel by parcel basis. This approach, while beneficial in many areas, is overly prescriptive and restrictive in mixed-use redevelopment projects.

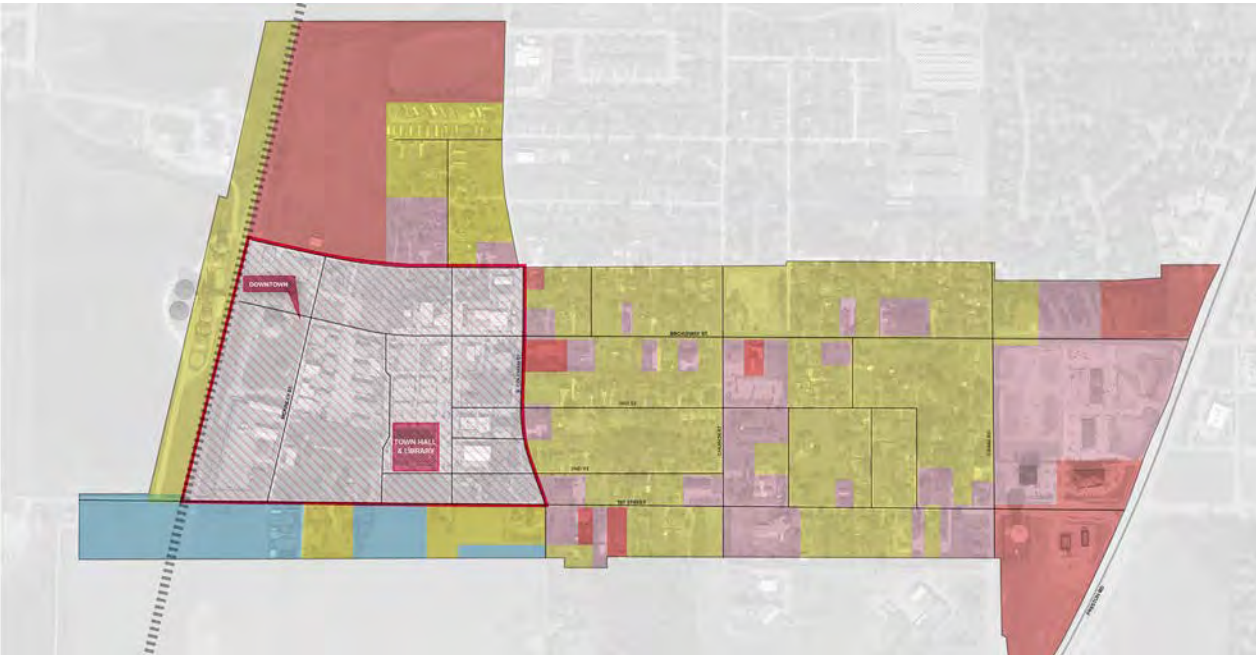
For downtown to have the flexibility to support mixed-use development and be receptive to market changes, a broader approach would be more suitable. This could be done through the creation of a new zoning district, such as Downtown Mixed-Use District. While a stand alone district will be the most user-friendly, an interim option is the creation of an overlay district. The catalyst sites have been developed with this approach in mind.

This approach would focus more on building frontages, overall mass and height allowing greater flexibility for developers to build their projects while also meeting and reacting to market demand.

Supplemental to this district would be creating detailed design guidelines that specifically focus on building appearance and street frontages. While Texas State Statue prohibits broad application of detailed design standards, incorporation of these as a requirement to receive any type of Town or EDC incentives is allowable.

The Neighborhood Empowerment Zone (NEZ) already in place will support this and implementation of future incentive funding sources as outlined in the recommendations should mirror this.

The Downtown Mixed-Use District should generally include the area identified in the map below.



Where We Are Going: Downtown Mixed-Use Zoning District

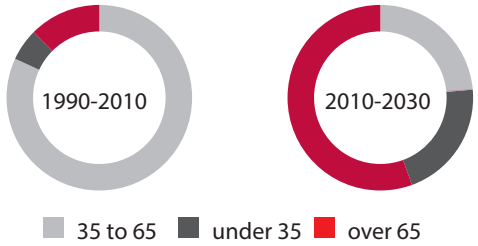
Mixed-Use & Multi-Family Housing

Prosper is benefiting from the tremendous growth it has experienced over the last several years with housing as the key driver. This growth is anticipated to continue as th e Town is an increasingly desirable home market for those commuting to Dallas and other nearby cities. As communities compete for growth, increasingly the access to a local urban downtown is a key decision maker for many residents. Additionally, knowledge economy residents (also typically higher income earners) tend to gravitate towards areas that an urban component, which in turn helps to attract more jobs.

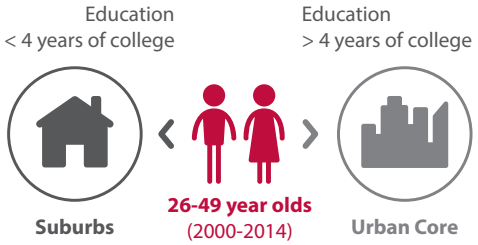
Although Prosper has been primarily occupied by single-family housing, an increasing demand for mult-housing within proximity of downtown will become more commonplace, and should be encouraged.

Many different kinds of people seek out urban living with easy access to amenities and services. These groups can include retirees, young professionals, and childless adult couples. For those living within close distance of downtown their spending is an equally powerful tool in growing the downtown economy. On average, every 1,000 new housing within comfortable walking distance will activate one block of traditional "Main Street." The catalyst sites in this plan that include housing will already account for more than 1/4 of that number. The new multifamily housing developing to the north and within walking distance of downtown will add to that. Embracing additional mixed-use housing in downtown will drive resident investment while also supporting commercial development.

The Downtown Mixed-Use District as mentioned on the previous page will focus development standards on the overall form and appearance of new buildings and should encourage (or incentivize) integration of varying housing sizes and price points. Conventional requirements such as minimum residential unit size and Floor Area Ratio should be excluded from this zoning classification and not a part of any development approval process. A developer will not build what the market won't support.



Through the 2030s, the clear majority of newly formed households in North America will comprise individuals or couples, groups that strongly prefer urban-style multifamily housing.



Knowledge workers want to live in lively urban places. Where they cluster, jobs and investment follow.

62%
of US household stock is **single family**

22%
of US households are **married couples**

To satisfy growing demand for housing in urban settings, the US alone will need to create tens of millions of walkable, multifamily units by the early 2030s.

Parking

The catalyst sites developed with the master plan committee will introduce more than 120,000 sq. ft. of restaurant, office, and retail uses and more than 240 residential units downtown and require the parking to support them.

In general, parking requirements are based on the use and a method of calculating parking spaces per square footage, tabletops, bedrooms, etc. Conventionally, where multiple commercial uses are adjacent these parking requirements stack, and subsequently assume that each business and residence will need all of it's parking at every hour of the day.

This approach becomes less effective in managing parking needs as more businesses or mixed-use residences are developed with a shared parking field or structure as simply no one business or residence will actually need all of it's parking at every hour of the day.

In downtowns this becomes even less effective and challenging as there are typically many areas to choose from to park with many different uses that span the clock. Downtowns also benefit from visitors going to multiple businesses within one trip, further minimizing potential demand. More so, land in downtowns have high value and creating excess parking consumes this valuable land, reduces opportunity for development of buildings or public spaces. Additionally, if structured parking is built it comes at a very high cost.

Catalytic Sites Parking Demand Modeling

Land Use Type	Units	Catalyst Concepts				Total
		Catalyst #1	Catalyst #2	Catalyst #3	Catalyst #4	
Office	Sq. Ft.			25,000	4,000	29,000
Retail	Sq. Ft.	15,100	12,000	12,500	8,000	47,600
Restaurant	Sq. Ft.	15,100	12,000	12,500	8,000	47,600
Apartments / Townhomes	Units		200	12	30	242
Hotel	Units	30				30
Proposed Parking Supply	**Spaces**	**211**	**490**	**270**	**130**	**1,101**

Street Name	Units	Total
Unshared Peak Demand	Vehicles	**1,008**
Shared Peak Demand (No Context)	Vehicles	**844**
Shared Peak Demand (with Context)	Vehicles	**766**

Catalytic sites program is an oversupply of up to 330 spaces (unless shared with the existing downtown at higher activity levels.

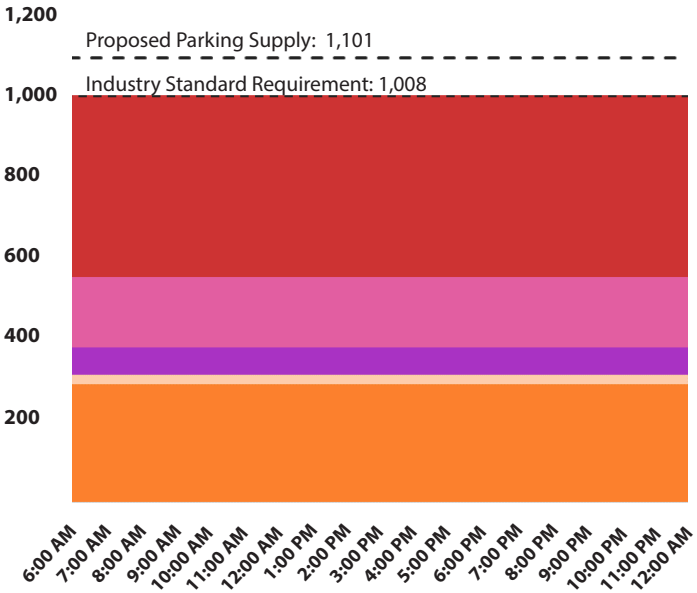
Based on concern by the committee there may be inadequate parking required in the development of the catalyst sites overall parking was slightly elevated during the proforma development to program a highest case scenario. In doing so, the catalyst sites would collectively require 1,101 parking spaces. This requirement is somewhat higher than generally industry standards which would total 1,008 spaces.

To accommodate for the mix of uses, hours of operation, adjusting for people who walk from business to business, and including those that may bike or walk downtown can be applied to develop a more practical parking requirement. Factoring these considerations in, the same catalysts sites with a shared parking scenario without the context of people visiting multiple businesses, would require 844 parking spaces. Further applying this and factoring in those who will visit multiple businesses, this parking requirements reduce to 766 parking spaces.

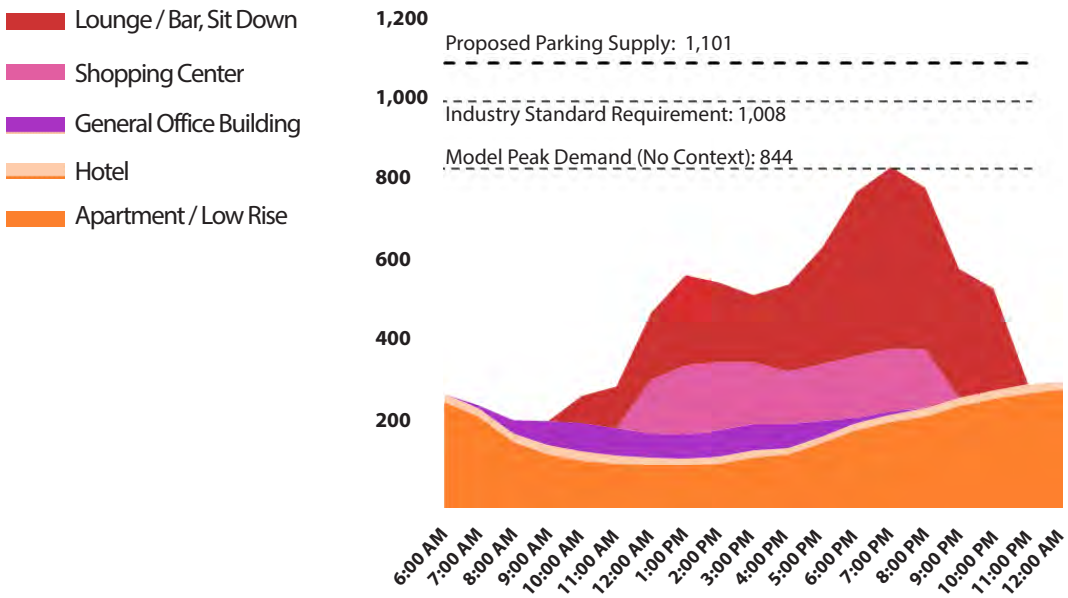
The difference between the parking spaces required based on current standards and a shared parking scenario with context is 335 spaces. This total becomes even more significant as communities or developers require parking structures. Generally, a structured parking space is roughly $15,000 more per space than a surface parking lot. Assuming just half of those 335 saved parking spaces were accommodated in a newly built parking garage (168 spaces), the increase in cost to the city or developer would be $2,520,000. Shared parking programs better accommodate actual demand, reduce land consumptions, and reduce costs.

Detailed parking recommendations are included within the appendix.

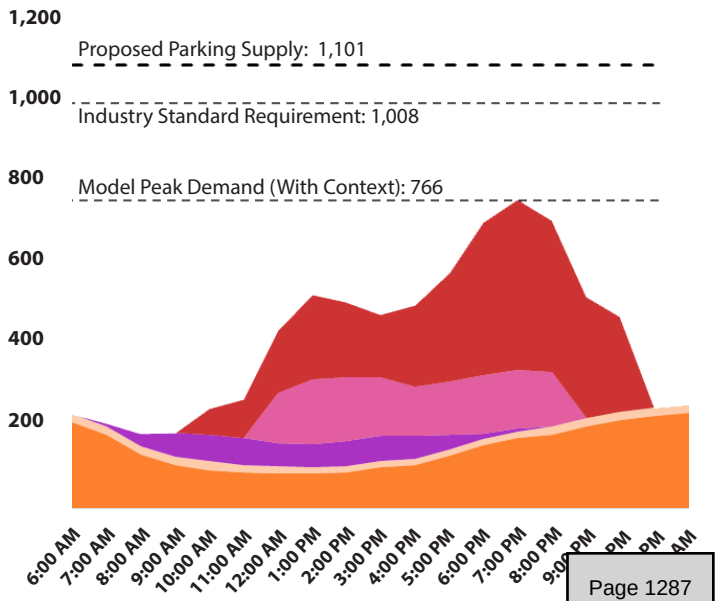
Standard Parking Analysis



Parking Demand & Time of Day



Parking Demand with Context



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HOW WE GET THERE: RECOMMENDATIONS

05

Implementation Strategies

The implementation plan for downtown follows the six primary plan pillars; political, organizational, regulatory, physical, financial and market. Collectively, these actions will support the overall plan implementation, catalyst sites, and reflect the guiding principles of the plan. Each pillar has numerous actions, some of which will have repetition with those in other pillars. Each action has also been identified as low, medium, or high priority, and suggested responsible sponsors for leading or supporting the plan implementation. These should be reviewed an updated periodically including identifying other organizations, committees or individuals that may also be action sponsors.

Many of the actions identified will have limited cost and be accomplished by staff or through standard municipal practices. Others will require more substantial cost and resources will have to be identified. Within each of these there may be additional actions required however, this plan proposes the broad framework.

The diagram on the adjacent page states the strategy for each of the pillars. The following pages include a snapshot of the most critical short term actions and most likely funding sources to support the overall redevelopment. Following these are detailed recommendations. As the plan implementation proceeds, these should be evaluated and considered in the context of available resources (time, staff, funding, and the funding strategy) of the Town, PEDC, and others.

The most important part of implementation is to begin!

REGULATORY

Provide and support the necessary regulatory framework that will enable development of the plan.

PHYSICAL

Support the development of private and public projects within downtown that will create the vision established in the plan.

ORGANIZATIONAL

Build and support an organizational framework that will empower/enable successful plan implementation.

FINANCIAL

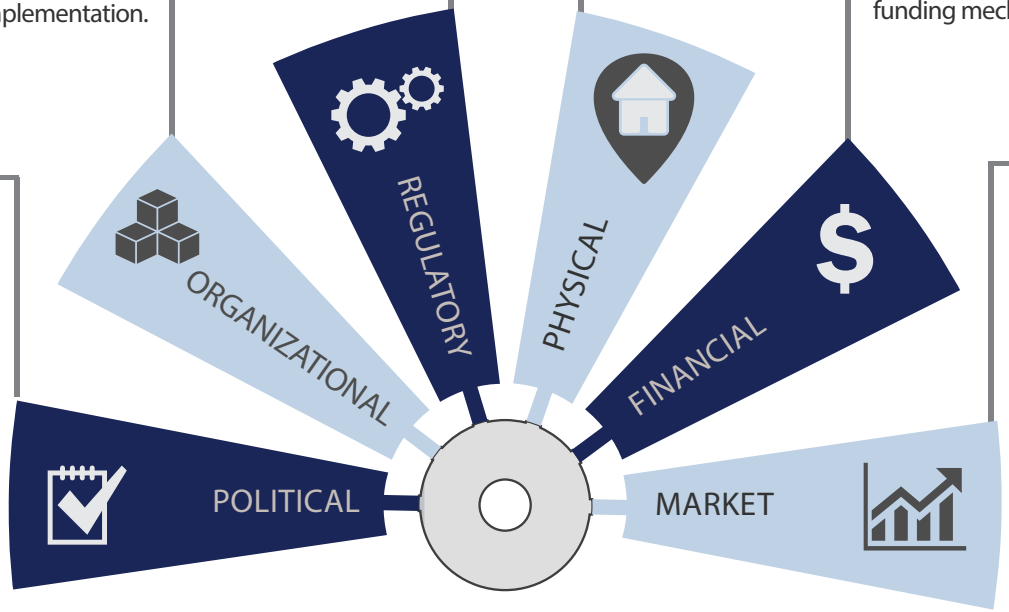
Actively pursue all options within the Town's resources to establish and provide dedicated funding mechanisms for plan implementation.

POLITICAL

Ensure there is a continued understanding by elected officials of the importance of downtown, including economic, and that there is consistent support of the plan including allocating funding and staff resources as a part of the Town's role

MARKET

Commit to investing the resources and creating partnership necessary to attract and support new project and business development opportunities.



Implementation Strategies

Implementation Snapshot

Funding

The Town has a solid and growing tax base that will serve it well in supporting continued investment in downtown and funding the catalyst open space and placemaking projects developed in the Master Plan. One of the best ways to maximize the Towns' investment is through identifying projects with a grant strategy. This means, evaluating all of the potential projects and identifying which elements may in any way fall within various grant program criteria - and this may include creative uses. The next step is then identifying the ways in which potential grants can be layered to increase the overall amount of dollars accessed. The Grants section located within the Appendix further discusses this.

More specifically to the downtown Master Plan, five grant programs have been identified that could directly support investment in each of the open space catalyst sites and overall public realm investment and should be where the Town focuses its funding pursuits.

Grant Program	Agency	General Uses
Local Parks Grants	Texas Parks and Wildlife Dept. (TPWD)	Development, renovation or redevelopment of outdoor recreation facilities including property acquisition.
Governor's Community Achievement Awards	Keep Texas Beautiful & Texas Department of Transportation	Landscaping along public right-of-ways.
Texas Commission on the Arts	Texas Commission on the Arts	Broad range of uses to incorporate art within projects with a construction cost exceeding $250,000.
Healthy Kids, Healthy Families	Blue Cross Blue Shield of TX	To support the health and well-being of children and families through various focus areas including physical activity.
Public Works and Economic Adjustment Assistance Program*	U.S Economic Development Administration (EDA)	Funds construction, non-construction, and revolving loan projects to leverage existing assets and fund key public infrastructure projects to support economic development strategies.

**Note: Various federal grant programs generally only apply to distressed communities however, since the onset of the Covid-19 pandemic, all communities now meet this eligibility criteria. It is anticipated this will continue for the foreseeable future.*

Priority Recommendations

Downtown Zoning

Establish a new Downtown Mixed-Use Zoning District to support mixed-use development including design guidelines to the extent allowable by Texas Statute. This should include shared uses and facilities including parking.

Downtown Manager

Hire a qualified downtown manager and allocate an annual budget for this position to work with existing businesses, create and manage downtown events, promote and market, and, among other things, act as the dedicated advocate for the redevelopment of downtown.

TIRZ

Create a Tax Increment Reinvestment Zone (TIRZ) to provide a funding mechanism for capital investment and providing incentives.

Promote Downtown

Develop a marketing plan to promote downtown business, activities, and development opportunities.

Design Guidelines

Establish enhanced design guidelines that are supplementary to the new Downtown Mixed-Use Zoning District that reflect the desired character of downtown Prosper and will be used in evaluating incentive awards to private developers.

Development Incentive Programs

Develop a user friendly policy and protocol for the award of incentives as part of the Neighborhood Empowerment Zone (NEZ) to developers investing in downtown. This award criteria should factor in use of the design guidelines.

Parking Management

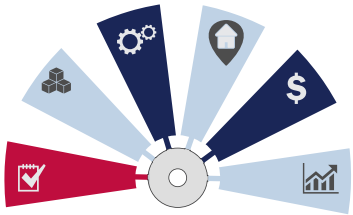
Establish a parking management program that tracks existing available parking, actual parking demand, future parking spaces through approved development projects, and continue to evaluate reduced parking standards to be incorporated into the Downtown Mixed-Use Zoning District. This should also include future assessment of parking revenues if implemented such as parking meters or future garage fees.

Business and Community Grants

Allocate funding to support attraction and investment of locally based business for costs such as tenant build-out, business and marketing training, and co-op advertising. Funding should also be allocated to community based organizations seeking assistance to host special events downtown that will attract visitor spending.

Recommendations: Political

As explained above, local government plays a critical role advancing area-specific redevelopment efforts, as the entity with the largest and longest-term interest. This said, the Town will need to have a visible and ongoing presence and provide sustained public support for revitalization of downtown Prosper. It will need to provide leadership, and partner with other agencies to eliminate investment obstacles, and capitalize on investment opportunities. As such, the Town will have the ongoing legal responsibility to address many of the implementation elements of the plan and be the logical conduit to supplemental public and private resources. Also important, the private sector will be looking to the Town and its advocacy partners for consistency in its commitment to a long-term vision for downtown that is reflected in its policy and funding decisions for the entire community. Presented below is a representative list of political issues impacting investment decisions in the downtown area.



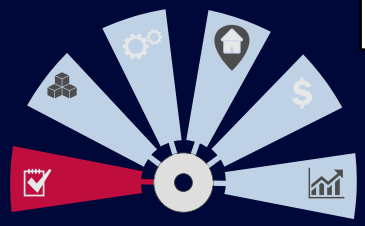
POLITICAL

Strategy

Ensure there is a continued understanding by elected officials of the importance of downtown, including economic, and that there is consistent support of the plan including allocating funding and staff resources as a part of the Town's role.

Key Recommendations

1. Provide a commitment the Town will remain focused on the redevelopment of downtown, including supporting necessary regulatory changes as well as allocation and pursuit of funding.
2. Establish an incentive program that will attract private investment to downtown and to be used as a tool to ensure that future development is compatible with the vision the Town desires. These incentives may range from landscape and facade improvement grants to shared infrastructure costs, such as parking or utility improvements.
3. Spread the word on the positive things Prosper is doing to activate downtown in every available communications channel from in-person discussions with community organizations to social media and constituent newsletter updates.



The greatest influence on the success of a redevelopment plan is the consistent political support behind implementing the adopted plan and funding it's implementation actions. Prosper is in the early years of redevelopment, and this plan will span many election cycles. It will be essential that current Town Council supports the adoption of this plan, and that future council members are well educated on the plan, it's goals, the work that has been done, and the work that is yet to come.

This support will be necessary in approving actions initiated by the Town staff such as regulatory changes or proposed budgets, and in providing direction for plan implementation actions that must come from the Council. This also includes committing annual funding towards plan implementation. This funding will span many areas of the plan implementation from potentially hiring a Downtown Manager, funding special event grants, and investing in capital projects such as streetscapes and public plazas.

It will be important that the Town staff and all key stakeholders consistently inform the Council on downtown progress, events, and future initiatives and engaging with future elected officials to ensure they support downtown and the plan from the beginning.

!!!	High / Short Term Priority	$	Under $50,000
!!	Medium Term Priority	$$	$50,000 to $250,000
!	Low / Long Term Priority	$$$	Over $250,000

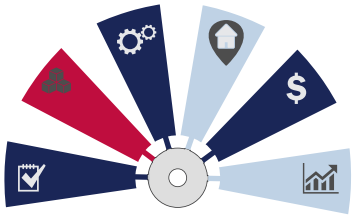
Recommendation	Priority	Cost	Sponsors
Town policy. Memorialize a Town policy that expresses an ongoing commitment to redevelopment of downtown, along with support for growth management policies that are balanced, and the pursuit of effective public-private partnerships, collectively reflected in Council priorities.	!!!	$	Town Council Town Staff
Incentive policy. Prepare and adopt a community wide, and downtown-specific, incentive policy to support private development, along with criteria for identifying and evaluating projects deemed meritorious and able to advance the recommendations of this Master Plan. These should range from smaller scale landscape and facade improvement grants to larger scale shared infrastructure funding such as parking structures that provide a public parking element or enhancement of existing utilities.	!!!	$	Town Council Town Staff

Recommendation	Priority	Cost	Sponsors
Informational activities. Involve the Town's leaders in routine updates, events, programs, and discussions to ensure they remain engaged and interested in continuing to support downtown redevelopment activities, and that this information is shared by the Council to others.	!!!	$	Town Staff PEDC Business Alliance Prosper Chamber Town Council
Comparative communities. Identify examples of communities with similar project components for elected officials to tour to help visualize redevelopment initiatives and maintain support for implementing the plan. Key Town staff, stakeholder organizations and community members should participate in these as well if desired.	!!	$	Town Staff PEDC Town Council
Informational sessions. Schedule a series of informational meetings with the Town's leaders regarding a variety of topics reflected in the vision and Master Plan such as need for a diversity of housing product types and their real impact (social, monetary, fiscal, value), as well as why current conditions (demographic and psychographic) support certain development products, both downtown and community-wide, i.e., Rowlett, TX.	!!	$	Town Staff PEDC Prosper Chamber Town Council
Streamlined entitlement review. Establish eligibility criteria for streamlined entitlement review and approval processes, among them, the project location in downtown, size or value thresholds, complexity of financing, diversification of product offerings, and others. (Expand on the Town's current use of a "Go-Team" of departmental representatives which shepherd development applications.	!!	$	Town Staff
Measurement benchmarks. Work with the Town's leaders to establish criteria (or benchmarks) that will be used to measure the impact of certain redevelopment initiatives going forward (memorialize and update them to ensure ongoing support).	!	$	Town Staff PEDC Town Council

PILLAR

Recommendations: Organizational

Downtowns in municipalities of any size require an advocacy entity with a sole purpose – growing and maintaining a healthy community core. While it can be difficult to finance this type of position or organization, particularly in the early years of a redevelopment initiative, mid- to long-term it will be imperative that any momentum created in early phases are not lost when Town staff's responsibilities in other areas make it impossible for them to spend the hours necessary to continue advancing the plan.



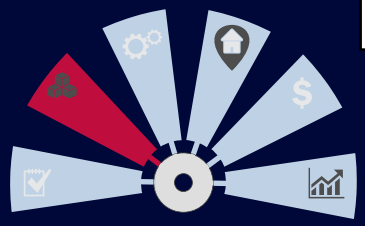
ORGANIZATION

Strategy

Build and support an organizational framework that will empower/enable successful plan implementation.

Key Recommendations

1. Formalize the organizations that will be responsible for implementing the Master Plan, including those such as the Downtown Business Alliance, that may have greater roles as downtown redevelopments.
2. Establishing clear roles, responsibilities, expectations, milestones and monitoring for completing the actions each organization or individual commits to participate in implementing.
3. Develop a clear communications protocol for prospective developers or business owners within the formalized stakeholder organizations. This should include all aspects of downtown redevelopment including design guidelines, planning and permitting processes, incentives, special events, downtown programs or other initiatives, and capital projects, among others.



Downtown redevelopment will take time and will be most successful when implemented by a strong organizational system of organizations and people that have the resources available to implement the plan or will benefit from downtown's reinvestment.

Generally, these will be led by the Town or City making the greatest commitment followed with key partners such as the / an Economic Development Council, Tourist Development Council, Chamber of Commerce, the Citizen's Academy, and a Business and Property Owners Alliance (over time this entity will increase it's role and may eventually transition into the leading entity guiding redevelopment) , along with others that may have a goal or general interest in driving investment and visitor spending downtown. Each of the key entities should champion specific components of the redevelopment plan that are best aligned with their mission and goals. Developing clear expectations and milestones are critical for all to be accountable and committed to the overall effort, and a clear communication plan along with identification of specific roles should be agreed to.

It will be important that each entity and their staff or respective departments understand the organizations role and expectations related to downtown redevelopment, and processes be in place for coordination among different staff members within each organization and among the others.

!!!	High / Short Term Priority	$	Under $50,000
!!	Medium Term Priority	$$	$50,000 to $250,000
!	Low / Long Term Priority	$$$	Over $250,000

Recommendation	Priority	Cost	Sponsors
Formalize stakeholder organizations. Establish the structure for those that will have a key role in supporting and implementing the Master Plan, including the Downtown Business Alliance, PEDC, Chamber of Commerce, Citizen's Academy, and others if appropriate. Within each, identify the primary point of contact for all matters related to downtown and it's redevelopment.	!!!	$	Town Staff PEDC Prosper Chamber Business Alliance
Identify clear roles. Each key stakeholder organization should identify specific plan implementation actions that they have the resources and will commit to advancing. There may be multiple entities that support various actions. In this process, establish realistic milestones, identification of other support needed by the sponsor organization and where those resources may come from. Commit to collectively monitor implementation successes and areas that need additional support.	!!!	$	PEDC Prosper Chamber Business Alliance Town Staff

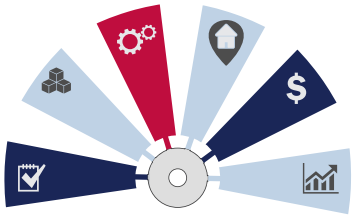
Recommendation	Priority	Cost	Sponsors
Communication plan. Develop a clear communication plan among the key stakeholder organizations and ensure organization staff and departments understand this and the importance of it. For example, a developer may contact the PEDC about a potential project site and permitting requirements. PEDC staff should have a specific developer liaison within the Town that the developer may be introduced to as their development liaison. This communication also includes disseminating information for review or informational purposes by multiple organizations such as development proposals, incentive application requests, marketing initiatives, and community event or festival programs.	!!!	$	Town Staff PEDC Business Alliance Prosper Chamber Town Council
Main Street Texas. Engage with Main Street Texas and evaluate the eligibility of downtown Prosper for nomination as a Texas Main Street. Dedicate staff resources to pursue and identify appropriate partners to implement Main Street actions, most likely the Downtown Business Alliance which should be formalized as a key stakeholder organization.	!!	$$	Town Staff Business Alliance
Town department support. Engage the Town departments in the downtown redevelopment process and build support within to ensure departments work collaboratively on all aspects of redevelopment, including public capital projects, private development projects, expedited permitting, inspections, special event approvals, and other initiatives impacting downtown.	!!	$	Town Staff
Event guidelines. Work with the Development Services Department and Parks and Recreation Department to establish specific event guidelines specific to downtown, preferred event areas if located in the public right-of-way, and expedited review and approval process.	!	$	Town Staff
Additional organizations. Identify additional organizations that may have an interest in supporting continued investment in, and visitor attraction to downtown, and determine their greatest resources and ways to be involved. These may include large entities such as Travel Texas or smaller locally and regionally based entities such as business incubators, large developers, or private foundations.	!	$	Town Staff PEDC

Recommendation	Priority	Cost	Sponsors
Citizens' academy. Continue supporting the citizens' academy program to grow civic awareness among area residents, business and property owners, institutional representatives, and others invested in Prosper's success, that allows for networking and small group interactions, and provides Town officials with a forum to share and receive information on topics such as priority initiatives, market forces, fiscal realities, and others impacting the Town and region.	!	$	Town Staff Business Alliance Residents
Ambassador program. Within the citizen's academy program and/or Community Engagement Committee, develop an ambassador component for participation during community events or at peak times to welcome visitors, provide information on items such as parking, public restrooms, event, or area activities, etc. This should be developed under or in conjunction with the Downtown Business Alliance and direction of a future Downtown Manager.	!	$	Town Staff Business Alliance Residents

PILLAR

Recommendations: Regulatory

In the context of this discussion, public policies, regulations that inform land use and development, and design standards, are all considered in this category. Among the most effective tools municipalities use to foster a sustainable downtown environment are growth management programs that reward efficient development patterns, and codes that are flexible and encourage creative solutions. (Note: There are reports that certain businesses, including a potential restaurant, was lost due to parking requirements.) When growth is allowed to occur in a land intensive and sometimes inefficient way that ultimately subsidizes lower densities, redevelopment efforts tend to operate at a competitive disadvantage, both financially and fiscally. While these types of policies may seem inconceivable or even infeasible for many Texas communities, Prosper's location in the Metroplex, and the fact that it is surrounded on all sides by other competitive communities, essentially land-locked and nearing buildout, makes them critical to ensure a sustainable diverse and high-quality mix of real estate targeted to the needs and preferences of existing and future population groups. Further, local efforts and the prioritization of resources, should reflect the same, with appropriate levels allocated between newly developing and redeveloping areas, and regulations consider the unique attributes and challenges of these distinctly unique environments.



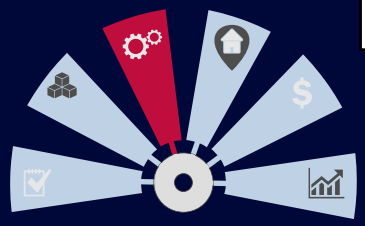
REGULATORY

Strategy

Provide and support the necessary regulatory framework that will enable development of the plan.

Key Recommendations

1. Establish a new Downtown Mixed-Use Zoning District to support mixed-use development including design guidelines to the extent allowable by Texas Statute. This should include shared uses and facilities including parking.
2. Establish enhanced design guidelines that are supplementary to the new Downtown Mixed-Use Zoning District that reflect the desired character of downtown Prosper and will be used in evaluating incentive awards to private developers.
3. Establish a clear development approval process and general guidelines for awarding various incentives (these may range from monetary to additional development approvals).
4. Develop a shared parking strategy for downtown.



Historically, many downtown's were developed before a time of significant development regulation that allowed for the level of activity and efficiency in development that occur. Today, mixed-use downtown redevelopment is most successful when the regulatory framework allows for a substantial flexibility while also framing the vision for a community.

Conventional codes addressing things like standard buffers or setbacks, parking requirements, prescribed uses, and stormwater are examples of those that cannot be applied in downtowns the way they are elsewhere in a community. Prosper has worked to support downtown redevelopment by adapting some of its zoning district classifications, which is a positive first step.

Building on what has already been done, identifying what has worked well and what hasn't, and integrating general downtown development realities into future actions and plans will help result in predictable redevelopment that will bring the vision for downtown Prosper into reality.

!!!	High / Short Term Priority	$	Under $50,000
!!	Medium Term Priority	$$	$50,000 to $250,000
!	Low / Long Term Priority	$$$	Over $250,000

Recommendation	Priority	Cost	Sponsors
Downtown mixed-use zoning district. Establish a new downtown mixed-use zoning district (or overlay) specifically for downtown west of Coleman Street with standards that will support mixed-use development in an urban context and will articulate the Town's vision for downtown. Creating a new zoning district will be more efficient than amending all existing codes and preferred by developers. If the Town objects, the existing codes should be amended. The downtown mixed-use zoning district should address elements such as building heights, frontages, setbacks (reduced), excluded uses, parking and shared parking, landscape, signage, fencing, lighting, back-of-house (dumpsters, equipment, and storage) and access, and loading zones, among others. This should also include controls for use of café and restaurant seating, "sandwich" board or other portable signage, and performances or other uses that may extend within the right-of-way.	!!!	$	Town Staff Town Council

Recommendation	Priority	Cost	Sponsors
Design guidelines. Incorporate design guidelines within the new downtown mixed-use zoning district (or overlay) and eligible for incentive funding that will articulate the specific building frontages and facades that fit the Town's vision. Clear and concise design expectations will help in attracting predictable development and simplify the design review and approval process.	!!!	$	Town Staff Town Council
Designated Business and Developer Program. Promote the Town's recently established Designated Business and Developers Program, and the overall efficiency of Town staff, design review, and permitting as processes are established or refined.	!!!	$	Town Staff PEDC Prosper Chamber Business Alliance Developers Town Council
Historic preservation. Establish a historic preservation element within the zoning code and specifically downtown west of Coleman Street to further support the application of design guidelines. This may include the establishment of a Historic Preservation Commission that will review an approve all exterior building permit applications within the defined area.	!!!	$	Town Staff Town Council
Incentive framework. Adopt a general framework for awarding funding or other incentives (such as bonus density) to ensure a minimum level of uniformity in awards and to assure residents and businesses that there is an established process that is fair and equitable in the Town goal of redeveloping downtown. Consider additional incentives for the appropriate rehabilitation of historic buildings rather than demolition and new construction.	!!!	$	Town Staff PEDC Town Council
Shared parking strategy. Adopt a shared parking strategy that allows for reduced parking requirements as part of an overall parking management and revenue system. This will require developers commit to participate in the shared parking program with other developers or allow contributions to a Town fund that may be used for future construction of on-street, surface, or garage parking. Reduced parking strategies provide financial relief for developers from creating excess parking beyond what will actually be needed and allows land to be used for a higher and better use. While reduced ratios in downtown acknowledge the opportunity of shared parking, the current approval process and stated restrictions against off-site sharing greatly limit this opportunity, such that the exiting regulations would still overpark demand.	!!!	$	Town Staff Business Alliance Developers Town Council

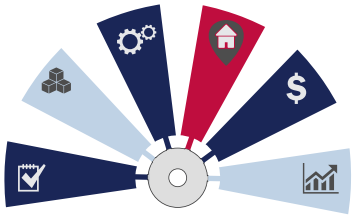
Recommendation	Priority	Costs	Sponsors
Short-term business permitting. Amend existing permitting requirements to accommodate short-term or pop-up retail, art, or other similar commercial uses in downtown storefronts that will allow property owners to offer short-term rental or lease agreements (monthly or quarterly) when no permanent tenants are in place and not require complete tenant build-out. For example, a vacant restaurant space could be used by area artists to showcase their work without any renovation required. Conversely, a local baker with appropriate licensure for the preparation and sale of food for consumption could use a vacant storefront for selling baked goods without requiring construction of a kitchen. This creates activity along the street frontage and promotes local entrepreneurs.	!!!	$	Town Staff Business Alliance PEDC Prosper Chamber Town Council
Old Town Transportation Plan. Update the Old Town Transportation Plan as downtown development and roadway designs proceed. Several street segments, specifically along East First Street, Broadway Street, Coleman Street, and McKinley Street appear to be misaligned with longer term redevelopment. Based on the current development pattern, it is anticipated there will be significant community resistance to on-street parking on these streets east of Coleman, and the frequency of curb cuts required to accommodate existing residences and buildings would minimize the benefit of parking gain. On-street parking may also be limited on Coleman north of Broadway and McKinley Streets as projects evolve. Bike lanes or shared-use lanes should be incorporated in all of the primary streets. Right-of-way's vary within roadways vary and will accommodate changes in road design as time evolves. As the Town begins capital planning for future roadway improvements, a review of current development patterns, conditions, and transportation need should be performed.	!!!	$	Town Staff Town Council
Streetscape master plan. Adopt a streetscape master plan for downtown west of Coleman Street that future development and redevelopment, including Town capital projects shall comply with.	!!	$	Town Staff Business Alliance Town Council
Public art. Adopt a public art contribution program and ordinance for all private and publicly funded new development or major rehabilitation projects within downtown. This may include establishing a percent-for-art fund where developers and the City (for publicly funded capital projects) pay into the fund in lieu of providing public art on the project site or area. Typically, this does not apply to standard interior renovation of existing buildings or routine repair, maintenance, and replacement of elements on an existing building.	!!	$	Town Staff Business Alliance Town Council

Recommendation	Priority	Cost	Sponsors
Parking regulations. Adopt downtown parking regulations and consider establishing a mobility enterprise that allows for short-term visitor parking and / or metered street or fee-based lots for daily use should those be desired. A process for parking and appropriate street signage for use during special events and street closures should be included.	!	$	Town Staff Business Alliance Town Council
Hike and Bike Trail Master Plan. As streetscape improvements are completed, including sidewalks, bike lanes, and the multi-path, incorporate or make appropriate modifications as may be needed to the 2020 Hike and Bike Trail Master Plan.	!	$	Town Staff Town Council
Thoroughfare Plan. As needed, update the Prosper Thoroughfare Plan based on redevelopment plan recommendations or as further design is completed based on need and development patterns at that time.	!	$	Town Staff Town Council
Parks, Recreation, & Open Space Master Plan. As downtown population increases, evaluate to the Parks, Recreation, & Open Space Master Plan and identify any future investment that may be warranted for a new downtown park, and update the Parks, Recreation, & Open Space Master Plan accordingly. Texas Parks and Wildlife requires parks master plans to be updated every 10 years. This update will allow the Town to remain eligible for potential grant funding.	!	$	Town Staff Town Council

PILLAR

Physical

Although the absence of physical improvements is a major obstacle to development in both new and established locations, the condition and capacity of existing infrastructure can be the chief hurdle for investment activity in downtowns and infill properties. Essential elements for any redevelopment initiative should include an understanding of infrastructure and utilities, and plan for completing necessary capital improvements. Also important will be a strategy for financing and introducing a variety of enhancements that collectively will -- reinforce the area's intended image and theme such as effective signage, and presence of public spaces (formal and informal), lighting and street furniture; and -- ensure success among its private development and operating uses such as ample and accessible parking facilities, off site and out of area shared improvements (i.e., detention facilities), and access to adjacent and region-serving connections (i.e., trails, bike routes, etc.). Whereas capital expenditures frequently have the biggest impact on the economic feasibility of a development project, and although they are generally considered an acceptable use for public sector resources, it can be harder for elected officials to justify expenditures (even incentives) for the repair or expansion of existing infrastructure rather than construction of new ones, that is unless the comparatively favorable fiscal return associated with investment in established locations is understood.



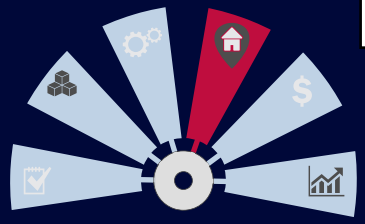
PHYSICAL

Strategy

Support the development of private and public projects within downtown that will create the vision established in the plan.

Key Recommendations

1. Develop detailed design drawings, cost estimates, and identify potential funding sources to begin the reconfiguration of Main Street, along with development of the Downtown Connector and Downtown Green.
2. Pursue funding and begin implementation of the previous recommendation as soon as possible.
3. Develop an overall public realm plan for hardscape, landscape, lighting, furnishings, signage and wayfinding.
4. Begin implementation of the previous recommendation as soon as possible within right-of-ways that will not be reconstructed within the short term. This also includes development of gateways, enhanced canopy coverage, as well as installation of sidewalks and improved lighting within the overall downtown area.



The physical redevelopment of downtown reflecting the vision of Prosper will result from the work and funding invested in the previous pillars. This will be the most important and will rely on both public and private investment and a genuine desire to realize the vision.

Public investment will be significant in improvements to streets, mobility, and public gathering areas along with providing the regulatory framework and where needed, the incentives, to ensure the build private development matches the vision. Private investment will need to have a solid grasp of the redevelopment goals, understand the complexities and uniqueness of downtown redevelopment, and a willingness to maintain a long-term view on what defines success.

Where possible, public and private investment should intersect and occur in a way that has the greatest impact on downtown and support one another. Building frontages, streetscapes, parking, utilities and other infrastructure will work collectively in creating the overall experience and maximize both public and private investment.

As projects are completed, they should be evaluated for their overall benefit in activating downtown. Lessons will be learned and it will be important to adapt over time to ensure that each project in the limited amount of land available has the greatest impact.

!!!	High / Short Term Priority	$	Under $50,000
!!	Medium Term Priority	$$	$50,000 to $250,000
!	Low / Long Term Priority	$$$	Over $250,000

Recommendation	Priority	Cost	Sponsors
Infrastructure and utility condition and capacity. In preparation for impending five-year review of impact fees, enlist Town staff from relevant departments to determine the condition and capacity of existing infrastructure and utilities. (Use knowledge gained to support any adjustment in the fee structure and provide an enhanced stream of revenue for construction and maintenance).	!!!	$	Town Staff
Capital improvement priorities. Prioritize capital improvements and aesthetic enhancements downtown (including undergrounding of overhead utilities or placement of any overhead utilities at the rear or non-street facing frontages) that support a system of shared infrastructure and have the capacity to leverage private investment, particularly in key locations of the district.	!!!	$$$	Town Staff Town Council

Recommendation	Priority	Cost	Sponsors
Downtown Plaza. Identify and incorporate opportunities for larger public gathering areas for programmable use such as removal of the northeast portion of the surface parking lot at Town Hall. This area could be highly designed with landscape areas, art, sculpture, and landscape gardens, play activity for children and families, water features, and should include ample shade and usable surface space for small programmed or impromptu events.	!!!	$$$	Town Staff Business Alliance PEDC Town Council
Crockett Street. Develop detailed designs and fund the improvement Crockett Street as a downtown street with sidewalks, lighting, landscape, and parking where appropriate and that is compatible with catalyst site development programs.	!!!	$$$	Town Staff Business Alliance Town Council
S. Main Street. Develop detailed designs and fund the reconfiguration of S. Main Street to include parallel parking on the east side of the street and remove the angled-parking on the west side between W. Broadway and W. Second Streets to increase usable space on the western side of the right-of-way.	!!!	$$$	Town Staff Business Alliance Town Council
Downtown Green. Develop detailed design and program plans and budget for construction of a Downtown Green located south of Town Hall between Crockett and Main Streets. The Downtown Green should include a large open lawn flexible for free play and also usable for large events and festivals. Features such as a stage, amphitheater, event, and equipment staging, restrooms, walking and gathering areas as well as hardscape to for use with event tents and vendors, or other pop-up uses. Functional elements including loading and unloading, trash and recycling, power supply, shade, and other elements must be included. This should be considered a signature feature of downtown.	!!!	$$$	Town Staff Business Alliance Town Council
Downtown Connector. Develop detailed design plans to connect the Downtown Green to W. Broadway Street with a formalized plaza in the space gained by reconfiguring W. Main Street (see master plan), and budget for implementation. This should include gathering areas, plaza space, clear pedestrian routes, areas for pop-up vendors and small events. It should be heavily landscaped to provide shade, include pedestrian and enhanced lighting, trash and recycling, ample power supply for uses and consider a semi-permanent or permanent structure for vending purposes and/or restrooms, visitor center, etc. This should be considered a signature feature.	!!!	$$$	Town Staff Business Alliance PEDC Town Council
Landscape design. Develop detailed landscape design plans for the streetscapes, including enhanced landscape for street sections where medians may be installed.	!!!	$	Town Staff Business Alliance Town Council

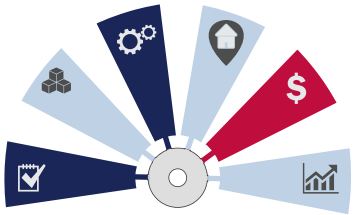
Recommendation	Priority	Cost	Sponsors
Parking strategy. Develop a near- and long-term parking strategy for public, private, and shared facilities, including spaces on-street and in alleyways, that reflects current conditions and potential pressures from a more intense level of development, increase in residences, and potential for destination uses.	!!!	$	Town Staff Residents Town Council
Branding. Engage a branding specialist to assist in developing the downtown "look and feel" that should be used in signage and wayfinding, gateways, streetscape furnishings, lighting, temporary signage such as for special events, and other features to compliment the overall aesthetic and define the downtown area. This theme should also be integrated into marketing and promotional material used for downtown.	!!	$	Town Staff Business Alliance PEDC Town Council
Furnishings plan. Develop a detailed street furnishings plan and budget to expand on what has already been installed and supporting the theme identified above. Ensure there are sufficient trash, recycling, seating, bike racks, and other furnishings to support the build-out of downtown. These program specifications may be used by the Town or developers as projects make right-of-way improvements.	!!	$$	Town Staff Business Alliance Town Council
Neighborhood improvement. Develop a neighborhood improvement plan for the residential portions of downtown to include the installation of sidewalks, pedestrian scale lighting (similar or same to commercial downtown), and shade trees within all right-of-ways. Require installation of sidewalks and street trees on all future residential developments.	!!	$$$	Town Staff Business Alliance Town Council
Signage and wayfinding. Design an overall signage and wayfinding program building on those already installed reflecting the character of downtown and feature signature elements such as the silos. These features should be elaborated at gateways, and there should be a distinction between the commercial and residential areas of downtown.	!!	$$	Town Staff Business Alliance PEDC Town Council
Gateways. Develop gateway features expanding on those already developed with hierarchy appropriate to the location. Gateway locations may include W. First Street and S. Coleman Street, S. Coleman Street and W. Third Street, and S. Coleman Street and W. Broadway Street. Secondary gateway features may include S. Preston Road and E. First Street, S. Preston Road and Broadway Street, and E. First Street and S. Craig Road.	!!	$$$	Town Staff Business Alliance PEDC Town Council

Recommendation	Priority	Cost	Sponsors
Intersection improvements. Design intersection improvements to increase awareness of activity areas and promote traffic calming. These may include features such as rough-edged pavers or murals. Locations may include all streets intersecting with Main Street, and all locations with gateway features.	!!	$$	Town Staff Business Alliance Town Council
Redevelopment parcels. Evaluate and consider acquisition of future key redevelopment parcels for later resale to targeted private development. This may be part of the overall incentive program provided by the Town as noted under the Market pillar.	!!	$$$	Town Staff PEDC Town Council
Neighborhood pocket parks. Evaluate and consider acquisition of select vacant parcels within the single-family portion of downtown for development as neighborhood pocket parks.	!	$$$	Town Staff Residents Town Council
Public facilities. Evaluate the potential location and cost to construct and maintain public restrooms within the commercial downtown. Other features such as a visitor kiosk, vending space, and digital message and advertising boards may be constructed or installed with this.	!	$$	Town Staff Business Alliance PEDC Town Council
Future roadway connections. Incorporate the primary connector road once detailed design is complete to access for the major new development proposed south of W. First Street. This will be a key gateway and transition into downtown. Pedestrian and bike access should be a consideration and potential reconfiguration of pedestrian and bike access along W. First Street may be required.	!	$	Town Staff
Canopy trees. Incorporate mature canopy street trees within the commercial downtown. Consider transplanting existing smaller caliper trees in less visible locations in the Town and replacing with larger trees for a greater impact and pedestrian comfort.	!	$$	Town Staff
Shared Dumpsters. Incorporate locations to support shared dumpster use in future alley reconstruction, or when possible, within new development projects that will serve multiple downtown businesses.	!	$	Town Staff Property Owners
Alleyway Improvements. Improve all unimproved alleys within the downtown area to improve overall mobility and access to properties abutting them.	!	$$	Town Staff Property Owners

PILLAR

Financial

A lack of financial resources, public or private, is often considered the sole reason investment or reinvestment does not occur in certain geographies within a community. While the availability of economic resources is an important component of any successful redevelopment initiative, it is not the only component, nor the most significant deterrent. Redevelopment initiatives will always compete with new development for limited resources. What needs to be understood, however, is while more assistance may be needed during the early phase of downtown and infill initiatives, it is fiscally more practical than expending resources in greenfield or undeveloped areas, and almost always nets a higher return for the municipality. Experience has shown that private investment follows public commitment, and while the responsibility for encouraging investment in its aging and under-performing assets has historically been borne by the public sector alone; advancing these types of redevelopment initiatives actually requires the time and resources of a broad range of stakeholders with the largest portion often expended by private entities.



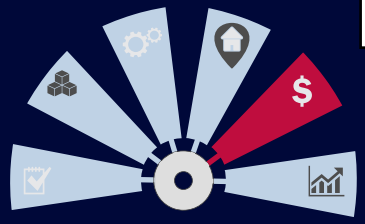
FINANCIAL

Strategy

Actively pursue all options within the Town's resources to establish and provide dedicated funding mechanisms for plan implementation.

Key Recommendations

1. Establish a Tax Increment Reinvestment Zone (TIRZ) to include, at a minimum, the overall downtown area and consider a much more expansion approach including commercial portions along North Preston Road.
2. Begin annually allocating a committed minimum amount of funding to support downtown incentives and capital investments. Making a public commitment to ongoing funding will provide assurances to developers and investors that Prosper is seriously committed to redeveloping downtown.
3. Allocate annual funding to hire a full time dedicated Downtown Manager to work as a liaison between stakeholder organizations, work with existing and future businesses and developers, assist in the development process, identify and pursue additional grant funds, review and input on incentive programs, manage marketing and events, and represent downtown Prosper, among other duties.



Implementing the plan for downtown Prosper will require financial investment. The source of those resources, and the lead party in constructing different plan elements, will vary. In considering the availability of funding, it can be helpful to think of plan elements in three broad categories.

For **public realm** elements such as streets, sidewalks and parks, the Town of Prosper is likely to play the lead role in their funding and construction. Having said that, the resources to make those improvements can come from a broad range of sources. And other parties can play important roles, including the Prosper EDC, business associations, and even public-minded corporations or individuals.

Real estate development such as apartments, stores and restaurants, and hotels are funded primarily by developers and property owners, but where the financial return falls short of the cost of construction additional financial support is needed to attract development. The financial resources to supplement private investment can come from a variety of sources.

Programmatic activities in downtown Prosper also need to be paid for, and funding for these may come from the broadest set of contributors. The Town, the PEDC, the Downtown Business Alliance, the Chamber of Commerce, individual businesses, civic organizations—all play a role in putting on downtown events, promoting shopping and dining, sprucing up storefronts and signage, rehabilitating older buildings, etc.

The financial strategy for downtown Prosper recognizes that the existing budgets of the Town of Prosper and Prosper EDC (PEDC) are largely committed to existing and ongoing purposes and programs. For that reason, much of the financial investment required to realize the vision for downtown Prosper will need to come from new funding sources. The Town of Prosper and the Prosper EDC have already established some funding sources that can play an important role in funding public realm improvements and supporting real estate development, including the following.

!!!	High / Short Term Priority	$	Under $50,000
!!	Medium Term Priority	$$	$50,000 to $250,000
!	Low / Long Term Priority	$$$	Over $250,000

Recommendation	Priority	Cost	Sponsors
Neighborhood Empowerment Zone. The Town of Prosper has created a Neighborhood Empowerment Zone (NEZ) that encompasses the previously defined Old Town Prosper. Projects within the NEZ may be awarded a waiver of 75% of development fees, a refund of municipal property taxes for a period of ten years, and a refund of sales tax proceeds for a period of ten years. This program should be promoted and used as an incentive with Town approved design guidelines.	!!!	$$$	Town Council Town Staff

Recommendation	Priority	Cost	Sponsors
Economic Development Sales Tax. An Economic Development Sales Tax funds much of the activity of the Prosper EDC. These funds are designated for economic development activities including commercial development and expansion. The Charter of the PEDC has been modified in a way that would allow it to fund some additional types of downtown improvements. Continue to support downtown redevelopment where possible.	!!!	$	PEDC
Hotel Occupancy Tax. The Town of Prosper has established a Hotel Occupancy Tax (HOT). There are not hotels currently within the Town of Prosper, but three different hotels are in planning or pre-development stages. These hotels will levy a 7% HOT tax on top of their own room charges. Those revenues will be forwarded to the Town of Prosper, which can utilize the funds for tourism related investments including some of the public realm improvements called for in this plan.	!	$	Town Staff Town Council

These existing funding sources provide a strong foundation, but additional resources will be necessary to support the full range of development and public realm investments envisioned in the Plan. The following are recommended strategies.

Create a Tax Increment Reinvestment Zone (TIRZ). A TIRZ increases the resources available to support redevelopment projects. Establish a TIRZ for overall downtown Prosper.	!!!	$	Town Council Town Staff
Focus existing resources. To realize this ambitious vision, existing resources need to be promoted and leveraged, including those that are available through the NEZ, the HOT Tax. The PEDC can consider contributing to the public realm investments in the plan by utilizing the Type B funding authorities that it established in its recent Charter change. Streetscaping investments and other downtown public realm improvements can be intentionally prioritized in the Town's capital improvement program over the next five to ten years.	!!!	$$$	PEDC Prosper Chamber Town Staff Town Council
Evaluate the potential of additional funding resources. Additional sources of funding should be evaluated for the contribution they can make toward funding elements of the plan that are difficult to fund. For example, state law authorizes municipalities to establish a venue tax on ticket sales associated with designated venues. Community minded corporations or individuals may wish to fund particular public realm improvements such as a park or bandshell.	!!	$	Town Staff PEDC

Recommendation	Priority	Cost	Sponsors
Engage the lending community. Engage area lending institutions to solicit their participation in pooling resources (e.g., Community Reinvestment Act (CRA) earmarked monies) to share risk and make available low interest loans and grants. Identify additional funding mechanisms to supplement primary financing including matching fund for facade improvements, tools for gap-financing, and other sources to support downtown reinvestment.	!!	$	PEDC Prosper Chamber

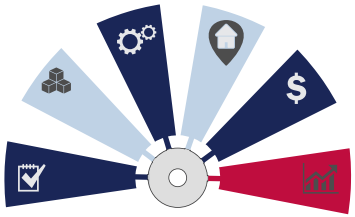
The preceding strategies relate to physical investments, but downtown focused programs and activities play an equally important role in building the vibrancy of downtown Prosper. Organizational recommendations for downtown vibrancy programs are discussed elsewhere. Financial strategies for supporting downtown vibrancy program include the following.

Special events grant. Consider establishing an annual special events grant program funded by the City to draw events to downtown that will attract visitor and consumer spending at downtown business and help in building the recognition of downtown as an area destination.	!!	$	Business Alliance Town Staff Town Council
Public Art. Investigate and establish a public art contribution program and ordinance for all private and publicly funded new development or major rehabilitation projects within downtown. This may include establishing a percent-for-art fund where developers and the City (for publicly funded capital projects) pay into the fund in lieu of providing public art on the project site or area. Typically, this does not apply to standard interior renovation of existing buildings or routine repair, maintenance and replacement of elements on an existing buildings.	!!	$	Town Staff Town Council
Municipal Management District. Explore the creation of a Municipal Management District, or identify a comparable mechanism, to provide a budget for 1) enhanced maintenance and cleanup, waste pickup, landscape maintenance, to build a safe and clean perception of downtown, and 2) downtown marketing, promotions, events, and coalition building. These activities enhance downtown vibrancy, leading to increases in business revenues and property values that are typically much greater than the MMD assessments.	!	$	Town Staff

PILLAR

Market

One of the most significant, yet least known challenges to community-led redevelopment initiatives is a lack of accurate market information (quantitative and qualitative). While most data available through credible sources is accurate, some figures are not, and still others are published without appropriate context or explanation. Misconceptions about a market's potential can not only result in flawed public policies, but ineffective incentive and gap filling resources and lack of investment interest. Now more than ever before, particularly given enhanced access to unverified sources, municipalities need to be proactive in doing the development community's market due diligence. They need to be the principal source regarding facts about their own community, rather than leave this to data seekers who may or may not be able to discern development and redevelopment opportunities. Information about existing businesses, property owners, and potential partnerships, consumer profiles and their spending patterns, and finally public initiatives intended to catalyze private sector activity, should be shared, and used to develop marketing and promotional materials which tell the local "investment story."



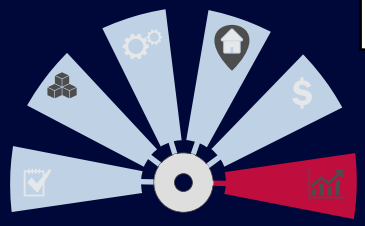
MARKET

Strategy

Commit to investing the resources and creating partnership necessary to attract and support new project and business development opportunities.

Key Recommendations

1. Establish and initiate a site assembly program with dedicated staff to evaluate potential acquisitions and future disposition.
2. Aggressively market development opportunities within the overall region.
3. Develop an overall "brand" for downtown Prosper to be integrated in all future marketing material and design features such as signage and wayfinding.
4. Develop a clear program to support "temporary businesses" from area pop-up's to short term occupancy of vacant storefronts to help create activity downtown and support future business development.



New development will be attracted to the environment that is being created in downtown Prosper. People will find it an attractive place to live. Distinctive retail stores and restaurants will take advantage of the pedestrian traffic. Nevertheless, the rents that are estimated to come from future developments are short of what developers would need to support the full cost of the development. Market strategies address the disparity between the cost of development and the return on investment in a variety of ways. Recommended strategies include the following.

Recommendation	Priority	Cost	Sponsor
Site assembly. Establish a site assembly program with dedicated staff, evaluation criteria for acquisitions, and identified resources that can be utilized, for the purpose of acquiring the properties needed for development projects.	!!!	$	Town Staff
Marketing to developers. Identify and solicit the interest of local and regional developers with experience in downtown redevelopment and the capacity to advance the projects envisioned for downtown Prosper. For publicly owned sites, prepare developer solicitations to attract developers who are interested in partnering with the PEDC and Town of Prosper on developing the sites.	!!!	$	PEDC Town Staff Prosper Chamber
Geographic phasing. Choose a subarea of one or two blocks within the downtown area for an initial focus, completing all development and public realm improvements in that area. Establishing that vibrant place will establish momentum, and demonstrate what is envisioned, which in turn lowers hurdles and reduces the development risk for subsequent development.	!!!	$$$	Town Council Town Staff

Recommendation	Priority	Cost	Sponsors
Branding. Develop the downtown "brand" further, so that it is clear and easy to utilize in promoting the downtown area to developers, investors, visitors, and residents.	!!!	$$	Town Council
Business incubator. Prepare a business plan to identify and support potential "temporary" businesses such as "pop up stores" and / or food trucks, for the purpose of proving up the potential for different business concepts and incubating entrepreneurial endeavors. In the restaurant arena, an area chef could be invited to host a restaurant demonstration project in downtown. Evaluate opportunity with existing commercial property owners or consider partnership with future developer to incorporate incubator space within development for local startup. Work with local partners to promote incubator program and businesses.	!!!	$	Town Staff PEDC
Retail recruitment. Identify or establish a retail recruitment program to attract strategic anchor businesses in target markets such as restaurant, retail store categories, etc.	!!!	$$	PEDC
Predevelopment activity. Perform predevelopment tasks that facilitate project readiness and remove hurdles for a developer. These could include platting, street dedication, rezoning, conducting a Phase I or Phase II environmental investigation, preliminary development approvals, etc.	!!!	$	Town Staff
Site assembly. Establish a site assembly program with dedicated staff, evaluation criteria for acquisitions, and identified resources that can be utilized, for the purpose of acquiring the properties needed for development projects.	!!	$	Town Staff Town Council
Mitigate development impacts. Develop and employ programs to support the Downtown Business Alliance in continuing their achievements and prepare for mitigating potential adverse impacts associated with new construction projects, significant capital improvements, and ongoing events and activities.	!!	$$	Town Staff Town Council
Market studies. Commission a detailed market study to research and document the market demand context and achievable rents for residential and retail development in downtown Prosper, and make that information available to prospective developers, investors, brokers, and property owners.	!!	$	Town Council

06 APPENDIX

APPENDIX A
Catalyst Site Proformas

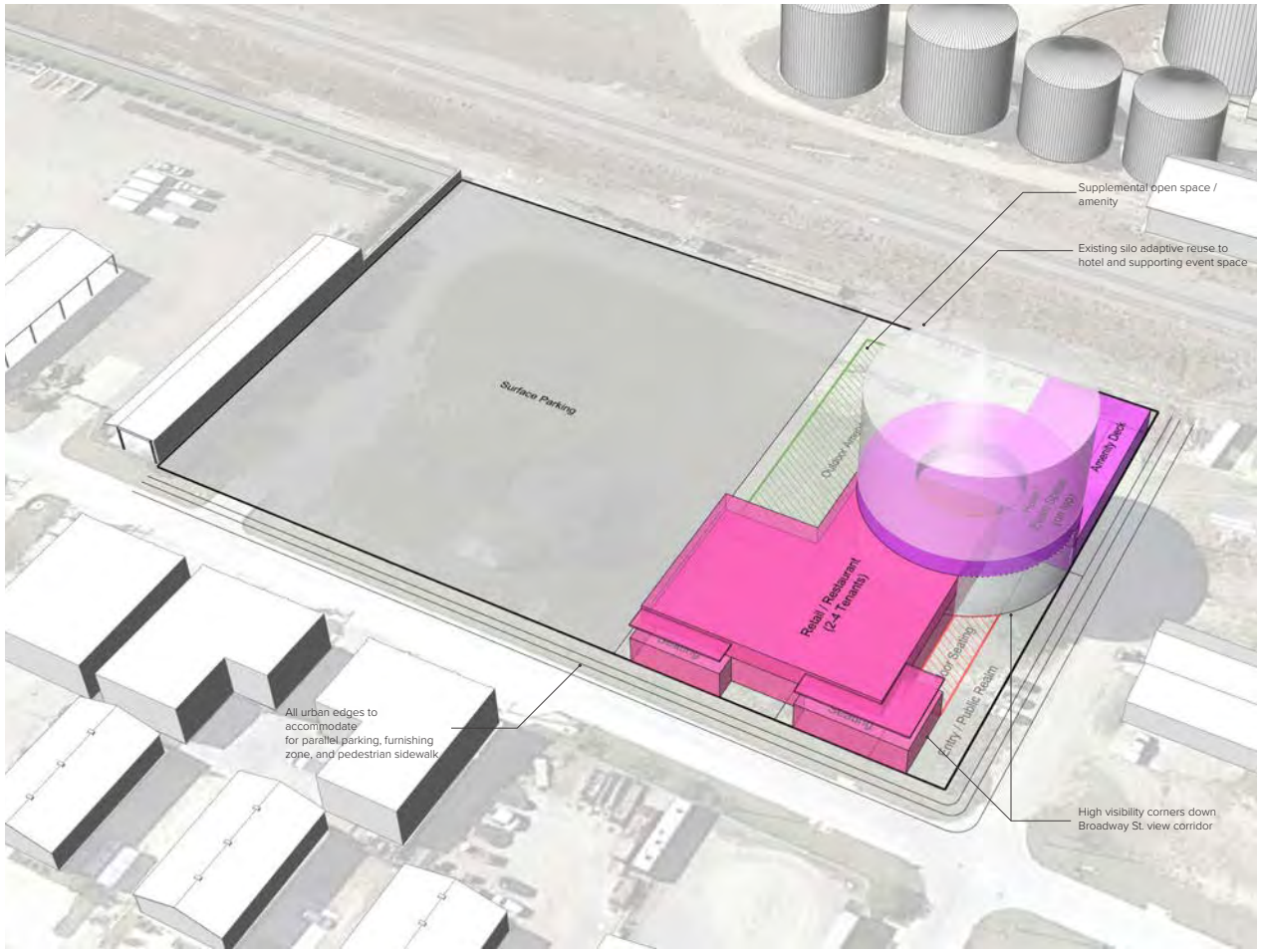
The following pages include the catalyst sites and conceptual proformas developed for each. The proformas have included various assumptions which are intended to provide a general understanding of project costs and potential funding gap. The table below includes a summary of each of the four catalyst sites including the gap that resulted in each.

The gaps identified indicate the magnitude in which financial incentives may be required for a developer to undertake each project. These proformas are based on parking requirements as they currently are. The parking section of this report identified that current parking requirements in Prosper exceed industry standards, and do not factor any shared use parking reduction. Establishing a more urban parking strategy could significantly closet he gap on the development site proformas thereby, reducing overall incentives required.

PROSPER EDC
DOWNTOWN PROSPER MASTER PLAN
CATALYST PROJECT ECONOMIC ANALYSIS SUMMARY
REVISED MARCH 2022

	Catalyst Project Concepts			
Project Indicator	**Catalyst Site #1**	**Catalyst Site #2**	**Catalyst Site #3**	**Catalyst Site #5**
Private Sector Investment				
Development Sq Ft:				
Project Land Area (Acres)	3.21	4.94	1.77	2.03
Retail/Restaurant	30,200	24,000	25,000	16,000
Office/Employment	0	0	25,000	0
Residential (Rental)	0	177,600	27,000	44,800
Residential (For-Sale)	0	0	81,600	0
Hotel/Lodging	24,000	0	0	0
Total Private Development	**54,200**	**201,600**	**158,600**	**60,800**
Floor Area Ratio	**39%**	**94%**	**79%**	**69%**
Total Project Value (@ Build-Out)	**$16,108,947**	**$56,174,400**	**$30,622,000**	**$16,484,000**
Total Project Costs (@ Build-Out)	**$18,735,926**	**$59,626,554**	**$41,676,536**	**$17,585,614**
Project Margin/(Gap)	**($2,626,979)**	**($3,452,154)**	**($11,054,536)**	**($1,101,614)**
Project Margin/(Gap) %	**-14%**	**-6%**	**-27%**	**-6%**

Town of Prosper | Site 1



PARK / OPEN SPACE / AMENITY
RETAIL
OFFICE
RESIDENTIAL
HOTEL / LODGING
PARKING

Site 1 Totals

Program	Units / Spaces	Square Feet
Retail / Restaurant / Entertainment		30,200
Hotel / Lodging	30	24,000
Gross Floor Area		54,200
Project Land Area		139,697
Floor Area Ratio		39%
Surface Parking	211	73,920

General assumptions for unit sizes can be found in the 'Catalyst Project Economic Analysis' Report from Ricker/Cunningham

PROSPER TEXAS ECONOMIC DEVELOPMENT CORPORATION

DATE
February 2022

STANTEC VIBE
1112 Pearl St.
Boulder, CO
80302

stantec.com

DOWNTOWN PROSPER MASTER PLAN

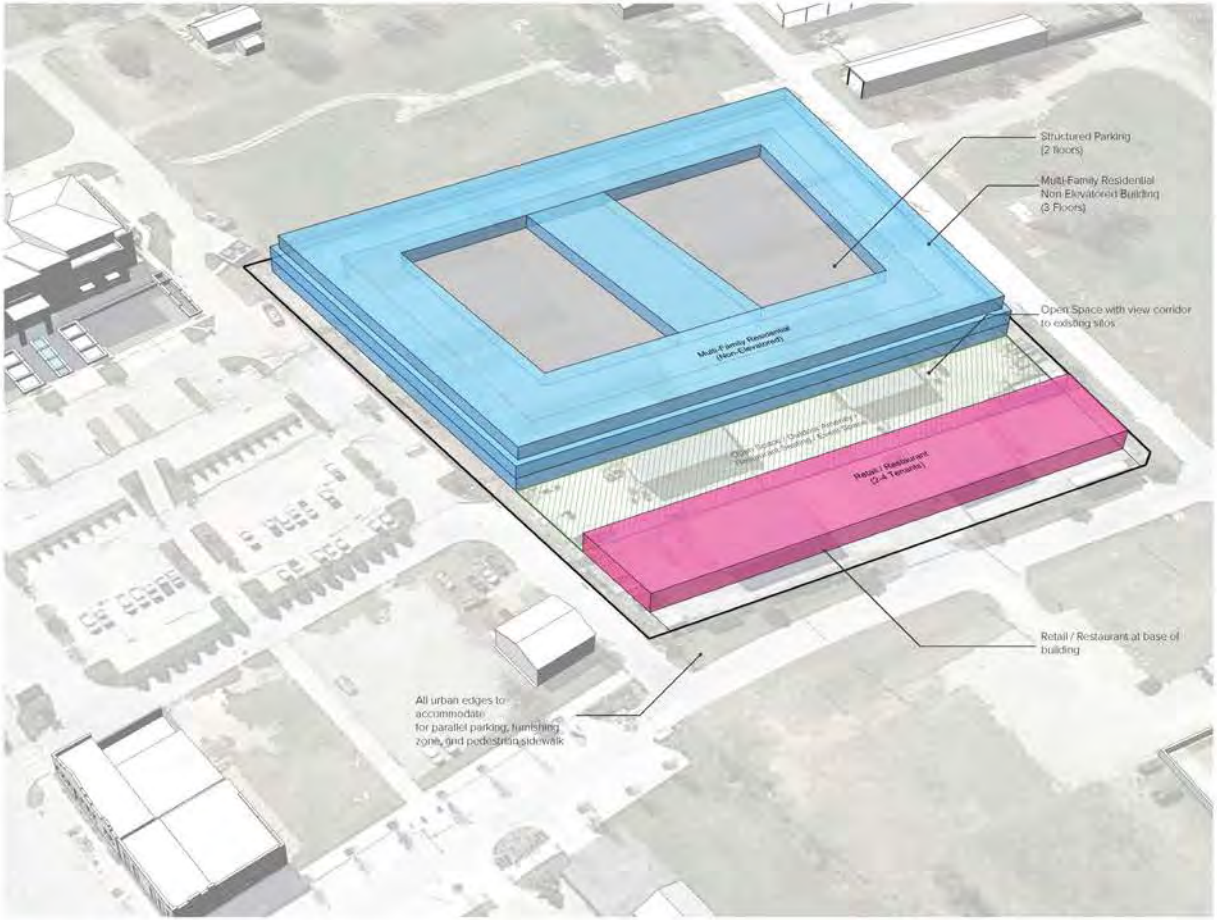
CATALYST PROJECT ECONOMIC ANALYSIS: SITE #1

DECEMBER 2021

Development Program				**Assumption Factors**	
	Number	Square Feet			
Retail/Restaurant/Entertainment		30,200			
Office/Employment		0			
Residential (Rental)	0	0		700	SF/Unit
Residential (For-Sale)	0	0		1,800	SF/Unit
Hotel/Lodging	30	24,000		800	SF/Unit
Gross Floor Area		54,200			
Project Land Area		139,697		3.21	Acres
Floor Area Ratio		39%			
Surface Parking	211	73,920		350	SF/Space
Structured Parking	0	0		350	SF/Space
Estimated Project Value (Stabilized Yr)					
Total Retail/Restaurant Rentable SF		30,200		100%	Bldg. Efficiency Ratio
Rent/SF*		$25.00			
Total Employment Rentable SF		0		100%	Bldg. Efficiency Ratio
Rent/SF*		$20.00			
Total Residential Rentable SF		0		90%	Bldg. Efficiency Ratio
Rent/SF		$30.00		$2.50	Monthly Rent/SF
Total Parking Spaces (Structured)		0			
Rent/Space		$600		$50	Monthly Rent/Space
Gross Income		$755,000			
Occupancy		90%			
Effective Gross Income		$679,500			
Operating Costs		$15,100		$0.50	$/SF (Wtd. Avg. All Uses)
Net Operating Income		$664,400			
Capitalization Rate		8.0%			
Project Value -- Retail/Restaurant/Entertainment		**$8,305,000**			
Total Housing Units		0			
Sales Price/Unit (Wtd Avg)		$350,000			
Gross Revenue		$0			
Less Marketing Costs		$0		7%	% of Sales
Net Sale Proceeds		$0			
Project Value -- For-Sale Housing		**$0**			
Total Hotel Rooms		30			
Average Daily Rate (ADR)		$175			
Gross Income		$1,916,250			
Occupancy Rate		70%			
Effective Gross Income		$1,341,375			
Operating Expenses		$600,000		$20,000	$/Room
Net Operating Income (NOI)		$741,375			
Capitalization Rate		9.5%			
Project Value -- Hotel		**$7,803,947**			
Total Project Value			**$16,108,947**		
* Retail rents based on triple net lease; Office rents based on gross lease.					
Development Cost Estimate					
Property Purchase (Acquisition/Demolition)		$2,793,940		$20.00	$/SF Land
On-Site Improvements (Surface Parking)		$633,600		$3,000	$/Space
On-Site Improvements (Structured Parking)		$0		$20,000	$/Space
Site Development (Mall, Park, Patio)		$1,476,000		$50.00	$/SF
Building Construction (Hard Costs)		$9,756,000		$180	$/SF (Wtd. Avg. All Uses)
Construction Contingency		$593,280		5%	% of Construction Costs
Soft Costs (% of Hard Costs)		$1,779,840		15%	% of Hard Costs
Developer Profit		$1,703,266		10%	% of Total Costs
Total Project Cost			**$18,735,926**	**$346**	**$/SF**
Development Economic Summary					
Total Project Value			**$16,108,947**		
Total Project Cost			**$18,735,926**		
Project Margin/"Gap"			**($2,626,979)**		
% Project Margin/"Gap"			**-14%**		

Source: Stantec and Ricker | Cunningham.

Town of Prosper | Site 2 (Low Density)



PARK / OPEN SPACE / AMENITY
RETAIL
OFFICE
RESIDENTIAL
HOTEL / LODGING
PARKING

Site 2 Totals

Program	Units / Spaces	Square Feet
Retail / Restaurant / Entertainment		24,000
Residential (Rental)	200	117,600
Gross Floor Area		201,600
Project Land Area		215,021
Floor Area Ratio		94%
Structured Parking	490	171,500

General assumptions for unit sizes can be found in the 'Catalyst Project Economic Analysis' Report from Rickel/Cunningham

2

CATALYST SITES PRELIMINARY VISIONING

PROSPER TEXAS ECONOMIC DEVELOPMENT CORPORATION

DATE
February 2022

STANTEC VIBE
1112 Pearl St.
Boulder, CO 80302

stantec.com

DOWNTOWN PROSPER MASTER PLAN

CATALYST PROJECT ECONOMIC ANALYSIS: SITE #2

DECEMBER 2021

Development Program				**Assumption Factors**	
	Number	Square Feet			
Retail/Restaurant		24,000			
Office/Employment		0			
Residential (Rental)	200	177,600		888	SF/Unit
Residential (For-Sale)	0	0		1,500	SF/Unit
Hotel/Lodging	0	0		800	SF/Unit
Gross Floor Area		201,600			
Project Land Area		215,021		4.94	Acres
Floor Area Ratio		94%			
Surface Parking	0	0		350	SF/Space
Structured Parking	490	171,500		350	SF/Space
Estimated Project Value (Stabilized Yr)					
Total Retail/Restaurant Rentable SF		24,000		100%	Bldg. Efficiency Ratio
Rent/SF*		$25.00			
Total Employment Rentable SF		0		100%	Bldg. Efficiency Ratio
Rent/SF*		$20.00			
Total Residential Rentable SF		159,840		90%	Bldg. Efficiency Ratio
Rent/SF		$30.00		$2.50	Monthly Rent/SF
Total Parking Spaces (Structured)		490			
Rent/Space		$600		$50	Monthly Rent/Space
Gross Income		$5,689,200			
Occupancy		90%			
Effective Gross Income		$5,120,280			
Operating Costs		$907,200		$4.50	$/SF (Wtd. Avg. All Uses)
Net Operating Income		$4,213,080			
Capitalization Rate		7.5%			
Project Value -- Retail/Restaurant		**$56,174,400**			
Total Housing Units		0			
Sales Price/Unit (Wtd Avg)		$350,000			
Gross Revenue		$0			
Less Marketing Costs		$0		7%	% of Sales
Net Sale Proceeds		$0			
Project Value -- For-Sale Housing		**$0**			
Total Hotel Rooms		0			
Average Daily Rate (ADR)		$175			
Gross Income		$0			
Occupancy Rate		70%			
Effective Gross Income		$0			
Operating Expenses		$0		$20,000	$/Room
Net Operating Income (NOI)		$0			
Capitalization Rate		9.5%			
Project Value -- Hotel		**$0**			
Total Project Value			**$56,174,400**		
* Retail rents based on triple net lease; Office rents based on gross lease.					
Development Cost Estimate					
Property Purchase (Acquisition/Demolition)		$4,300,428		$20.00	$/SF Land
On-Site Improvements (Surface Parking)		$0		$3,000	$/Space
On-Site Improvements (Structured Parking)		$9,800,000		$20,000	$/Space
Site Development		$295,200		$10.00	$/SF
Building Construction (Hard Costs)		$31,492,742		$156	$/SF (Wtd. Avg. All Uses)
Construction Contingency		$2,079,397		5%	% of Construction Costs
Soft Costs (% of Hard Costs)		$6,238,191		15%	% of Hard Costs
Developer Profit		$5,420,596		10%	% of Total Costs
Total Project Cost			**$59,626,554**	**$296**	**$/SF**
Development Economic Summary					
Total Project Value			**$56,174,400**		
Total Project Cost			**$59,626,554**		
Project Margin/"Gap"			**($3,452,154)**		
% Project Margin/"Gap"			**-6%**		

Source: Stantec and Rickerl Cunningham.

Town of Prosper | Site 3

PARK / OPEN SPACE / AMENITY
RETAIL
OFFICE
RESIDENTIAL
HOTEL / LODGING
PARKING

Site 3 Totals

Program	Units / Spaces	Square Feet
Retail / Restaurant		25,000
Employment Flex / Incubator		25,000
Live-work (For Sale)	34	81,600
Townhome	15	27,000
Gross Floor Area		106,999
Project Land Area		201,813
Floor Area Ratio		53%
Surface Parking*	270	94,814

General assumptions for unit sizes can be found in the "Catalyst Project Economic Analysis" Report from Ricker/Cunningham

**In model, townhomes are self-parked in design. Retail parking assumed to be incorporated into open space on site or district parking garage*

PROSPER TEXAS
ECONOMIC DEVELOPMENT CORPORATION

DATE
February 2022

STANTEC VIBE
1112 Powell St.
Boulder, CO
80302

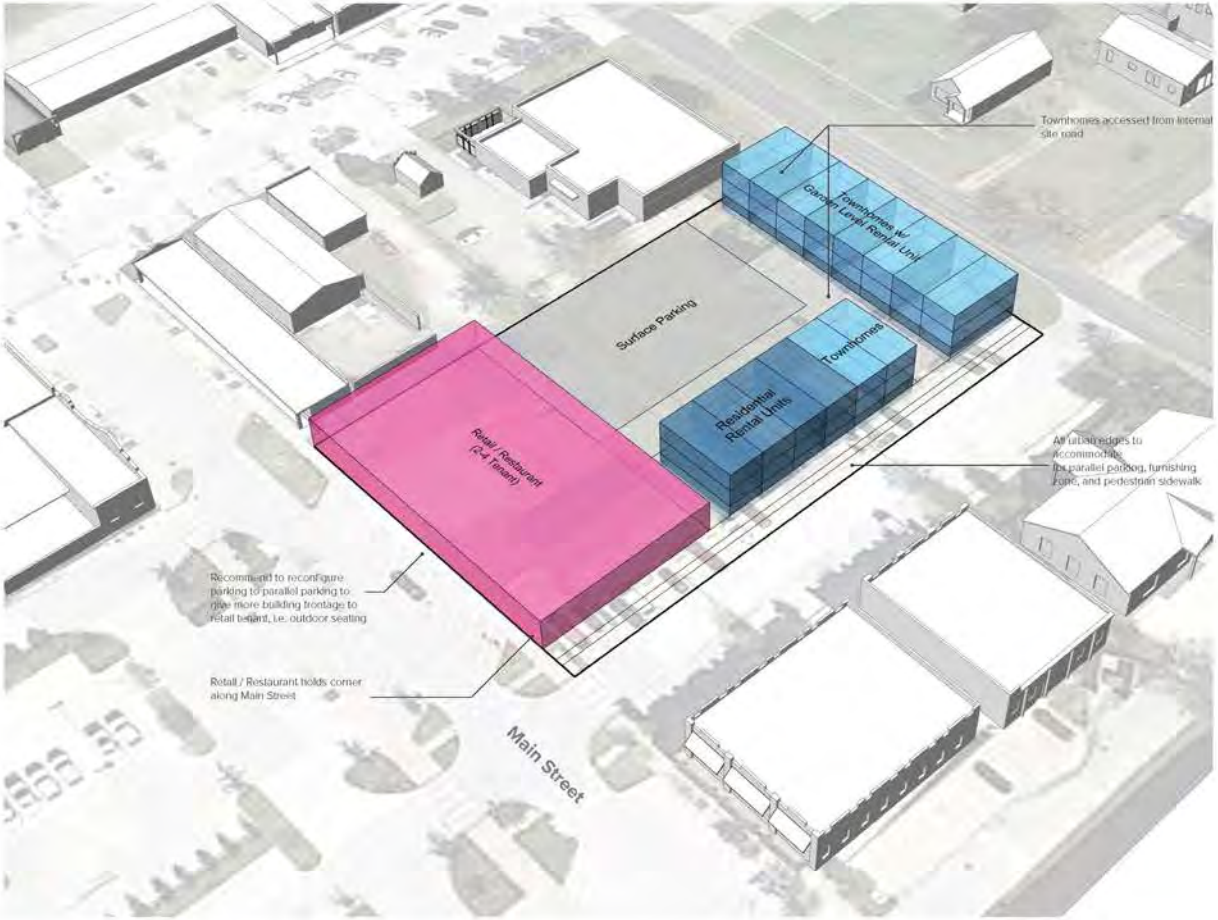
stantec.com

DOWNTOWN PROSPER MASTER PLAN
CATALYST PROJECT ECONOMIC ANALYSIS: SITE #3
REVISED MARCH 2022

Development Program	Number	Square Feet		Assumption Factors	
Retail/Restaurant		15,000			
Office/Employment		15,000			
Residential (Rental)	0	0		888	SF/Unit
Residential (For-Sale)	0	0		1,500	SF/Unit
Hotel/Lodging	0	0		800	SF/Unit
Gross Floor Area		30,000			
Project Land Area		77,101		1.77	Acres
Floor Area Ratio		39%			
Surface Parking	135	47,250		350	SF/Space
Structured Parking	0	0		350	SF/Space
Estimated Project Value (Stabilized Yr)					
Total Retail/Restaurant Rentable SF		15,000		100%	Bldg. Efficiency Ratio
Rent/SF*		$25.00			
Total Employment Rentable SF		15,000		100%	Bldg. Efficiency Ratio
Rent/SF*		$25.00			
Total Residential Rentable SF		0		90%	Bldg. Efficiency Ratio
Rent/SF		$30.00		$2.50	Monthly Rent/SF
Total Parking Spaces (Structured)		0			
Rent/Space		$600		$50	Monthly Rent/Space
Gross Income		$750,000			
Occupancy		90%			
Effective Gross Income		$675,000			
Operating Costs		$99,000		$3.30	$/SF (Wtd. Avg. All Uses)
Net Operating Income		$576,000			
Capitalization Rate		8.0%			
Project Value -- Retail/Restaurant		**$7,200,000**			
Total Housing Units		0			
Sales Price/Unit (Wtd Avg)		$350,000			
Gross Revenue		$0			
Less Marketing Costs		$0		7%	% of Sales
Net Sale Proceeds		$0			
Project Value -- For-Sale Housing		**$0**			
Total Hotel Rooms		0			
Average Daily Rate (ADR)		$175			
Gross Income		$0			
Occupancy Rate		70%			
Effective Gross Income		$0			
Operating Expenses		$0		$20,000	$/Room
Net Operating Income (NOI)		$0			
Capitalization Rate		9.5%			
Project Value -- Hotel		**$0**			
Total Project Value			**$7,200,000**		
* Retail rents based on triple net lease; Office rents based on gross lease.					
Development Cost Estimate					
Property Purchase (Acquisition/Demolition)		$963,763		$12.50	$/SF Land
On-Site Improvements (Surface Parking)		$405,000		$3,000	$/Space
On-Site Improvements (Structured Parking)		$0		$20,000	$/Space
Site Development		$295,200		$10.00	$/SF
Building Construction (Hard Costs)		$5,400,000		$180	$/SF (Wtd. Avg. All Uses)
Construction Contingency		$305,010		5%	% of Construction Costs
Soft Costs (% of Hard Costs)		$915,030		15%	% of Hard Costs
Developer Profit		$828,400		10%	% of Total Costs
Total Project Cost			**$9,112,403**	**$304**	**$/SF**
Development Economic Summary					
Total Project Value			**$7,200,000**		
Total Project Cost			**$9,112,403**		
Project Margin/"Gap"			**($1,912,403)**		
% Project Margin/"Gap"			**-21%**		

Source: Stantec and Ricker | Cunningham.

Town of Prosper | Site 4



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PARKING

Site 4 Totals

Program	Units / Spaces	Square Feet
Retail / Restaurant / Entertainment		16,000
Townhome (Rental)	20	16,000
Loft / Airbnb (Rental)	10	16,000
Gross Floor Area		48,000
Project Land Area		87,120
Floor Area Ratio		55%
Surface Parking*	130	45,500

General assumptions for unit types, can be found in the 'Catalyst Phased Economic Analysis' Report from Rickel/Cunningham

**To model, townhomes are self-parked in design*

4

CATALYST SITES PRELIMINARY VISIONING

PROSPER TEXAS ECONOMIC DEVELOPMENT CORPORATION

DATE
February 2022

STANTEC VIBE
1112 Pearl St.
Boulder, CO
80302

stantec.com

DOWNTOWN PROSPER MASTER PLAN
CATALYST PROJECT ECONOMIC ANALYSIS: SITE #4
REVISED MARCH 2022

Development Program	Number	Square Feet		Assumption Factors	
Retail/Restaurant/Entertainment		16,000			
Office/Employment		0			
Townhome (Rental)	20	32,000		1,600	SF/Unit (avg)
Loft/Airbnb (Rental)	8	12,800		1,600	SF/Unit
Hotel/Lodging	0	0		800	SF/Unit
Gross Floor Area		60,800			
Project Land Area		88,566		2.03	Acres
Floor Area Ratio		69%			
Surface Parking	140	49,060		350	SF/Space
Structured Parking	0	0		350	SF/Space
Estimated Project Value (Stabilized Yr)					
Total Retail/Restaurant Rentable SF		16,000		100%	Bldg. Efficiency Ratio
Rent/SF*		$25.00			
Total Employment Rentable SF		0		100%	Bldg. Efficiency Ratio
Rent/SF*		$20.00			
Total Townhome/Loft Rentable SF		40,320		90%	Bldg. Efficiency Ratio
Rent/SF		$30.00		$2.50	Monthly Rent/SF
Total Parking Spaces (Structured)		0			
Rent/Space		$600		$50	Monthly Rent/Space
Gross Income		$1,609,600			
Occupancy		90%			
Effective Gross Income		$1,448,640			
Operating Costs		$129,920		$2.90	$/SF (Wtd. Avg. All Uses)
Net Operating Income		$1,318,720			
Capitalization Rate		8.0%			
Project Value -- Retail/Restaurant		**$16,484,000**			
Total Housing Units		0			
Sales Price/Unit (Wtd Avg)		$350,000			
Gross Revenue		$0			
Less Marketing Costs		$0		7%	% of Sales
Net Sale Proceeds		$0			
Project Value -- For-Sale Housing		**$0**			
Total Hotel Rooms		0			
Average Daily Rate (ADR)		$175			
Gross Income		$0			
Occupancy Rate		70%			
Effective Gross Income		$0			
Operating Expenses		$0		$20,000	$/Room
Net Operating Income (NOI)		$0			
Capitalization Rate		9.5%			
Project Value -- Hotel		**$0**			
Total Project Value			**$16,484,000**		
* Retail rents based on triple net lease; Office rents based on gross lease.					
Development Cost Estimate					
Property Purchase (Acquisition/Demolition)		$2,214,150		$25.00	$/SF Land
On-Site Improvements (Surface Parking)		$420,510		$3,000	$/Space
On-Site Improvements (Structured Parking)		$0		$20,000	$/Space
Site Development		$295,200		$10.00	$/SF
Building Construction (Hard Costs)		$10,761,600		$177	$/SF (Wtd. Avg. All Uses)
Construction Contingency		$573,866		5%	% of Construction Costs
Soft Costs (% of Hard Costs)		$1,721,597		15%	% of Hard Costs
Developer Profit		$1,598,692		10%	% of Total Costs
Total Project Cost			**$17,585,614**	**$289**	**$/SF**
Development Economic Summary					
Total Project Value			**$16,484,000**		
Total Project Cost			**$17,585,614**		
Project Margin/"Gap"			**($1,101,614)**		
% Project Margin/"Gap"			**-6%**		

Source: Stantec and Ricker I Cunningham.

APPENDIX B

Implementation Matrix

Funding

To help track overall plan implementation, the following pages include each of the proposed recommendations and a brief description, along with the priority assigned and status.

Periodically throughout the year, the Town and partner organizations should review the current status of these recommendations and identify opportunities for further implementation, and to track the progress that has been.

Goal setting for implementation will be important in the overall success of this plan. These tables should be used as a tool to identify and assign goals throughout the year.

Political	Priority	Not Started	In Progress	Done
Town policy. Memorialize ongoing commitment to downtown redevelopment.				
Incentive policy. Prepare and adopt a community wide, and downtown-specific incentive policy.				
Informational activities. Involve the Town's leaders in routine updates, events, programs, and discussions.				
Comparative communities. Identify examples of communities with similar project components for elected officials to tour.				
Streamlined entitlement review. Establish eligibility criteria for streamlined entitlement review and approval processes.				
Informational sessions. Schedule a series of informational meetings with the Town's leaders regarding a variety of topics reflected in the vision and Master Plan.				
Measurement benchmarks. Work with the Town's leaders to establish criteria (or benchmarks) that will be used to measure the impact of certain redevelopment initiatives.				

Organizational	Priority	Not Started	In Progress	Done
Formalize stakeholder organizations. Establish the structure for those that will have a key role in supporting and implementing the Master Plan.				
Identify clear roles. Each key stakeholder organization should identify specific plan implementation actions that they have the resources and will commit to advancing.				
Communication plan. Develop a clear communication plan among the key stakeholder organizations.				
Main Street Texas. Engage with Main Street Texas and evaluate the eligibility of downtown Prosper for nomination as a Texas Main Street.				
Town department support. Engage the Town departments in the downtown redevelopment process and build support within to ensure departments work collaboratively.				
Event guidelines. Work with the Development Services Department and Parks and Recreation Department to establish specific event guidelines specific to downtown.				
Additional organizations. Identify additional organizations that may have an interest in supporting continued investment in, and visitor attraction to downtown.				
Citizens' academy. Continue supporting the citizens' academy program to grow civic awareness among area residents, business and property owners, institutional representatives, and others.				
Ambassador program. Within the citizen's academy program develop an ambassador component for participation during community events or at peak times to welcome visitors.				

Regulatory	Priority	Not Started	In Progress	Done
Downtown mixed-use zoning district. Establish a new downtown mixed-use zoning district.				
Design guidelines. Incorporate design guidelines within the new downtown mixed-use zoning district.				
Designated Business and Developer Program. Promote the Town's recently established Designated Business and Developers Program.				
Historic preservation. Establish a historic preservation element within the zoning code.				

Regulatory	Priority	Not Started	In Progress	Done
Incentive framework. Adopt a general framework for awarding funding or other incentives (such as bonus density) to ensure a minimum level of uniformity in awards.				
Shared parking strategy. Adopt a shared parking strategy that allows for reduced parking requirements as part of an overall parking management and revenue system.				
Short-term business permitting. Amend existing permitting requirements to accommodate short-term or pop-up retail, art, or other similar commercial uses in downtown storefronts.				
Old Town Transportation Plan. Update the Old Town Transportation Plan as downtown development and roadway designs proceed.				
Streetscape master plan. Adopt a streetscape master plan for downtown west of Coleman Street that future development and redevelopment, including Town capital projects shall comply with.				
Public art. Adopt a public art contribution program and ordinance for all private and publicly funded new development or major rehabilitation projects within downtown.				
Parking regulations. Adopt downtown parking regulations and consider establishing a mobility enterprise that allows for short-term visitor parking and / or metered street or fee-based.				
Hike and Bike Trail Master Plan. As streetscape improvements are completed, including sidewalks, bike lanes, and the multi-path, incorporate or make appropriate modifications.				
Thoroughfare Plan. As needed, update the Prosper Thoroughfare Plan based on redevelopment plan recommendations or as further design is completed based.				
Parks, Recreation, & Open Space Master Plan. Continue to evaluate to the Parks, Recreation, & Open Space Master Plan and identify any future investment that may be warranted for a new downtown park, and update the Parks, Recreation, & Open Space Master Plan accordingly.				

Physical	Priority	Not Started	In Progress	Done
Infrastructure and utility condition and capacity. Determine the condition and capacity of existing infrastructure and utilities.				
Capital improvement priorities. Prioritize capital improvements and aesthetic enhancements downtown that support a system of shared infrastructure.				

Physical - Cont'd.	Priority	Not Started	In Progress	Done
Downtown Plaza. Identify and incorporate opportunities for larger public gathering areas for programmable use such as removal of the northeast portion of the surface parking lot at Town Hall.				
Crockett Street. Develop detailed designs and fund the improvement Crockett Street.				
S. Main Street. Develop detailed designs and fund the reconfiguration of S. Main Street.				
Downtown Green. Develop detailed design and program plans and budget for construction of a Downtown Green located south of Town Hall between Crockett and Main Streets.				
Downtown Connector. Develop detailed design plans to connect the Downtown Green to W. Broadway Street with a formalized plaza in the space gained by reconfiguring W. Main Street.				
Landscape design. Develop detailed landscape design plans for the streetscapes, including enhanced landscape for street sections where medians may be installed.				
Parking strategy. Develop a near- and long-term parking strategy for public, private, and shared facilities, including spaces on-street and in alleyways.				
Branding. Engage a branding specialist to assist in developing the downtown "look and feel" that should be used in signage and wayfinding, gateways, streetscape furnishings, lighting, temporary signage such as for special events, and other features.				
Furnishings plan. Develop a detailed street furnishings plan and budget to expand on what has already been installed.				
Neighborhood improvement. Develop a neighborhood improvement plan for the residential portions of downtown to include the installation of sidewalks, pedestrian scale lighting, and shade trees within all right-of-ways.				
Signage and wayfinding. Design an overall signage and wayfinding program.				
Gateways. Develop gateway features expanding on those already developed with hierarchy appropriate to the location.				
Intersection improvements. Design intersection improvements to increase awareness of activity areas and promote traffic calming.				

Physical - Cont'd.	Priority	Not Started	In Progress	Done
Redevelopment parcels. Evaluate and consider acquisition of future key redevelopment parcels for later resale to targeted private development.				
Neighborhood pocket parks. Evaluate and consider acquisition of select vacant parcels within the single-family portion of downtown for development as neighborhood pocket parks.				
Public facilities. Evaluate the potential location and cost to construct and maintain public restrooms within the commercial downtown.				
Future roadway connections. Incorporate the primary connector road once detailed design is complete to access for the major new development proposed south of W. First Street.				
Canopy trees. Incorporate mature canopy street trees within the commercial downtown.				
Shared Dumpsters. Incorporate locations to support shared dumpster use.				
Alleyway Improvements. Improve all unimproved alleys within the downtown area.				

Financial	Priority	Not Started	In Progress	Done
Neighborhood Empowerment Zone. This program should be promoted and used as an incentive with Town approved design guidelines.				
Economic Development Sales Tax. Continue to support downtown redevelopment where possible from this funding source and, if possible, provide a consistent annual allocation.				
Create a Tax Increment Reinvestment Zone (TIRZ). Establish a TIRZ for overall downtown Prosper.				
Focus existing resources. Prioritize investment downtown through all funding sources including the NEZ, HOT Tax, the PEDC, and the Town capital improvement plan and annual budget.				
Evaluate the potential of additional funding resources. Additional sources of funding should be evaluated for the contribution they can make toward funding elements of the plan.				
Engage the lending community. Engage area lending institutions to solicit their participation in pooling resources (e.g., Community Reinvestment Act (CRA) earmarked monies).				
Special events grant. Consider establishing an annual special events grant program funded by the City to draw events to downtown that will attract visitor and consumer spending.				

Financial - Cont'd.	Priority	Not Started	In Progress	Done
Public Art. Investigate and establish a public art contribution program and ordinance for all private and publicly funded new development or major rehabilitation projects within downtown.				
Municipal Management District. Explore the creation of a Municipal Management District, or identify a comparable mechanism.				
Hotel Occupancy Tax. Utilize these funds to attract tourism by investing in the public realm improvements called for in this plan.				

Market	Priority	Not Started	In Progress	Done
Site assembly. Establish a site assembly program for evaluation of acquisitions for the purpose of acquiring the properties needed for development projects.				
Marketing to developers. Identify and solicit the interest of local and regional developers with experience in downtown redevelopment.				
Geographic phasing. Choose a subarea of one or two blocks within the downtown area for an initial focus, completing all development and public realm improvements in that area.				
Branding. Develop a downtown "brand."				
Business incubator. Prepare a business plan to identify and support potential "temporary" businesses such as "pop up stores" and / or food trucks.				
Retail recruitment. Identify or establish a retail recruitment program to attract strategic anchor businesses in target markets such as restaurant, retail store categories, etc.				
Predevelopment activity. Perform predevelopment tasks such as platting, street dedication, rezoning, conducting environmental investigation, preliminary development approvals, etc.				
Site assembly. Establish a site assembly program.				
Mitigate development impacts. Develop and employ programs to support the Downtown Business Alliance and for mitigating potential adverse impacts associated with new construction.				
Market studies. Commission a detailed market study to research and document the market demand context and achievable rents for residential and retail development in downtown Prosper.				

Parking

APPENDIX C

While the Committee's recommended parking supply for the four catalytic sites will ensure ample parking for the proposed development, based on national standards from the ITE plus the ULI—both of which include hundreds of observations from across the country for similar land uses—applied to our model of future parking demand, there will be a significant number of empty parking spaces. Combined with nearly 400 empty spaces in downtown today at the peak of existing demand, empty parking spaces will consume a lot of land, constrain the public realm and present a serious financial challenge for developers—especially those interested in making a viable mixed-use and walkable downtown.

Therefore, it is recommended that a significantly smaller shared parking supply of 718 new spaces be developed for the catalyst sites. However, these spaces will only operate efficiently if certain elements of Prosper's parking code are revised to enable sharing. These include:

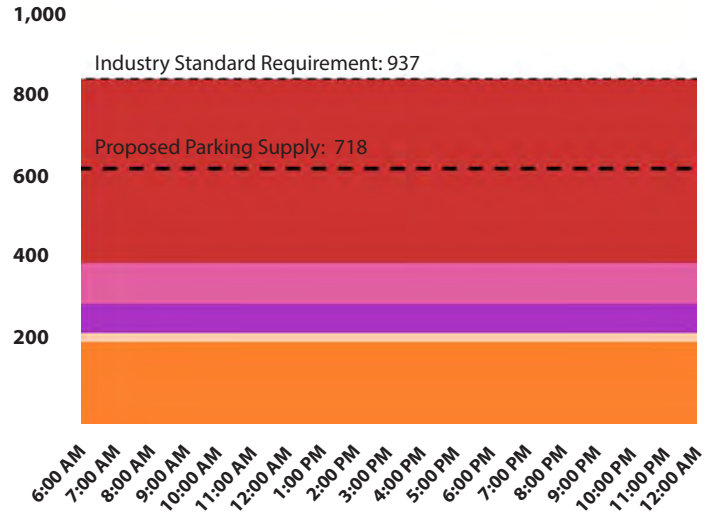
- Removing the Chapter 4.6.F. stipulation that "Shared parking must be on the same site," otherwise the catalyst sites cannot share parking.
- Doubling the Chapter 4.7.A. accessory off-site parking radii from 300 and 600 feet to 600 feet (a 3 minute walk) and 1,200 feet (a 6 minute walk).

While these changes will benefit the current proposed catalyst sites, the benefits of shared parking would not pass on to other existing or future land uses without other changes. In particular, if the Town were to treat the entire downtown as a shared parking district, parking efficiencies have the opportunity to attract compatible development that is focused on a quality public realm, rather than excessive areas of parking. Parking operations and enforcement changes that make customer parking areas clear to visitors—whether or not they are under public control—and promote long-term parking in appropriate areas that do not detract from front-door customer parking would help visitors and regulars alike with clear parking expectations. Shared districts often offer a pool of spaces to new development, allowing underutilized facilities to become utilized—sometimes as new revenue for an existing landowner, while offering the savings of not building new parking. Consistent signing, wayfinding, rules and access designs are other common features that could easily make downtown attractive and work efficiently.

To make a shared approach work, many additional changes to the current code are needed:

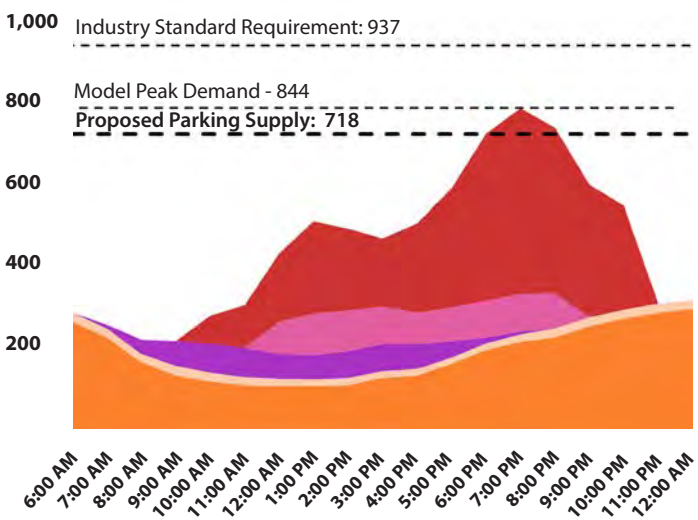
- While the 50% reduction in downtown requirements (Chapter 4.6.F. and Chapter 4.7.C.) is intended to promote sharing, a better approach is to adopt a shared reductions table that encourages a better mix of uses, such as the example on the next page.
- Conditional approvals of shared parking (Chapter 4.6.F.) and the ability to rescind those approvals is too risky for most developers and effectively nullifies the Town's intent. These should be removed so sharing is as-of-right.
- Off-site sharing is a necessity, not only for the current catalyst sites, but for similar future developments, as well as any existing parcel seeking to intensity its use or redevelop if there isn't sufficient land today. However, Chapter 4.7.B. requires a written agreement approved by the Town Attorney, again increasing the hurdle to develop in downtown. The Town is better-off providing simple guidance and samples to future developers of shared-use agreements, including clear guidance on liability and maintenance, leaving the ultimate decision to the private parties.
- The Town should consider adopting clear language which guarantees that any landowner who shares their parking does not lose their own allotment of recorded spaces, avoiding any fears that sharing would remove credit for existing parking.

Standard Parking Analysis

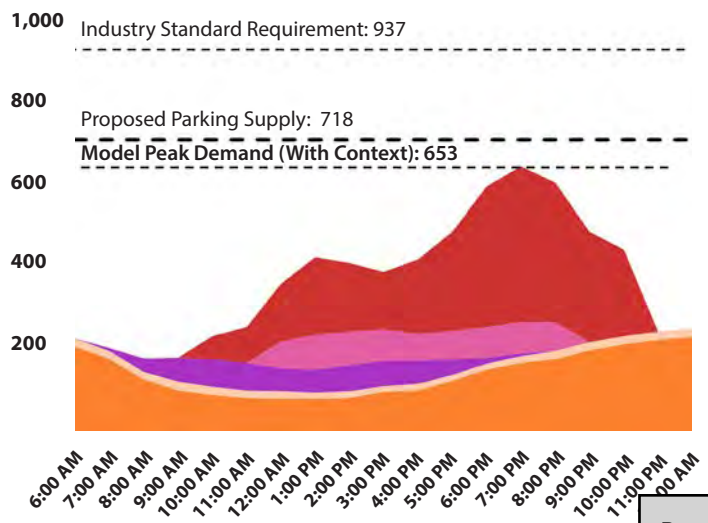


Lounge / Bar, Sit Down
Shopping Center
General Office Building
Hotel
Apartment / Low Rise

Parking Demand & Time of Day



Parking Demand with Context



Parking

Catalytic Sites Shared Parking Demand Modeling

Land Use Type	Units	Catalyst Concepts				Total
		Catalyst #1	Catalyst #2	Catalyst #3	Catalyst #4	
Office	Sq. Ft.			25,000	4,000	29,000
Retail	Sq. Ft.	15,100	12,000	12,500	8,000	47,600
Restaurant	Sq. Ft.	15,100	12,000	12,500	8,000	47,600
Apartments / Townhomes	Units		200	12	30	242
Hotel	Units	30				30
Proposed Parking Supply	**Spaces**	**138**	**320**	**176**	**85**	**718**

Street Name	Units	Total
Unshared Peak Demand	Vehicles	**937**
Shared Peak Demand (No Context)	Vehicles	**718**
Shared Peak Demand (with Context)	Vehicles	**653**

Sample Shared Parking Reductions by Use

Land Use Type	12 AM - 7 AM	7 AM - 6 PM	6 PM - 12 AM
Office	5%	100%	5%
Retail	0%	100%	50%
Residential	100%	55%	85%
Restaurant	5%	70%*	100%
Industrial	5%	100%	5%
Hotel	100%	65%	90%
Church	0%	10%	30%
Cinema / Live Entertainment	0%	70%	100%

** 0% if shared with over 150,000 sq ft of office space*

Funding

APPENDIX D

The funding strategy for Prosper to implement the Master Plan will rely on identifying the various funding sources and opportunities to leverage these against one another to maximize overall return. Many of the actions included in the implementation plan have little cost beyond staff time while others will take a long-range planning a clear strategy to fund.

The implementation section of this plan includes "sponsors" or those who should take the lead or have a role in each action. Understanding which organization has the ability and willingness to undertake each will be a key first step to success.

The Town will have a primary role in nearly all actions. As such, it should evaluate each of these and identify which ones may be accomplished through normal government operations and with minimal cost. Actions that relate to processes, organization, or the regulatory framework would be among these. Some of the actions may be incorporated into the Town's capital improvements planning or have funds allocated during the annual budget process. Others will require substantial additional monies likely to be received through grant funds. Many of these, and generally all federal grants which are the most substantial, typically require a 20% non-federally funded match. It will be essential that the Town plan in advance the grants it may choose to pursue, understand it's match requirements, and begin budgeting accordingly. Additionally, many state grants are funded by the federal government and are typically not eligible match funding - meaning, the local government or it's partners must plan for their required contribution.

Some of the implementation actions pertain to establishing or utilizing additional revenue sources by the Town including the creation of a TIRZ or a Municipal Management District, and the eventual use of HOT funding following hotel development downtown. These sources are ideal sources to earmark for grant funding match requirements because they do not draw from the Town's existing revenue sources and their revenues are g predictable and can be seen as reliable funding sources by grantor's.

The PEDC will be another arm of the overall plan implementation and can assist the Town in funding some projects directly while also pursuing additional funding on behalf of the Town. The PEDC can also be helpful in building support for establishment of the TIRZ or MMD, and help in growing the Downtown Business Alliance and it's ability to generate revenue for certain components of implementation.

The Appendix of this report includes matrices of funding sources under several categories; Outdoor Recreation, Underground Utilities, Transportation, Small and Local Business Development, Event and Programming, and Branding and Tourism. Within each of these grants are feature the specific program, eligible use of funds, maximum grant awards, and funding cycles, among others.

As the Town proceeds with implementation it will be important to evaluate these for opportunities to stack funding sources. The simplest way to do this is identify a grant program project that will have a large impact and that the Town is prepared to provide matching funds for, and then identify all additional grants that may contribute to portions of the overall project for which the Town's existing allocation of funding may also be applied to. For example, a grant pursuit for roadway improvements may also leverage the Town's local contribution against for a mobility grant that may fund sidewalks, lighting, wayfinding and signage, and an outdoor recreation grant that may fund stormwater components and landscape.

The following page provides an overview of the various types of activities that may be funded under each of the grant categories included within the matrices.

Grant Program	Typical Grant Uses
Outdoor Recreation	Recreational trails and facilities, conservation projects including community outreach, water and stormwater improvements, nature based infrastructure, action plans, cultural, arts, and tourism facilities, workforce training and capacity building, outdoor recreation programs and facilities, acquisition of recreation (land) areas and development costs, signage, landscaping and beautification, public art, artist and creative industry support, creative business development, art in roadways (murals) and public spaces such as plazas, bicycle infrastructure, and build, rebuild or refresh community spaces.
Underground Utilities	Construction, non-construction, technical assistance, revolving loan fund projects, water, wastewater, septic tanks, roads and streets, general drainage, and parks and recreational activities (limited).
Transportation	Public safety, intercity transit - bus and vehicles, bicycle infrastructure, shared use paths, sidewalks improvements, infrastructure related to any non-motorized transportation, buses and bus facilities, technology introductions and innovation, planning and engineering design funding, general roadway improvements, master or corridor plans, risk assessments, activities to increase civic engagement, supporting vibrant spaces by improving access to open spaces, parks and other community amenities, general walkability, signage and wayfinding, housing, and public art.
Small and Local Business Development	Projects that benefit small and emerging businesses in rural areas, technical assistance including project planning, business counseling and training, market research, feasibility studies, professional or technical reports, acquisition or development of land, easements, or rights of way, construction,conversion and renovation of existing buildings, improvements for access to streets and roads, parking areas, and utilities, pollution control, start-up loans and working capital, distance adult learning for job training, technology-based economic development, and other job training.
Event and Programming	Activities to support art, craft and culinary arts, dance, design and architecture, film and medial, fold and traditional, literal, musical, visual arts, theater and performance, and other formal and informal creative practices, support for fundraisers and other events such as galas, festivals, parades, and general operations or organization, projects that increase awareness and understanding of access to preventative health care services, chronic disease management, community involvement, and branding and brand visibility.
Branding and Tourism	Projects that benefit small and emerging businesses in rural areas, technical assistance including project planning, business counseling and training, market research, feasibility studies, professional or technical reports, acquisition or development of land, easements, or rights of way, construction,conversion and renovation of existing buildings, improvements for access to streets and roads, parking areas, and utilities, pollution control, start-up loans and working capital, distance adult learning for job training, technology-based economic development, and other job training.

Potential Funding Sources for Prosper, TX Outdoor Recreation - recreation and greenspace; public art; gateways and wayfinding				
Program	**Agency**	**Purpose / Goals**	**Eligible Applicants**	**Eligible Use of Funds**
National Recreational Trails Fund	Federal Highway Administration, administered by Texas Parks & Wildlife	To fund motorized and non-motorized trail projects.	Local Governments	Funds can be spent on both motorized and non-motorized recreational trail projects such as the construction of new recreational trails, to improve existing trails, to develop trailheads or trailside facilities, and to acquire trail corridors.
National Parks Service Rivers, Trails and Conservation Assistance (RTCA)	National Parks Service (NPS)	The main focus areas of this program are building healthy communities, conservation, engaging youth in outdoor recreation, and facilitating support between NPS and communities to achieve shared goals.	State and local governments, tribes, nonprofits, or citizen organizations.	This program provides technical assistance to community led conservation and outdoor recreation projects throughout the country. The types of assistance includes: community outreach strategies, developing concept plans for trails and parks, creating project management and action plans, engaging collaborative partners and stakeholders, and other consulting services that can be tailored towards the needs of the project.
Competitive Tourism & Outdoor Recreation Grants	US Economic Development Administration (EDA)	Competitive grants will help tourism communities invest in infrastructure, workforce, or other projects to support the recovery of the industry and economic resilience of the community in the future.	States, cities, counties; Indian tribes; commonwealths and territories of the US; and nonprofits.	"(1) Water and stormwater/wastewater improvements. (2) Pier construction and improvements. (3) New outdoor recreation and trail infrastructure and public access enhancements. (4) Nature-based infrastructure and public access enhancements. (5) Cultural, arts, and tourism facilities (e.g., visitor or tourist information centers). (6) Workforce training facilities and capacity building programs. (7) Accessibility enhancements. (8) County-wide or multi-state travel, tourism, or outdoor recreation promotion (Because state and local tourism promotion and marketing projects are eligible uses of funds under State Tourism Grants, such projects are not eligible under the EDA Competitive Tourism Grants component.)"
Local Parks Grants	Texas Parks and Wildlife Department (TPWD)	The Local Park Grant Program consists of 5 individual programs that assist local governments with the acquisition and/or development of public recreation areas and facilities throughout the State of Texas. Emphasis on public health, safety, the natural environment, barrier-free access, and the protection of recreational community values of the area.	The 5 different grant programs include: Small Community (population <20,000), Nonurban Outdoor Recreation (<500,000 people), Nonurban Indoor Recreation (<500,000), Urban Outdoor Recreation (>500,000), & Urban Indoor Recreation (>500,000). Eligible applicants includes cities, counties, utility districts, and other special districts. Applications must receive at least one public hearing prior to submission."	Eligible projects may consist of basic outdoor recreation facilities and related support facilities that serve the general public. Facilities may be developed, renovated, or redeveloped on lands or water owned or controlled by the applicant. Examples of eligible development projects: playgrounds, trails, golf courses, sports courts, community gardens, recreational support facilities.

Potential Funding Sources for Prosper, TX
Outdoor Recreation - recreation and greenspace; public art; gateways and wayfinding - Cont'd

Loan or Grant Maximum	Terms/Requirements/ Notes	Funding Cycle	Contact	Website
80% of project costs, up to $200,000 for non-motorized trail grants and a maximum award of $400,000 for motorized (off-highway vehicle) trail grants.	Thirty percent of the total NRTF grants must be spent on motorized recreational trails, while another 30 percent must be spent on nonmotorized trail projects. The remaining 40 percent is discretionary.	Annual solicitation, February 1 deadline.	"Trey Cooksey, (512) 389-8743 trey.cooksey@tpwd.texas.gov"	https://tpwd.texas.gov/business/grants/recreation-grants/recreational-trails-grants
This is a nonmonetary grant program. NPS assists communities by providing a broad range of services and support. They are also helpful in bringing funding partners to the table.	NPS recommends applicants consult with a staff member at least 30 days prior to the application deadline.	This program is offered on an annual basis. The next application deadline is March 1, 2023.	Intermountain Region Program Manager Ericka Pilcher, RTCA_Apps_IMR@nps.gov	"https://www.nps.gov/orgs/rtca/apply.htm"
"The program will fund 80-100% of a project between $500,000 and $10,000,000. In determining the grant rate, EDA's Grants Officers in the applicable Regional Office will consider on a case-by-case basis whether the circumstances of the proposed project warrant a larger federal share."	"Must align with regional Comprehensive Economic Development Strategy (CEDS) document or the creation of a CEDS. Work with and/or secure support of North Central Texas Council of Governments (NCTCG). "	Anticipate this to be an annual program from the US EDA.	"NCTCOG: Lucille Johnson ljohnson@nctcog.org Prit Patel ppatel@nctcog.org USEDA: Robert Peche 512-568-7732 rpeche1@eda.gov"	
Grant funds are provided on a matching basis with the local applicant providing 50% of the project costs that must be available at the time of the application. The grant ceiling for the Local Parks Nonurban Outdoor Recreation Program is $750,000. The grant ceiling for the Nonurban Indoor Recreation Program is $1 million.	For Small Community and Non-Urban Outdoor and Indoor Recreation Grants Programs, all active projects that are at least 2 years old must be reimbursed for a minimum of 50% of the approved grant amount. The total of approved grant funds that have not been reimbursed may not exceed $2 million for all active grant projects.	Local Parks Grants are funded on an annual basis. Applications typically open at the beginning of September with an application deadline of December 4th. Awards are announced in May.	Local Parks Program Manager Dan Reece, (512) 389-4656, dan.reece@tpwd.texas.gov	"https://tpwd.texas.gov/business/grants/recreation-grants/about-local-parks-grants"

Potential Funding Sources for Prosper, TX Outdoor Recreation - recreation and greenspace; public art; gateways and wayfinding				
Program	**Agency**	**Purpose / Goals**	**Eligible Applicants**	**Eligible Use of Funds**
Local Parks Non-Urban Outdoor Recreation	Texas Parks and Wildlife Department (TPWD)	"To assist local units of government with the acquisition and/or development of public recreation areas and facilities throughout the State of Texas. "	Eligible applicants includes political subdivisions of the State of Texas legally responsible for providing public recreation services to their citizens. This includes cities, counties, river authorities, municipal utility districts, and other special districts. For this program, community must be 500,000 or less in population.	Acquisition and/or development of public recreation areas and facilities. Points may be received through the applicable "Project Priority Scoring System" for projects which meet priorities identified in Department-accepted, locally-endorsed parks, recreation, and open space master plans. A jurisdiction wide master plan is NOT required to participate in the grant program, nor does Texas Parks & Wildlife Department's acceptance of a plan guarantee that points will be awarded for any project. There are no points in the Small Community scoring criteria for having a master plan. Master Plans must be submitted to TPWD at least 60 days prior to the grant deadline in which you wish to participate in order to be considered for points.
Recreational Trails Grants	Texas Parks and Wildlife Department (TPWD)	In conjunction with the Federal Highway Administration, this federally funded program receives its funding from federal gas taxes paid on fuel used in non-highway recreational vehicles.	Local Governments	Funds can be spent on both motorized and non-motorized recreational trail projects such as the construction of new recreational trails, improvements to existing trails, navigational aids such as signage, development of trailheads or trailside facilities, and to acquire trail corridors.
Community Outdoor Outreach Program (CO-OP)	Texas Parks and Wildlife Department (TPWD)	To engage the target under-represented audiences in outoor recreation, environmental education and conservation.	Tax-exempt organizations such as local government, Universities, school districts, and non-profit organizations.	"Programming for outdoor recreation, environmental education, and / or conservation. Eligible expenses include: Personnel, Food and Travel, Training, Participant liability insurance, Fees (Park, Program, and Lodging fees), Outdoor service project expenses, Supplies and equipment. Funds cannot be used for facility construction projects, gazebos, ponds, benches, trail building, etc. The CO-OP grant is to be used to fund programs, not construction projects."
Governor's Community Achievement Awards	Keep Texas Beautiful in partnership with Texas Department of Transportation	To award Texas communities for their outstanding overall efforts to keep their communities beautiful.	Texas communities	The funds are to be used for landscaping projects along local rights-of-way. A community's environmental program is judged on achievements in seven areas: community leadership and coordination, public awareness, education, beautification and community improvement, litter prevention and cleanup, solid waste management, litter law and illegal dumping enforcement.
Texas Commission on the Arts (TCA)	Texas Commission on the Arts (TCA)	Investing in a creative Texas.	Any county, municipality, or other political subdivision of Texas undertaking a public construction project estimated to cost more than $250k	Staff are available to advise on conducting a public art project ranging from scoping the project, developing the RFP, identifying committee members, developing a review process, intellectual property rights, conservation, etc.

Potential Funding Sources for Prosper, TX
Outdoor Recreation - recreation and greenspace; public art; gateways and wayfinding - Cont'd

Loan or Grant Maximum	Terms/Requirements/ Notes	Funding Cycle	Contact	Website
Will fund 50% of project costs, up to $750,000.	"All grant assisted sites must be dedicated as parkland in perpetuity, properly maintained and open to the public. All applicants must hold at least one public hearing prior to submission."	Annually, October 1.	"Dan Reece, (512) 389-4656 dan.reece@tpwd. texas.gov"	-
Maximum award of $200,000 for non-motorized trail grants and maximum award of $400,000 for motorized trail grants.	Reimbursable grants can be up to 80% of project costs.	The annual application deadline is February 1st. Awards are typically announced in May. In 2016, TPWD approved $3.54 million in recreational trail grants to fund 22 projects throughout the state.	"Recreational Trails Program Manager Trey Cooksey, (512) 389-8743, trey. cooksey@tpwd.texas. gov "	https://tpwd.texas. gov/business/grants/ recreation-grants/ recreational-trails-grants
"Grants up to $60,000; no match required. "	Target demographics include female, ethnic minority, low income, and individuals with a disability. Projects can serve other audiences, however, proposals who serve the target audience will be more competitive in the scoring evaluation process.	Annually, November 1.	"Carly Blankenship (512) 389-8209 carly.blankenship@ tpwd.texas.gov"	https://tpwd-recgrants. intelligrants. com/Portal2. aspx?&sitID=15
Ten winning communities will split $2 million with the amount awarded based on population size. Ranges from category 1 (<3,000 population) receiving $90k through category 10 (>180,000 population) receiving $310K.	After being awarded an applicant is not eligible for four years.	Applications for the 2022 awards are closed. Anticipate 2023 annual cycle will open January 2023 and close February 2023.	Sara Nichols- sara@ ktb.org	https://www.ktb.org/ gcaa
No maximum grant amount or matching requirements listed	A percent not to exceed one percent of the cost of the construction project shall be used for fine arts projects.	No cycles listed.	Laura Wiegand (512)-936-6565 laura@arts. texas.gov	https://www.arts. texas.gov/initiatives/ public-art/

Potential Funding Sources for Prosper, TX Outdoor Recreation - recreation and greenspace; public art; gateways and wayfinding				
Program	**Agency**	**Purpose / Goals**	**Eligible Applicants**	**Eligible Use of Funds**
Our Town	National Endowment for the Arts	Supports projects that integrate arts, culture, and design activities into efforts that strengthen communities by advancing local economic, physical, and/or social outcomes.	Partnerships required between governmental, nonprofit, and private sector leadership. These partnerships must involve two primary partners, as defined by these guidelines: Nonprofit organization; Local government entity; and one of these two primary partners must be a cultural (arts or design) organization.	"Projects may include activities such as: Arts Engagement: Artist residency, Arts festivals, Community co-creation of art, Performances, Public art; Cultural Planning: Creating a cultural plan, or integrating plans and policies around arts and culture as part of a city master planning process, Cultural district planning, Creative asset mapping, Public art planning; Design: Artist/designer-facilitated community planning, Design of artist space, Design of cultural facilities i.e. design processes to support the creation of a dedicated building or space for creating and/or showcasing arts and culture, Public space design i.e. The process of designing elements of public infrastructure, or spaces where people congregate (e.g., parks, plazas, landscapes, neighborhoods, districts, infrastructure, and artist-produced elements of streetscapes). Artist and Creative Industry Support: Creative business development, Professional artist development."
Asphalt Art Initiative	Bloomberg Philanthropies	Using art to reimagine roadways and vertical infrastructure, improving street safety, revitalizing public spaces, and bringing communities together.	U.S. cities with populations of approximently 30,000-500,000	"Three categories: 1. ART ON THE ROADWAY - mural projects on paved areas that are accessible to motor vehicles, such as intersections, crosswalks, and other surfaces within the active roadway. 2. ART IN PEDESTRIAN SPACE - art projects on paved areas that are inaccessible to motor vehicles while the artwork is in place, such as curb and sidewalk extensions as well as any surface that has been temporarily or permanently converted into a public space or plaza. 3. ART ON VERTICAL INFRASTRUCTURE - art projects installed on vertical infrastructure, including utility boxes, traffic barriers, and highway underpasses. "
Community Grants	People for Bikes	To build momentum for bicycling in communities across the U.S.	Non-profit organizations, city or county agencies or departments, and state or federal agencies working locally	Bicycle infrastructure projects such as: Bike paths, lanes, trails, and bridges; Mountain bike facilities; Bike parks and pump tracks; BMX facilities; End-of-trip facilities such as bike racks, bike parking, bike repair stations and bike storage.
Globe Life Texas Rangers Baseball and Softball Grant Program	Texas Rangers Baseball Foundation	To support the growth of the sport and making sure that every child is afforded the opportunity to experience joy and community through baseball and softball.	Nonprofit organizations with 501(c)3 IRS status that specifically support youth baseball or softball, operating in the Texas Rangers home territory which includes: Arkansas, Louisiana, New Mexico, Oklahoma and Texas only.	Cannot be used to supplement team travel expenses and/ or tournament fees. Project should advance the Foundation's mission of affording youth 18 and younger growth in baseball or softball. The Foundation has funded field construction, field renovation, equipment, and league development.

Potential Funding Sources for Prosper, TX
Outdoor Recreation - recreation and greenspace; public art; gateways and wayfinding - Cont'd

Loan or Grant Maximum	Terms/Requirements/ Notes	Funding Cycle	Contact	Website
Grants range from $25,000 - $150,000 with 50% non-federal match required.	Project may be subject to the National Historic Preservation Act (NHPA) and/or the National Environmental Policy Act (NEPA).	Annual program, typically in August.	OT@arts.gov	https://www.arts.gov/grants-organizations/our-Town/grant-program-description
Maximum grant award is $25,000; no match required; however, competitive proposals will include in-kind support from the municipality and/or funding from other sources.	Eligible sites can include portions of active roadways, sidewalks, pedestrian plazas, or transportation infrastructure such as traffic barriers, highway underpasses, or utility boxes. Sites may be located in and managed by one or multiple jurisdictions (city, state or county, public utility, regional transit authority, etc.) but must be largely or completely on public property and be fully open to the public.	Rolling application period; no deadline for submittal.		"https://asphaltart.bloomberg.org/grants/"
Grant, 50% up to $10,000	"Two-step application process: 1, Letter of Interest 2. Full Application: PFB will request a full project application from a short list of qualified applicants."	No current open grant cycles.	"Zoe Kircos, (720) 726-3335 zoe@peopleforbikes.org"	https://peopleforbikes.org/our-work/community-grants/
No maximum grant amount or matching requirements listed	If awarded a grant, applicant agrees to participate in public relations activities associated with receipt of grant and will display Rangers Foundation signage acknowledging grant.	Annual grant solicitation, typically due June 30; awards in August.	"foundation@texas-rangers.com (817) 533-1513"	-

Potential Funding Sources for Prosper, TX Outdoor Recreation - recreation and greenspace; public art; gateways and wayfinding				
Program	**Agency**	**Purpose / Goals**	**Eligible Applicants**	**Eligible Use of Funds**
Healthy Kids, Healthy Families® (HKHF)	Blue Cross Blue Shield of TX	To support the health and well-being of the children and families across the states in which we operate through four focus areas: American Lung Association, Physical Activity, Mobile Health Vans, Food Banks.	Nonprofit organizations with 501(c)3 IRS status or government, civic and cultural organizations in Texas.	"The program must be measurable and demonstrate how the goals will be met as defined in the grant proposal. The community lead organization must be a nonprofit, tax exempt, 501(c)(3) organization; have the financial capacity and qualified staff to oversee and manage the project (defined as organizations operating a current annual budget of $2 million or more); collaborate on proposed program with a health partner – i.e., hospital, clinic, federally qualified health center."
HomeTown Grants	T-Mobile	To support small Towns across America by funding community projects.	Small Towns with populations less than 50,000.	Projects to build, rebuild, or refresh community spaces that help foster local connections in the Town. For example, this might include the Town square pavilion, a historic building, an outdoor park, a ball field, or a library -- places where friends and neighbors connect.

Potential Funding Sources for Prosper, TX Underground Utilities				
Program	**Agency**	**Purpose / Goals**	**Eligible Applicants**	**Eligible Use of Funds**
Public Works and Economic Adjustment Assistance Program	U.S Economic Development Administration (EDA)	Provides economically distressed communities and regions with resources to address a wide variety of economic needs. Projects will support the mission of the EDA to create and retain jobs, increase private investment, enhance innovation, and grow ecosystems that attract investment.	Nonprofits, county and state governments, special districts, tribal governments, public and private institutions of higher education, city or Township governments.	Projects in rural or urban areas that support construction, non-construction, technical assistance, and revolving loan fund projects. Grants are designed to leverage existing regional assets and support the implementation of economic development strategies in distressed communities by developing key public infrastructure.
Community Development Block Grant (CDBG) Program for Rural Texas	Department of Housing & Urban Development - through Texas Department of Agriculture	The primary goal of this program is to develop viable communities by providing affordable housing or expanding economic opportunities for communities of low- to moderate-income.	Nonurban cities and counties (population less than 50,000 or 200,000 people, respectively) that are not designated as eligible for the entitlement portion of the federal CDBG program.	Priority projects for NCTCOG are Water/Wastewater; Septic Tanks; Water/Wastewater Yard Lines; Roads/Streets; Drainage. Other eligible activities does include parks and recreational activities. The funding for parks and recreation depends on how many parks already exist in the community. If there is more than one park or recreational facility, the applicant must identify the service area of the park or recreational facility that is included in the proposed project.

Potential Funding Sources for Prosper, TX Outdoor Recreation - recreation and greenspace; public art; gateways and wayfinding - Cont'd				
Loan or Grant Maximum	**Terms/Requirements/ Notes**	**Funding Cycle**	**Contact**	**Website**
For this grant program, they defer to the expertise of the applicants on the funding needed to run a successful program. The intention is that the requested amount should reflect the robustness and effectiveness of the proposed program and be put within the context of the specific needs and challenges of the communities involved.	Recent Texas park example: "We're working to get kids physically active with Imagination Playground, a ground-breaking pop-up playground design with uniquely shaped foam blocks and loose parts that help kids play creatively. With the addition of shade structures to 34 Texas playgrounds, we're helping kids and families have more sun-safe access to great places to play."	Annual grant solicitation, typically letters of intent are due mid August with full applications (if invited) due end of September.	"healthykidshealthy-families @hcsc.net"	-
Up to $50,000.	Applicants will be notified 30-60 days after the end of each quarter on the status of the submission.	"Applications will be open on a quarterly basis with the following schedule: Spring: Jan – March Summer: April – June Fall: July – Sept Winter: Oct – Dec Portal will close on the last day of each quarter and reopen for the new quarter on the first of the month."	-	https://www.t-mobile.com/brand/homeTown-grants

Potential Funding Sources for Prosper, TX Underground Utilities - Cont'd				
Loan or Grant Maximum	**Terms/Requirements/ Notes**	**Funding Cycle**	**Contact**	**Website**
Award ceiling: $3,000,000 Award Floor: $100,000	Need to demonstrate "distressed" community through low-income or disadvantaged populations, high unemployment, and/or recent manufacturing layoffs.	While EDA encourages eligible applicants to submit their applications as soon as possible, EDA strongly advises eligible applicants to submit complete applications no later than March 31, 2022	Consult with NCTCOG then regional EDA rep out of Austin	https://eda.gov/funding-opportunities/#:~:tex-
Grant maximums range from $75,000 - $800,000 and varies by region.	"The Community Development Fund is available through a competition that takes place in each of the state planning regions. Must apply Federal Davis Bacon Wage Rates to construction activities. Administered through NCTCOG."	The fund is available on a biennial basis. The next application deadline appears to be February 2023 as the last cycle closed February 2021.	"Olivia Kale 817-695-9213 OKale@nctcog.org"	-

Potential Funding Sources for Prosper, TX Transportation - infrastructure and mobility (pedestrian and bicycle)				
Program	**Agency**	**Purpose / Goals**	**Eligible Applicants**	**Eligible Use of Funds**
Highway Safety Improvement Program (HSIP)	TxDOT (orig. Federal Highway Administration)	For highway safety projects that eliminate or reduce the number of fatalities and serious injuries on all public roads	Any local agency that owns, operates, and maintains public roadways	"Improvements that address the crash types identified in the Texas Strategic Highway Safety Plan (SHSP). Funds are provided for construction and operational improvements both on and off the state highway system. Project must address the following priorities: * Is the strategy, activity, or project consistent with the priorities of Texas' SHSP? * Does the project address a serious crash risk such as a hot spot, systemic risk factor, road segment, or crash type that has been identified through a data driven process? * Is the project likely to contribute to a significant reduction in
Transportation Infrastructure Finance and Innovation Act (TIFIA)	Build America Bureau, US Department of Transportation	To fill market gaps and leverage substantial private co-investment by providing supplemental and subordinate capital.	State and local governments, transit agencies, railroad companies, special authorities, special districts, and private entities.	Highway projects and transit capital projects are eligible, including intelligent transportation systems (ITS). In addition, the following types of projects are eligible: international bridges and tunnels; intercity passenger bus and rail facilities and vehicles; publicly owned freight rail facilities; private facilities providing public benefit for highway users; intermodal freight transfer facilities; projects that provide access to such facilities; service improvements on or adjacent to the National Highway System; and projects located within the boundary of a port terminal under certain conditions.
"Transportation Alternatives Set-Aside (TA) Program "	Federal Highway Administration - administered by TxDOT	Preserve historic, archaeological, scenic and environmental resources related to surface transportation, and to facilitate bicycle and pedestrian use.	Local governments; Regional transportation authorities; Transit agencies; Natural resource or public land agencies; School districts, local education agencies, or schools; Tribal governments; Nonprofit entities responsible for the administration of local transportation safety programs; Any other local or regional governmental entity with responsibility for oversight of transportation or recreational trails (other than a metropolitan planning organization or a State agency).	"Eligible TA activities for the department's 2021 TA Program Call for Projects included: 1. Bicycle infrastructure improvements; 2. Shared use paths; 3. Sidewalk improvements; 4. Infrastructure-related projects to improve safety for non-motorized transportation. Construction and engineering costs are eligible for projects in communities of 50,000 or less in population, while only construction costs are eligible for projects in communities of 50,001 or greater in population."

Potential Funding Sources for Prosper, TX Transportation - infrastructure and mobility (pedestrian and bicycle) - Cont'd				
Loan or Grant Maximum	**Terms/Requirements/ Notes**	**Funding Cycle**	**Contact**	**Website**
The HSIP is federally funded. Program funds are eligible to cover 90 percent of project construction costs. The remaining 10 percent of project construction costs must be covered by state or local participation.	"HSIP funded projects are also required to be evaluated for cost effectiveness. Completed projects are subject to cost/benefit analysis using three to five years of before and after crash data, average annual daily traffic for the years before and after the improvement, and actual construction costs. "	December 17, 2021 close for District Project Proposals Due for FY's 22-25	Heather Lott, heather.lott@txdot.gov	https://www.txdot.gov/inside-txdot/forms-publications/publications/highway-safety.html
Low interest loan program. Major requirements include a capital cost of at least $50 million (or 33.3 percent of a state's annual apportionment of Federal-aid funds, whichever is less) or $15 million in the case of ITS. TIFIA credit assistance is limited to a maximum of 33% of the total eligible project costs.	The project also must be supported in whole or in part from user charges or other non-Federal dedicated funding sources and be included in the state's transportation plan.	Ongoing; multi-step process beginning with the submission of a letter of interest (LOI). The estimated time frame for the initial technical review is approximately 30 days; then a creditworthiness review, which takes about 45 to 90 days after receipt of all requested information. If a project satisfies all of the criteria, the Department will invite the project sponsor to apply for TIFIA credit assistance. Estimated time for approval is no more than 90 days after receipt of the application.	(202) 366-2300, BuildAmerica@dot.gov	https://www.transportation.gov/buildamerica/financing/tifia
"No maximum listed but limited by total appropriations. 20% non-federal match required. A project must also have an estimated project cost exceeding $500,000."	"The TA program dictates that 50% of funds received are to be suballocated based on MPO and COG based on their relative share of the total 2010 Census population. The remaining 50% of the funds are to be available for use in any area of the State, to be administered by the Department, or may be transferred to another category. "	Two-step application process with pre-applications typically due in March and final applications due in June.	"Phillip Hays, 817-370-6591 Phillip.Hays@txdot.gov Also should work through NCTCOG."	https://www.txdot.gov/inside-txdot/division/public-transportation/bicycle-pedestrian.html#:~:text=%20Transportation%20Alternatives%20Set-Aside%20%28TA%29%20Program%20TxDOT%20

Potential Funding Sources for Prosper, TX Transportation - infrastructure and mobility (pedestrian and bicycle)				
Program	**Agency**	**Purpose / Goals**	**Eligible Applicants**	**Eligible Use of Funds**
Urbanized Area Formula Grants - 5307	Federal Highway Administration	To enhance mobility in urbanized areas	Transit providers serving populations between 50,000 and 200,000 are eligible. McAllen and Arlington, both with populations over 200,000, are included because they are eligible for state funds	Capital funds can be spent on buses and bus facilities, fixed guide-way system projects, technology introductions and innovative techniques and methods. Planning funds are available for engineering design, evaluation of public transportation projects and other technical studies. Allowable operating expenses are limited to direct labor, materials and overhead expenses incurred by the transit operator. Program funds may be used for capital, planning, operating and administrative costs
Infrastructure for Rebuilding America (INFRA)	Federal Highway Administration	Support economic vitality at the national and regional level; leverage Federal funding to attract other, non-Federal sources of infrastructure investment; use innovative approaches to improve safety and expedite project delivery	A State or group of States; metropolitan planning organization; unit of local government/group of local governments; a political subdivision of a State or local government; special purpose district or public authority with a transportation function; Federal land management agency that applies jointly with a State or group of States; tribal government, single or group	Must be listed on the NHS; projects that address congestion in major urban areas, specifically through congestion pricing or deployment of advanced tech.; projects that: bridge gaps in service in rural areas; attract private economic development; maximize state, local, and private sector funding; raise revenue directly; projects that pair INFRA with broader-scale innovative financing (e.g. TIFIA, RRIF)
Better Utilizing Investments to Leverage Development (BUILD)	US Department of Transportation	To upgrade infrastructure across America, making our transportation systems safer and more efficient.	"State, local and tribal governments, including U.S. territories, transit agencies, port authorities, metropolitan planning organizations (MPOs), and other political subdivisions of State or local governments. "	"Surface transportation projects. A. Capital projects that include, but are not limited to: (1) Highway, bridge, or other road projects eligible under title 23, United States Code; (2) public transportation projects eligible under chapter 53 of title 49, (3) passenger and freight rail transportation projects; (4) port infrastructure investments (including inland port infrastructure and land ports of entry); (5) intermodal projects; and (6) projects investing in surface transportation facilities that are located on tribal land and for which title or maintenance responsibility is vested in the Federal Government. B. Planning projects: related to the planning, preparation, or design—including environmental analysis, feasibility studies, and other pre-construction activities—of eligible surface transportation capital projects. In addition, eligible activities related to multidisciplinary projects or regionalplanning may include: (1) Development of master plans, comprehensive plans, or corridor plans; (2) Planning activities related to the development of a multimodal freight corridor, including those that seek to reduce conflicts with residential areas and with passenger and non-motorized traffic; (3) Development of port and regional port planning grants, including State-wide; (4) Risk assessments and planning to identify vulnerabilities and address the transportation system's ability to withstand probable disaster."

Potential Funding Sources for Prosper, TX
Transportation - infrastructure and mobility (pedestrian and bicycle) - Cont'd

Loan or Grant Maximum	Terms/Requirements/ Notes	Funding Cycle	Contact	Website
"Maximum federal funding ratio for capital, planning and administrative costs of 80% and a maximum state/local match of 20% on most projects. Americans with Disabilities Act of 1990 (ADA) and Clean Air projects may receive up to 90% federal funding. The funding ratio for net operating costs is 50% federal match and 50% state/local match"	Funds are distributed by the FTA using a formula based on population and population density. In areas with populations over 200,000, grants are awarded directly to the local recipient. Grants for urban areas with populations under 200,000 may be made to the governor or to local recipients designated by the governor. Currently, cities apply directly to FTA.	No cycle per se; allocations are determined by formula and then distributed annually.	"Office of Program Management Federal Transit Administration, 202-366-2053"	https://www.transit.dot.gov/funding/grants/urbanized-area-formula-grants-5307
Grant for up to 60% of total project costs; 90% of funding for large projects; 10% for small projects and > 25% of funds are designated for rural areas; Large projects > $100 M & min $25 M grant; Small projects < $100 M & min $5 M grant; Rural areas = non metropolitan statistical areas; Up to $200 M available for freight rail, water, ports, and intermodal freight projects on the National Highway Freight Network		Annual program, dependent on funding; typically in February or March.	"Office of the Assistant Secretary for Transportation Policy, 202-366-4544, INFRAgrants@dot.gov"	https://www.transportation.gov/buildamerica/financing/infra-grants/infrastructure-rebuilding-america
"No maximum listed but limited by total appropriations. 20% non-federal match required. A project must also have an estimated project cost exceeding $500,000."	"The TA program dictates that 50% of funds received are to be suballocated based on MPO and COG based on their relative share of the total 2010 Census population. The remaining 50% of the funds are to be available for use in any area of the State, to be administered by the Department, or may be transferred to another category. "	Two-step application process with pre-applications typically due in March and final applications due in June.	"Phillip Hays, 817-370-6591 Phillip.Hays@txdot.gov Also should work through NCTCOG."	https://www.txdot.gov/inside-txdot/division/public-transportation/bicycle-pedestrian.html#:~:text=%20Transportation%20Alternatives%20Set-Aside%20%28TA%29%20Program%20TxDOT%20

Potential Funding Sources for Prosper, TX Transportation - infrastructure and mobility (pedestrian and bicycle)				
Program	**Agency**	**Purpose / Goals**	**Eligible Applicants**	**Eligible Use of Funds**
Governor's Community Achievement Awards	Keep Texas Beautiful in partnership with Texas Department of Transportation	To award Texas communities for their outstanding overall efforts to keep their communities beautiful.	Texas communities	The funds are to be used for landscaping projects along local rights-of-way. A community's environmental program is judged on achievements in seven areas: community leadership and coordination, public awareness, education, beautification and community improvement, litter prevention and cleanup, solid waste management, litter law and illegal dumping enforcement.
AARP Foundation Grants	AARP	To improve housing, transportation, public space, technology ("smart cities"), civic engagement and more.	501(C)(3), 501(C)(4) and 501(c)(6) nonprofits, government entities, other types of organizations will be considered on a case-by-case basis.	"Prioritize projects that aim to achieve the following outcomes: * Increasing civic engagement with innovative and tangible projects that bring residents and local leaders together to address challenges and facilitate a greater sense of community inclusion and diversity. * Create vibrant public places that improve open spaces, parks and access to other amenities. * Deliver a range of transportation and mobility options that increase connectivity, walkability, bikeability, wayfinding, access to transportation options and roadway improvements. * Support the availability of a range of housing that increases accessible and affordable housing options. * Demonstrate the tangible value of "Smart Cities" with programs that engage residents in accessing, understanding and using data, and participating in decision-making to increase the quality of life for all. * Other community improvements: In addition to the five areas of focus, AARP wants to hear about local needs and new, innovative ideas for addressing them. "
"Asphalt Art Initiative"	Bloomberg Philanthropies	Using art to reimagine roadways and vertical infrastructure, improving street safety, revitalizing public spaces, and bringing communities together.	U.S. cities with populations of 30,000-500,000	"Three categories: 1. ART ON THE ROADWAY - mural projects on paved areas that are accessible to motor vehicles, such as intersections, crosswalks, and other surfaces within the active roadway. 2. ART IN PEDESTRIAN SPACE - art projects on paved areas that are inaccessible to motor vehicles while the artwork is in place, such as curb and sidewalk extensions as well as any surface that has been temporarily or permanently converted into a public space or plaza. 3. ART ON VERTICAL INFRASTRUCTURE - art projects installed on vertical infrastructure, including utility boxes, traffic barriers, and highway underpasses. "

Potential Funding Sources for Prosper, TX Transportation - infrastructure and mobility (pedestrian and bicycle) - Cont'd				
Loan or Grant Maximum	**Terms/Requirements/ Notes**	**Funding Cycle**	**Contact**	**Website**
"Maximum federal funding ratio for capital, planning and administrative costs of 80% and a maximum state/local match of 20% on most projects. Americans with Disabilities Act of 1990 (ADA) and Clean Air projects may receive up to 90% federal funding. The funding ratio for net operating costs is 50% federal match and 50% state/local match"	Funds are distributed by the FTA using a formula based on population and population density. In areas with populations over 200,000, grants are awarded directly to the local recipient. Grants for urban areas with populations under 200,000 may be made to the governor or to local recipients designated by the governor. Currently, cities apply directly to FTA.	No cycle per se; allocations are determined by formula and then distributed annually.	"Office of Program Management Federal Transit Administration, 202-366-2053"	https://www.transit.dot.gov/funding/grants/urbanized-area-formula-grants-5307
Grant for up to 60% of total project costs; 90% of funding for large projects; 10% for small projects and > 25% of funds are designated for rural areas; Large projects > $100 M & min $25 M grant; Small projects < $100 M & min $5 M grant; Rural areas = non metropolitan statistical areas; Up to $200 M available for freight rail, water, ports, and intermodal freight projects on the National Highway Freight Network		Annual program, dependent on funding; typically in February or March.	"Office of the Assistant Secretary for Transportation Policy, 202-366-4544, INFRAgrants@dot.gov"	https://www.transportation.gov/buildamerica/financing/infra-grants/infrastructure-rebuilding-america
Maximum grant award is $25,000; no match required; however, competitive proposals will include in-kind support from the municipality and/or funding from other sources.	Eligible sites can include portions of active roadways, sidewalks, pedestrian plazas, or transportation infrastructure such as traffic barriers, highway underpasses, or utility boxes. Sites may be located in and managed by one or multiple jurisdictions (city, state or county, public utility, regional transit authority, etc.) but must be largely or completely on public property and be fully open to the public.	Rolling application period; no deadline for submittal.	-	"https://asphaltart.bloomberg.org/grants/"

Potential Funding Sources for Prosper, TX Transportation - infrastructure and mobility (pedestrian and bicycle)				
Program	**Agency**	**Purpose / Goals**	**Eligible Applicants**	**Eligible Use of Funds**
People for Bikes	People for Bikes	To build momentum for bicycling in communities across the U.S.	Non-profit organizations, city or county agencies or departments, and state or federal agencies working locally	Bicycle infrastructure projects such as: Bike paths, lanes, trails, and bridges; Mountain bike facilities; Bike parks and pump tracks; BMX facilities; End-of-trip facilities such as bike racks, bike parking, bike repair stations and bike storage.

Potential Funding Sources for Prosper, TX Small and Local Business Development				
Program	**Agency**	**Purpose / Goals**	**Eligible Applicants**	**Eligible Use of Funds**
Rural Business Development Grant	US Department of Agriculture	Provide technical assistance and training for small rural businesses. Small means that the business has fewer than 50 new workers and less than $1 million in gross revenue.	Towns, nonprofit corporations, colleges/universities, rural cooperatives	"Grants must be used on projects to benefit small and emerging businesses in rural areas as specified in the grant application. Uses may include: Training and technical assistance, such as project planning, business counseling and training, market research, feasibility studies, professional or/technical reports or producer service improvements. Acquisition or development of land, easements, or rights of way; construction, conversion, renovation of buildings; plants, machinery, equipment, access for streets and roads; parking areas and utilities; pollution control and abatement; the capitalization of revolving loan funds, including funds that will make loans for start-ups and working capital; distance adult learning for job training and advancement; rural transportation improvement; community economic development; Technology-based economic development; feasibility studies and business plans; leadership and entrepreneur training; rural business incubators; long-term business strategic planning."
Product Development and Small Business Incubator Fund (PDSBI)	Texas Economic Development	Long-term, asset-backed loans to product development companies and small business incubators/accelerators located in Texas. The loans finance the development and production of new or improved products or the stimulations of new or existing small businesses in Texas. The program targets those businesses which may be unable to obtain full financing or financing on workable terms in traditional capital markets.	A small business, defined as a legal entity which is domiciled in the State of Texas or has at least 51% of its employees located in the state, employs fewer than 100 full-time employees, and is independently owned and operated.	A new or improved product being developed, produced, and/or commercialized in the State of Texas, to include an invention, device, technique, or process, without regard to whether a patent has been or could be granted, that has advanced beyond the theoretical stage and has or is readily capable of having a commercial application.

Potential Funding Sources for Prosper, TX Transportation - infrastructure and mobility (pedestrian and bicycle) - Cont'd				
Loan or Grant Maximum	**Terms/Requirements/ Notes**	**Funding Cycle**	**Contact**	**Website**
Grant, 50% up to $10,000	"Two-step application process: 1. Letter of Interest 2. Full Application: PFB will request a full project application from a short list of qualified applicants."	Currently no open grant cycle but they typically have two grant rounds in the spring and fall.	"Zoe Kircos, (720) 726-3335 zoe@ peopleforbikes.org"	https://peopleforbikes.org/our-work/community-grants/

Potential Funding Sources for Prosper, TX Small and Local Business Development - Cont'd				
Loan or Grant Maximum	**Terms/Requirements/ Notes**	**Funding Cycle**	**Contact**	**Website**
There is no maximum grant amount; however, smaller requests are given higher priority. There is no cost sharing requirement. Opportunity grants are limited to up to 10 percent of the total Rural Business Development Grant annual funding.	Rural Business Development Grant money must be used for projects that benefit rural areas or Towns outside the urbanized periphery of any city with a population of 50,000 or more.	Applications due March 31, 2021.	"Daniel Torres 254-742-9700"	https://www.txdot.gov/inside-txdot/forms-publications/publications/highway-safety.html
Generally range from $1 million - $5 million; low variable IR; 15 years if financing personal property or working capital; 20 years for real property	All applicants must have 3 years of operating history to be eligible for a loan.	Rolling application period; no deadline for submittal.	512-936-0100	https://gov.texas.gov/business/page/product-development-and-small-business-incubator-fund

Potential Funding Sources for Prosper, TX Small and Local Business Development				
Program	**Agency**	**Purpose / Goals**	**Eligible Applicants**	**Eligible Use of Funds**
Texas Rural Business Fund (TxRBF)	Texas Department of Agriculture	A pilot program that provides funding to rural communities and counties to incentivize job creation and industry development in rural Texas. Applicants must demonstrate how the business recruitment or expansion significantly impacts the community and region.	" Eligible applicants are rural cities located in counties with less than 200,000 population."	Projects must support an established business in the agricultural & food manufacturing business, bio-technology & life sciences, energy, information technology, manufacturing, supply chain and logistics industries that will create skilled jobs and have the potential to spur further economic development. TxRBF funds must be used for public infrastructure improvements. Infrastructure includes road, rail, water, sewer, electric, and telecommunications. TxRBF funds may also be used for engineering costs related to the public infrastructure improvements.
Skills for Small Business Program	Texas Workforce Commission (TWC)	Small businesses can apply to TWC for training offered by their local community or technical college, or the Texas A&M Engineering Extension Service (TEEX)	Supports businesses with fewer than 100 employees and emphasizes training for new workers though it also may help upgrade the skills of incumbent workers.	Skills for Small Business emphasizes training newly hired employees, those who have been hired by the business up to twelve months prior to the date that TWC receives an application.
Impact Grants	First National Bank of Omaha	We help strengthen local economies through small business and entrepreneurial development and job creation by supporting training, technical assistance, education and microfinance.	"Organizations that have not received a grant from FNBO in the past must email the Impact by FNBO Team to receive a link to the application. This step can be completed at any time and you do not need to wait until the grant cycle opens to request a link. "	Organizations that have not received a grant from FNBO in the past must email the Impact by FNBO Team to receive a link to the application. This step can be completed at any time and you do not need to wait until the grant cycle opens to request a link.
Ewing Marion Kauffman Foundation - Enrepreneurship Grants	Ewing Marion Kauffman Foundation	The Kauffman Foundation works in partnership with organizations that share our vision and passion for education and entrepreneurship.	"The majority of our grants are proactive and made to tax-exempt organizations "	Various funding opportunities - see webiste link.

Potential Funding Sources for Prosper, TX
Small and Local Business Development - Cont'd

Loan or Grant Maximum	Terms/Requirements/ Notes	Funding Cycle	Contact	Website
No maximum grant amount listed reach out via email for more details.	TxRBF funds may not be used for administrative costs.	No funding cycle listed reach out via email for more details.	Economic Development@TexasAgriculture.Gov	https://www.texasagriculture.gov/GrantsServices/GrantsandServices/TexasRuralBusinessFund.aspx
The program pays up to $1,800 for each new employee being trained and $900 for existing employees per 12-month period.	"All training must be provided by a public community or technical college, or the Texas A&M Engineering Extension Service (TEEX). No third-party vendor training is allowed. Training must be selected from active course catalogs/ schedules— credit, continuing education, online or other available unpublished courses. Employers must pay the prevailing wages in the local labor market for the trainees funded under the grant."	No funding cycle listed	877-463-1777 or SkillsforSmallBusiness@twc.texas.gov	https://www.twc.texas.gov/businesses/skills-small-business-employers#overview
Organizations that have not received a grant from FNBO in the past must email the Impact by FNBO Team to receive a link to the application. This step can be completed at any time and you do not need to wait until the grant cycle opens to request a link.	Organizations that have not received a grant from FNBO in the past must email the Impact by FNBO Team to receive a link to the application. This step can be completed at any time and you do not need to wait until the grant cycle opens to request a link.	Grant applications are anticipated in January 2023 with grant award notifications will be sent in March/ April 2023.	impactbyfnbo@fnni.com	https://www.fnbo.com/community/request-support/
Ewing Marion Kauffman Foundation - Enrepreneurship Grants	Ewing Marion Kauffman Foundation	The Kauffman Foundation works in partnership with organizations that share our vision and passion for education and entrepreneurship.	"The majority of our grants are proactive and made to tax-exempt organizations "	Various funding opportunities - see webiste link.

Potential Funding Sources for Prosper, TX Event and Programing				
Program	**Agency**	**Purpose / Goals**	**Eligible Applicants**	**Eligible Use of Funds**
ARTPLACE America	Collaboration among a number of foundations, federal agencies, and financial institutions	A future of equitable, healthy, and sustainable communities in which everyone has a voice and agency in creating contextual, adaptive, and responsive solutions.	Five groups: civic, social and faith, commercial, government, nonprofit, and philanthropy	Broad definition of art: craft and culinary arts, dance, design and architecture, film and media, folk and traditional, literature, musicl, visual arts, theater and performance, and other formal and informal creative practices.
Community Sponsorships	First National Bank of Omaha	FNBO is proud to support nonprofit organizations and community events that are important to our communities.	nonprofit organizations and community events	A community sponsorship is defined as unrestricted financial support to a nonprofit organization in association with a community event or other general fund raising effort for the primary purpose of providing support to the organization. This can include but is not limited to:Fundraisers or other events (i.e. galas, festivals, luncheons, parades) General activities/operations of an organization Season "sponsorships" for organizations dedicated to enhancing arts and culture
Blue Bear Event Sponsorship	Blue Cross Blue Shield of Texas	For more than 90 years, Blue Cross and Blue Shield of Texas (BCBSTX) has forged alliances with private and public organizations to honor our commitment to improve the health of all Texans. Our charitable contributions allow us to connect with not just our customers, but also community partners, local leaders and policymakers interested in making Texas a healthier state. Through these partnerships, BCBSTX seeks to support sustainable, measurable programs and impactful organizations that strengthen and enrich Texas communities.	We accept requests for sponsorships and grants from organizations that are located within Texas and have at least one of the following designations: Defined as a non-profit under section 501(c)(3) of the Internal Revenue Service Code Government, civic and cultural organizations	In Texas, sponsorship dollars are prioritized to organizations that support the following areas: Access to Care: Projects that increase awareness and understanding of access to preventive and health care services for underinsured, uninsured, minority and low-income households. Prevention and Risk Reduction: Projects that increase awareness and understanding of healthy choices in everyday living and promote a healthy lifestyle. Examples of project areas include: nutrition, physical activity, weight management and tobacco cessation. Chronic Disease Management: Projects that increase awareness and understanding of living with and managing chronic conditions. Examples of project areas include: diabetes, heart disease, cancer, and mental illnesses such as Alzheimer's. Community Involvement: As a corporate entity, brand visibility and community involvement are important to business growth. Through these sponsorships we seek opportunities that allow BCBSTX to grow its presence in communities.

Potential Funding Sources for Prosper, TX Event and Programing - Cont'd				
Loan or Grant Maximum	**Terms/Requirements/ Notes**	**Funding Cycle**	**Contact**	**Website**
Dependent on foundation	Dependent on foundation	Dependent on foundation	sarah.westlake@ artplaceamerica.org	http://www. artplaceamerica. org/ about/introduction
Request desired amount.	None listed.	BCBSTX is unable to fund: Organizations or projects with written policies that discriminate against individuals based on race, color, sex, sexual orientation, gender identity, religious creed, national origin, physical or mental disability, or protected veteran status or any other characteristic protected by law. School athletic programs Applications from individuals Applications that do not align with our funding priorities		https://www.fnbo. com/community/ request-support/
None listed.	BCBSTX is unable to fund: Organizations or projects with written policies that discriminate against individuals based on race, color, sex, sexual orientation, gender identity, religious creed, national origin, physical or mental disability, or protected veteran status or any other characteristic protected by law. School athletic programs Applications from individuals Applications that do not align with our funding priorities	Letter of Intent: February; Application Process: March	Helen Dorsey 972-766-1736 helen_m_dorsey@ bcbstx.com	bcbstx.com/company-info/community-involvement/ apply-for-funding

Branding and Tourism				
Program	**Agency**	**Purpose / Goals**	**Eligible Applicants**	**Eligible Use of Funds**
Rural Business Development Grant	US Department of Agriculture	Provide technical assistance and training for small rural businesses. Small means that the business has fewer than 50 new workers and less than $1 million in gross revenue.	Towns, nonprofit corporations, colleges/universitues, rural cooperatives	Grants must be used on projects to benefit small and emerging businesses in rural areas as specified in the grant application. Uses may include: Training and technical assistance, such as project planning, business counseling and training, market research, feasibility studies, professional or/technical reports or producer service improvements. Acquisition or development of land, easements, or rights of way; construction, conversion, renovation of buildings; plants, machinery, equipment, access for streets and roads; parking areas and utilities; pollution control and abatement; the capitalization of revolving loan funds, including funds that will make loans for start-ups and working capital; distance adult learning for job training and advancement; rural transportation improvement; community economic development; Technology-based economic development; feasibility studies and business plans; leadership and entrepreneur training; rural business incubators; long-term business strategic planning.

Branding and Tourism - Cont'd				
Loan or Grant Maximum	**Terms/Requirements/ Notes**	**Funding Cycle**	**Contact**	**Website**
8There is no maximum grant amount; however, smaller requests are given higher priority. There is no cost sharing requirement. Opportunity grants are limited to up to 10 percent of the total Rural Business Development Grant annual funding.	Rural Business Development Grant money must be used for projects that benefit rural areas or Towns outside the urbanized periphery of any city with a population of 50,000 or more.	Applications due March 31.	Daniel Torres 254-742-9700	https://www.txdot.gov/inside-txdot/forms-publications/publications/highway-safety.html

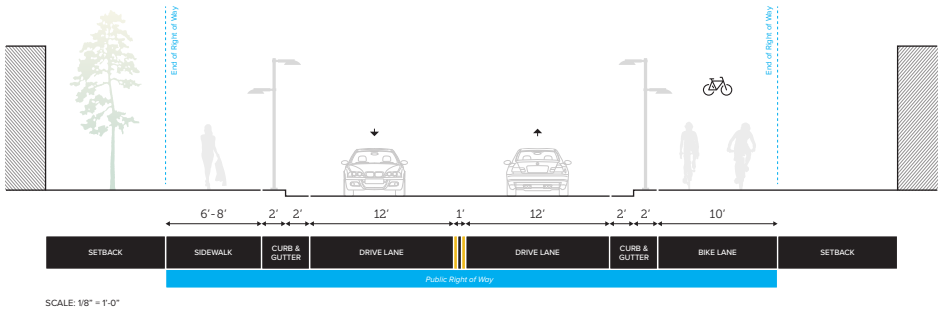
APPENDIX E

Alternate Street Cross -Sections

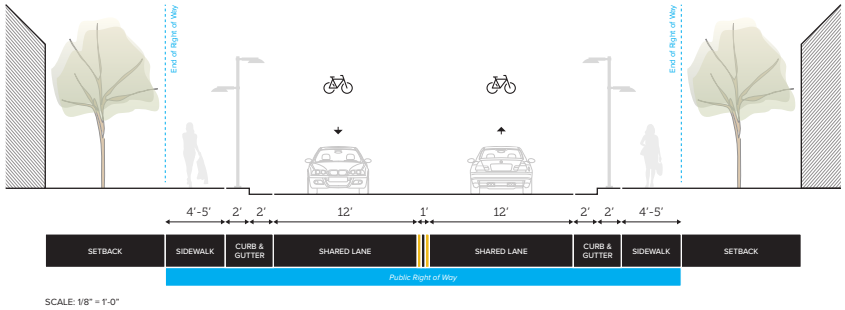
The Town has formally adopted the Old Town Transportation Plan to guide future roadway replacement projects. Since the Master Plan process began multiple projects within the overall downtown area have progressed in the plan development process. These projects, along with the catalyst sites as developed may alter development patterns slightly from what was anticipated when the Old Town Transportation Plan was prepared.

As the Town prepares for future roadway improvement projects, they should be evaluated in context with the Master Plan and any new or proposed development within the impacted area. The following street cross-sections may be considered as alternates for various segments and would be compatible with the Master Plan.

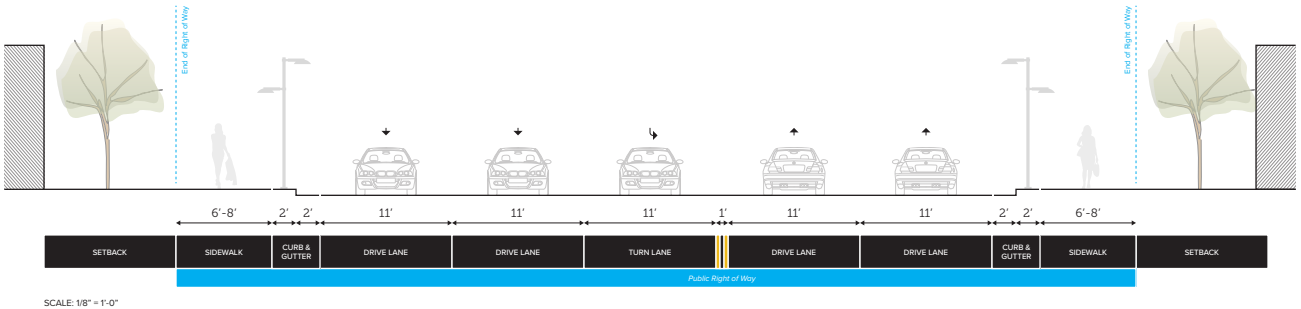
These cross sections do not supersede the formally adopted Old Town Transportation Plan, including after adoption of this Master Plan.



First Street: McKinley to Coleman

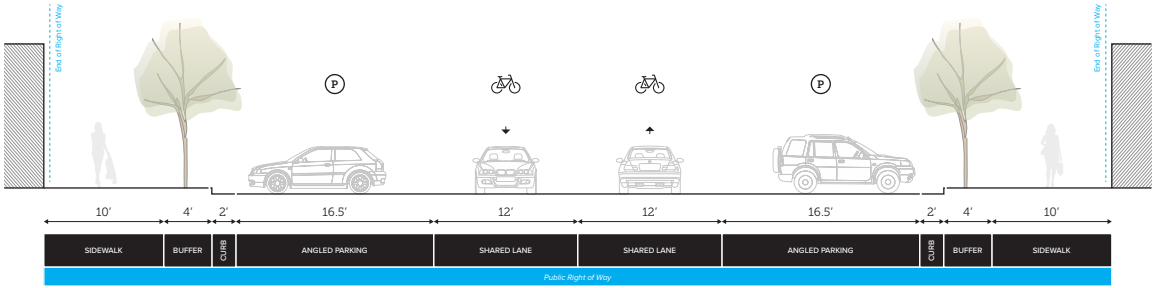


First Street: Coleman to Craig



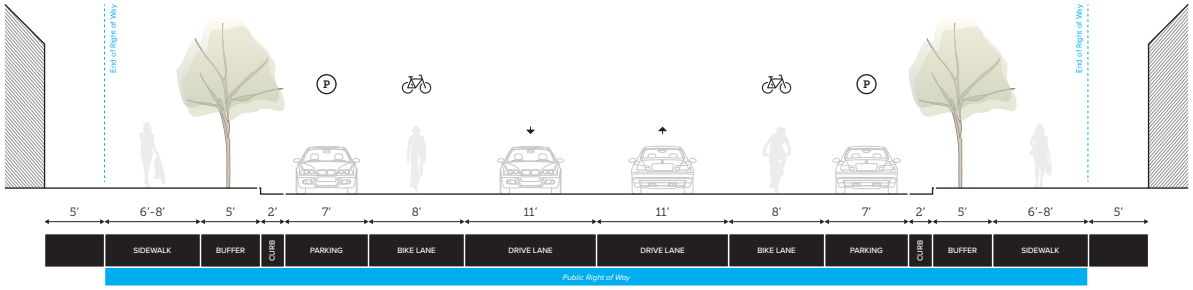
SCALE: 1/8" = 1'-0"

First Street: Craig to Preston



SCALE: 1/8" = 1'-0"

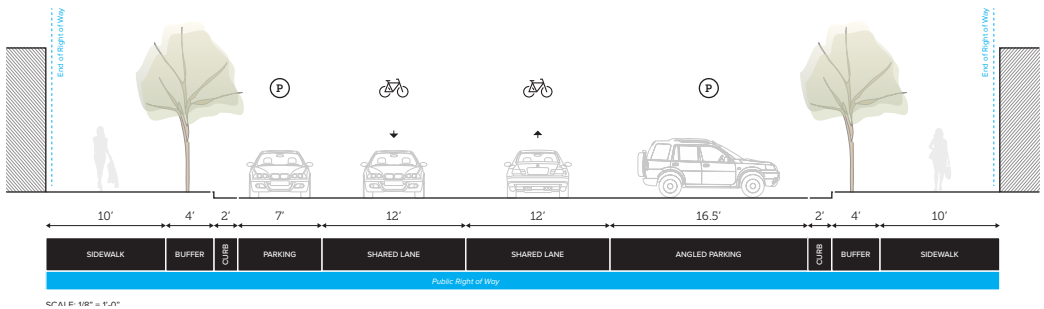
Broadway Street: McKinley to Coleman



SCALE: 1/8" = 1'-0"

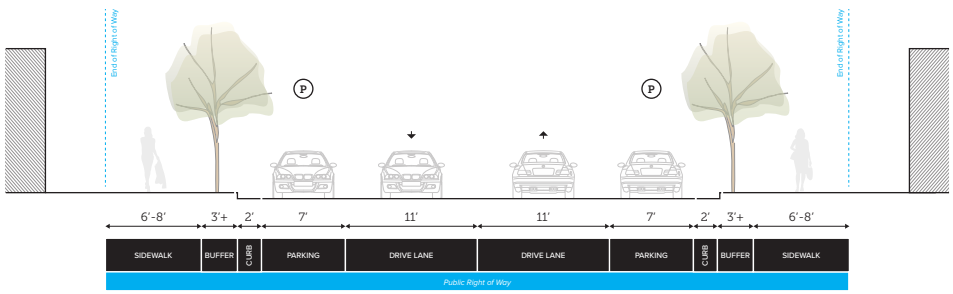
Broadway Street: Coleman to Preston

Alternate Street Cross -Sections



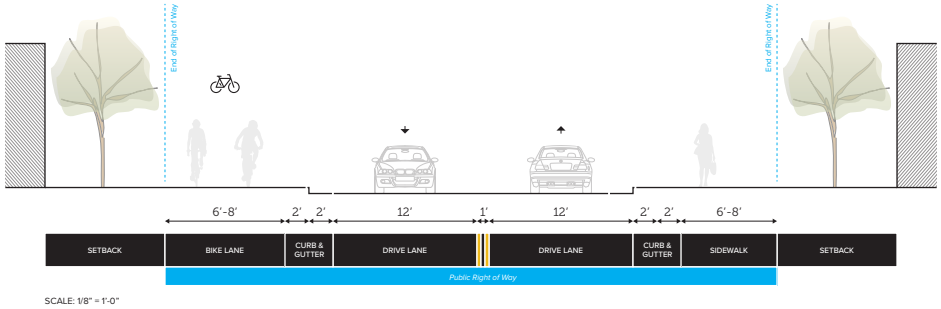
SCALE: 1/8" = 1'-0"

Main Street



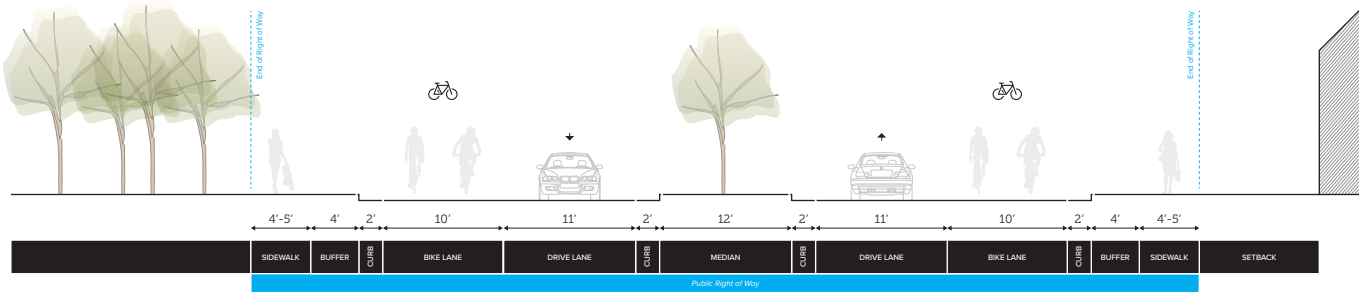
SCALE: 1/8" = 1'-0"

McKinley Street



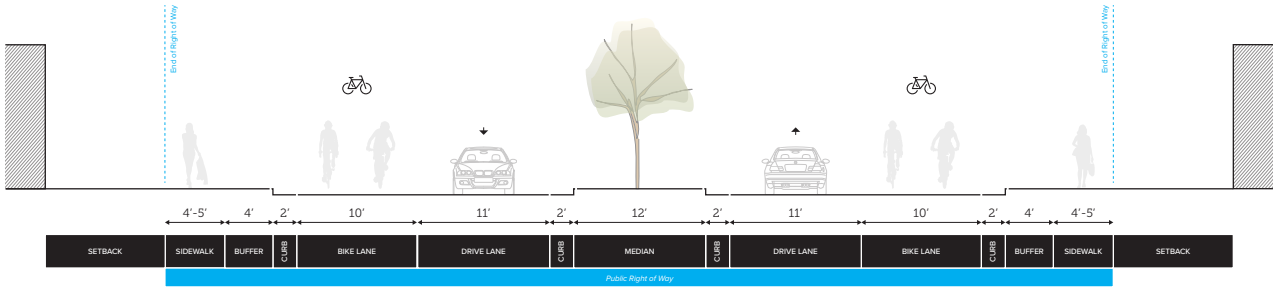
SCALE: 1/8" = 1'-0"

Coleman Street: North of Fifth



SCALE: 1/8" = 1'-0"

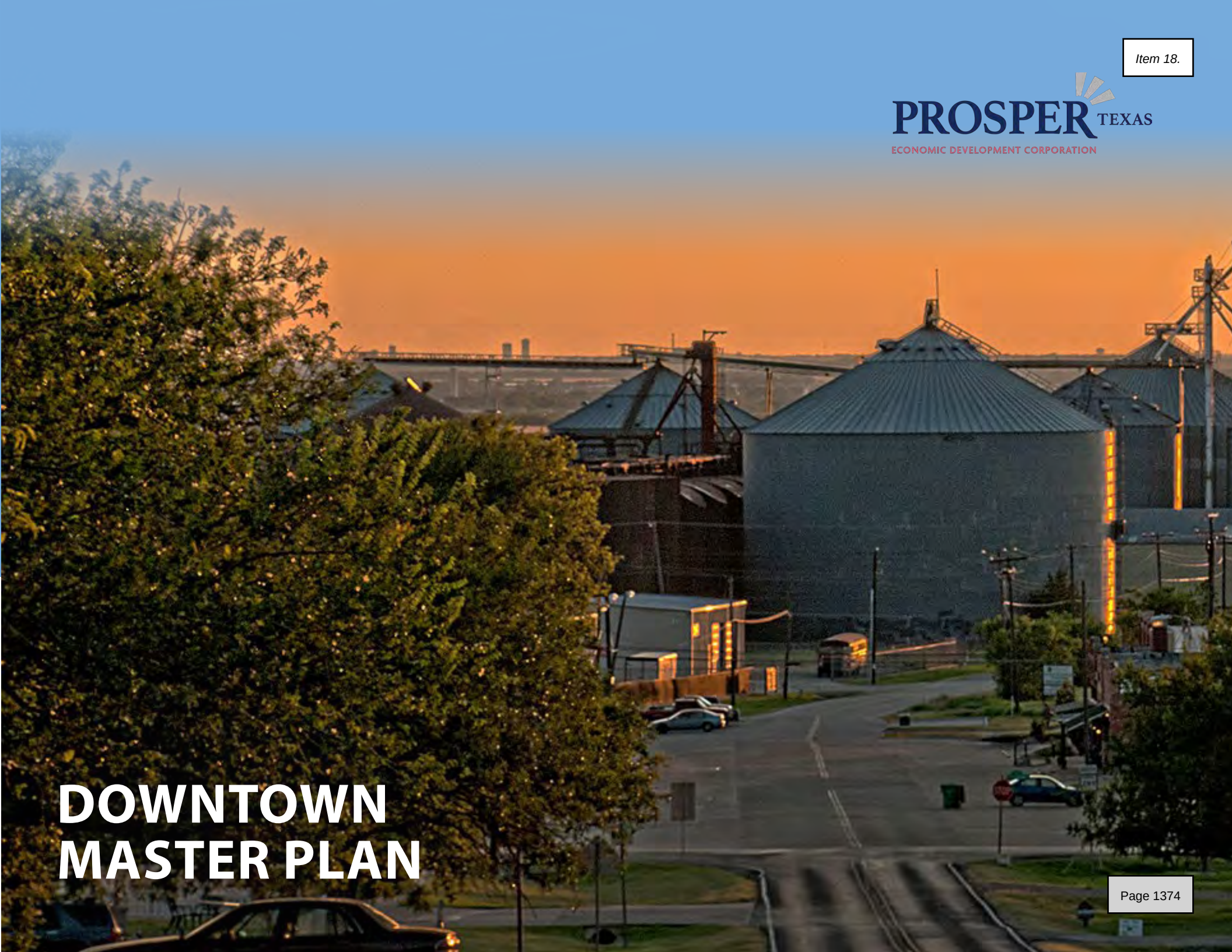
Coleman Street: Coleman South of First



SCALE: 1/8" = 1'-0"

Coleman Street: First to Broadway

PROSPER TEXAS
ECONOMIC DEVELOPMENT CORPORATION



DOWNTOWN MASTER PLAN

TOWN OF PROSPER

Prosper is a place where everyone matters.

ENGINEERING SERVICES

To: **Mayor and Town Council**

From: **Hulon T. Webb, Jr., Interim Executive Director of Development and Infrastructure Services**

Through: **Harlan Jefferson, Town Manager**

Re: **Town Council Meeting – June 28, 2022**

Agenda Item:
Consider and act upon approving a resolution supporting the proposed revised alignment of FM 1461 from SH 289 (Preston Road) to FM 2478 (Custer Road).

Description of Agenda Item:
Since 2017, the Texas Department of Transportation (TxDOT) has been designing the expansion of FM 1461 (Frontier Parkway) from SH 289 (Preston Road) to County Road 165 in McKinney from a two-lane asphalt rural road to a four-lane urban road expandable to an ultimate six-lane configuration. The Town of Prosper's initial involvement in the project began in December 2017, during review of the draft schematic design. During multiple reviews and meetings with TxDOT, the Town of Prosper requested alternative design considerations to address the impacts to the south of the roadway caused by the alignment of the roadway. The proposed alignment affects the existing trees and landscape berms along the corridor. In addition, TxDOT's decision to construct a new bridge south of the existing bridge, instead of widening both sides of the existing bridge, further compound the inequity of additional right-of-way required on the south side of the roadway.

At the April 27, 2021, Town Council meeting, the Town Council approved a resolution strongly opposing the proposed alignment of FM 1461 from SH 289 (Preston Road) to FM 2478 (Custer Road) since TxDOT had commenced with completing the design of the project without addressing the Town's comments, and was engaged in the right-of-way acquisition phase of the project. Since that time the Town of Prosper, City of Celina, and TxDOT have met several times to resolve the Town's concerns. Adjacent to the Gentle Creek subdivision, the City of Celina and Town of Prosper agreed to a reduction in the sidewalk width from ten feet (10') to six feet (6') and reducing the lane widths from twelve feet (12') to eleven feet (11') to accommodate the proposed revised alignment to shift the centerline of FM 1461 to the north approximately fifteen feet (15') to nearly match the existing centerline of the current roadway except as the road transitions on the eastern edge towards the existing bridge.

Since the proposed centerline of FM 1461 adjacent to the Highland Meadows and Amberwood Farms subdivisions is similar to the existing centerline, no changes were made. However, the Town is requesting that TxDOT reduce the sidewalk width from ten feet (10') to six feet (6') adjacent to these subdivisions to allow additional green space.

Legal Obligations and Review:
Terrence Welch of Brown & Hofmeister, L.L.P., has reviewed the resolution as to form and legality.

Attached Documents:
1. Resolution
2. Proposed Revised Alignment Centerline Exhibits

Town Staff Recommendation:
Town staff recommends that the Town Council approve a resolution supporting the proposed revised alignment of FM 1461 from SH 289 (Preston Road) to FM 2478 (Custer Road).

Proposed Motion:
I move to approve a resolution supporting the proposed revised alignment of FM 1461 from SH 289 (Preston Road) to FM 2478 (Custer Road).

TOWN OF PROSPER, TEXAS **RESOLUTION NO. 2022- __**

A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF PROSPER, TEXAS, SUPPORTING THE REVISED ALIGNMENT OF FM 1461 (FRONTIER PARKWAY FROM PRESTON ROAD TO CUSTER ROAD IN THE TOWN) FROM STA 177+00 TO STA 203+00; MAKING FINDINGS; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, the Texas Department of Transportation (TxDOT) has completed the design of the alignment of FM 1461 (Frontier Parkway) which roadway alignment in the Town is from Preston Road to Custer Road; and

WHEREAS, the December 2017 TxDOT Draft Schematic for such alignment included a right turn lane at Winding Creek Road; and

WHEREAS, at a meeting on February 12, 2018, Town Staff requested alternative sections to narrow medians, and retaining walls to minimize impact on existing trees, landscape berms, and underground water line adjacent to Gentle Creek subdivision; and

WHEREAS, on May 31, 2018, Town Staff commented again about looking at alternative sections to mitigate the right-of-way on the south side of the roadway; and

WHEREAS, the June 2018 Schematic was approved with the removal of the right turn lane into Gentle Creek subdivision and a significant shift of main lanes to the south; and

WHEREAS, after multiple meetings with TxDOT, it appeared that the Town's comments and concerns apparently were not addressed by TxDOT and design plans reflected an approximate shift of fifteen feet (15') in right-of-way from the current centerline of FM 1461 which disproportionally impacted the Gentle Creek subdivision on the south side of FM 1461; and

WHEREAS, the Town Council approved a resolution on April 27, 2021, strongly opposing the proposed alignment of FM 1461 from SH 289 (Preston Road) to FM 2478 (Custer Road); and

WHEREAS, thereafter representatives from TxDOT, the City of Celina and the Town met in an effort to resolve outstanding concerns, and TxDOT has agreed to modify the proposed revised alignment to shift the centerline of the proposed roadway to the north adjacent to the Gentle Creek subdivision, thereby matching the centerline of the current roadway; and

WHEREAS, the sidewalk adjacent to the Gentle Creek subdivision was reduced from ten feet (10') to six feet (6') and the lane widths reduced from twelve feet (12') to eleven feet (11') to accommodate the revised alignment; and

WHEREAS, the Town is requesting that TxDOT reduce the sidewalk adjacent to the Highland Meadows and Amberwood Farms subdivisions from ten feet (10') to six feet (6') to provide additional green space; and

WHEREAS, the Town Council is supportive of the revised alignment and is appreciative of the cooperation of the City of Celina and TxDOT in their efforts to address the concerns of the Town.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF PROSPER, TEXAS, THAT:

SECTION 1

The findings set forth above are incorporated into the body of this Resolution as if fully set forth herein.

SECTION 2

The Town Council of the Town of Prosper, Texas, hereby expresses its support of the proposed revised alignment of FM 1461 from SH 289 (Preston Road) to FM 2478 (Custer Road).

SECTION 3

The Town Council hereby requests that TxDOT reduce the sidewalk adjacent to the Highland Meadows and Amberwood Farms subdivisions from ten feet (10') to six feet (6'), similar to the Gentle Creek subdivision, to provide additional green space.

SECTION 4

The Town Council hereby repeals Resolution No. 2021-23 in its entirety, said Resolution having been adopted on or about April 27, 2021.

SECTION 5

Any and all resolutions, rules, regulations, policies, or provisions in conflict with the provisions of this Resolution are hereby repealed and rescinded to the extent of any conflict herewith.

SECTION 6

This Resolution shall be effective from and after its passage by the Town Council.

DULY PASSED AND APPROVED BY THE TOWN COUNCIL OF THE TOWN OF PROSPER, TEXAS, ON THIS 28TH DAY OF JUNE, 2022.

_____
David F. Bristol, Mayor

ATTEST:

_____
Michelle Lewis Sirianni, Town Secretary

APPROVED AS TO FORM AND LEGALITY:

_____
Terrence S. Welch, Town Attorney

CITY/TOWN LIMIT

ROADWAY CENTERLINE

PROPOSED ROW LIMIT

CENTERLINE CURVE DATA
PI STATION = 102+11.58
PI NORTHING = 7,147,652.95
PI EASTING = 2,493,491.71
DELTA = 00°56'17"
DEGREE OF CURVE = 00°34'23"
TANGENT = 81.87'
LENGTH = 163.73'
RADIUS = 10,000.00'
CHORD BEARING = N 89°00'48" E
CHORD DISTANCE = 163.73'

CENTERLINE CURVE DATA
PI STATION = 104+83.70
PI NORTHING = 7,147,659.87
PI EASTING = 2,493,763.75
DELTA = 00°19'34"
DEGREE OF CURVE = 00°34'23"
TANGENT = 28.46'
LENGTH = 56.92'
RADIUS = 10,000.00'
CHORD BEARING = N 88°42'26" E
CHORD DISTANCE = 56.92'

CENTERLINE CURVE DATA
PI STATION = 109+16.90
PI NORTHING = 7,147,668.41
PI EASTING = 2,494,196.86
DELTA = 00°22'58"
DEGREE OF CURVE = 00°34'23"
TANGENT = 33.41'
LENGTH = 66.82'
RADIUS = 10,000.00'
CHORD BEARING = N 89°03'42" E
CHORD DISTANCE = 66.82'

LINE TABLE		
L1	S 00°42'05" E	34.02'
L2	S 46°40'21" E	79.72'
L3	S 00°23'03" E	36.09'

GRID COORDINATE
N=7,146,984.5891
E=2,493,798.9874

LOT 3
PRESTON HILLS ADDITION
CABINET C, PAGE 784
P.R.C.C.T.

LOT 2
PRESTON HILLS ADDITION
CABINET C, PAGE 784
P.R.C.C.T.

FOUND 4"BRASS DISK STAMPED "TEXAS DEPARTMENT OF TRANSPORTATION (CM)

STATE OF TEXAS
TRACT #1
VOLUME 625, PAGE 37
D.R.C.C.T.
CALLED 2.167 ACRES

EXISTING R.O.W.

GRID COORDINATE
N=7,146,882.2486
E=2,492,444.2946

STATE OF TEXAS
TRACT #2
VOLUME 625, PAGE 37
D.R.C.C.T.
CALLED 1.920 ACRES

COLLIN COUNTY
SCHOOL LAND SURVEY
ABSTRACT NO. 167

CITY OF CELINA
COLLIN COUNTY

STATE OF TEXAS
PARCEL 4
DOCUMENT NO. 20110718000741730
CALLED 0.3904 ACRES

SH 289 (PR
(VARIABLE WID

STATE OF TEXAS
PARCEL 1
DOCUMENT NO. 20110810000839420
CALLED 0.0316 ACRES

JONATHAN WESTOVER SURVEY
ABSTRACT NO. 1030

CITY OF CELINA
COLLIN COUNTY

OWNER:
BLUE STAR LAND, L.P.
VOLUME 5470, PAGE 2177
(AN UNDIVIDED 3.8241% INTEREST)
AND VOLUME 5470, PAGE 2182
(AN UNDIVIDED 96.1759% INTEREST)
O.P.R.C.C.T.
CALLED 15.00 ACRES

LOT 1
PRESTON HILLS ADDITION
CABINET C, PAGE 784
P.R.C.C.T.

OWNER:
JANNA L. JOHNSON
AND AARON W. JOHNSON
DOCUMENT NO. 20170215000206880
O.P.R.C.C.T.

P.O.C.
PARCEL 2
& PARCEL 4
FOUND 1/2"
IRON ROD (CM)

OWNER:
KEERAN FAMILY PARTNERSHIP, LTD.
VOLUME 4957, PAGE 2455
O.P.R.C.C.T.
REMAINDER OF 134.88 ACRES

FOUND TXDOT
WOOD MONUMENT (CM)

BEGIN PROJECT
CCSJ: 1973-01-015
RCSJ: 1973-01-018
STA. 100+00.15
N = 7,147,651.04
E = 2,493,280.29
LAT. = 33°15'45.2668" N
LONG. = 96°47'03.3781" W

S 46°40'21" E

STA 101+60.40
109.12' LT

NEW R.O.W. LINE

STA 105+12.51
110.17' LT

STA 107+17.62
80.00' LT

STA 109+16.90
80.06' LT

P.O.B.
PARCEL 2
& PARCEL 4
N=7,147,749.00
E=2,494,241.57
STATION 109+62.65
80.00' LT

S 00°23'03" E 175.15'

SOUTHWESTERN BELL
TELEPHONE COMPANY
EASEMENT
VOLUME 4791
PAGE 3178
O.P.R.C.C.T.

N 89°15'12" E
340.67'

N 88°32'39" E 351.27'

S 82°45'47" E 207.32'

N 88°52'13" E 199.55'

46.02'

294.65'

416.91'

536.83'

FOUND WOOD TXDOT
MONUMENT (CM)

FOUND 1/2"
IRON ROD (CM)

EXISTING R.O.W.

S 89°51'16" E 207.82'

FOUND 1/2"IRON ROD
WITH CAP STAMPED
"ALLIANCE" (CM)

FOUND TXDOT TYPE I
MONUMENT BEARS
N 73°28'55"W 1.04'

FM 1461
(VARIABLE WIDTH RIGHT-OF-WAY)

EXISTING R.O.W.

N 89°18'29" E 3,878.69'

STATE OF TEXAS
VOLUME 484, PAGE 281
D.R.C.C.T.
CALLED 1.203 ACRES

SOUTHWESTERN BELL
TELEPHONE COMPANY EASEMENT
DOCUMENT NO. 94-0086227
O.P.R.C.C.T.

STATE OF TEXAS
VOLUME 484, PAGE 287
D.R.C.C.T.
CALLED 0.924 ACRES

N 88°52'13" E

N 89°15'12" E

APPROXIMATE CITY LIMIT LINE

PC 101+29.71

105+00

N 88°32'39" E

PT 102+93.44

PC 104+55.24

PT 105+12.16

PC 108+83.49

PT 109+50.31

TOWN OF PROSPER, TEXAS
DOCUMENT NO.
20090721000915890
D.R.C.C.T.

FOUND 1/2"IRON ROD
WITH CAP STAMPED
"KHA" (CM)

STATE OF TEXAS
(NO DEED OF RECORD FOUND)

N 89°28'56" E

FOUND 3-1/2"ALUMINUM DISK STAMPED
"TEXAS DEPARTMENT OF TRANSPORTATION
ROW MONUMENT NO. (CM)

N 88°11'33" E 124.16'

STATE OF TEXAS
VOLUME 484, PAGE 305
D.R.C.C.T.
CALLED 2.642 ACRES

EXISTING R.O.W.

N 89°18'29" E 3,878.30'

FOUND 1/2"IRON ROD
BEARS N 00°42'05" W 0.34'

483.29'

1,629.16'

8.40'

FOUND TXDOT
WOOD MONUMENT
(CM)

N 84°28'31" E 183.46'

HM#E0430166
3-1/4"ALUMINUM
DISK SE

FOUND TXDOT
TYPE I MONUMENT (CM)

296.58'

N 42°35'47" E
74.88'

N 88°52'13" E 304.98'

P.O.B.
PARCEL 1
& PARCEL 3
N=7,147,588.25
E=2,494,189.78
STATION 109+08.44
79.97' RT

N 89°15'12" E
361.91'

STA 109+16.90
79.94' RT

10' WATER EASEMENT
TOWN OF PROSPER
DOCUMENT NO. 20080623000754670
O.P.R.C.C.T.

30' ROW DEDICATION
TOWN OF PROSPER
VOLUME 2018, PAGE 699
O.P.R.C.C.T.

FOUND 4"BRASS DISK
STAMPED "TEXAS
DEPARTMENT OF
TRANSPORTATION (CM)

EXISTING R.O.W.

FOUND 5/8"IRON ROD
WITH CAP STAMPED
"WINDROSE" (CM)

N 83°24'27" E 159.42'

STA 106+11.66
80.00' RT

WATERLINE EASEMENT
CITY OF PROSPER
VOLUME 4029, PAGE 1820
O.P.R.C.C.T.

N 88°32'39" E 316.81'

NEW R.O.W. LINE

STA 104+52.42
95.00' RT

STA 101+37.11
96.23' RT

N 43°13'10" E
103.55'

N 01°24'20" E
59.15'

STA 100+65.59
171.05' RT

FOUND 4"BRASS DISK
STAMPED "TEXAS
DEPARTMENT OF
TRANSPORTATION (CM)

LOT 3, BLOCK A
VICTORY AT FRONTIER
VOLUME 2018, PAGE 699
O.P.R.C.C.T.

LOT 2, BLOCK A
VICTORY AT FRONTIER
VOLUME 2018, PAGE 699
O.P.R.C.C.T.

SPENCER RICE SURVEY
ABSTRACT NO. 788

STATE OF TEXAS
VOLUME 625, PAGE 37
D.R.C.C.T.
CALLED 9.710 ACRES

OWNER:
BLUE STAR LAND, L.P.
DOCUMENT NO. 20170711000905730
O.P.R.C.C.T.
REMAINDER TRACT

TOWN OF PROSPER
COLLIN COUNTY

COLLIN COUNTY
SCHOOL LAND SURVEY
ABSTRACT NO. 172

N 00°42'05" W 849.69'

REMAINDER OF
LOT 1, BLOCK A
FRONTIER ESTATES
VOLUME 2013, PAGE 561
O.P.R.C.C.T.

OWNER:
MERITAGE HOMES OF TEXAS, LLC
DOCUMENT NO.
20130726001053280
O.P.R.C.C.T.
CALLED 124.655 ACRES

FOUND 5/8"IRON ROD
WITH CAP STAMPED
"KHA" (CM)

FOUND 1/2"
IRON ROD (CM)

SH 289 (PRESTON ROAD
(VARIABLE WIDTH RIGHT-OF-WAY)

N 01°24'20" E

EXISTING R.O.W.

WATERLINE EASEMENT
CITY OF PROSPER
VOLUME 4029, PAGE 1820
O.P.R.C.C.T.

GRID COORDINATE
N=7,146,243.1619
E=2,493,674.5332

EXISTING R.O.W.
NEW R.O.W. LINE
P.O.B.
P.O.C.
PARENT TRACT INSERT
(NOT TO SCALE)

EXISTING R.O.W.
NEW R.O.W. LINE
P.O.B.
P.O.C.
PARENT TRACT INSERT
(NOT TO SCALE)

FOUND 5/8"IRON ROD
WITH CAP STAMPED
"KHA" (CM)

GRID COORDINATE
N=7,146,092.5016
E=2,492,701.1330

LOT 18, BLOCK Q
FRONTIER ESTATES PHASE 1
VOLUME 2014, PAGE 697
O.P.R.C.C.T.

LOT 19, BLOCK Q
FRONTIER ESTATES PHASE 1
VOLUME 2014, PAGE 697
O.P.R.C.C.T.

P.O.C.
PARCEL 1
& PARCEL 3
FOUND 1/2"IRON ROD
WITH CAP STAMPED
"SPIARS ENG" (CM)

GRAPHIC SCALE
50' 25' 0' 50' 100'

22"x34" SCALE: 1" = 50'
11"x17" SCALE: 1" = 100'

NOTE: SEE SHEET 04 FOR
THE REMAINDER OF PARCELS 3 & 4

FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
6	TEXAS	N/A			FM 1461
STATE DISTRICT NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
18	COLLIN	1973	01	018	

CITY/TOWN LIMIT

ROADWAY CENTERLINE

PROPOSED ROW LIMIT

PRESTON HILLS CIRCLE (60' RIGHT-OF-WAY) CABINET C, PAGE 784 P.R.C.C.T.

EXISTING R.O.W.

LOT 34 PRESTON HILLS ADDITION CABINET C, PAGE 784 P.R.C.C.T.

CITY OF CELINA COLLIN COUNTY

LOT 35 PRESTON HILLS ADDITION CABINET C, PAGE 784 P.R.C.C.T.

30' BUILDING LINE CABINET C, PAGE 784 P.R.C.C.T.

BUILDING LINE CABINET C, PAGE 784 P.R.C.C.T.

O.P.R.C.C.T. CALLED 15.00 ACRES

P.O.C. PARCEL 2 & PARCEL 4 FOUND 1/2" IRON ROD (CM)

FOUND 1/2" IRON ROD (CM)

LOT 1 PRESTON HILLS ADDITION CABINET C, PAGE 784 P.R.C.C.T.

OWNER: JANNA L. JOHNSON AND AARON W. JOHNSON DOCUMENT NO. 20170215000206880 O.P.R.C.C.T.

SOUTHWESTERN BELL TELEPHONE COMPANY EASEMENT VOLUME 4791 PAGE 3178 O.P.R.C.C.T.

P.O.B. PARCEL 2 & PARCEL 4 N=7,147,749.00 E=2,494,241.57 STATION 109+62.65 80.00' LT

STA 113+41.04 116.00' LT

STA 112+93.04 116.00' LT

RIGHT-OF-WAY EASEMENT STATE OF TEXAS VOLUME 484, PAGE 287 D.R.C.C.T.

STA 112+57.31 80.00' LT

STA 113+77.37 79.67' LT

STA 109+16.90 80.06' LT

N 88°52'13" E 199.55'

N 89°15'12" E 340.67'

S 00°23'03" E 175.15'

N 03°18'42" W 175.53'

S 03°18'42" E 206.11'

N 89°26'49" E 427.22'

S 00°42'49" E 206.36'

P.O.C. PARCEL 5 PARCEL 6 & PARCEL 7 FOUND 1/2" IRON ROD (CM)

P.O.B. PARCEL 5 & PARCEL 6 N=7,147,744.47 E=2,494,717.25 STATION 114+37.92 70.00' LT

LOT 36 PRESTON HILLS ADDITION CABINET C, PAGE 784 P.R.C.C.T.

OWNER: JAMES L. HARGIS DOCUMENT NO. 20100107000018010 O.P.R.C.C.T.

NEW R.O.W. LINE

N 89°30'50" E 480.25'

FOUND 1/2"IRON ROD BEARS N 89°26'49" E 0.78'

P.O.B. PARCEL 7 N=7,147,748.01 E=2,495,135.11 STATION 118+55.80 70.00' LT

STA 119+18.17 70.00' LT

STA 121+12.66 70.00' LT

N 89°10'27" E 194.07'

N 85°25'16" E 229.01'

STA 123+18.76 78.55' LT

STA 123+41.05 80.00' LT

L8

JONATHAN WESTOVER SURVEY ABSTRACT NO. 1030

CITY OF CELINA EXTRATERRITORIAL JURISDICTION COLLIN COUNTY

OWNER: MICHAEL R. MILLEN AND WIFE, MARIA E. MILLEN DOCUMENT NO. 2000-0054434 O.P.R.C.C.T. CALLED 8.87 ACRES

OWNER: MICHAEL R. MILLEN AND WIFE MARIA E. MILLEN DOCUMENT NO. 20150127000089990 O.P.R.C.C.T. CALLED 17.99 ACRES

GRID COORDINATE N=7,147,006.9790 E=2,495,168.9556

PARENT TRACT INSERT (NOT TO SCALE)

NEW R.O.W. LINE

P.O.C.

P.O.B.

EXISTING R.O.W.

SOUTHWESTERN BELL TELEPHONE COMPANY EASEMENT DOCUMENT NO. 94-0086227 O.P.R.C.C.T.

STATE OF TEXAS VOLUME 484, PAGE 281 D.R.C.C.T. CALLED 1.203 ACRES

N 89°18'29" E 3,878.69'

FOUND 1/2"IRON ROD BEARS N 13°33'32" E 0.46'

HM#E0430176 △ 3-1/4"ALUMINUM DISK SE

STATE OF TEXAS VOLUME 484, PAGE 287 D.R.C.C.T. CALLED 0.924 ACRES

FOUND 1/2"IRON ROD BEARS S 01°49'36" E 1.12'

STATE OF TEXAS VOLUME 485, PAGE 147 D.R.C.C.T. CALLED 3.440 ACRES

PT 121+74.43

N 89°18'47" E

N 87°24'16" E

N 89°15'12" E

112+78.43

115+00

N 89°30'50" E

APPROXIMATE CITY LIMIT LINE

PC 121+12.66

PC 122+74.43

PT 123+41.05

N 88°52'13" E

PC 108+83.49

PT 109+50.31

FM 1461 (VARIABLE WIDTH RIGHT-OF-WAY)

STATE OF TEXAS VOLUME 484, PAGE 305 D.R.C.C.T. CALLED 2.642 ACRES

FOUND 1/2"IRON ROD BEARS N 00°42'05" W 0.34'

N 89°18'29" E 3,878.30'

1,629.16'

483.29'

296.58'

8.40'

197.04'

N 88°52'13" E 304.98'

STA 109+16.90 79.94' RT

N 89°15'12" E 361.91'

STA 112+79.45 80.00' RT

STA 112+93.45 94.00' RT

L9

L10

L11

N 89°30'50" E 155.08'

STA 113+43.45 80.00' RT

STA 113+29.45 94.00' RT

N 86°38'52" E 100.00'

STA 114+98.53 80.00' RT

STA 115+98.40 75.00' RT

NEW R.O.W. LINE

N 89°30'50" E 320.20'

WATERLINE EASEMENT CITY OF PROSPER VOLUME 4029, PAGE 1820 O.P.R.C.C.T.

STA 119+18.38 75.00' RT

N 89°10'27" E 194.29'

STA 121+12.45 75.00' RT

N 86°25'08" E 228.63'

STA 123+41.05 69.00' RT

L12

P.O.B. PARCEL 1 & PARCEL 3 N=7,147,588.25 E=2,494,189.78 STATION 109+08.44 79.97' RT

N 00°42'05" W 849.69'

REMAINDER OF LOT 1, BLOCK A FRONTIER ESTATES VOLUME 2013, PAGE 561 O.P.R.C.C.T.

OWNER: MERITAGE HOMES OF TEXAS, LLC DOCUMENT NO. 20130726001053280 O.P.R.C.C.T. CALLED 124.655 ACRES

TOWN OF PROSPER COLLIN COUNTY

COLLIN COUNTY SCHOOL LAND SURVEY ABSTRACT NO. 172

GRID COORDINATE N=7,146,340.3981 E=2,495,089.1925

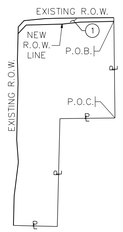
OWNER: BLUE STAR LAND, L.P. DOCUMENT NO. 20170711000905730 O.P.R.C.C.T. REMAINDER TRACT

GRID COORDINATE N=7,146,263.8491 E=2,493,934.1718

P.O.C. PARCEL 1 & PARCEL 3 FOUND 1/2"IRON ROD WITH CAP STAMPED "SPIARS ENG" (CM)

LOT 19, BLOCK Q FRONTIER ESTATES PHASE 1 VOLUME 2014, PAGE 697 O.P.R.C.C.T.

LOT 18, BLOCK Q FRONTIER ESTATES PHASE 1 VOLUME 2014, PAGE 697 O.P.R.C.C.T.



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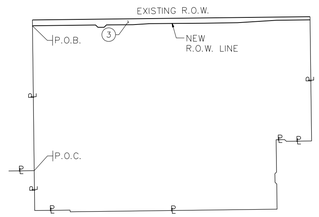


PARENT TRACT INSERT (NOT TO SCALE)

LINE TABLE		
L1	S 00°42'05" E	34.02'
L3	S 00°23'03" E	36.09'
L4	S 44°30'50" W	51.05'
L5	S 89°30'50" W	48.00'
L6	N 45°29'10" W	51.38'
L7	S 81°24'48" E	61.32'
L8	N 89°18'47" E	352.86'
L9	S 45°29'10" E	19.80'
L10	N 89°30'50" E	36.00'
L11	N 44°30'50" E	19.80'
L12	N 89°18'47" E	400.80'
L13	S 03°18'42" E	35.74'
L14	S 03°18'42" E	25.84'
L15	S 00°42'49" E	24.32'
L16	S 00°42'54" E	38.50'

CENTERLINE CURVE DATA

PI STATION	= 109+16.90
PI NORTHING	= 7,147,668.41
PI EASTING	= 2,494,196.86
DELTA	= 00°22'58"
DEGREE OF CURVE	= 00°34'23"
TANGENT	= 33.41'
LENGTH	= 66.82'
RADIUS	= 10,000.00'
CHORD BEARING	= N 89°03'42" E
CHORD DISTANCE	= 66.82'

NOTE: SEE SHEET 03 FOR THE REMAINDER OF PARCELS 1 & 2

NOTE: SEE SHEET 05 FOR THE REMAINDER OF PARCELS 3 & 8

NOTE: P.O.C. AND P.O.B. FOR PARCEL 8 IS LOCATED ON SHEET 05

CENTERLINE CURVE DATA

PI STATION	= 121+43.55
PI NORTHING	= 7,147,681.79
PI EASTING	= 2,495,423.43
DELTA	= 01°46'11"
DEGREE OF CURVE	= 02°51'53"
TANGENT	= 30.89'
LENGTH	= 61.77'
RADIUS	= 2,000.00'
CHORD BEARING	= N 88°17'21" E
CHORD DISTANCE	= 61.77'

CENTERLINE CURVE DATA

PI STATION	= 123+07.75
PI NORTHING	= 7,147,689.23
PI EASTING	= 2,495,587.47
DELTA	= 01°54'31"
DEGREE OF CURVE	= 02°51'53"
TANGENT	= 33.31'
LENGTH	= 66.62'
RADIUS	= 2,000.00'
CHORD BEARING	= N 88°21'31" E
CHORD DISTANCE	= 66.62'

N

GRAPHIC SCALE

50' 25' 0' 50' 100'

22"x34" SCALE: 1" = 50'

11"x17" SCALE: 1" = 100'

FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
6	TEXAS	N/A			FM 1461
STATE DISTRICT NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
18	COLLIN	1973	01	018	

CITY/TOWN LIMIT

ORIGINAL ROADWAY CENTERLINE

PROPOSED ROW LIMIT

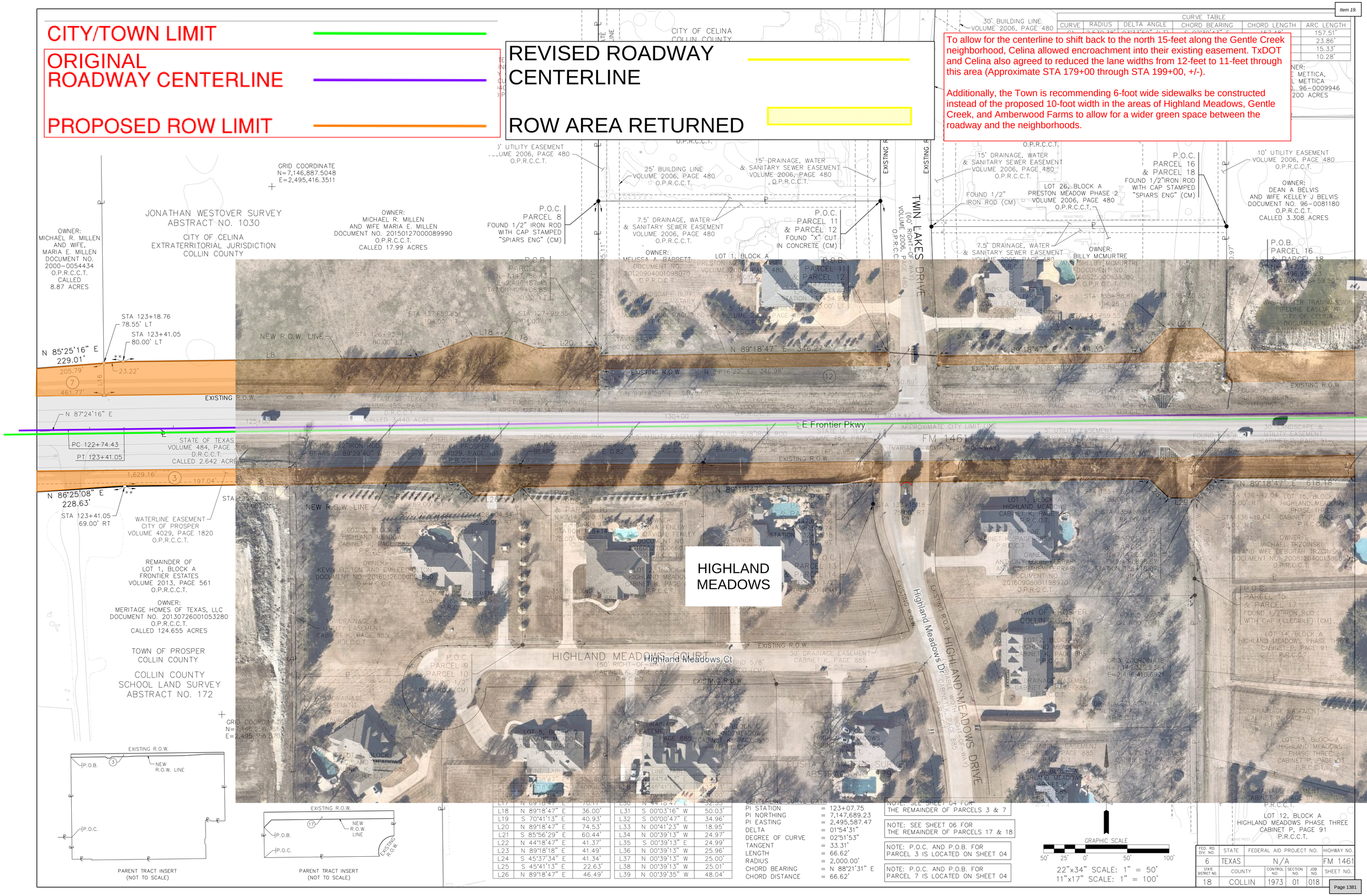
REVISED ROADWAY CENTERLINE

ROW AREA RETURNED

To allow for the centerline to shift back to the north 15-feet along the Gentle Creek neighborhood, Celina allowed encroachment into their existing easement. TxDOT and Celina also agreed to reduced the lane widths from 12-feet to 11-feet through this area (Approximate STA 179+00 through STA 199+00, +/-).

Additionally, the Town is recommending 6-foot wide sidewalks be constructed instead of the proposed 10-foot width in the areas of Highland Meadows, Gentle Creek, and Amberwood Farms to allow for a wider green space between the roadway and the neighborhoods.

CURVE TABLE					
CURVE	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH	ARC LENGTH
C1	2,530.38'	03°33'50" (LT)	S 03°30'43" E	157.48'	157.51'
					23.86'
					15.33'
					10.28'



LINE TABLE		
L8	N 89°18'47" E	352.86'
L12	N 89°18'47" E	400.80'
L16	S 00°14'34" W	38.50'
L17	N 69°18'47" E	70.17'
L18	N 89°18'47" E	36.00'
L19	S 70°41'13" E	40.93'
L20	N 89°18'47" E	74.53'
L21	S 85°56'29" E	60.44'
L22	N 44°18'47" E	41.37'
L23	N 89°18'18" E	41.49'
L24	S 45°37'34" E	41.34'
L25	S 45°41'13" E	22.63'
L26	N 89°18'47" E	46.49'

LINE TABLE		
L27	N 44°18'47" E	41.41'
L28	S 45°41'13" E	22.63'
L29	N 89°18'47" E	40.00'
L30	N 44°18'47" E	32.53'
L31	S 00°03'16" W	50.03'
L32	S 00°00'47" E	34.96'
L33	N 00°41'23" W	18.95'
L34	N 00°39'13" W	24.97'
L35	S 00°39'13" E	24.99'
L36	N 00°39'13" W	25.96'
L37	N 00°39'13" W	25.00'
L38	N 00°39'13" W	25.01'
L39	N 00°39'35" W	48.04'

CENTERLINE CURVE DATA

PI STATION	=	123+07.75
PI NORTHING	=	7,147,689.23
PI EASTING	=	2,495,587.47
DELTA	=	01°54'31"
DEGREE OF CURVE	=	02°51'53"
TANGENT	=	33.31'
LENGTH	=	66.62'
RADIUS	=	2,000.00'
CHORD BEARING	=	N 88°21'31" E
CHORD DISTANCE	=	66.62'

NOTE: SEE SHEET 04 FOR THE REMAINDER OF PARCELS 3 & 7

NOTE: SEE SHEET 06 FOR THE REMAINDER OF PARCELS 17 & 18

NOTE: P.O.C. AND P.O.B. FOR PARCEL 3 IS LOCATED ON SHEET 04

NOTE: P.O.C. AND P.O.B. FOR PARCEL 7 IS LOCATED ON SHEET 04

PARENT TRACT INSERT
(NOT TO SCALE)

PARENT TRACT INSERT
(NOT TO SCALE)

FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
6	TEXAS	N/A			FM 1461
STATE DISTRICT NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
18	COLLIN	1973	01	018	

CITY/TOWN LIMIT

ORIGINAL ROADWAY CENTERLINE

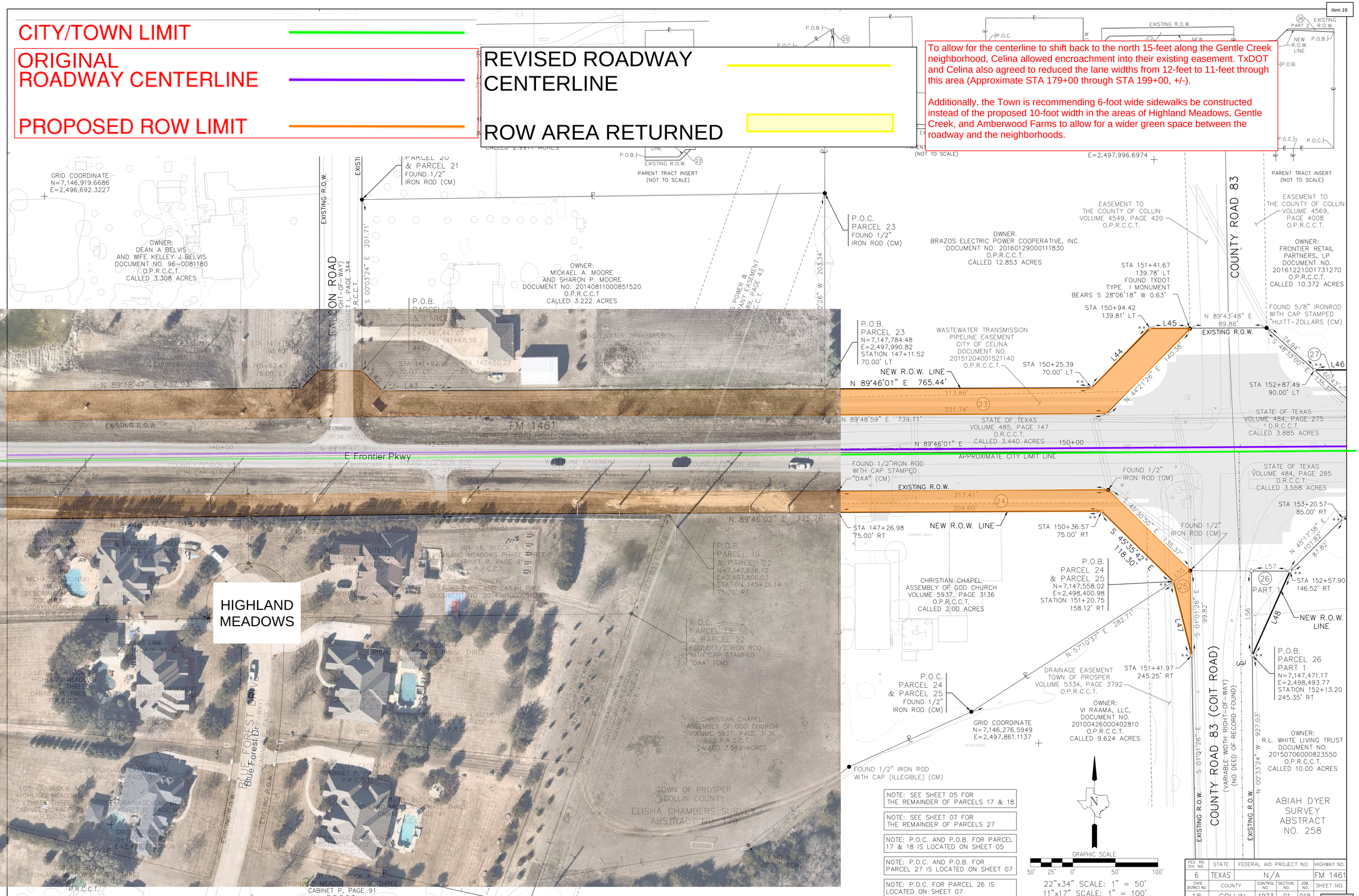
PROPOSED ROW LIMIT

REVISED ROADWAY CENTERLINE

ROW AREA RETURNED

To allow for the centerline to shift back to the north 15-feet along the Gentle Creek neighborhood, Celina allowed encroachment into their existing easement. TxDOT and Celina also agreed to reduced the lane widths from 12-feet to 11-feet through this area (Approximate STA 179+00 through STA 199+00, +/-).

Additionally, the Town is recommending 6-foot wide sidewalks be constructed instead of the proposed 10-foot width in the areas of Highland Meadows, Gentle Creek, and Amberwood Farms to allow for a wider green space between the roadway and the neighborhoods.



NOTE: SEE SHEET 05 FOR THE REMAINDER OF PARCELS 17 & 18

NOTE: SEE SHEET 07 FOR THE REMAINDER OF PARCELS 27

NOTE: P.O.C. AND P.O.B. FOR PARCEL 17 & 18 IS LOCATED ON SHEET 05

NOTE: P.O.C. AND P.O.B. FOR PARCEL 27 IS LOCATED ON SHEET 07

NOTE: P.O.C. FOR PARCEL 26 IS LOCATED ON SHEET 07

FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
6	TEXAS	N/A			FM 1461
STATE DISTRICT NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
18	COLLIN	1973	01	018	

CITY/TOWN LIMIT

ROADWAY CENTERLINE

PROPOSED ROW LIMIT

OWNER:
FRONTIER RETAIL PARTNERS, LP
DOCUMENT NO. 20190109000026970
O.P.R.C.C.T.
CALLED 10.013 ACRES

S 89°47'25" W 496.39'

P.O.C.
PARCEL 27
& PARCEL 29
FOUND 5/8"IRON ROD
WITH CAP STAMPED
"HUITT-ZOLLARS" (CM)

JONATHAN WESTOVER SURVEY
ABSTRACT NO. 1030

CITY OF CELINA
COLLIN COUNTY

PARENT TRACT INSERT
(NOT TO SCALE)

OWNER:
FRONTIER RETAIL PARTNERS, LP
DOCUMENT NO. 20161221001731270
O.P.R.C.C.T.
CALLED 10.372 ACRES

COUNTY

N 89°43'48" E
89.86'

FOUND 5/8" IRON ROD
WITH CAP STAMPED
"HUITT-ZOLLARS (CM)

S 45°53'00" E 74.94'

STA 152+87.49
90.00' LT

L46

STA 154+90.86
91.60' LT

20' WASTEWATER TRANSMISSION
PIPELINE EASEMENT
CITY OF CELINA
DOCUMENT NO. 20151211001549870
O.P.R.C.C.T.

NEW R.O.W. LINE

S 85°45'27" E 320.34'

STA 158+13.92
84.97' LT

N 89°47'01" E 200.43'

STA 160+14.81
85.00' LT

S 84°31'57" E
99.35'

P.O.B.
PARCEL 27
& PARCEL 29
N=7,147,775.25
E=2,499,392.41
STATION 161+13.67
75.16' LT

S 00°12'35" E 274.75'

20' DRAINAGE EASEMENT
DOCUMENT NO.
20161221001731300
O.P.R.C.C.T.

STA 161+63.77
75.17' LT

SEE DETAIL "B"

38.39'

L58

N 89°46'31" E 510.27'

RIGHT-OF-WAY EASEMENT
STATE OF TEXAS
VOLUME 487, PAGE 352
D.R.C.C.T.

20' WASTEWATER TRANSMISSION
PIPELINE EASEMENT
CITY OF CELINA
DOCUMENT NO. 20151211001549870
O.P.R.C.C.T.

PARENT TRACT INSERT
(NOT TO SCALE)

NEW
R.O.W.
LINE
P.O.B.
EXISTING
R.O.W.

EXISTING R.O.W.

GRID COORDINATE
N=7,146,930.4541
E=2,499,471.4563

PART 1
PARENT TRACT INSERT
(NOT TO SCALE)

7.5 UTILITY EASEMENT
VOLUME 2017, PAGE 199
O.P.R.C.C.T.

LOT 3X
BLOCK R
LILYANA PHASE I
VOLUME 2017
PAGE 199
P.R.C.C.T.

LOT 2X, BLOCK P
LILYANA PHASE I
VOLUME 2017, PAGE 199
O.P.R.C.C.T.

LILYANA LANE

(A VARIABLE WIDTH RIGHT-OF-WAY)
VOLUME 2017, PAGE 199
O.P.R.C.C.T.

LOT 1X, BLOCK L
DRAINAGE & DETENTION EASEMENT
LILYANA PHASE I
VOLUME 2017, PAGE 199
O.P.R.C.C.T.

P.O.C.
PARCEL 30 PART 1
FOUND 5/8"IRON ROD
WITH CAP STAMPED
"HUITT-ZOLLARS" (CM)

P.O.B.
PARCEL 30 PART 1
FOUND 5/8"IRON ROD
WITH CAP STAMPED
"HUITT-ZOLLARS" (CM)
N=7,147,777.45
E=2,499,952.78
STATION 166+74.04
75.24' LT

L65

L64

1,715 sf

125.00'

FOUND
MAG NAIL (CM)

20,252 sf

780.44'

EXISTING R.O.W.

N 89°45'56" E 868.94'

7,197 sf

471.87'

30 PART 1

N 89°45'56" E 2,339.07'

EXISTING R.O.W.

STATE OF TEXAS
VOLUME 484, PAGE 275
D.R.C.C.T.
CALLED 3.885 ACRES

SEE DETAIL "A"

29

50.11' L63

15' RESERVATION FOR FUTURE
FRONTIER PARKWAY / F.M. 1461 WIDENING
CITY OF CELINA
VOLUME 2017, PAGE 199
O.P.R.C.C.T.

20' WATER EASEMENT
VOLUME 2017, PAGE 199
O.P.R.C.C.T.

N 89°46'01" E

155+00

P.T. 156+68.97

P.T. 158+24.62

APPROXIMATE CITY LIMIT LINE

160+00

S 85°45'27" E

N 89°47'01" E

165+00

PC 154+12.73

PT 155+68.97

FM 1461
(VARIABLE WIDTH RIGHT-OF-WAY)

FOUND 1/2"
IRON ROD (CM)

N 89°45'56" E 871.00'

EXISTING R.O.W.

47,965 sf

579.53'

28

FOUND 5/8"
IRON ROD (CM)

STATE OF TEXAS
VOLUME 484, PAGE 285
D.R.C.C.T.
CALLED 3.558 ACRES

N 89°45'56" E 1,802.77'

EXISTING R.O.W.

134.84'

778.92'

31

592.17'

L69

L70

291.47'

209.49'

PART 2 26

L68

202.32'

S 87°26'58" E 411.81'

L59

STA 153+20.57
85.00' RT

STA 154+12.64
85.00' RT

N 89°47'01" E 512.45'

STA 158+24.62
85.00' RT

NEW R.O.W. LINE

STA 163+37.07
85.00' RT

N 85°11'28" E 187.34'

STA 165+23.81
70.00' RT

N 89°47'01" E 1,004.76'

N 45°17'36" E
101.82'
87.82'

L57

26
PART 1
2,448 sf

STA 152+57.90
146.52' RT

L56

L48

NEW R.O.W. LINE

P.O.B.
PARCEL 26 PART 2
& PARCEL 28
N=7,147,623.01
E=2,498,901.85
STATION 156+28.84
84.66' RT

OWNER:
R.L. WHITE LIVING TRUST
DOCUMENT NO. 20150706000823560
O.P.R.C.C.T.
CALLED 18.00 ACRES

TOWN OF PROSPER
COLLIN COUNTY

ABIAH DYER SURVEY
ABSTRACT NO. 258

P.O.B.
PARCEL 26
PART 1
N=7,147,471.17
E=2,498,493.77
STATION 152+13.20
245.35' RT

OWNER:
R.L. WHITE LIVING TRUST
DOCUMENT NO. 20150706000823550
O.P.R.C.C.T.
CALLED 10.00 ACRES

EXISTING R.O.W.

N 00°33'24" W 927.03'

N 00°10'38" E 1,076.20'

COUNTY ROAD 83
(COIT ROAD)
(A VARIABLE WIDTH RIGHT-OF-WAY)
(NO DEED OF RECORD FOUND)

GRID COORDINATE
N=7,146,210.1536
E=2,498,206.6997

OWNER:
JIANMING HE AND CYNTHIA ZHENG
DOCUMENT NO. 20090421000463380
O.P.C.C.R.T.
CALLED 20.00 ACRES

GRID COORDINATE
N=7,146,204.9121
E=2,499,417.8046

P.O.C.
PARCEL 26 PART 1
FOUND 1/2"IRON ROD
WITH CAP STAMPED
"SPARR SURVEYING" (CM)

P.O.C.
PARCEL 26 PART 2
& PARCEL 28
FOUND 1/2"IRON ROD
WITH CAP
(ILLEGIBLE) (CM)

S 89°37'10" W
146.88'
110.00'

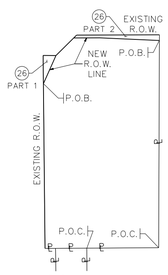
FOUND 5/8"
IRON ROD (CM)

TRACT 37
GENTLE CREEK ESTATES
PHASE SEVEN
VOLUME 2006, PAGE 568
O.P.R.C.C.T.

TRACT 36
GENTLE CREEK ESTATES
PHASE SEVEN
VOLUME 2006, PAGE 568
O.P.R.C.C.T.

TRACT 35
GENTLE CREEK ESTATES
PHASE SEVEN
VOLUME 2006, PAGE 568
O.P.R.C.C.T.

TRACT 34
GENTLE CREEK ESTATES
PHASE SEVEN
VOLUME 2006, PAGE 568
O.P.R.C.C.T.



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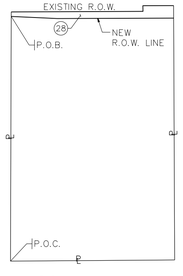

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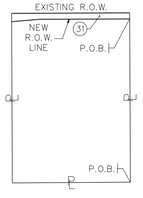

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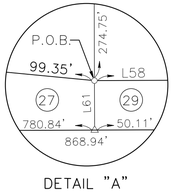
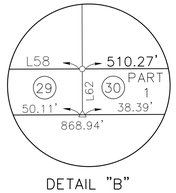


DETAIL "A"
NOT TO SCALE



DETAIL "B"
NOT TO SCALE

N

GRAPHIC SCALE
50' 25' 0' 50' 100'

22"x34" SCALE: 1" = 50'
11"x17" SCALE: 1" = 100'

CENTERLINE CURVE DATA

PI STATION	= 154+90.90
PI NORTHING	= 7,147,717.65
PI EASTING	= 2,498,770.48
DELTA	= 04°28'32"
DEGREE OF CURVE	= 02°51'53"
TANGENT	= 78.15'
LENGTH	= 156.22'
RADIUS	= 2,000.00'
CHORD BEARING	= S 87°59'43" E
CHORD DISTANCE	= 156.18'

CENTERLINE CURVE DATA

PI STATION	= 157+46.84
PI NORTHING	= 7,147,698.71
PI EASTING	= 2,499,025.79
DELTA	= 04°27'32"
DEGREE OF CURVE	= 02°51'53"
TANGENT	= 77.86'
LENGTH	= 155.65'
RADIUS	= 2,000.00'
CHORD BEARING	= S 87°59'13" E
CHORD DISTANCE	= 155.61'

LINE TABLE

L46	N 89°46'01" E	206.93'
L48	N 24°06'27" E	108.46'
L56	N 00°33'24" W	99.24'
L57	S 89°42'22" E	45.27'
L58	N 89°46'31" E	50.10'
L59	N 89°46'01" E	92.08'
L61	S 00°12'35" E	5.24'
L62	S 00°13'29" E	5.24'
L63	N 00°14'04" W	10.00'
L64	S 00°13'29" E	15.15'
L65	S 44°46'30" W	28.28'
L68	N 00°10'38" E	19.99'
L69	N 00°14'04" W	25.00'
L70	N 00°15'07" W	54.99'

NOTE: SEE SHEET 08 FOR THE REMAINDER OF PARCELS 31

NOTE: P.O.C. AND P.O.B. FOR PARCEL 31 IS LOCATED ON SHEET 08

FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
6	TEXAS	N/A			FM 1461
STATE DISTRICT NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
18	COLLIN	1973	01	018	

CITY/TOWN LIMIT

ORIGINAL ROADWAY CENTERLINE

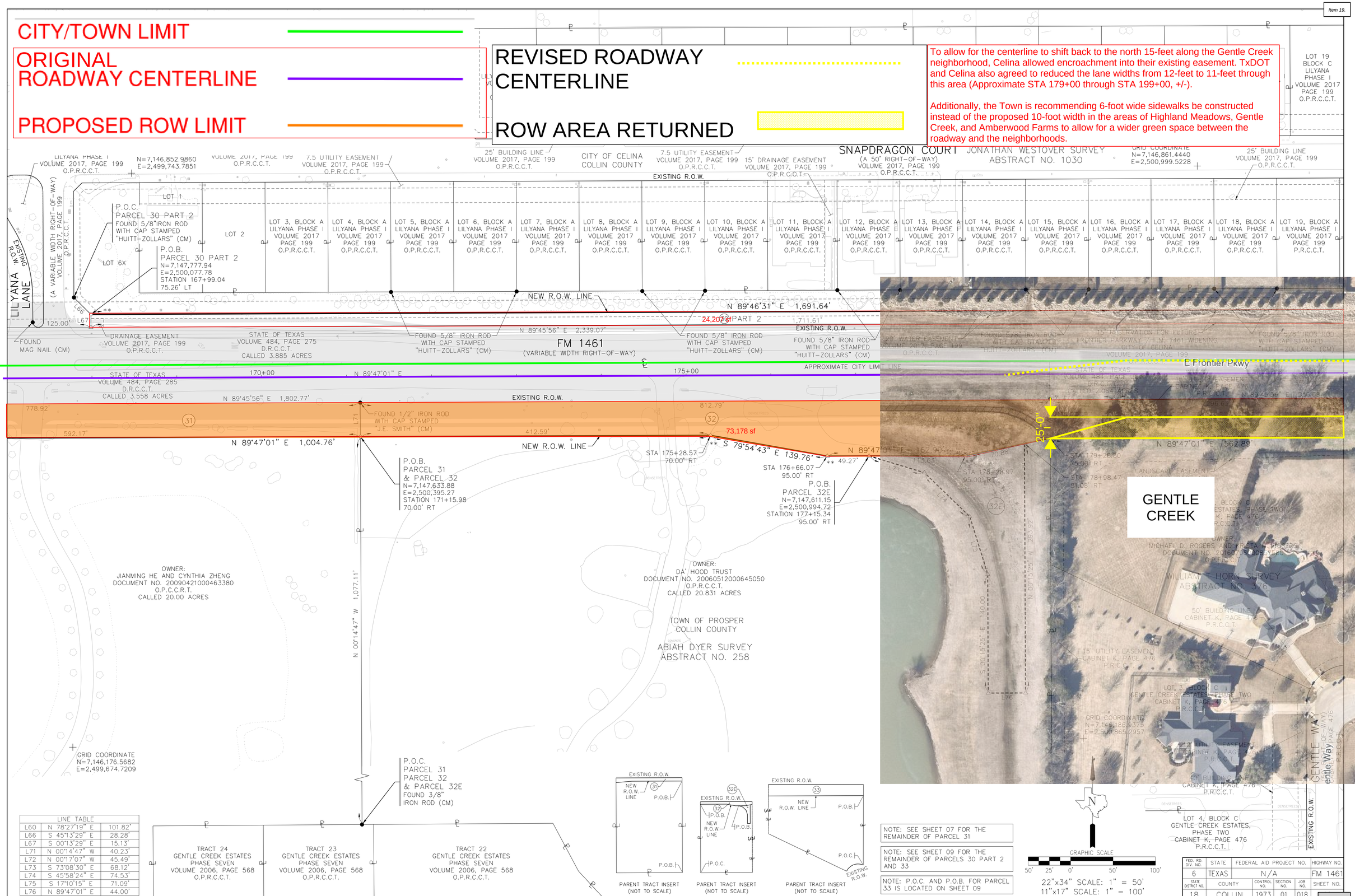
PROPOSED ROW LIMIT

REVISED ROADWAY CENTERLINE

ROW AREA RETURNED

To allow for the centerline to shift back to the north 15-feet along the Gentle Creek neighborhood, Celina allowed encroachment into their existing easement. TxDOT and Celina also agreed to reduced the lane widths from 12-feet to 11-feet through this area (Approximate STA 179+00 through STA 199+00, +/-).

Additionally, the Town is recommending 6-foot wide sidewalks be constructed instead of the proposed 10-foot width in the areas of Highland Meadows, Gentle Creek, and Amberwood Farms to allow for a wider green space between the roadway and the neighborhoods.



LINE TABLE		
L60	N 78°27'19" E	101.82'
L66	S 45°13'29" E	28.28'
L67	S 00°13'29" E	15.13'
L71	N 00°14'47" W	40.23'
L72	N 00°17'07" W	45.49'
L73	S 73°08'30" E	68.12'
L74	S 45°58'24" E	74.53'
L75	S 17°10'15" E	71.09'
L76	N 89°47'01" E	44.00'

NOTE: SEE SHEET 07 FOR THE REMAINDER OF PARCEL 31

NOTE: SEE SHEET 09 FOR THE REMAINDER OF PARCELS 30 PART 2 AND 33

NOTE: P.O.C. AND P.O.B. FOR PARCEL 33 IS LOCATED ON SHEET 09

FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
6	TEXAS	N/A			FM 1461
STATE DISTRICT NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
18	COLLIN	1973	01	018	

CITY/TOWN LIMIT

ORIGINAL ROADWAY CENTERLINE

PROPOSED ROW LIMIT

REVISED ROADWAY CENTERLINE

ROW AREA RETURNED

To allow for the centerline to shift back to the north 15-feet along the Gentle Creek neighborhood, Celina allowed encroachment into their existing easement. TxDOT and Celina also agreed to reduced the lane widths from 12-feet to 11-feet through this area (Approximate STA 179+00 through STA 199+00, +/-).

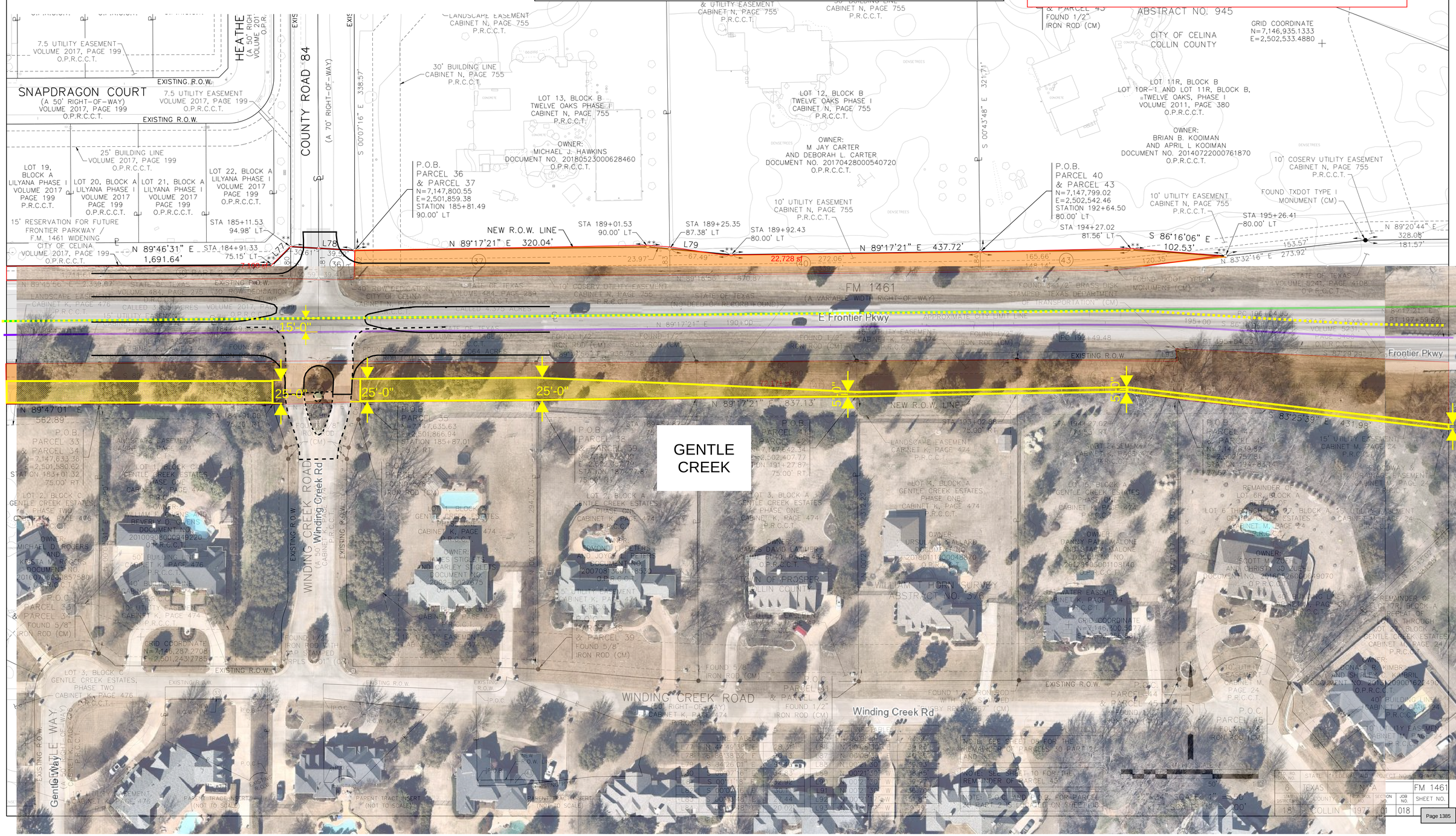
Additionally, the Town is recommending 6-foot wide sidewalks be constructed instead of the proposed 10-foot width in the areas of Highland Meadows, Gentle Creek, and Amberwood Farms to allow for a wider green space between the roadway and the neighborhoods.

CENTERLINE CURVE DATA
PI STATION = 194+27.06
PI NORTHING = 7,147,721.04
PI EASTING = 2,502,706.00

CENTERLINE CURVE DATA
PI STATION = 196+82.13
PI NORTHING = 7,147,704.44
PI EASTING = 2,502,960.60

CURVE TABLE

CURVE	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH	ARC LENGTH
C5	62.50'	02°19'34" (RT)	N 00°59'19" W	2.54'	2.54'



CITY/TOWN LIMIT

ORIGINAL ROADWAY CENTERLINE

PROPOSED ROW LIMIT

REVISED ROADWAY CENTERLINE

ROW AREA RETURNED

To allow for the centerline to shift back to the north 15-feet along the Gentle Creek neighborhood, Celina allowed encroachment into their existing easement. TxDOT and Celina also agreed to reduced the lane widths from 12-feet to 11-feet through this area (Approximate STA 179+00 through STA 199+00, +/-).

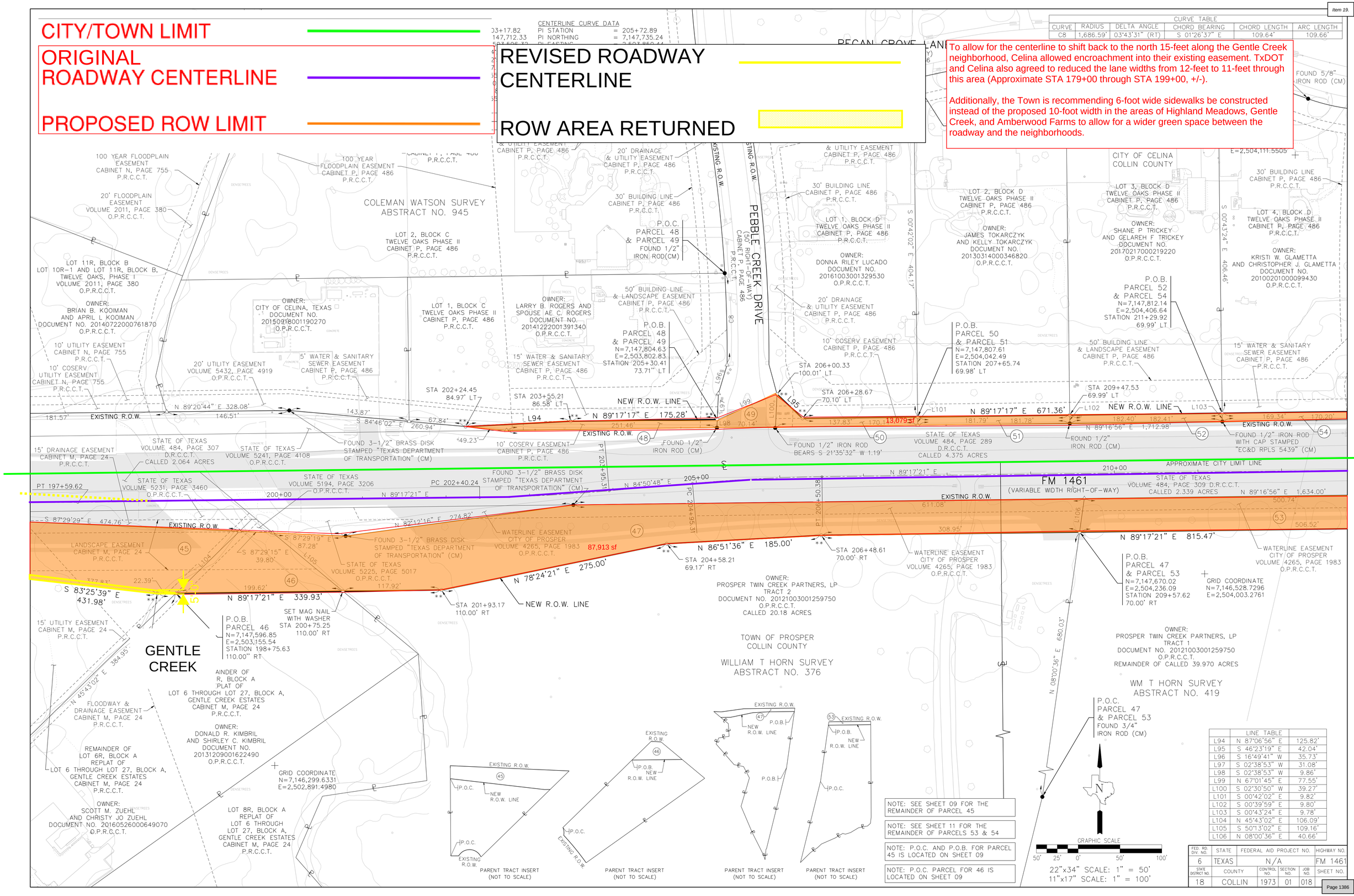
Additionally, the Town is recommending 6-foot wide sidewalks be constructed instead of the proposed 10-foot width in the areas of Highland Meadows, Gentle Creek, and Amberwood Farms to allow for a wider green space between the roadway and the neighborhoods.

CENTERLINE CURVE DATA

PI STATION	= 205+72.89
PI NORTHING	= 7,147,735.24

CURVE TABLE

CURVE	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH	ARC LENGTH
C8	1,686.59'	03°43'31" (RT)	S 01°26'37" E	109.64'	109.66'



LINE TABLE

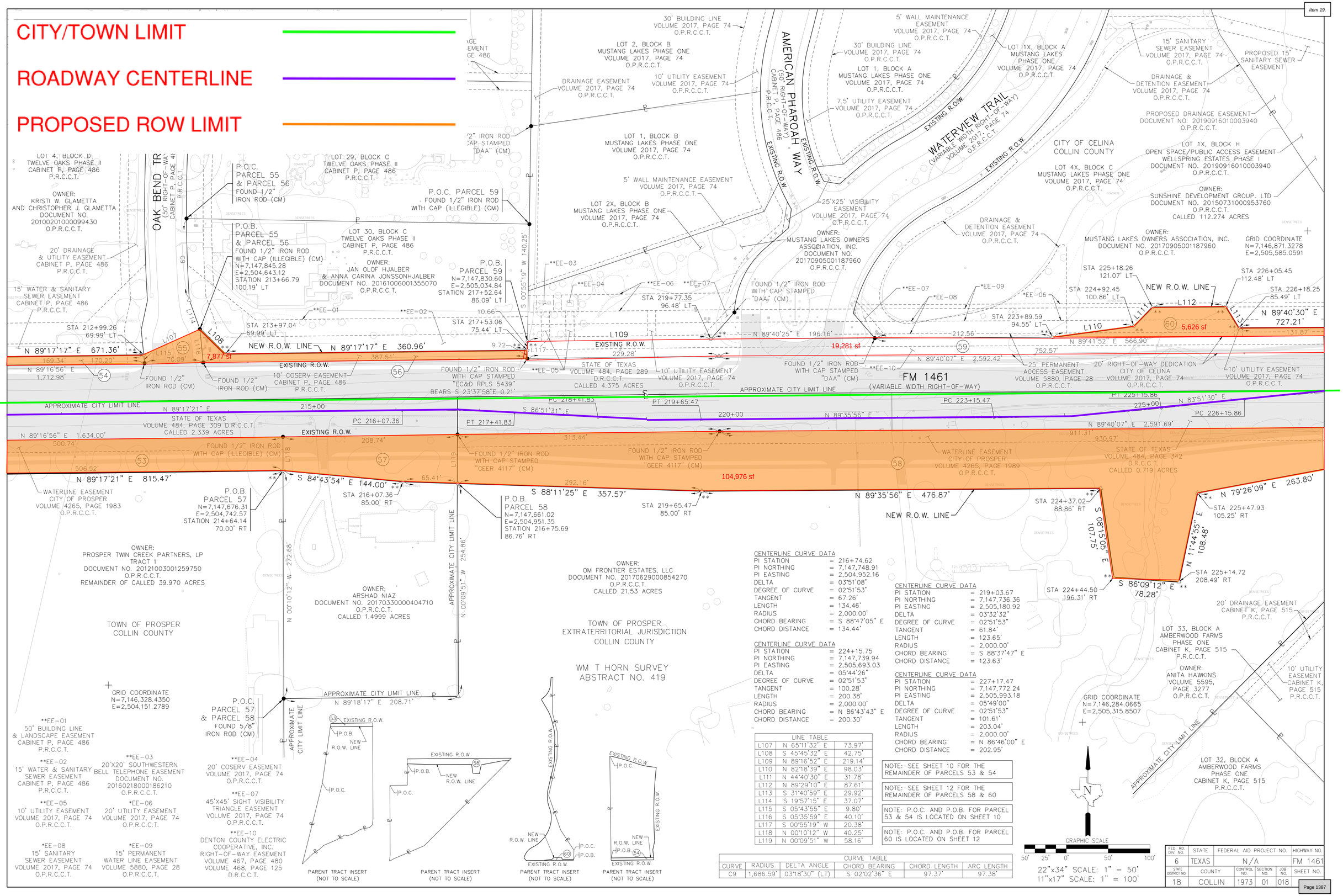
L94	N 87°06'56" E	125.82'
L95	S 46°23'19" E	42.04'
L96	S 16°49'41" W	35.73'
L97	S 02°38'53" W	31.08'
L98	S 02°38'53" W	9.86'
L99	N 67°01'45" E	77.55'
L100	S 02°30'50" W	39.27'
L101	S 00°42'02" E	9.82'
L102	S 00°39'59" E	9.80'
L103	S 00°43'24" E	9.78'
L104	N 45°43'02" E	106.09'
L105	S 50°13'02" E	109.16'
L106	N 08°00'36" E	40.66'

FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
6	TEXAS	N/A			FM 1461
STATE DISTRICT NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
18	COLLIN	1973	01	018	

CITY/TOWN LIMIT

ROADWAY CENTERLINE

PROPOSED ROW LIMIT



CENTERLINE CURVE DATA

PI STATION	= 216+74.62
PI NORTHING	= 7,147,748.91
PI EASTING	= 2,504,952.16
DELTA	= 03°51'08"
DEGREE OF CURVE	= 02°51'53"
TANGENT	= 67.26'
LENGTH	= 134.46'
RADIUS	= 2,000.00'
CHORD BEARING	= S 88°47'05" E
CHORD DISTANCE	= 134.44'

CENTERLINE CURVE DATA

PI STATION	= 224+15.75
PI NORTHING	= 7,147,739.94
PI EASTING	= 2,505,693.03
DELTA	= 05°44'26"
DEGREE OF CURVE	= 02°51'53"
TANGENT	= 100.28'
LENGTH	= 200.38'
RADIUS	= 2,000.00'
CHORD BEARING	= N 86°43'43" E
CHORD DISTANCE	= 200.30'

CENTERLINE CURVE DATA

PI STATION	= 219+03.67
PI NORTHING	= 7,147,736.36
PI EASTING	= 2,505,180.92
DELTA	= 03°32'32"
DEGREE OF CURVE	= 02°51'53"
TANGENT	= 61.84'
LENGTH	= 123.65'
RADIUS	= 2,000.00'
CHORD BEARING	= S 88°37'47" E
CHORD DISTANCE	= 123.63'

CENTERLINE CURVE DATA

PI STATION	= 227+17.47
PI NORTHING	= 7,147,772.24
PI EASTING	= 2,505,993.18
DELTA	= 05°49'00"
DEGREE OF CURVE	= 02°51'53"
TANGENT	= 101.61'
LENGTH	= 203.04'
RADIUS	= 2,000.00'
CHORD BEARING	= N 86°46'00" E
CHORD DISTANCE	= 202.95'

LINE TABLE

L107	N 65°11'32" E	73.97'
L108	S 45°45'32" E	42.75'
L109	N 89°16'52" E	219.14'
L110	N 82°18'39" E	98.03'
L111	N 44°40'30" E	31.78'
L112	N 89°29'10" E	87.61'
L113	S 31°40'59" E	29.92'
L114	S 19°57'15" E	37.07'
L115	S 05°43'55" E	9.80'
L116	S 05°35'59" E	40.10'
L117	S 00°55'19" W	20.38'
L118	N 00°10'12" W	40.25'
L119	N 00°09'51" W	58.16'

CURVE TABLE

CURVE	RADIUS	DELTA ANGLE	CHORD BEARING	CHORD LENGTH	ARC LENGTH
C9	1,686.59'	03°18'30" (LT)	S 02°02'36" E	97.37'	97.38'

NOTE: SEE SHEET 10 FOR THE REMAINDER OF PARCELS 53 & 54

NOTE: SEE SHEET 12 FOR THE REMAINDER OF PARCELS 58 & 60

NOTE: P.O.C. AND P.O.B. FOR PARCEL 53 & 54 IS LOCATED ON SHEET 10

NOTE: P.O.C. AND P.O.B. FOR PARCEL 60 IS LOCATED ON SHEET 12

FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
6	TEXAS	N/A			FM 1461
STATE DISTRICT NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
18	COLLIN	1973	01	018	

CITY/TOWN LIMIT

ORIGINAL ROADWAY CENTERLINE

PROPOSED ROW LIMIT

REVISED ROADWAY CENTERLINE

ROW AREA RETURNED

To allow for the centerline to shift back to the north 15-feet along the Gentle Creek neighborhood, Celina allowed encroachment into their existing easement. TxDOT and Celina also agreed to reduced the lane widths from 12-feet to 11-feet through this area (Approximate STA 179+00 through STA 199+00, +/-).

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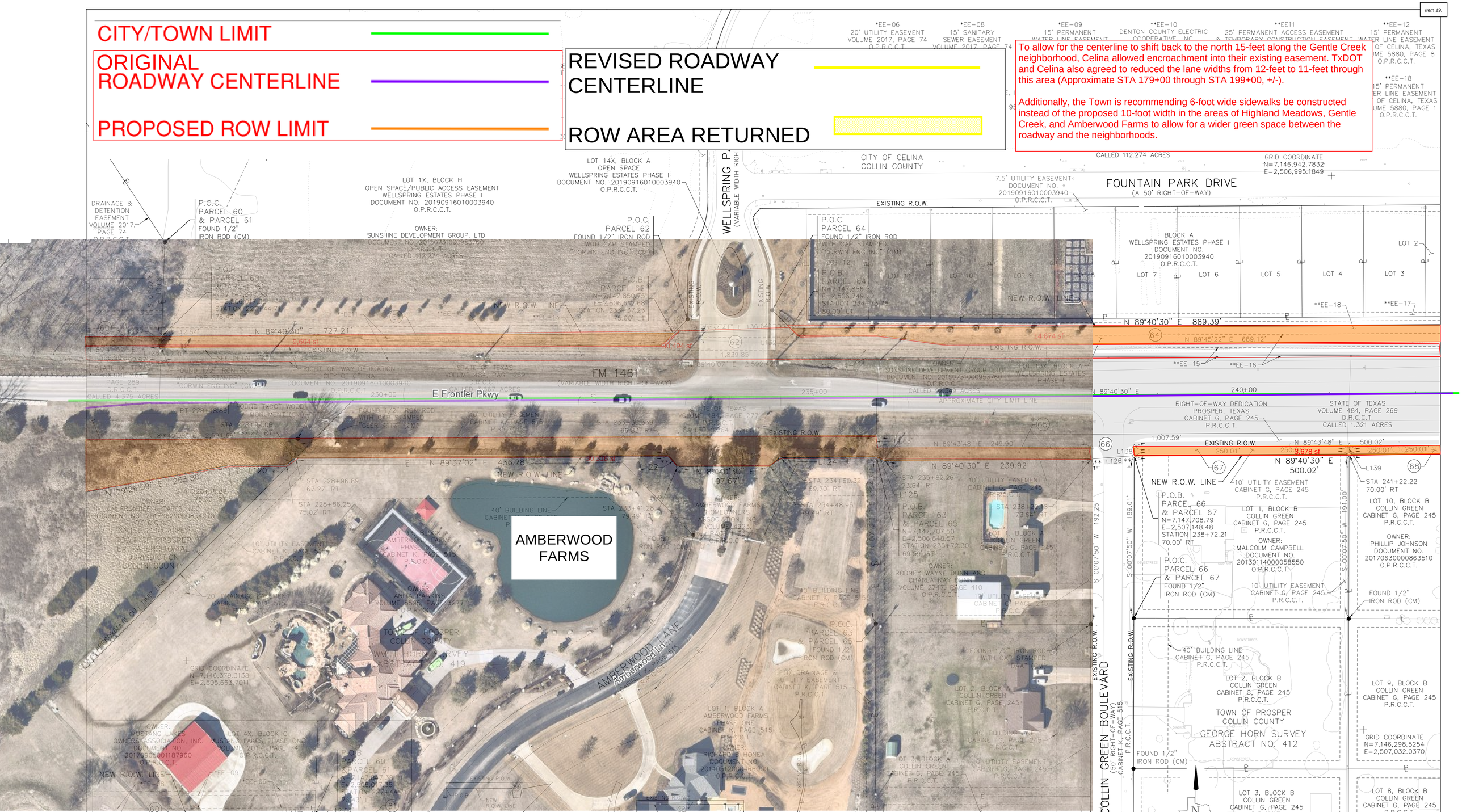


DETAIL "A"
NOT TO SCALE

PARENT TRACT INSERT (NOT TO SCALE)

PARENT TRACT INSERT (NOT TO SCALE)

PARENT TRACT INSERT (NOT TO SCALE)

PARENT TRACT INSERT (NOT TO SCALE)

CENTERLINE CURVE DATA

PI STATION	= 227+17.47
PI NORTHING	= 7,147,772.24
PI EASTING	= 2,505,993.18
DELTA	= 05°49'00"
DEGREE OF CURVE	= 02°51'53"
TANGENT	= 101.61'
LENGTH	= 203.04'
RADIUS	= 2,000.00'
CHORD BEARING	= N 86°46'00" E
CHORD DISTANCE	= 202.95'

NOTE: SEE SHEET 11 FOR THE REMAINDER OF PARCELS 58 & 60

NOTE: SEE SHEET 13 FOR THE REMAINDER OF PARCELS 64 & 68

NOTE: P.O.C. AND P.O.B. FOR PARCEL 58 IS LOCATED ON SHEET 11

NOTE: P.O.C. AND P.O.B. FOR PARCEL 68 IS LOCATED ON SHEET 13

22"x34" SCALE: 1" = 50'
11"x17" SCALE: 1" = 100'

FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
6	TEXAS	N/A			FM 1461
STATE DISTRICT NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
18	COLLIN	1973	01	018	

CITY/TOWN LIMIT

ROADWAY CENTERLINE

PROPOSED ROW LIMIT

CENTERLINE CURVE DATA

PI STATION	= 247+51.84
PI NORTHING	= 7,147,781.91
PI EASTING	= 2,508,027.69
DELTA	= 03°13'55"
DEGREE OF CURVE	= 02°51'53"
TANGENT	= 56.42'
LENGTH	= 112.82'
RADIUS	= 2,000.00'
CHORD BEARING	= N 88°36'10" E
CHORD DISTANCE	= 112.80'

CENTERLINE CURVE DATA

PI STATION	= 249+64.65
PI NORTHING	= 7,147,793.09
PI EASTING	= 2,508,240.24
DELTA	= 03°13'55"
DEGREE OF CURVE	= 02°51'53"
TANGENT	= 56.42'
LENGTH	= 112.82'
RADIUS	= 2,000.00'
CHORD BEARING	= N 88°36'10" E
CHORD DISTANCE	= 112.80'

CENTERLINE CURVE DATA

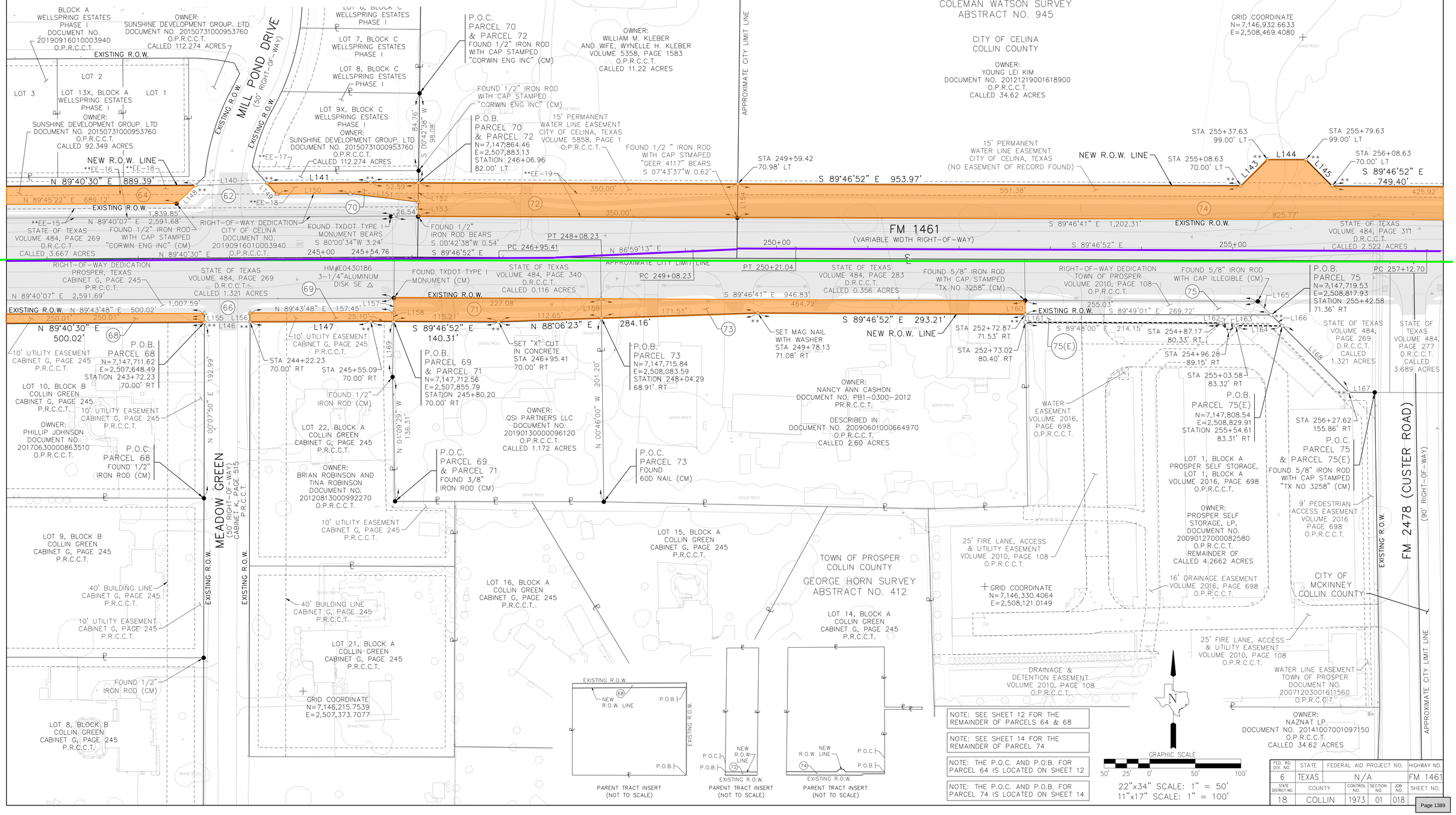
PI STATION	= 257+77.28
PI NORTHING	= 7,147,789.99
PI EASTING	= 2,509,052.89
DELTA	= 03°41'55"
DEGREE OF CURVE	= 02°51'53"
TANGENT	= 64.58'
LENGTH	= 129.11'
RADIUS	= 2,000.00'
CHORD BEARING	= S 87°55'55" E
CHORD DISTANCE	= 129.09'

LINE TABLE

L140	N 88°13'01" E	78.59'
L141	N 89°40'30" E	113.42'
L143	N 45°13'08" E	41.01'
L144	S 89°46'52" E	42.00'
L145	S 44°46'52" E	41.01'
L146	N 89°40'30" E	50.00'
L147	N 89°40'30" E	132.20'
L148	N 45°59'04" E	28.67'
L149	S 42°22'43" E	16.10'
L150	N 89°45'22" E	80.27'
L151	S 83°00'43" E	75.17'
L152	S 00°42'38" W	21.14'
L153	S 00°42'38" W	15.32'
L154	S 00°42'38" W	36.49'
L155	N 00°07'50" E	9.76'

LINE TABLE

L156	N 00°07'50" E	9.71'
L157	N 00°59'08" E	15.74'
L158	N 00°59'08" E	9.80'
L159	N 00°46'00" W	21.37'
L160	S 00°44'37" E	15.03'
L161	S 00°44'37" E	8.87'
L162	S 45°42'19" E	12.68'
L163	N 51°36'34" E	9.34'
L164	S 89°48'00" E	51.03'
L165	S 44°57'40" E	21.06'
L166	S 44°57'40" E	16.95'
L167	N 89°50'28" W	28.66'
L168	N 44°57'40" W	102.93'
L169	N 00°59'08" E	61.05'



FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
6	TEXAS	N/A			FM 1461
STATE DISTRICT NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
18	COLLIN	1973	01	018	

CITY/TOWN LIMIT

ROADWAY CENTERLINE

PROPOSED ROW LIMIT

STATE OF TEXAS
VOLUME 760, PAGE 577
D.R.C.C.T.
CALLED
2.920 ACRES

OWNER:
MWE HOLDINGS, L.L.C.
TRACT 4
DOCUMENT NO.
20170607000738910
O.P.R.C.C.T.
REMAINDER OF
0.500 ACRES

STATE OF TEXAS
PARCEL 51
DOCUMENT NO.
20180413000449590
O.P.R.C.C.T.
CALLED 6,297 SQ. FT.

EXISTING R.O.W.

APPROXIMATE CITY LIMIT LINE

FM 2478 (CUSTER ROAD)
(VARIABLE WIDTH RIGHT-OF-WAY)

CITY OF CELINA
COLLIN COUNTY

OWNER:
YOUNG LEI KIM
DOCUMENT NO. 20121219001618900
O.P.R.C.C.T.
CALLED 34.62 ACRES

P.O.C.
PARCEL 74
& PARCEL 77
FOUND 1/2"
IRON ROD (CM)

15' PERMANENT
WATER LINE EASEMENT
CITY OF CELINA, TEXAS
(NO EASEMENT OF RECORD FOUND)

FOUND 5/8" IRON ROD
WITH CAP STAMPED
"TEXAS DEPARTMENT OF
TRANSPORTATION ROW
MONUMENT" (CM)

FOUND 5/8" IRON ROD
WITH CAP STAMPED
"TEXAS DEPARTMENT OF
TRANSPORTATION ROW
MONUMENT" BEARS
S 45°25'32" W 0.72'

STATE OF TEXAS
PARCEL 49A
DOCUMENT NO.
20181114001407210
O.P.R.C.C.T.

P.O.B.
PARCEL 74
& PARCEL 77
N=7,147,859.01
E=2,509,310.43
STATION 260+33.35
84.44' LT

S 00°08'06" E 157.84'

OWNER:
THE NICID LIMITED PARTNERSHIP
DOCUMENT NO. 20130125000113620
O.P.R.C.C.T.
REMAINDER OF 1.752 ACRES

FOUND 1/2"
IRON ROD (CM)

FOUND 5/8" IRON ROD WITH CAP
STAMPED "TEXAS DEPARTMENT OF
TRANSPORTATION ROW MONUMENT" (CM)

25' PERMANENT ACCESS EASEMENT
& TEMPORARYCONSTRUCTION EASEMENT
CITY OF CELINA, TEXAS
VOLUME 5893, PAGE 9
O.P.R.C.C.T.

15' PERMANENT
WATER LINE EASEMENT
CITY OF CELINA, TEXAS
VOLUME 5893, PAGE 9
O.P.R.C.C.T.

STA 263+58.97
82.95' LT

N 44°51'22" E
80.68'

S 89°46'52" E 749.40'

NEW R.O.W. LINE

425.92'
323.48'
N 89°50'47" E 542.76'
237.24'
305.52'
825.77'
S 89°46'41" E
1,202.31'
S 89°46'52" E

L170 L171 L172

74 77

EXISTING R.O.W.

FOUND 5/8" IRON ROD WITH CAP
STAMPED "TEXAS DEPARTMENT OF
TRANSPORTATION ROW MONUMENT" (CM)

STATE OF TEXAS
VOLUME 484, PAGE 311
D.R.C.C.T.
CALLED 2.522 ACRES

LIS PENDENS
STATE OF TEXAS
PARCEL 50
DOCUMENT NO.
20180813001009980
O.P.R.C.C.T.
CALLED 11,571 SQ. FT.

PT 258+41.80

S 86°04'57" E

PC 259+41.80

260+00

265+00

APPROXIMATE CITY LIMIT LINE

PC 257+12.70

PT 260+83.91

FOUND TXDOT WOOD
MONUMENT BEARS
N 57°44'17" E 1.17'

FOUND 5/8" IRON ROD WITH CAP
STAMPED "TEXAS DEPARTMENT OF
TRANSPORTATION ROW MONUMENT" (CM)

EXISTING R.O.W. N 89°50'47" E 561.41'

76 PART 1

S 84°54'26" E 219.09'

N 89°50'47" E 363.26'

NEW R.O.W. LINE

L177

N 45°03'56" E
65.05'

STA 257+94.99
79.98' RT

STA 260+12.86
86.32' RT

STA 257+48.05
127.43' RT

P.O.B.
PARCEL 76 PART 1
N=7,147,689.86
E=2,509,648.47
STATION 263+73.07
85.00' RT

N 45°08'38" W
73.47'

P.O.C.
PARCEL 76 PART 1
FOUND 5/8" IRON ROD
WITH CAP STAMPED "TEXAS
DEPARTMENT OF TRANSPORTATION
ROW MONUMENT" (CM)

TOWN OF PROSPER
COLLIN COUNTY

OWNER:
HAGGARD RHEA MILLS, LLC
DOCUMENT NO. 20100610000588740
O.P.R.C.C.T.
REMAINDER OF 134.44 ACRES

FM 2478 (CUSTER ROAD)
(90' RIGHT-OF-WAY)

EXISTING R.O.W.

GRID COORDINATE
N=7,146,315.8804
E=2,508,656.9648

GEORGE HORN SURVEY
ABSTRACT NO. 412

FOUND 5/8" IRON ROD WITH CAP
STAMPED "TEXAS DEPARTMENT OF
TRANSPORTATION ROW MONUMENT" (CM)

FM 2478 (CUSTER ROAD)
(VARIABLE WIDTH RIGHT-OF-WAY)

PARCEL 47
STATE OF TEXAS
DOCUMENT NO. 20180424000490140
O.P.R.C.C.T.
CALLED 402.489 SQ. FT.

EXISTING R.O.W.

NEW
R.O.W. LINE
P.O.C.
P.O.B.
74
EXISTING R.O.W.
PARENT TRACT INSERT
(NOT TO SCALE)

EXISTING R.O.W.
P.O.C.
P.O.B.
78
NEW
R.O.W. LINE
EXISTING R.O.W.
PARENT TRACT INSERT
(NOT TO SCALE)

CITY OF MCKINNEY
COLLIN COUNTY

GRID COORDINATE
N=7,146,970.3868
E=2,510,017.0794

OWNER:
BILLINGSLY CORNELL CAPITAL, L.P.
DOCUMENT NO. 20190624000727970
O.P.R.C.C.T.
CALLED 35.544 ACRES

EASEMENT TO
STATE OF TEXAS
VOLUME 760, PAGE 574
D.R.C.C.T.

P.O.C.
PARCEL 78
FOUND 5/8" IRON ROD
WITH CAP STAMPED "TEXAS
DEPARTMENT OF TRANSPORTATION
ROW MONUMENT" (CM)

P.O.B.
PARCEL 78
N=7,147,857.20
E=2,509,896.28
STATION 266+21.33
81.68' LT

S 45°08'32" E
75.41'

STATE OF TEXAS
PARCEL 48
DOCUMENT NO. 20180419000461970
O.P.R.C.C.T.
CALLED 23,449 SQ. FT.

NEW R.O.W. LINE

FOUND 5/8"
IRON ROD (CM)

FOUND 5/8" IRON ROD WITH CAP
STAMPED "TEXAS DEPARTMENT OF
TRANSPORTATION ROW MONUMENT"
BEARS S 48°39'45" E 0.59'

FOUND 1/2"
IRON ROD (CM)

N 89°46'19" E 1,457.23'

N 89°50'53" E 423.87'

78

EXISTING R.O.W.

L173 L174

818.37'

EXISTING R.O.W. N 89°44'56" E 3,813.00'

FOUND 5/8" IRON ROD WITH CAP
STAMPED "TEXAS DEPARTMENT OF
TRANSPORTATION ROW MONUMENT" (CM)

STATE OF TEXAS
VOLUME 484, PAGE 273
D.R.C.C.T.
CALLED 2.376 ACRES

FM 1461
(VARIABLE WIDTH RIGHT-OF-WAY)

N 89°50'47" E 270+00

STATE OF TEXAS
VOLUME 484, PAGE 277
D.R.C.C.T.
CALLED 3.689 ACRES

FOUND 5/8"
IRON ROD (CM)

EXISTING
R.O.W. N 89°44'56" E 3,810.57'

1,472.51

EXISTING R.O.W. N 89°50'47" E 408.91'

L178 L179

76 PART 2

N 89°46'19" E 1,434.03'

NEW R.O.W. LINE

FOUND 5/8" IRON ROD WITH CAP
STAMPED "TEXAS DEPARTMENT OF
TRANSPORTATION ROW MONUMENT" (CM)

N 44°51'22" E
87.23'

P.O.B.
PARCEL 76 PART 2
N=7,147,702.30
E=2,509,920.09
STATION 266+44.73
73.29' RT

P.O.C.
PARCEL 76 PART 2
FOUND 5/8" IRON ROD
WITH CAP STAMPED "TEXAS
DEPARTMENT OF TRANSPORTATION
ROW MONUMENT" (CM)

NATURAL GAS DISTRIBUTION
SYSTEM EASEMENT AND RIGHT-OF-WAY
COSERV GAS, LTD.
DOCUMENT NO 20180918001170760
O.P.R.C.C.T.

FOUND 5/8"
IRON ROD (CM)

FOUND 5/8" IRON ROD WITH CAP
STAMPED "TEXAS DEPARTMENT OF
TRANSPORTATION ROW MONUMENT" (CM)

FOUND 5/8" IRON ROD WITH CAP
STAMPED "TEXAS DEPARTMENT OF
TRANSPORTATION ROW MONUMENT" (CM)

OWNER:
HAGGARD RHEA MILLS, LLC
DOCUMENT NO. 20100610000588740
O.P.R.C.C.T.
REMAINDER OF 134.44 ACRES

CITY OF MCKINNEY
COLLIN COUNTY

LANGDON C. SEARCY SURVEY
ABSTRACT NO. 816

GRID COORDINATE
N=7,146,304.1251
E=2,510,004.1602

76 PART 1 EXISTING R.O.W.
P.O.B.
P.O.C.
NEW
R.O.W. LINE
EXISTING R.O.W.
EXISTING R.O.W.
PARENT TRACT INSERT
(NOT TO SCALE)

EXISTING R.O.W.
P.O.B.
P.O.C.
76
PART 2
NEW
R.O.W. LINE
EXISTING R.O.W.
EXISTING R.O.W.
PARENT TRACT INSERT
(NOT TO SCALE)

CENTERLINE CURVE DATA

PI STATION	= 257+77.28
PI NORTHING	= 7,147,789.99
PI EASTING	= 2,509,052.89
DELTA	= 03°41'55"
DEGREE OF CURVE	= 02°51'53"
TANGENT	= 64.58'
LENGTH	= 129.11'
RADIUS	= 2,000.00'
CHORD BEARING	= S 87°55'55" E
CHORD DISTANCE	= 129.09'

CENTERLINE CURVE DATA

PI STATION	= 260+12.89
PI NORTHING	= 7,147,773.89
PI EASTING	= 2,509,288.00
DELTA	= 04°04'16"
DEGREE OF CURVE	= 02°51'53"
TANGENT	= 71.08'
LENGTH	= 142.11'
RADIUS	= 2,000.00'
CHORD BEARING	= S 88°07'05" E
CHORD DISTANCE	= 142.08'

LINE TABLE

L170	N 44°50'47" E	20.98'
L171	S 00°08'06" E	20.06'
L172	N 44°51'22" E	25.40'
L173	S 45°08'32" E	30.64'
L174	S 45°09'07" E	18.76'
L177	S 45°08'38" E	28.33'
L178	N 44°51'22" E	18.85'
L179	N 44°50'47" E	23.62'

NOTE: SEE SHEET 13 FOR THE REMAINDER OF PARCEL 74

NOTE: SEE SHEET 15 FOR THE REMAINDER OF PARCELS 76 PART 2 AND 78

N

GRAPHIC SCALE
50' 25' 0' 50' 100'
22"x34" SCALE: 1" = 50'
11"x17" SCALE: 1" = 100'

FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
6	TEXAS	N/A			FM 1461
STATE DISTRICT NO.	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
18	COLLIN	1973	01	018	

FINANCE DEPARTMENT

TOWN OF PROSPER

Prosper is a place where everyone matters.

To: **Mayor and Town Council**

From: **Harlan Jefferson, Town Manager**

Re: **Town Council Meeting – June 28, 2022**

Agenda Item:
Consider and act upon an ordinance establishing a Homestead Tax Exemption.

Description of Agenda Item:
Chapter 11.13(n) of the State of Texas Tax Code provides for an optional residential homestead exemption by any taxing unit. Each taxing unit decides if it will offer the exemption and at what percentage. This optional homestead exemption cannot be less than $5,000 or greater than twenty percent of the qualifying property's assessed value. The Town's current assessed homestead tax exemption rate is 10%.

Property tax revenue is split between the General Fund (Maintenance and Operations) and the Interest and Sinking Fund (Debt Service). The 2022 tax rate as approved during the last budget cycle provides for the following tax rate:

$0.3280 for Maintenance and Operations
$0.1820 for Debt Service
$0.5100 Total Tax Rate

Budget Impact:
Staff is estimating lost revenue based on the preliminary roll information provided by the appraisal districts to be approximately $778,000.

Legal Obligations and Review:
Terrence Welch with Brown & Hofmeister, L.L.P., has reviewed the attached ordinance as to form and legality.

Attached Documents:
1. Ordinance

Town Staff Recommendation:
Town staff recommends that the Town Council establish a Homestead Tax Exemption of twelve and a half percent (12.5%).

Proposed Motion:

I move to approve an ordinance establishing a Homestead Tax Exemption of twelve and a half percent (12.5%).

TOWN OF PROSPER, TEXAS **ORDINANCE NO. 2022-XX**

AN ORDINANCE OF THE TOWN COUNCIL OF THE TOWN OF PROSPER, TEXAS, REPEALING TOWN OF PROSPER ORDINANCE NO. 17-50; ESTABLISHING A HOMESTEAD TAX EXEMPTION IN THE AMOUNT OF TWELVE AND A HALF PERCENT (12.5%) OF THE APPRAISED VALUE OF THE HOMESTEAD; PROVIDING FOR APPROPRIATE NOTICE TO BE GIVEN BY THE CHIEF APPRAISERS OF DENTON COUNTY AND COLLIN COUNTY; AND PROVIDING AN EFFECTIVE DATE.

WHEREAS, the Constitution of the State of Texas was amended in 1981 by a vote of the people to allow cities the local option to grant homestead exemptions; and

WHEREAS, on or about June 27, 2017, the Town Council adopted Ordinance No. 17-50, which ordinance authorized a homestead exemption in the amount of ten percent (10%); and

WHEREAS, it is the desire of the Town Council to repeal Ordinance No. 17-50 in its entirety and hereby authorize a homestead exemption in the amount of twelve and a half percent (12.5%).

NOW, THEREFORE, BE IT ORDAINED BY THE TOWN COUNCIL OF THE TOWN OF PROSPER, TEXAS, THAT:

SECTION 1

The findings set forth above are incorporated into the body of this Ordinance as if fully set forth herein.

SECTION 2

Town of Prosper Ordinance No. 17-50, adopted by the Town Council on or about June 27, 2017, is hereby repealed in its entirety.

SECTION 3

From and after the effective date of this Ordinance, a homestead exemption of twelve and a half percent (12.5%) is granted to all qualified homeowners subject to the Town's property tax pursuant to the laws of the State of Texas regulating the assessment of ad valorem taxes. If this percentage produces an exemption of less than five thousand dollars ($5,000) when applied to a particular residence homestead, the individual shall be entitled to an exemption of five thousand dollars ($5,000) of the assessed value of the property.

SECTION 4

The Chief Appraiser for the Denton County Appraisal District and the Chief Appraiser for the Collin County Appraisal District shall give appropriate notice to the general public advising it of the availability of the exemption.

SECTION 5

This Ordinance shall apply to the 2022 tax roll and all subsequent tax rolls unless repealed or amended by ordinance.

SECTION 6

This Ordinance shall become effective after its passage.

DULY PASSED AND APPROVED BY THE TOWN COUNCIL OF THE TOWN OF PROSPER, TEXAS, ON THIS THE 28TH DAY OF JUNE, 2022.

APPROVED:

_____

David F. Bristol, Mayor

ATTEST:

_____

Michelle Lewis Sirianni, Town Secretary

APPROVED AS TO FORM AND LEGALITY:

_____

Terrence S. Welch, Town Attorney

PARKS & RECREATION

TOWN OF PROSPER

Prosper is a place where everyone matters.

To: **Mayor and Town Council**

From: **Dan Baker, Parks and Recreation Director**

Through: **Harlan Jefferson, Town Manager**
Robyn Battle, Executive Director of Community Services

Re: **Town Council Meeting – June 28, 2022**

Agenda Item:
Discussion on Raymond Community Park.

Description of Agenda Item:
At the March 29th Town Council Meeting, an agreement with Dunaway Associates was approved related to the Raymond Community Park Phase 1 design plans. At this time, Dunaway has completed an assessment of the site, and has identified a first phase and theme as it relates to the development of Raymond Community Park.

Attached Documents:
1. Raymond Community Park Phase 1 Presentation

Town Staff Recommendation:
Town staff recommends that the Town Council give staff feedback and direction on Raymond Community Park.

TOWN OF PROSPER

Raymond Park

Phase I

Town Council Update

June 28, 2022

DUNAW

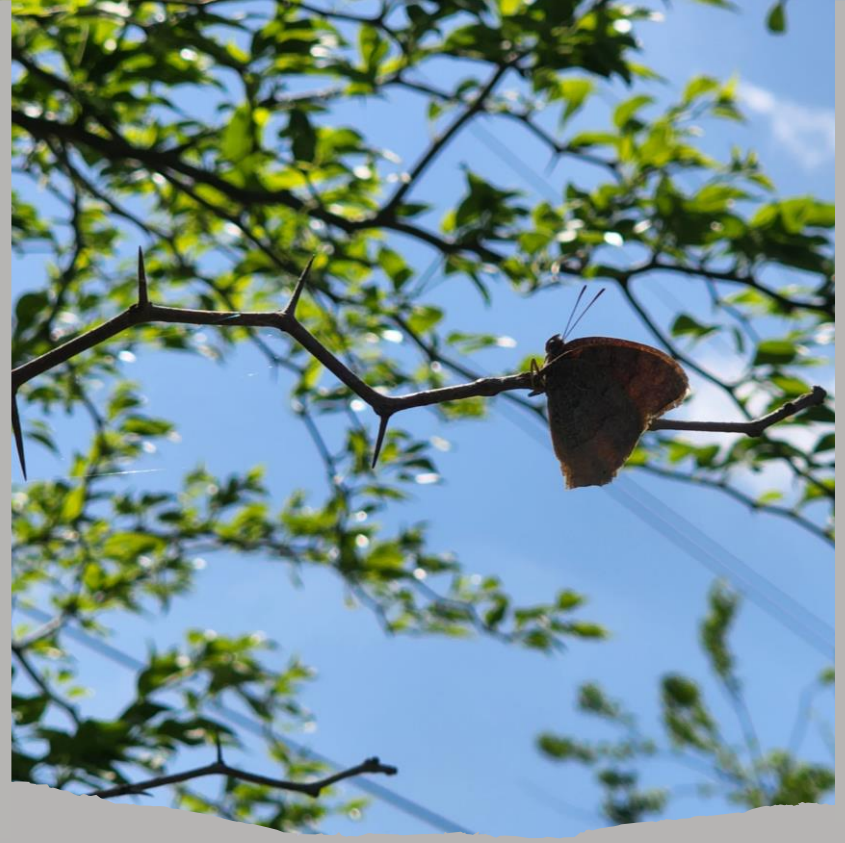
Our Team's Commitment

Create a landmark park in Prosper that respects the rich heritage of the community, the site, and its name.

Community Legacy
Site Sensitivity
Honoring Dudley

Community Legacy

Agriculture Production Economy Investment History Generations Family
Farm Cultivate Stewardship Fruitful Prosperity Growth Legacy R



Site Sensitivity

Nature Wildlife Trees Roots Agriculture Water Wildflowers Butterflies
Natural Resources Native Enduring Escape Prairie Perennials Ecosystem

Honoring Dudley

Memories Prosper Commemoration Life Family Design Fun Respect
Tribute Joyful Giving Supportive Buoyant Honor Happiness Legacy

Site Overview

Conceptual Alternative

2015 Master Plan

Key Features

Item 21.

- Central 4-Plex w/ 250’ Foul Lines
- Multi-Use Field Sports at Perimeter
- Highly Visible Community Center at First & Coit Intersection
- (4) Full-Size Tennis Courts
- Community Gathering w/ Amphitheater at Water’s Edge
- Neighborhood Park Amenities at Pond
- Trail Connections to Town Trail Network
- Parking +/- 645 Spaces

2022 Revised Concept Plan

Feature Updates

- Prominent *entries* off Coit & First
- Organize *circulation* off 4-plex symmetry
- *Parking* serves different recreation areas
- Civic space enjoys *backdrop of trees & water*
- *Tennis & pickleball* have distinct space
- Maintained areas for *Field Sports*

Program Elements

Sports
Lighted 4-Plex
Multi-Use Fields
Tennis & Pickleball

Community
Inclusive Playground
Amphitheater
Sprayground

Trails
Hike & Bike Trails
Trailheads
Wayfinding

Vehicular
Primary Entries
Parking Areas
Drop Off / Access

Architecture
Group Pavilion / Restroom & Concession / Monu

Ballfield 4-Plex

Multi-Use Fields

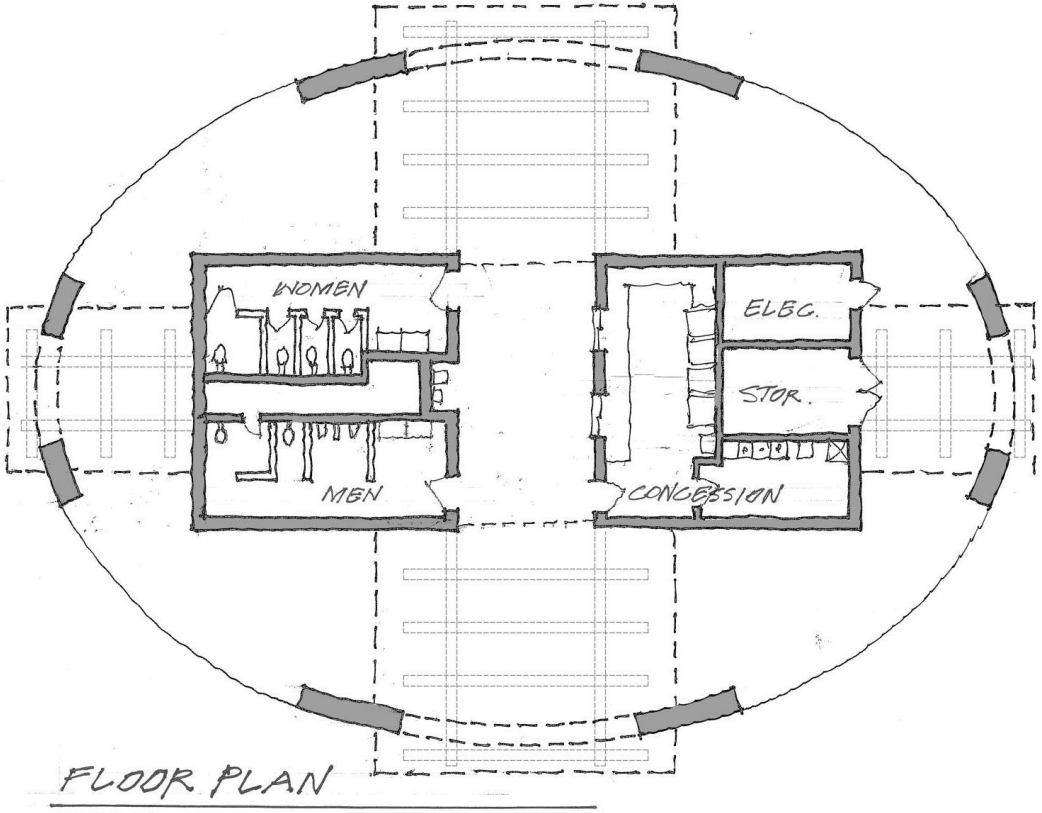
Pickleball & Tennis

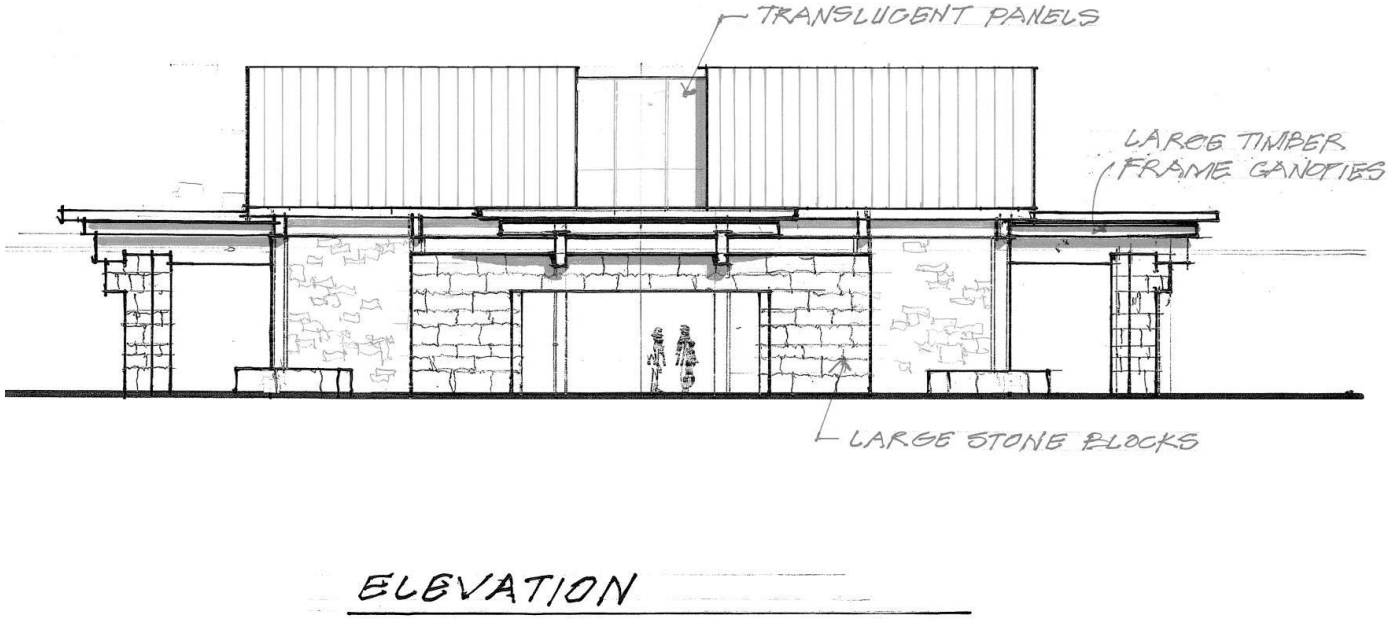
Amphitheater

Playground

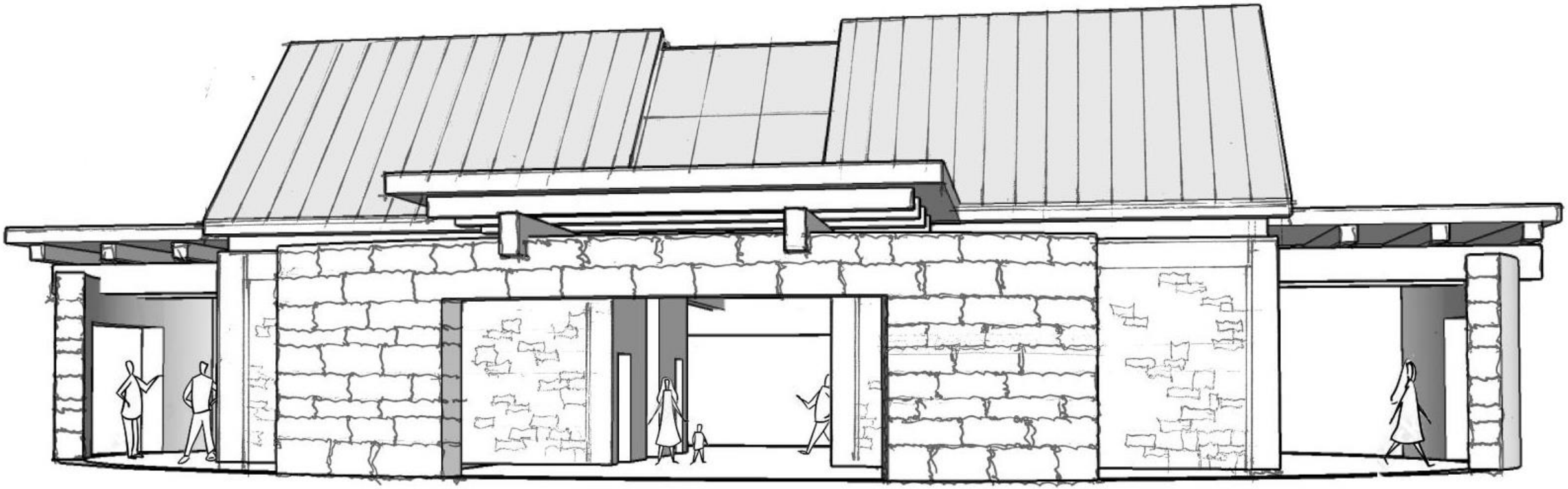
Hike & Bike Trails

Identity Monuments

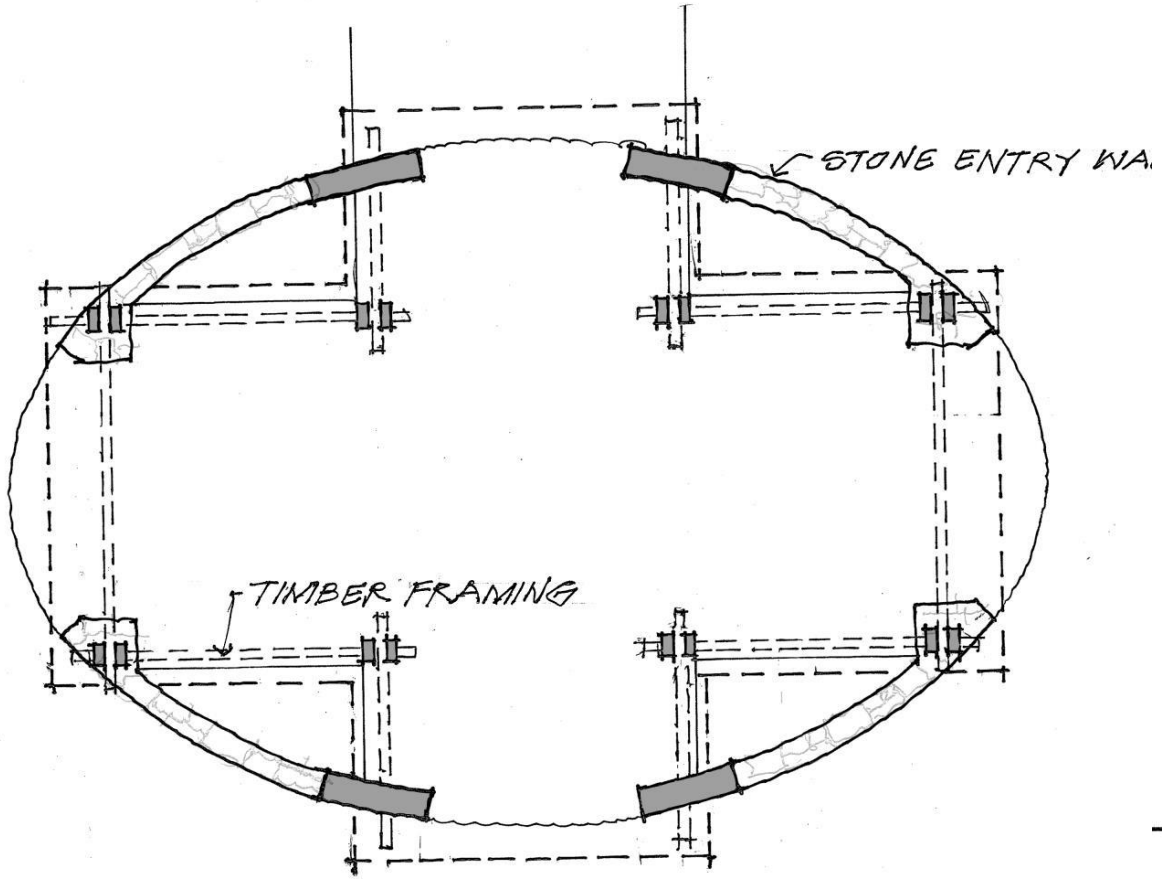




Restroom & Concession



Restroom & Concession



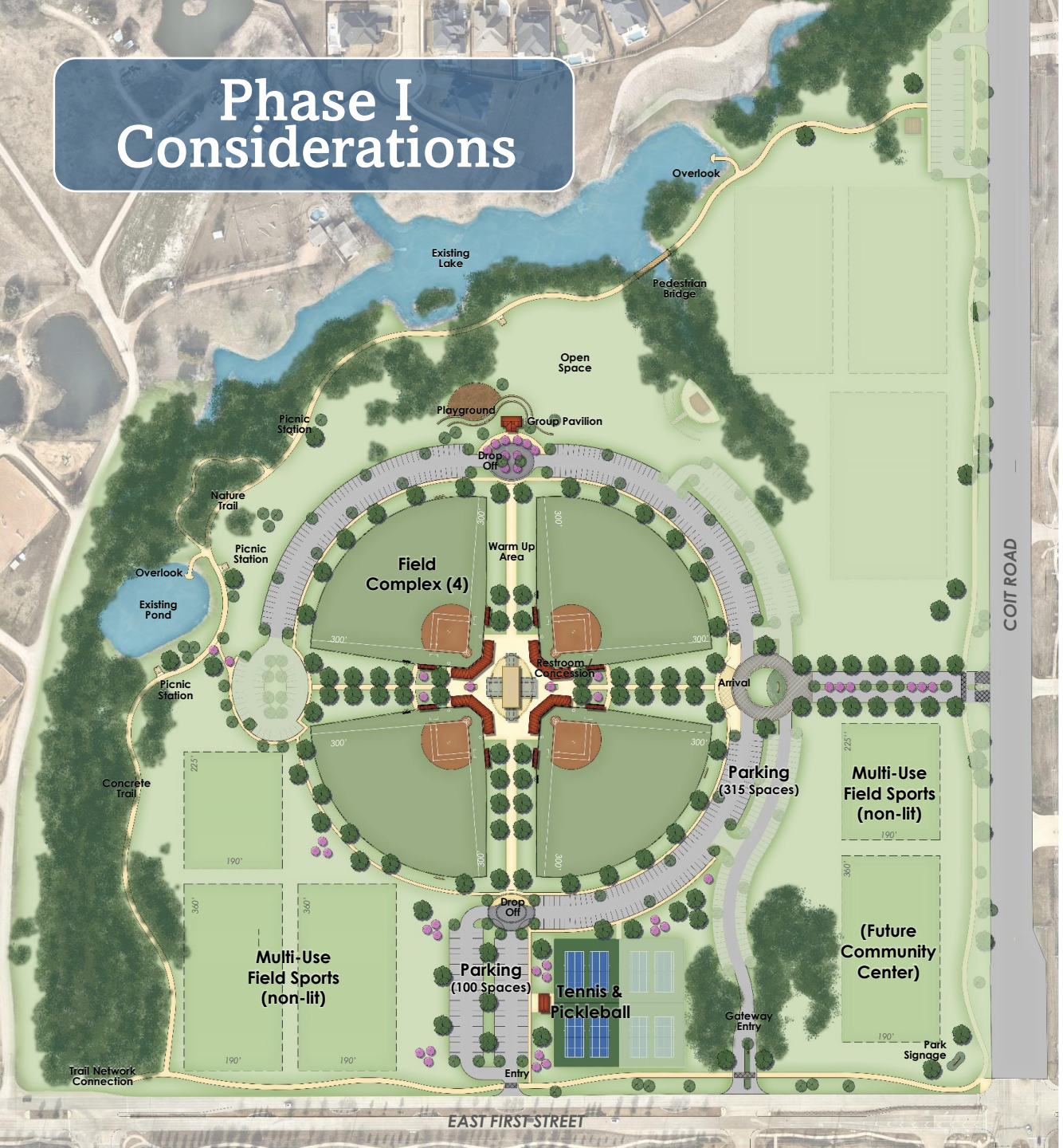
FLOOR PLAN

ELEVATION

Large Group Pavilion

Large Group Pavilion

Phase I Considerations



Projected Budget – Phase I

GENERAL SITE ITEMS	*$2,000,000*
OVERALL PARK IMPROVEMENTS	*$1,375,000*
PARKING & DRIVES (Approx. 415 Spaces)	*$2,900,000*
BALLFIELD COMPLEX	*$5,200,000*
PARK & PERIMETER TRAILS	*$1,600,000*
TENNIS & PICKLEBALL	*$1,000,000*
BASE SUBTOTAL	**$14,075,000**
+/- 15% CONTINENGENCY	**$2,000,000**
CONSTRUCTION TOTAL	**$16,075,000**

Next Steps

A. Topo Survey

B. Phase I Conceptual Alternative

- *Park Board - June 9th*
- *Town Council – June 28th*

C. Schematic Design

D. Design Development

E. Final Construction Documents

F. Bid Phase

G. Construction Phase