

**NOTICE OF OPEN MEETING
A G E N D A
SPECIAL CITY COUNCIL MEETING
City of Moberly
City Council Room – Moberly City Hall
101 West Reed Street
July 28, 2022
4:00 PM**

Posted:

Roll Call

Approval of Agenda

Communications, Requests, Informational Items

1. Presentation From ESCI Regarding Station Study.

Anything Else to Come Before the Council

Adjournment

Moberly Fire Department Station Location Study Overview / Findings



July 2022



- Deputy Chief Robert Graff

- Emergency Service Consulting International
 - Project Manager
 - Senior Consultant
- Marion County Fire Rescue
 - Located in Central Florida
 - 24 Career Stations, 5 Volunteer Stations
 - Over 700 FTE's
 - Type 1 Hazardous Materials Team- 50 members
 - Technical Rescue Team- 50 members
 - Florida Urban Search and Rescue Task Force 8 - FL-TF8- 72 members



- **ESCI hired to evaluate service provided by MFD against national benchmarks and industry standards with the following deliverables:**
 - **Station Location Study**
 - **Answer the City's question if considering building one central fire station to replace the two existing stations will provide the necessary response times to service the City's fire protection needs or if more than one station is required.**
 - **The potential impacts on the ISO PPC rating, response times, and operational costs in the one- versus two-station case are offered**

Engagement and Scope

#1.

- **Station Location Study provides comprehensive overview of department current service delivery with recommendations including:**
 - **Resource deployment analysis and options**
 - **Service delivery and performance options**
 - **Staffing analysis**

Benchmarks & National Standards Vs. Regulations

#1.

As part of the comprehensive system analysis, ESCI utilizes an assortment of benchmarks, key performance indicators (KPI), industry standards and best practices for a comparative analysis...



Center for
Public Safety
Excellence



Other applicable state and regional standards.

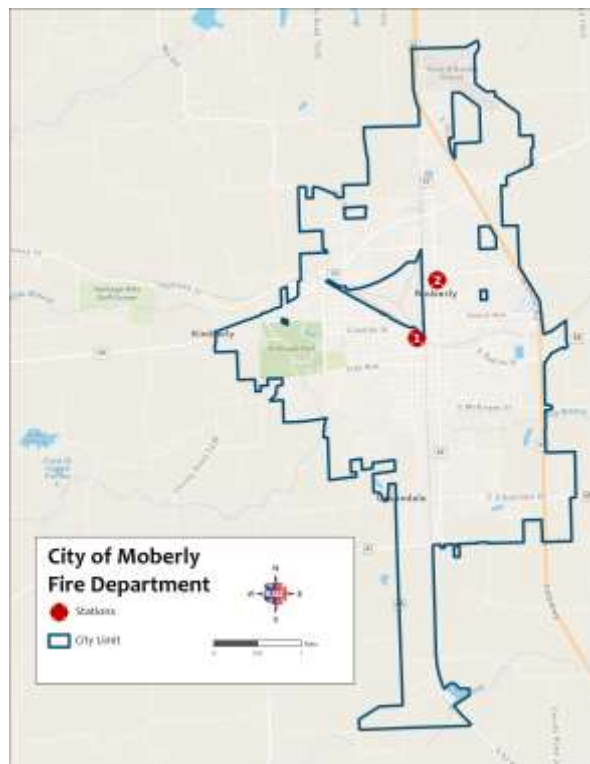
Study Results/Observations

#1.

- ***Community Demographics/Growth***
- *Service Demand*
- *Staffing*
- *Service Delivery*
- *Response Standards*
- *Capital Facilities*
- *Community Risk Analysis*
- *Major Report Findings*
- *Short and Long Term Strategies*

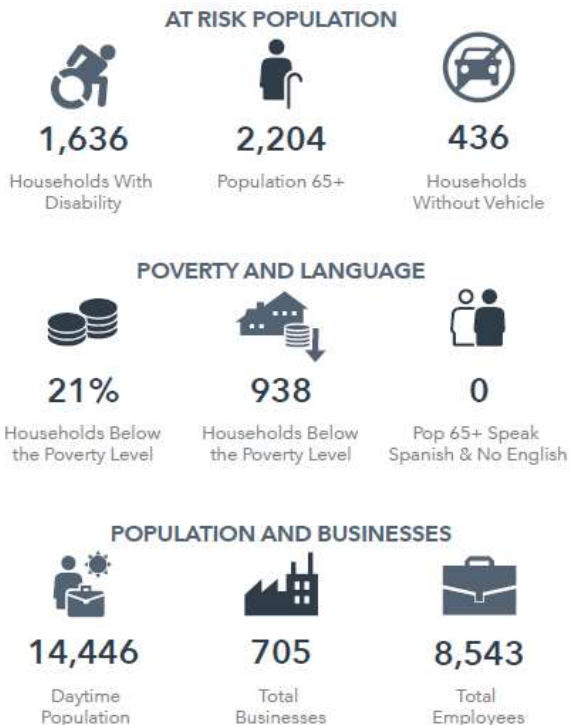
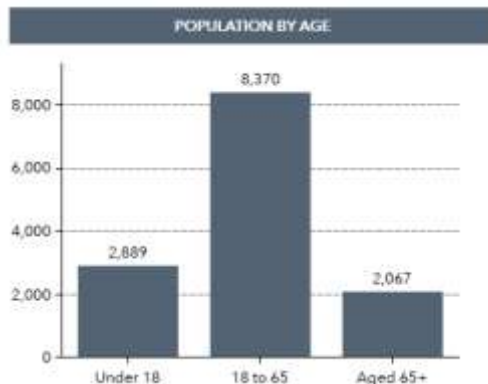
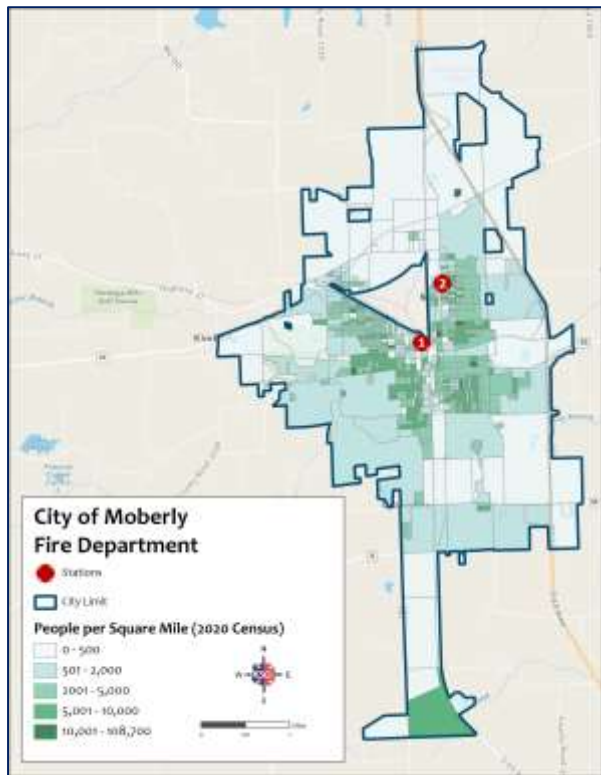
Response Area Demographics

#1.



Response Area Demographics: At-Risk Pop.

#1.



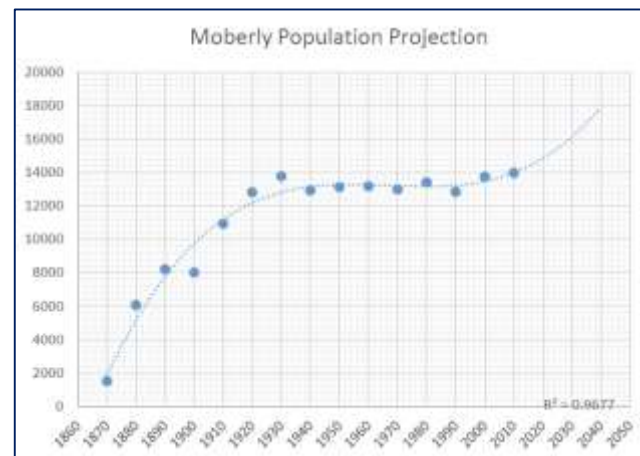
Response Area Demographics/Growth

#1.

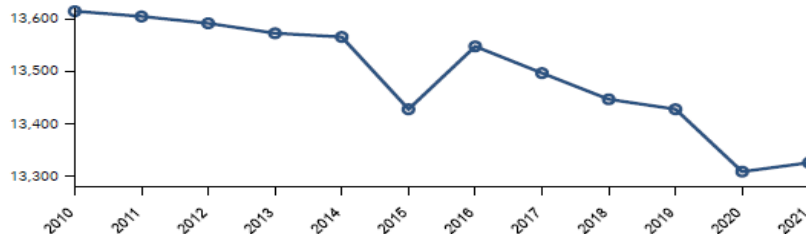
POPULATION TRENDS AND KEY INDICATORS

City of Moberly

13,326	4,793	2.46	37.3	\$40,564	\$94,521	44	232	29
Population	Households	Avg Size Household	Median Age	Median Household Income	Median Home Value	Wealth Index	Housing Affordability	Diversity Index



Historical Trends: Population



	2010	2015	2020	2025	2030	2035	2040
Natural Population Change	13,974	14,320	14,732	15,062	15,367	15,530	15,499
0.5% Annual Growth	13,974	14,327	14,689	15,060	15,440	15,830	16,229
1% Annual Growth	13,974	14,687	15,436	16,223	17,051	17,921	18,835
1.25% Annual Growth	13,974	14,869	15,822	16,836	17,915	19,063	20,285
1.37% Annual Growth	13,974	14,958	16,011	17,138	18,345	19,636	21,019

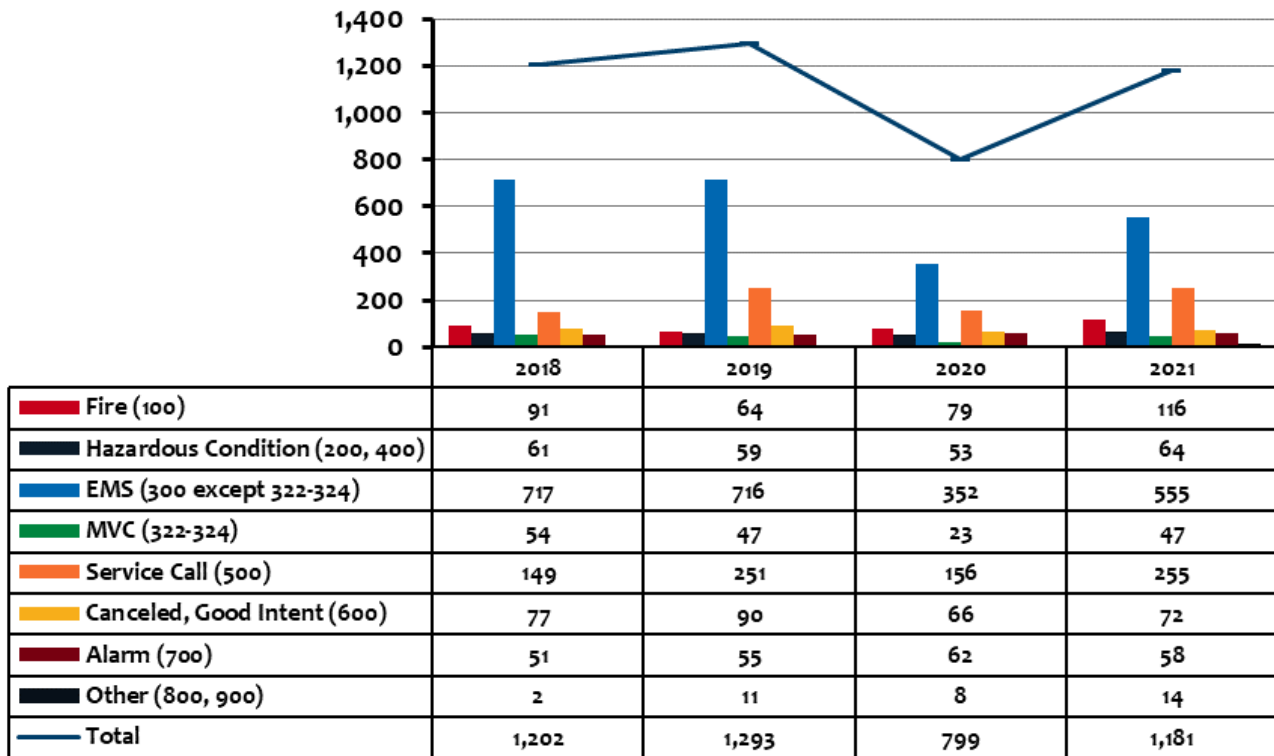
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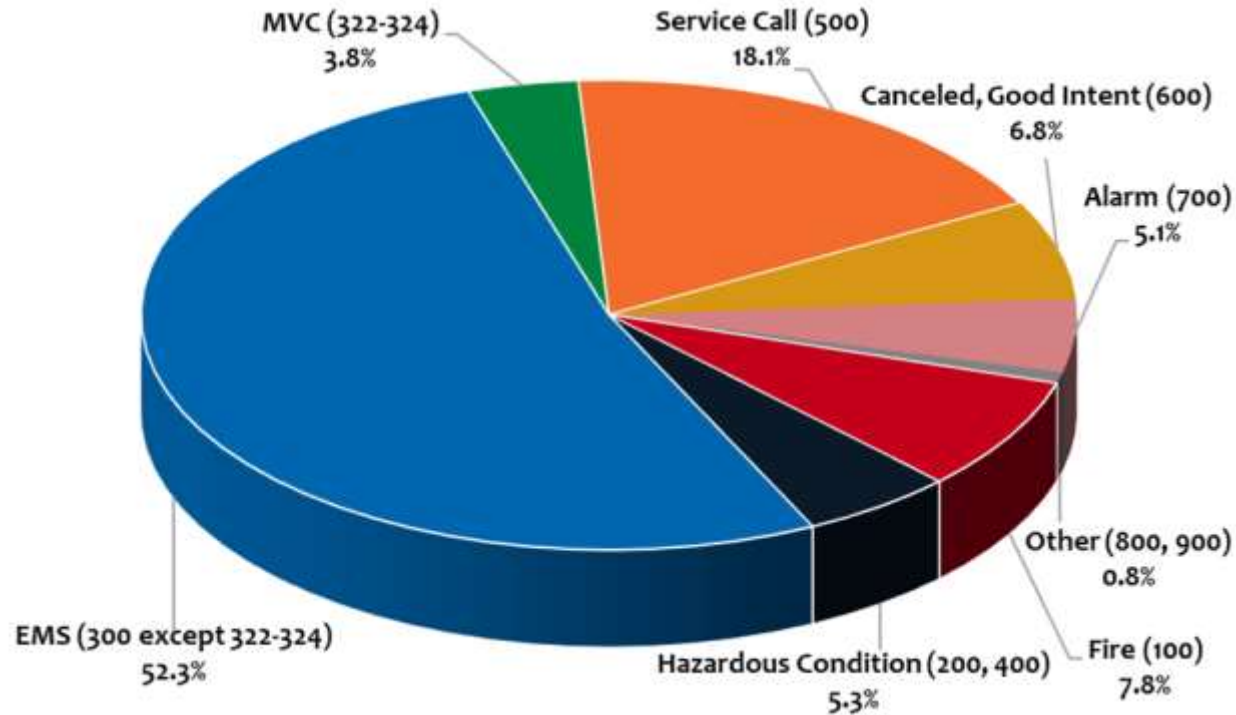
Service Demand by Year and Type 2018-2021

#1.



Service Demand by Type 2018-2021

#1.



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MFD Daily Minimum Staffing Demands

#1.

Station 1

Fire Chief	1 (if available)
Shift Captain	1
Engine	2

Station 2

Engine	3
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Incident Response Staffing Requirements

#1.

- Motor Vehicle Accidents
- Residential Structure Fire
- Commercial Structure Fire

Response Minor Motor Vehicle Accident

#1.

Patient Care



Fire/Hazards



Pump
Operator



5

Response Major Motor Vehicle Accident

#1.

Patient Care



Incident
Commander



Fire/Hazards



Extrication



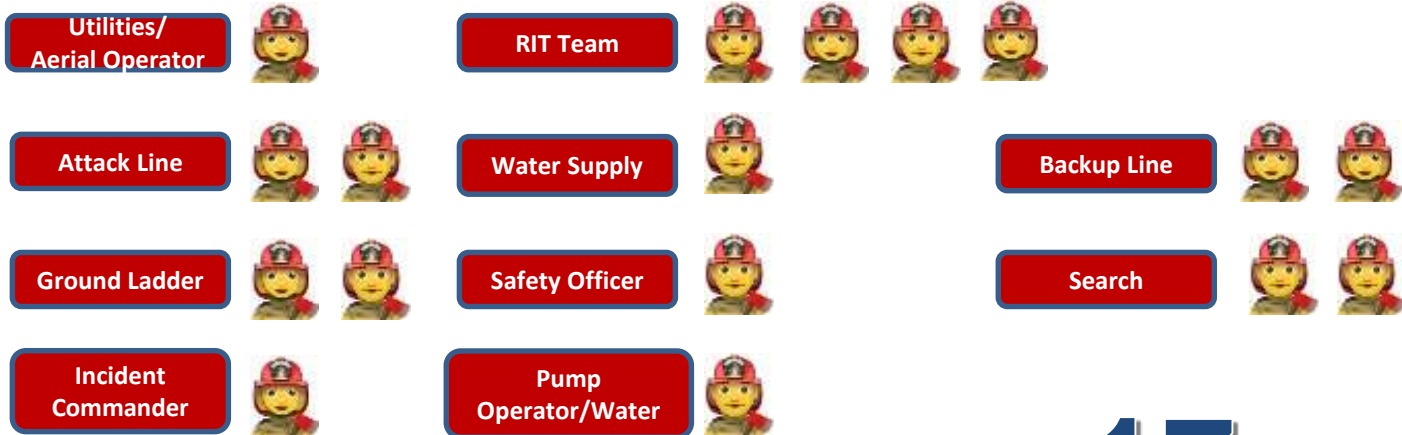
Pump
Operator



8

Response Residential Structure Fire

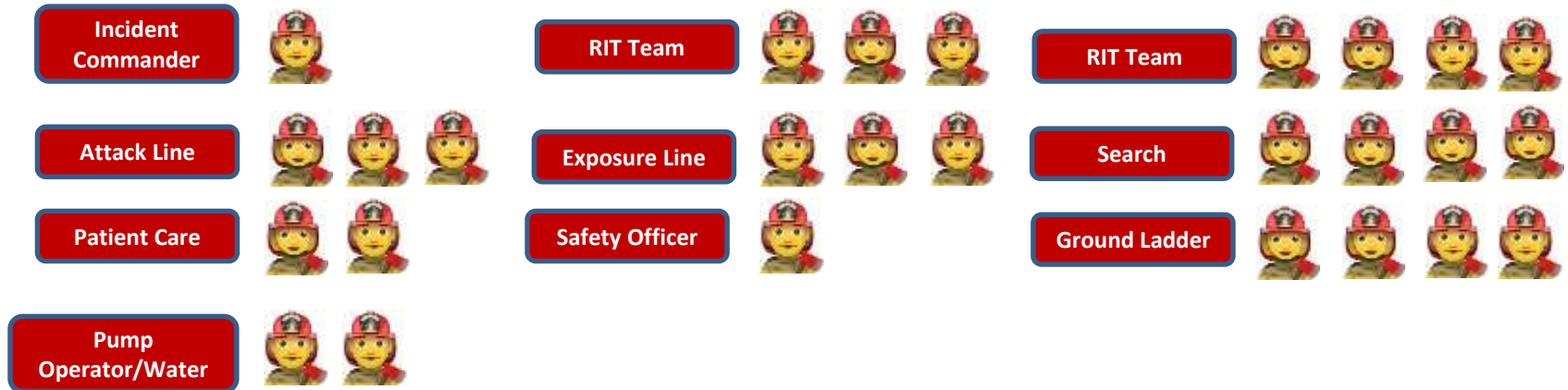
#1.



17

Response Strip Shopping Commercial Structure Fire

#1.



27

Study Results/Observations

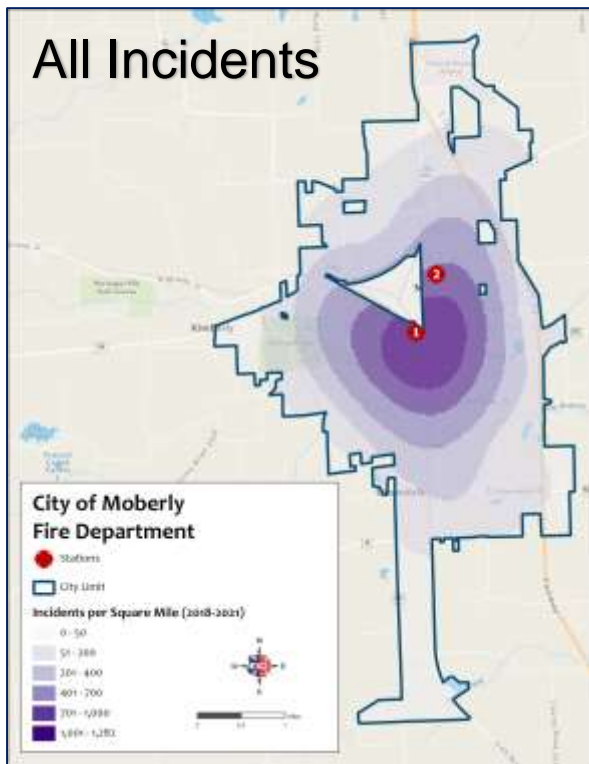
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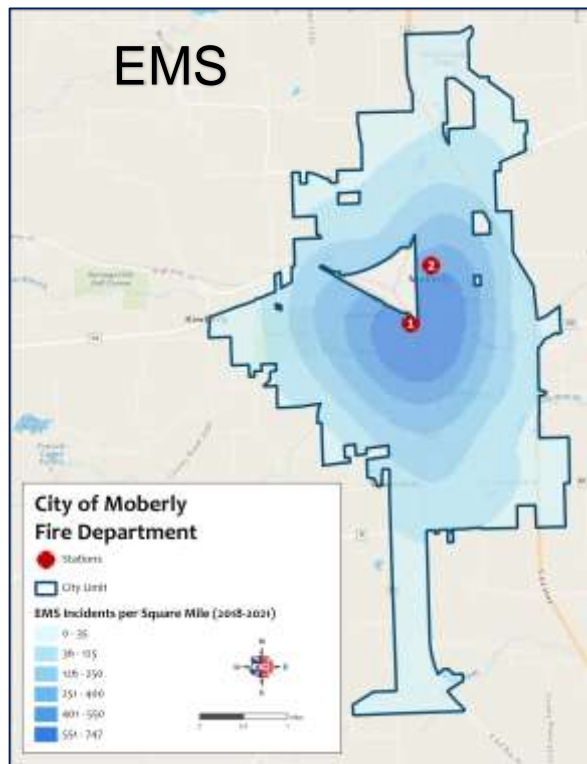
Service Demand by Year and Type 2018-2021

#1.

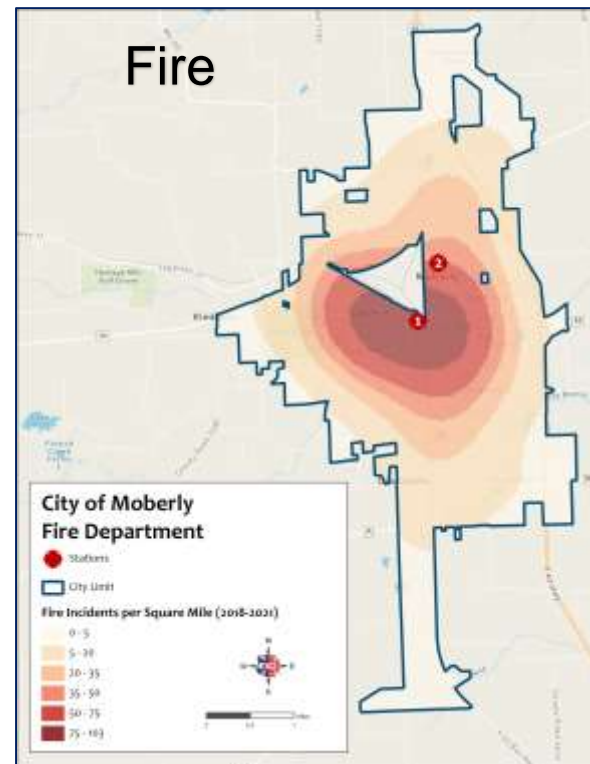
All Incidents



EMS

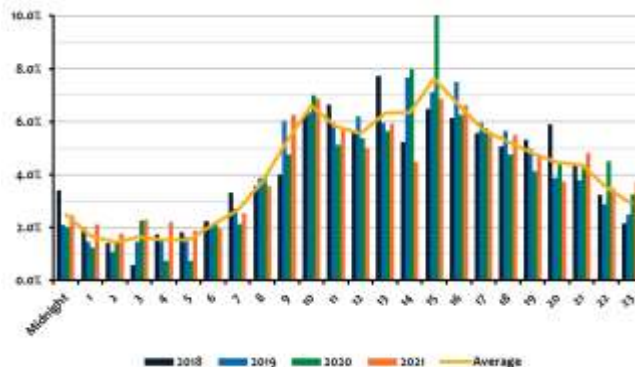
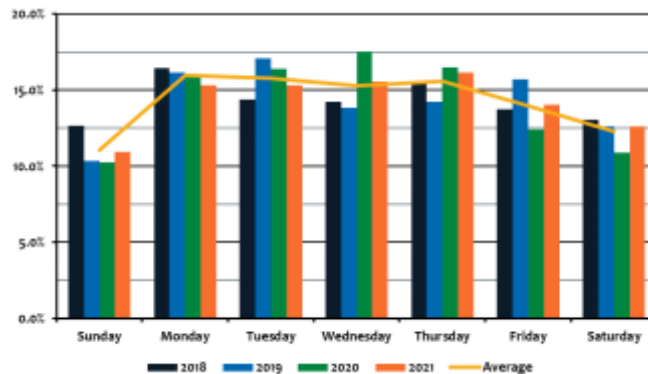
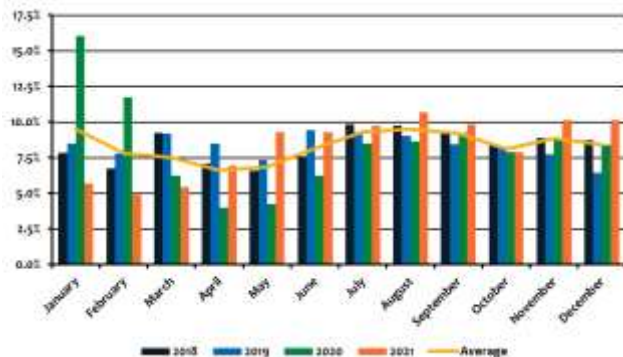


Fire



Service Delivery and Performance

#1.

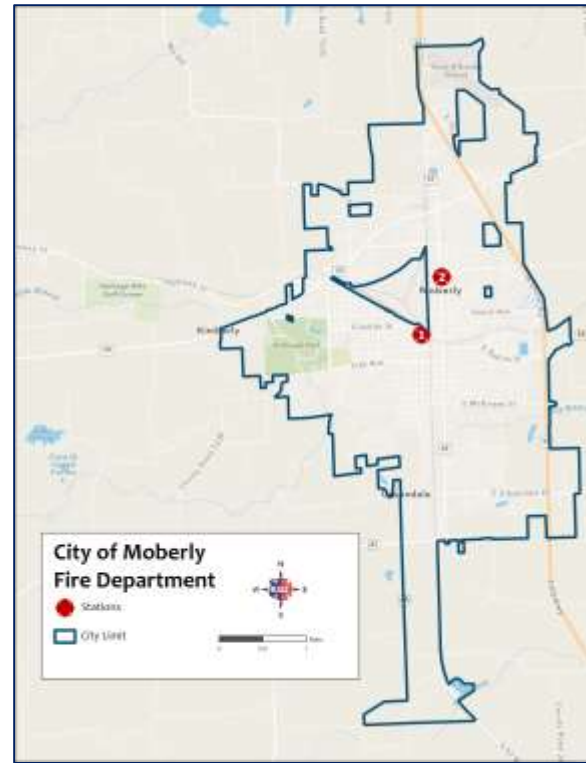
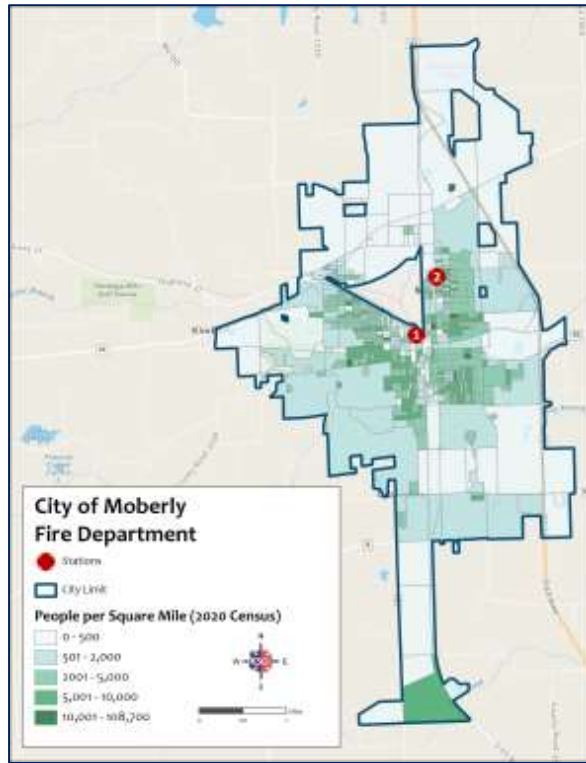


- Data range 2018-2021

- Weekly high on Thursday
- Lowest call volume on weekends
- Daily demand very common trend
- Peak workload during day time hours of 0700-2200 hours

Population Distribution and Resource Location

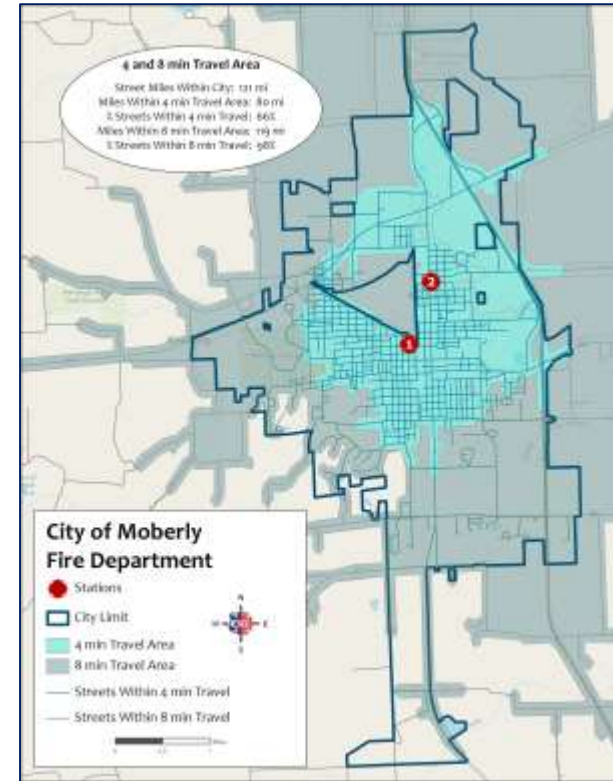
#1.



Resource Distribution NFPA Criteria- 4 and 8 Minute

#1.

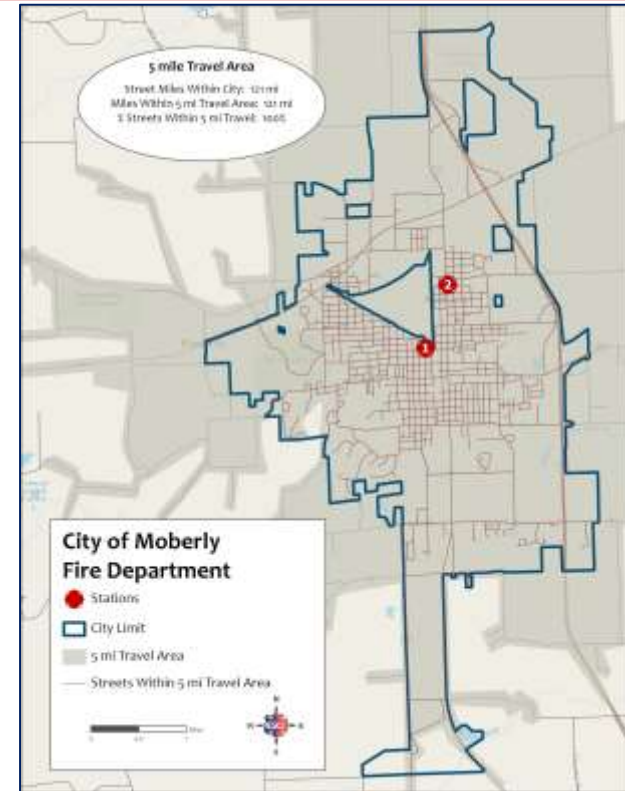
- 121 miles of roads
- 80 miles within 4 minutes travel
- 66% of streets within 4 minutes travel
- 119 miles within 8 minutes travel
- 98% of streets within 8 minutes travel



Resource Distribution ISO Criteria- 5 Mile Station

#1.

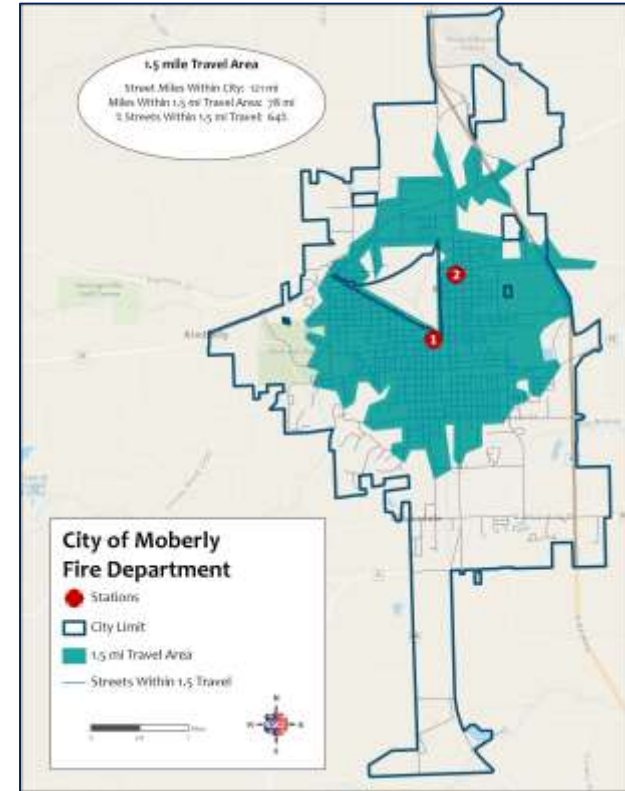
- 121 miles of roads
- 121 miles within 5 miles of a fire station
- Percentage of coverage: 100%



Resource Distribution ISO Criteria- 1.5 Mile Engine

#1.

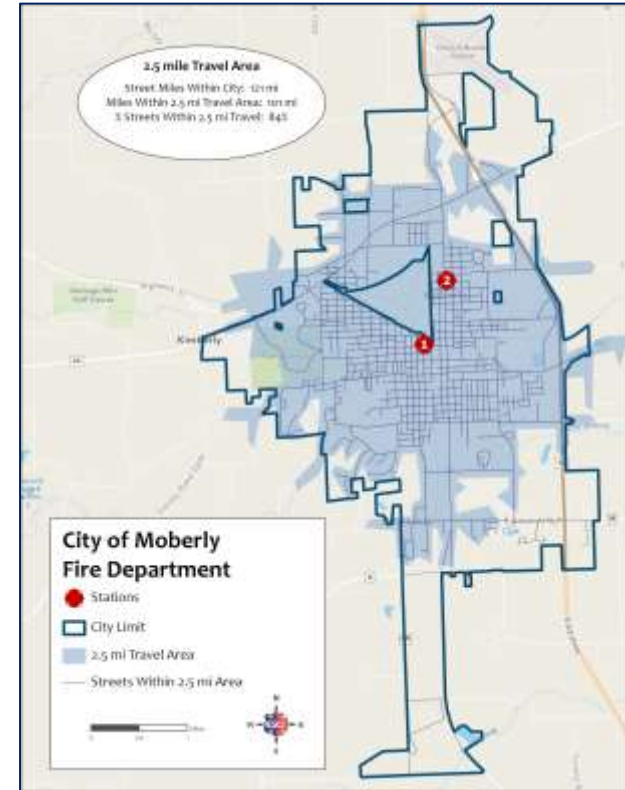
- 121 miles of roads
- 78 miles within 1.5 miles of a fire station
- Percentage of coverage: 64%



Resource Distribution ISO Criteria- 2.5 Mile Ladder

#1.

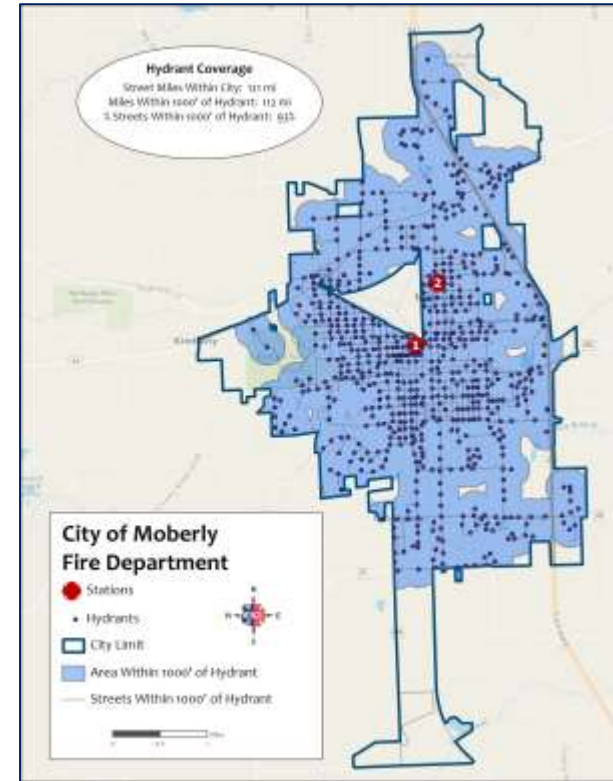
- 121 miles of roads
- 101 miles within 2.5 miles of a fire station
- Percentage of coverage: 84%
- Ladder is not staffed



Resource Distribution ISO Criteria- Hydrants

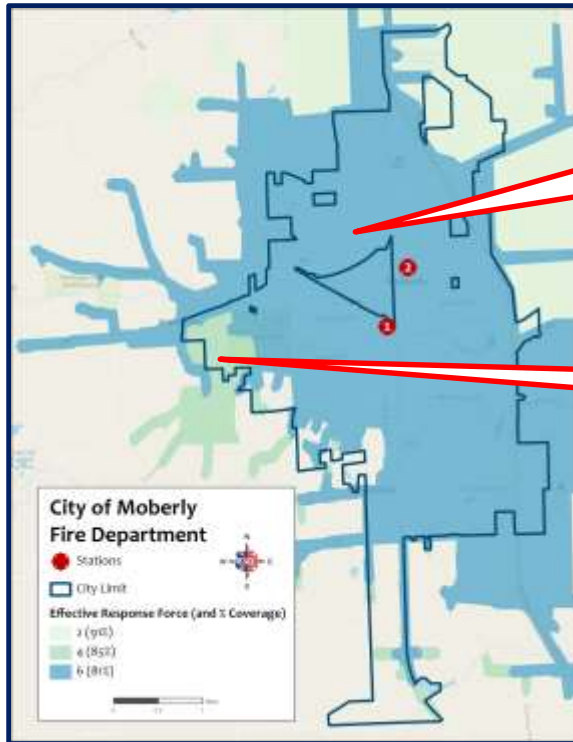
#1.

- 121 miles of roads
- 112 miles within 1,000 feet of a hydrant
- Percentage of coverage: 93%



Resource Concentration- Effective Response Force

#1.



- Predicted ERF of 6 Firefighters on scene within 8 minutes - 81%
- Additional staff when Chief is on duty

- Predicted ERF of 4 Firefighters on scene within 8 minutes - 85%

- Assumes all units in station and available

- Does not meet NFPA 1710 or OSHA

Resource Reliability- Unit Hour Utilization

#1.

- All Incidents

Unit	2018	2019	2020	2021
2007 Chevy P/U #300	0.00%	0.00%	0.00%	0.01%
218	0.03%	0.00%	0.00%	0.00%
300 Pickup 2007 Chevy	1.51%	1.55%	1.25%	2.59%
301	0.05%	0.09%	0.01%	0.18%
302 Saber	2.12%	2.13%	1.58%	2.22%
303	0.00%	0.10%	0.07%	0.06%
304 Contender	0.30%	0.41%	0.23%	1.01%
305 Contender	2.25%	2.10%	1.60%	1.12%
306 Reg. Cab P/U	0.17%	0.07%	0.01%	0.12%
310 P/U	0.00%	0.04%	0.01%	0.23%
POV	0.22%	0.11%	0.04%	0.26%

Resource Reliability- Call Concurrency

#1.

- Frequency of more than one call for MFD is 5.19%

Concurrent Incidents	2018	2019	2020	2021
Single Incident	94.01%	93.50%	93.48%	94.81%
Two Incidents	5.49%	6.50%	6.14%	5.02%
Three Incidents	0.50%	0.00%	0.38%	0.17%

Study Results/Observations

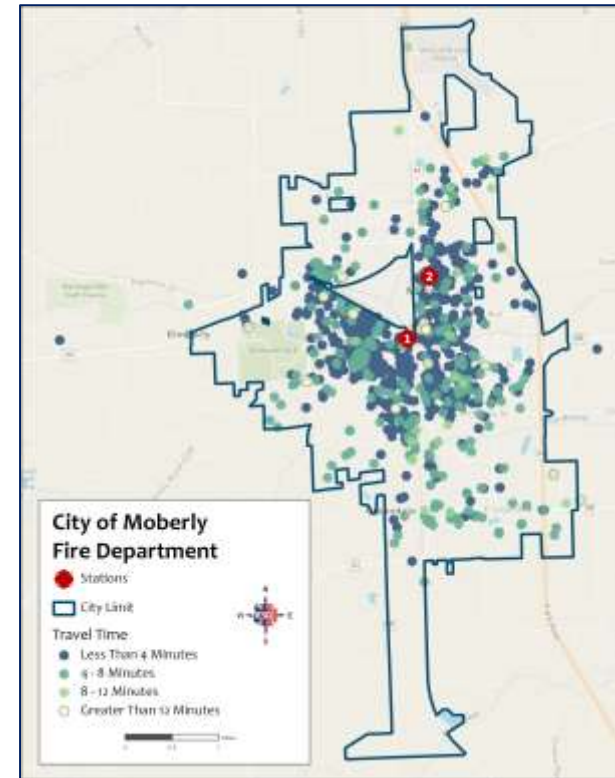
#1.

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Historical Travel Performance, 2018-2021

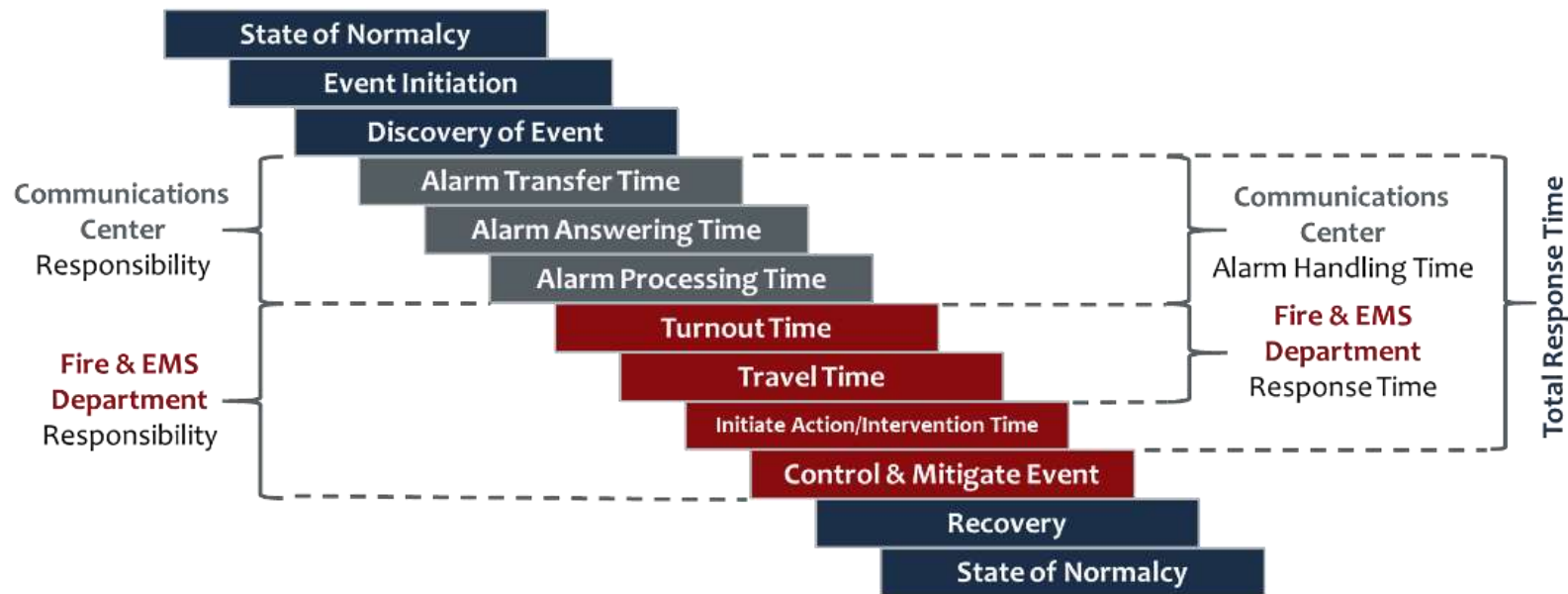
#1.

- Less than 4 minutes to 73.13% of incidents
- 4–8 minutes to 24.78% of incidents
- 8–12 minutes to 1.34% of incidents
- Greater than 12 minutes to 0.75% of incidents.
- This is exemplary travel time for the community.



Response Time Components

#1.



Response Standards

#1.

2018- 2021 Call Processing Time Performance – Emergency Calls

Standard	Expected Performance
NFPA 1221: Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems	60 seconds at the 90 th percentile
NFPA 1710: Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments recommends	60 seconds at the 90 th percentile

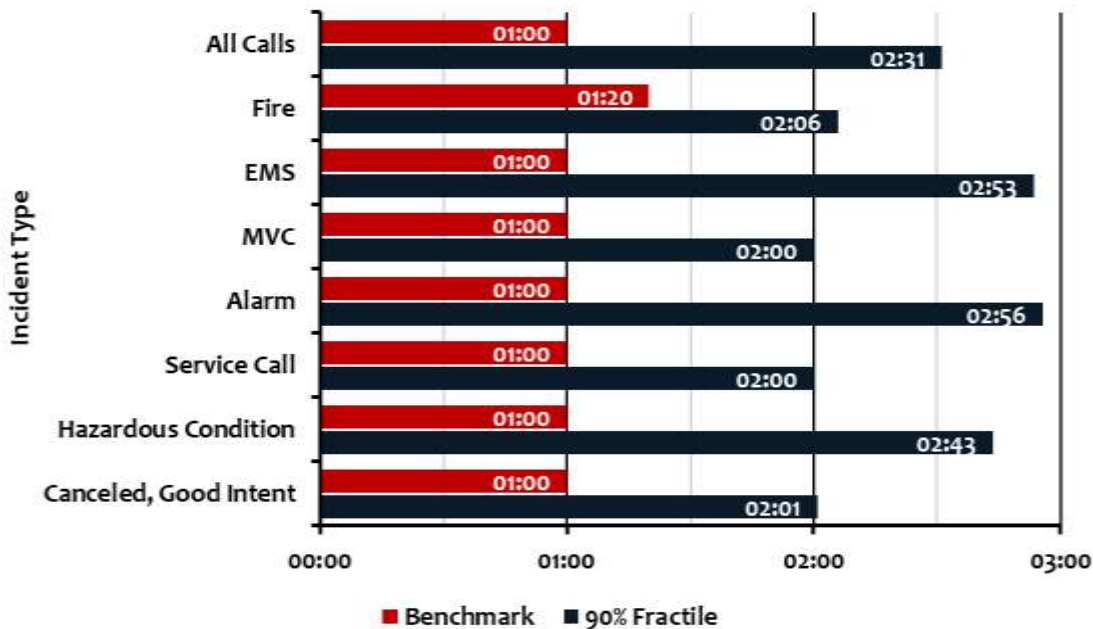
Call Processing Time

- Call processing time can be a significant source of total response time delay and merits further research and action
- Within the data provided by MFD, the majority of incidents had the same time documented for the call received time and the dispatched time. This resulted in a measurement of “zero” and thus is not able to be evaluated.

Response Standards

#1.

2018-2021 Turnout Time Performance – Emergency Calls



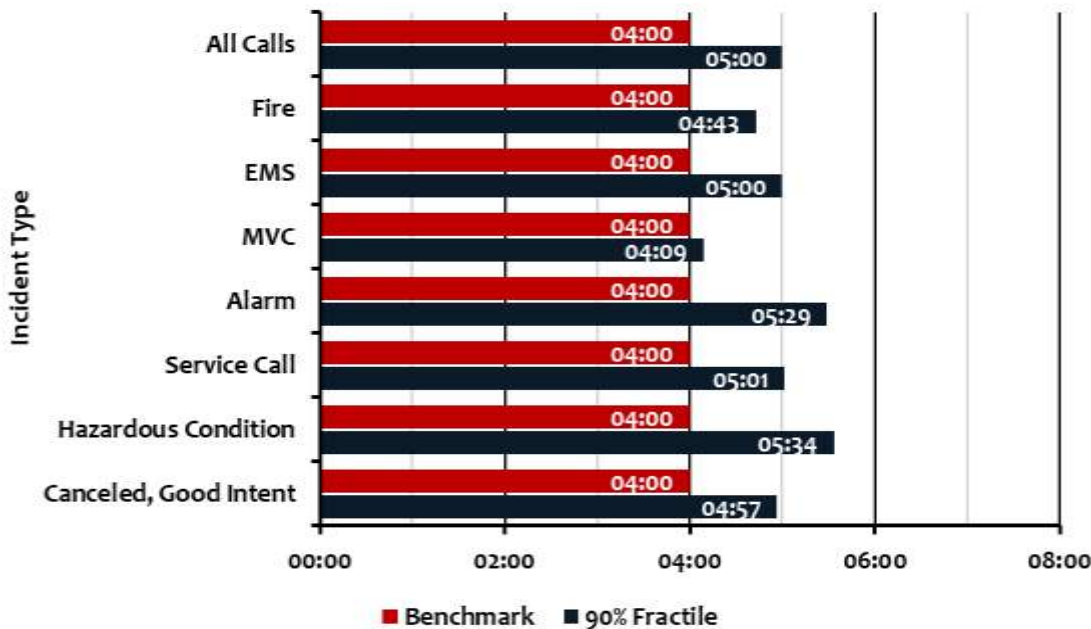
Turnout Time

- NFPA 1710 standard for fire and spec ops is 80 seconds for 90% of responses
- NFPA 1710 standard EMS is 60 seconds for 90% of calls
- MFD outside standard for all calls which contributes to overall response time delay and merits further review

Response Standards

#1.

2018-2021 Travel Time Performance – Emergency Calls



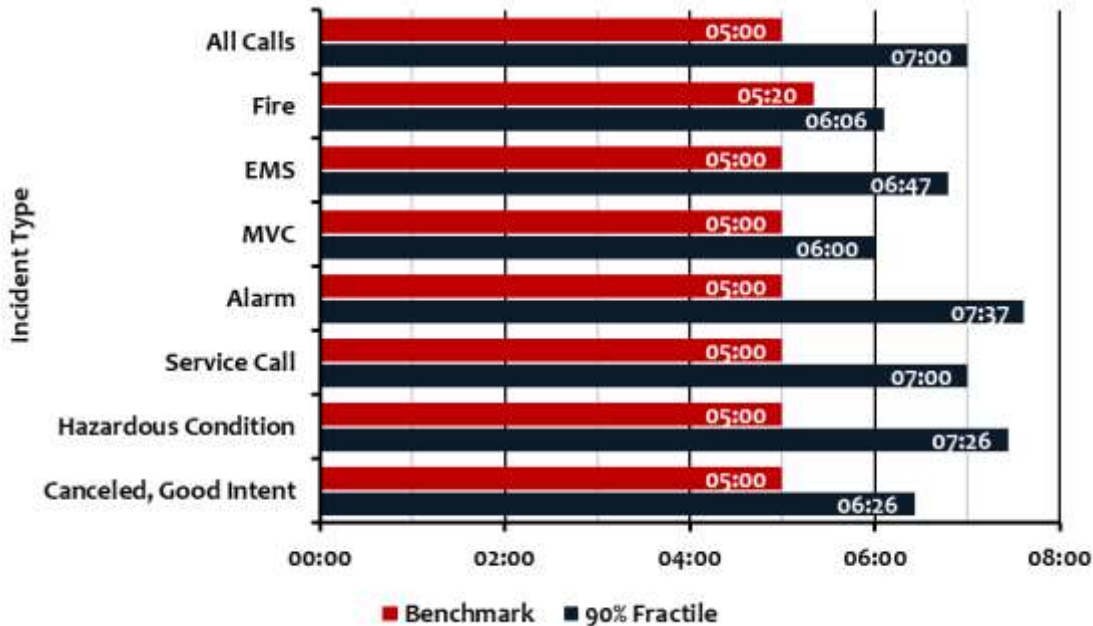
Travel Time

- NFPA 1710 standard is 4 minutes, 90% of calls
- As illustrated, the MFD travel time performance is above the four-minute recommendation in the NFPA 1710 standard.

Response Standards

#1.

2018-2021 Response Time (Turnout + Travel) Performance – Emergency Calls



Response Standards

#1.

2018-2021 Total Response Time Performance – Emergency Calls

Component	Performance
Call Processing Time	64 seconds at the 90 th percentile
Turnout Time	Fire and Special Operations Incidents 80 seconds at the 90 th percentile All Other Incidents 60 seconds at the 90 th percentile
Travel Time	4 minutes at the 90 th percentile
Combined	Fire and Special Operations Incidents 6 minutes, 24 seconds at the 90 th percentile All Other Incidents 6 Minutes, 4 seconds at the 90 th percentile

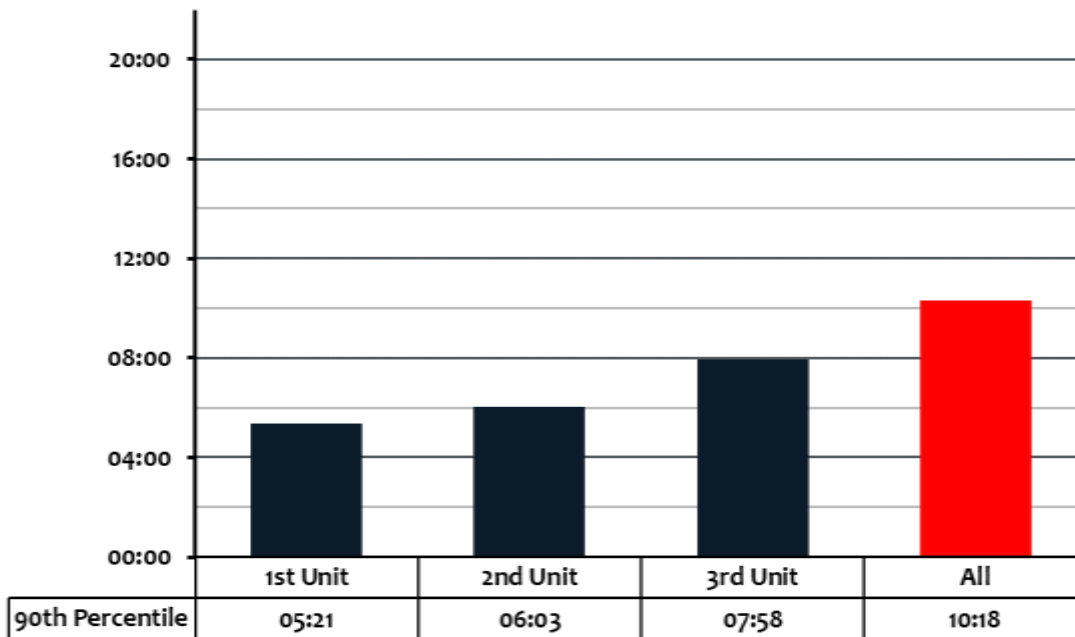
Current MFD Standard

- As discussed in the call processing performance section, the majority of incidents had the same time documented for the call received time and the dispatched time. This resulted in an inability to accurately analyze total response time performance.

Response Standards

#1.

2018-2021 Response Time Performance –Structure Fire Calls



Study Results/Observations

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Capital Plans and Funding

#1.

CAPITAL ELEMENT	STATUS
FACILITIES	
Capital improvement plan	No Formal Plan
APPARATUS	
Apparatus replacement plan	No Formal Plan
SUPPORT EQUIPMENT	
Equipment replacement plan	Year to Year (Usually a 5-year interval plan)

Capital Facilities

#1.



MFD Station	Age	Rated Condition	Number of Apparatus	No. of Apparatus Bays	Minimum Staffing
Fire Station 1	46 Years	Fair	6	3	3
Fire Station 2	48 Years	Poor	3	2	3

Study Results/Observations

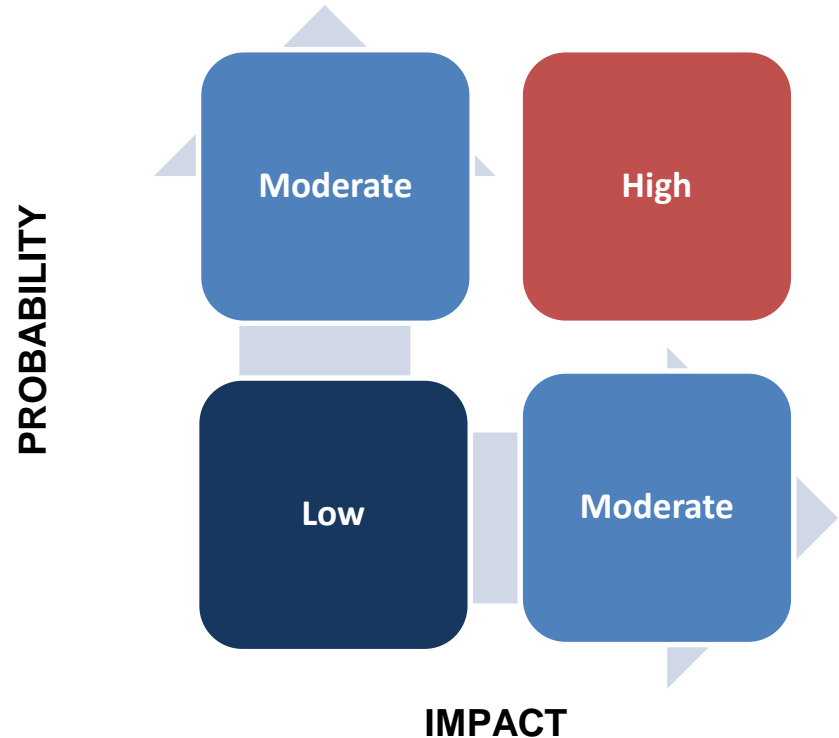
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Community Risk Analysis

#1.

- **High Risk**
 - EMS
 - Emergency Rescue
- **Moderate Risk**
 - Hazardous Material Incident
 - Fire
- **Low Risk**
 - Natural Hazard
 - Technological Hazard
 - Human-Caused Hazard



Study Results/Observations

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Major Report Findings

#1.

- Based on the preceding analysis MFD fire stations are well situated and provide all the opportunity to continue to provide efficient, and effective response to service demand.
- The current Fire Station 2 is not large enough to expand on the current property and will experience challenges in the future providing the ability to expand or grow with the department.

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•Response Performance Reporting

- ESCI recommends that MFD leadership work to capture the 9-1-1 call time within their reporting system so that this measure can be trended, and improvements made if necessary.
- Implement methods of ensuring accuracy of response priority so that ongoing measurement of response performance can be isolated to emergency responses.
- Collect accurate and complete response time data for all units assigned to an incident. These times should include call processing and turnout times.
- Conduct regular reporting of turn out times with on-going analyses of turnout time delays. Current MFD includes turnout time as part of the performance measures.
- Expand the incident reporting capability to include geographical distribution working with the City GIS unit. Include graphical data in annual report.

•Response Deployment

- Recommend adopting ERF staffing based on occupancy risk. Current practice is defined by unit staffing and not incident required staffing. ERF compliance should be monitored and compared against the NFPA 1710 requirement of (ERF) of 17 firefighters arriving within eight minutes travel time, 90 percent of the time for moderate–risk occupancies and adjust staffing as needed.
- Determine structures that require additional effective response force personnel and plan for automatic aid to accomplish the recommended ERF. ERF compliance should be monitored and compared against the NFPA 1710 requirement of 28 personnel on scene within eight minutes of travel time for high–risk occupancies.
- Define fire target hazards and determine what is the necessary ERF for these hazards. This may require conducting a critical task analysis.
- Place an aerial ladder truck in service at Station 1 to maximize aerial ladder truck capabilities. Address the current risk profile for aerial master stream and rescue capabilities within the city.

Long Term Strategies

#1.

- **Recommendation 1: Develop and fund an appropriate long-range fire station relocation and/or replacement plan.**
- **Recommendation 2: Recommend adopting ERF staffing based on occupancy risk. Current practice is defined by unit staffing and not incident required staffing.**
- **Recommendation 3: Place an aerial ladder truck in service at Fire Station 1.**
- **Recommendation 4: Develop and fund an appropriate long-range apparatus purchasing and replacement plan.**
- **Recommendation 5: Establish funding to construct a new training facility.**

Recommendation 1: Develop and fund an appropriate long-range fire station relocation and/or replacement plan.

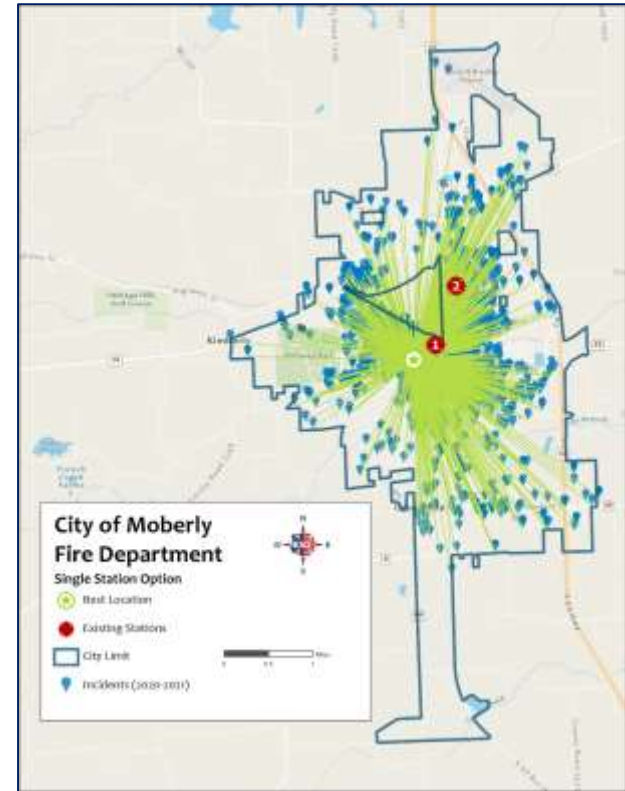
#1.

- MFD could maintain status quo.
 - Not recommended
- Proposed Scenarios A through Scenario H.
- Outcomes hinge on the number of stations to be rebuilt, one or both.

Scenario A- Consolidate resources to one new Fire Station 1 location using GIS Location – Allocation tools.

#1.

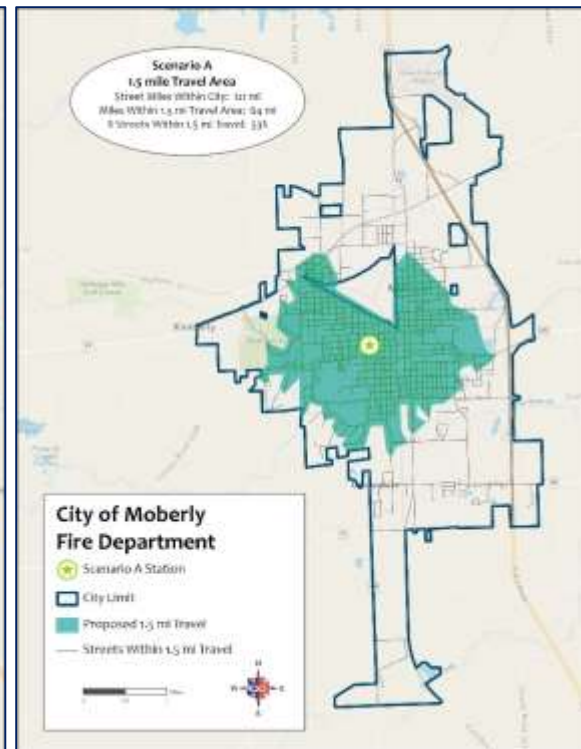
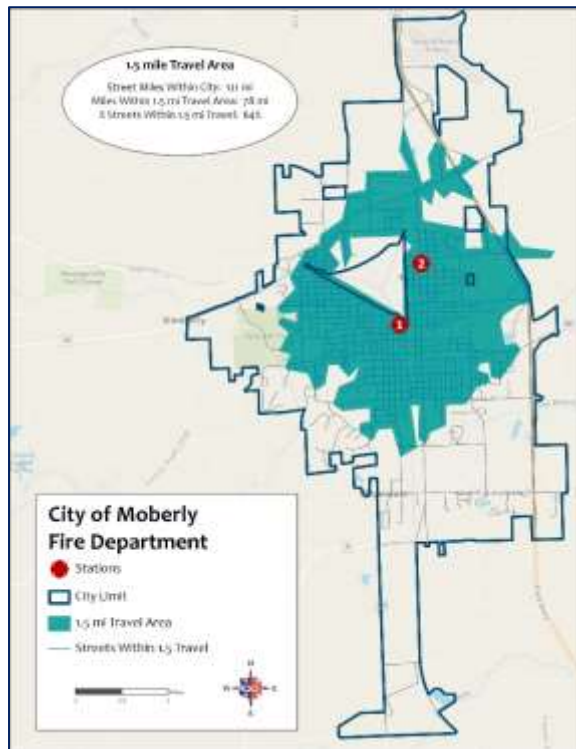
- The analysis for scenario A returned the 10-acre cell closest to parcel identification number (PIN) 10-1.0-02.0-1.0-003-171.000.



Scenario A- ISO Distribution

#1.

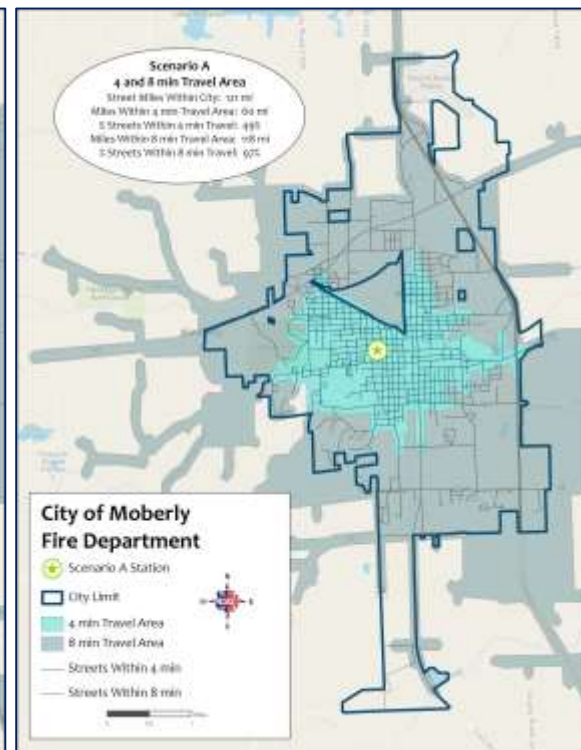
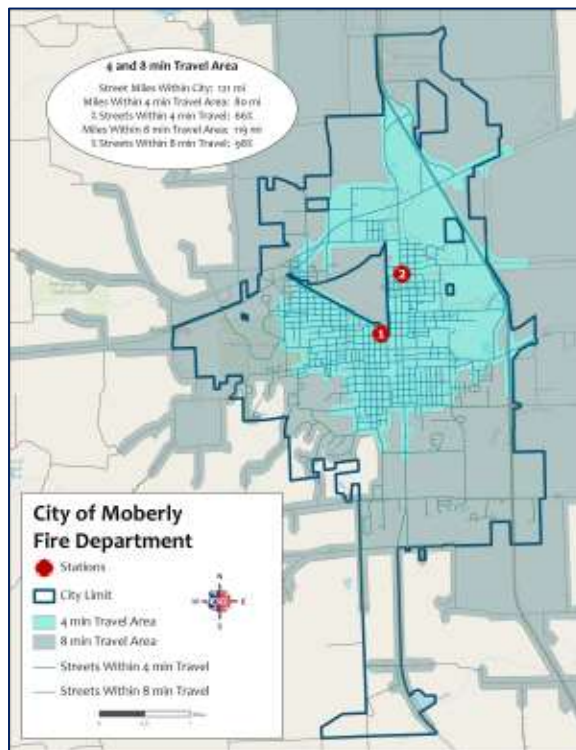
- The City of Moberly has 121 miles of roads.
- Of these 121 miles, 53 percent or 64 miles would remain within 1.5 miles (ISO fire engine coverage metric) of a fire station if both fire stations were consolidated.
- This is a decrease of 11 percent or 14 miles of road coverage compared with the current two fire station model.
- These 14 miles of roads and the population residing there would fall outside of the theoretical four-minute travel distance.
- This is a direct decrease in fire and EMS service levels for the citizens.



Scenario A- NFPA Distribution 4 and 8 Minute Travel

#1.

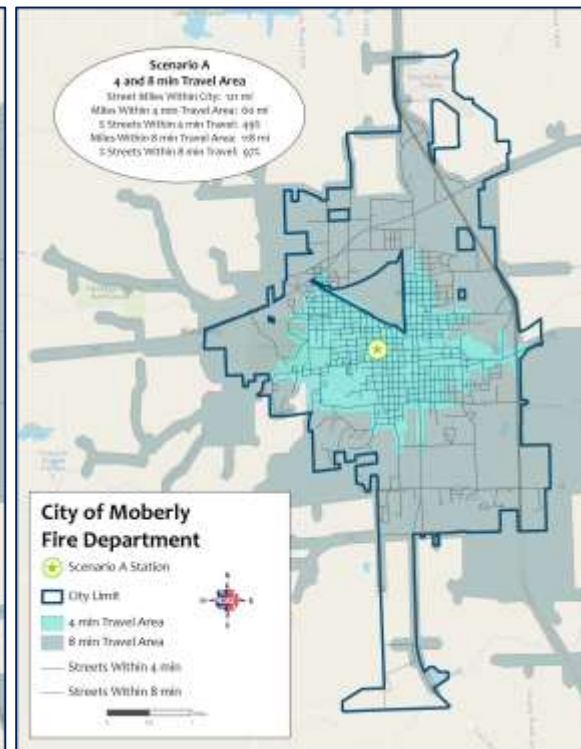
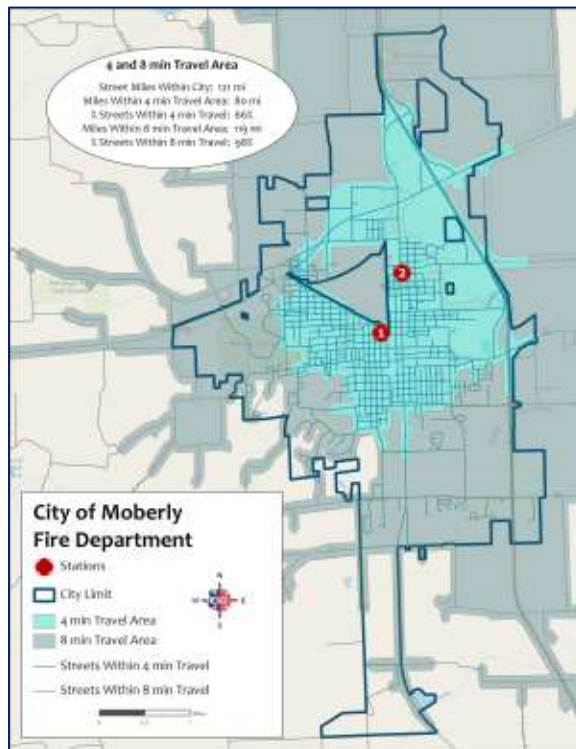
- Scenario A decreases the ability to reach 20 road miles of coverage or 17 percent within four minutes.
- However, the ability to assemble the ERF within the eight minutes recommended by NFPA 1710 reduces by 1 mile or 1 percent of the road mileage coverage area.
- One immediate benefit from this scenario, MFD would now have the proper staff to commence interior firefighting operations in conjunction with industry standards and OSHA 29 CFR 1910.134(g)(4)(i) guidelines in the City's service area upon immediate dispatch and arrival. two are inside (two-in/two-out).



Scenario A- Resource Concentration

#1.

- Scenario A the daily minimum staffing becomes the ERF MFD can expect to assemble in the teal and grey areas.
- Because of MFD's adopted minimum staffing none of the city service area meets the ability to provide the NFPA ERF for medium- and high-risk occupancies on a first alarm and will require additional alarms and resources from outside the community.



Scenario A- Discussion

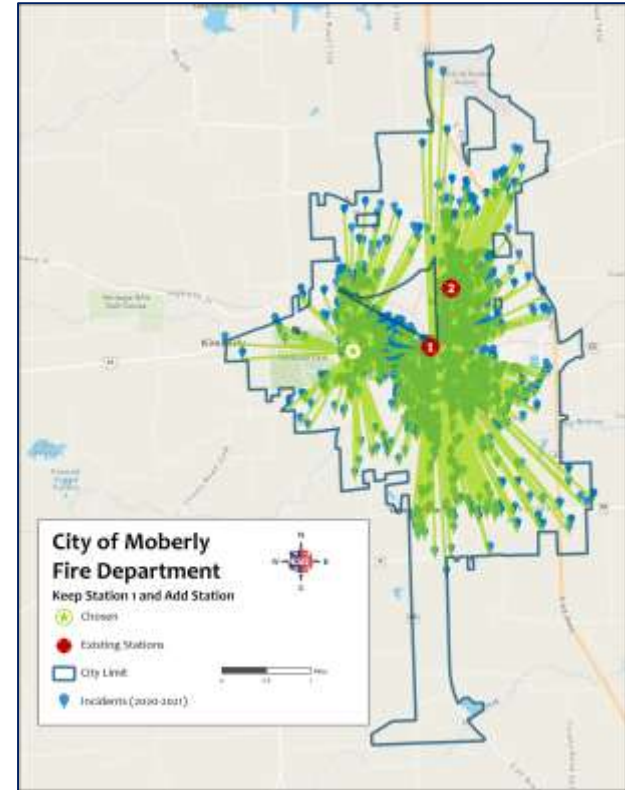
#1.

- When compared to triggers outlined in Figure 76: Criterion for Fire Station and Resource Need Determination, scenario A would now meet the criteria for the addition of a permanent fire station to address service demand based on travel distance and response time performance.

Action Choices	Travel Distance	Criteria		
		Response Time Parameter	Out of Area Calls	Building/Risk Inventory
Maintain Status Quo	All risks within 1.5 miles	1 st due company is within 5 minutes total response time, 90% of the time	100% in first due area	Existing inventory and infill
Temporary Facilities and Minimal Staffing	Risks 1.5 to 3.0 miles from existing fire station	1 st due company Exceeds four-minutes travel time 10% of the time, but never exceeds 8 minutes	More than 10% of calls are in adjacent area	New area has 25% of same risk distribution as in initial area
Permanent Fire Station Needed	Risk locations exceeding 4.0 miles from the fire station	1 st due company Exceeds four-minutes travel time 20–25% of the time; Some calls < 8 minutes	More than 20–25% of calls are in outlying area	New area has 35% of same risk distribution as in initial area of coverage
Permanent Fire Station Essential	Outlying risk locations exceeding 5.0 miles from the 1 st fire station	1 st due company Exceeds 4-minutes travel time 30% of the time; Some calls < 10 minutes	More than 30% of calls are in outlying area	New area has 50% of same risk distribution as in initial area

Scenario B- Maintain status quo with current Fire Station 1 and relocate Fire Station 2 with a new facility location using GIS Location – Allocation tools. #1.

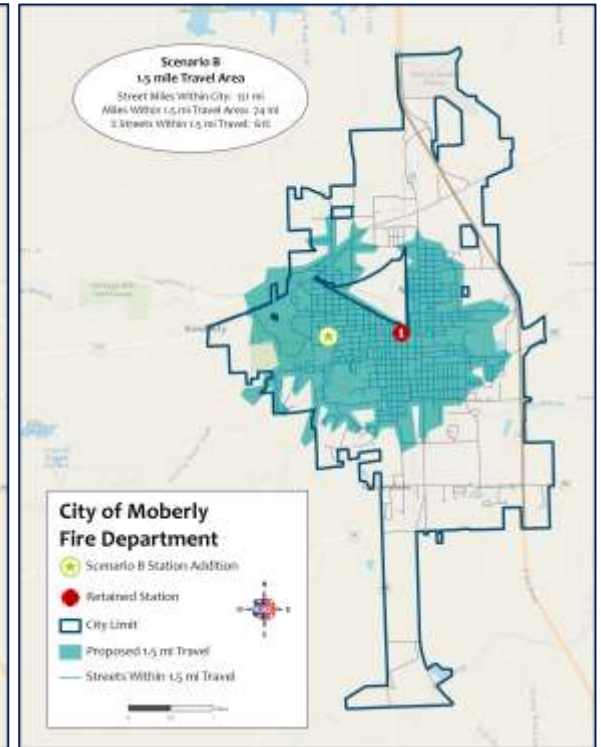
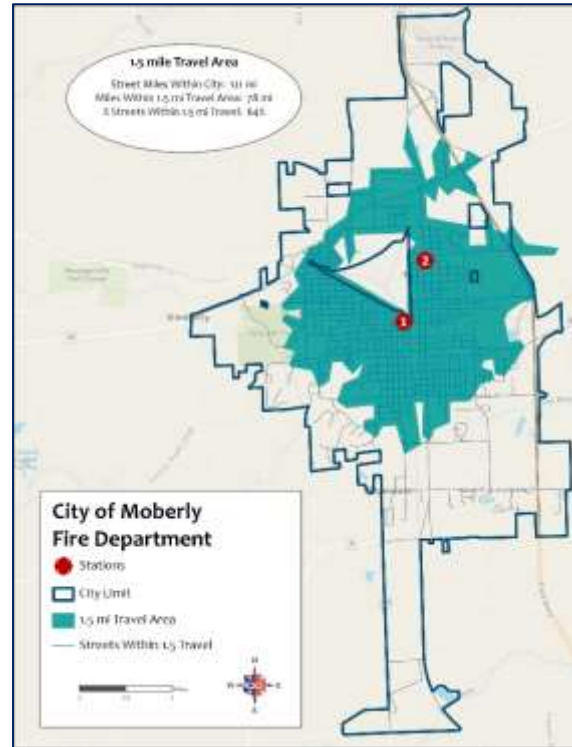
- The analysis for scenario B returned the 10-acre cell closest to parcel identification number (PIN) 10-1.0-02.0-2.1-000-099.000.



Scenario B- ISO Distribution

#1.

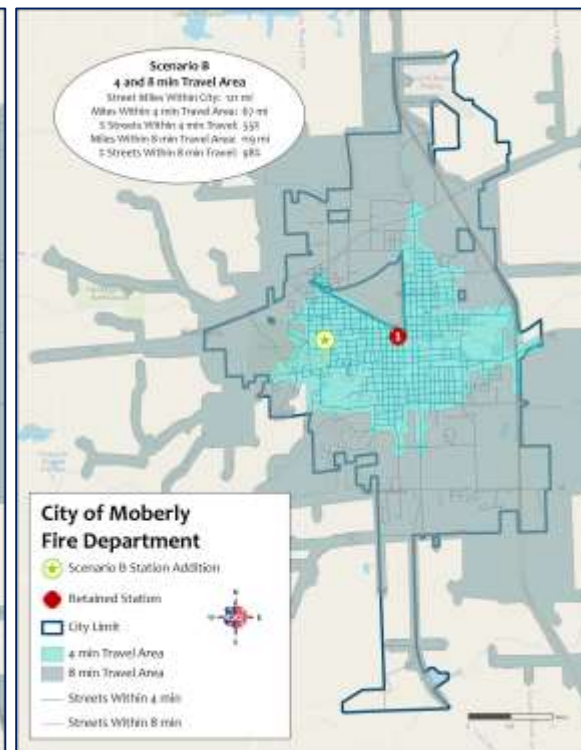
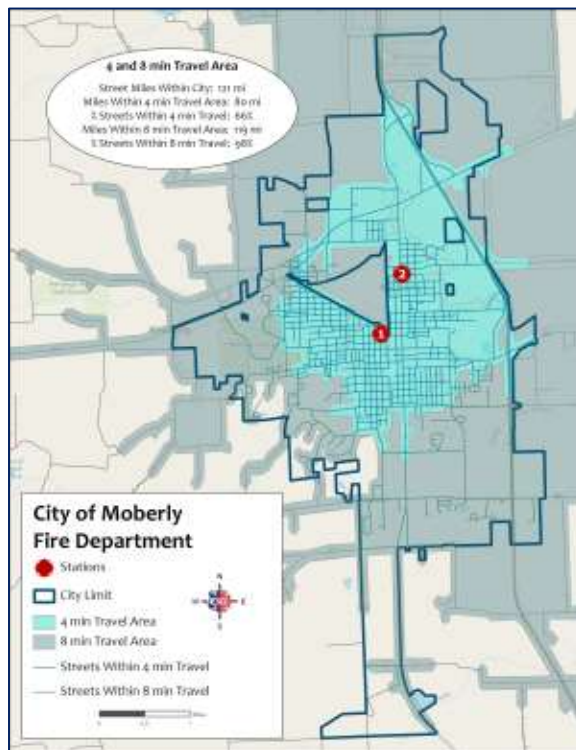
- The City of Moberly has 121 miles of roads.
- Of these 121 miles, 61 percent or 74 miles would remain within 1.5 miles (ISO fire engine coverage metric) of a fire station in scenario B.
- This is a decrease of 3 percent or 4 miles of road coverage compared with the current two fire station model.
- These 4 miles of roads and the population residing there would fall outside of the theoretical four-minute travel distance.
- This is a direct decrease in fire and EMS service levels for those citizens.



Scenario B- NFPA Distribution 4 and 8 Minute Travel

#1.

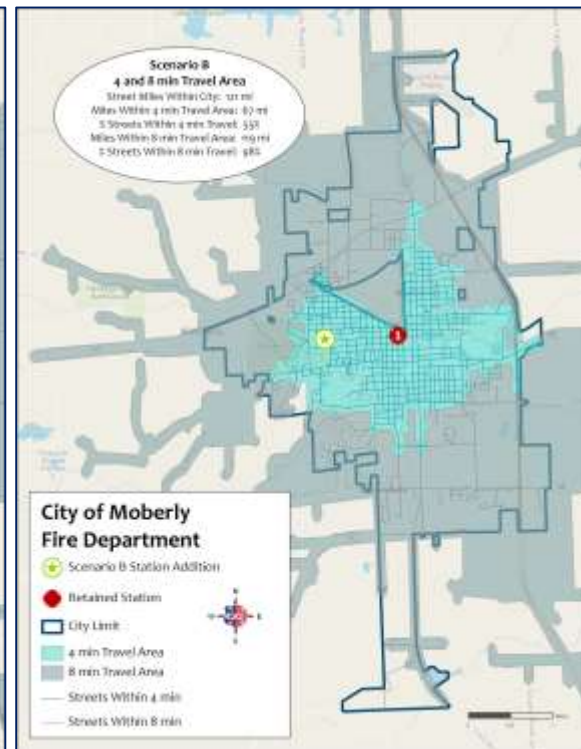
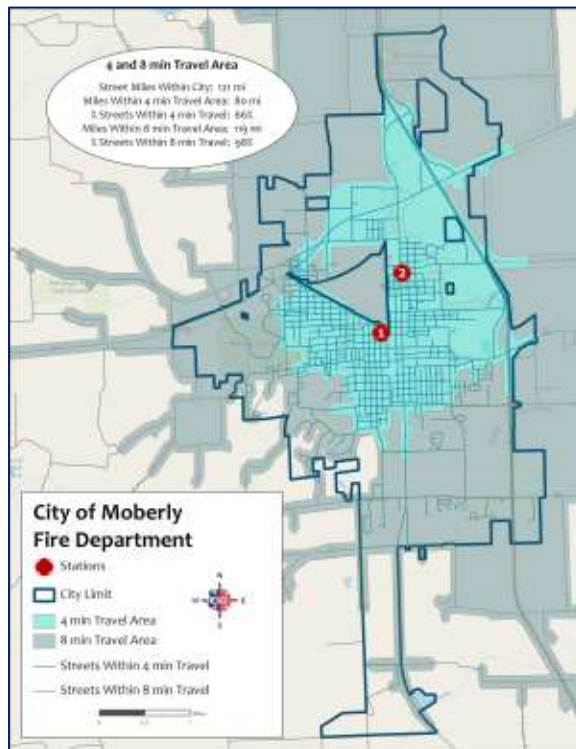
- Scenario B decreases the ability to reach 13 road miles of coverage or 11 percent within four minutes.
- However, the ability to assemble the department's ERF within the eight minutes recommended by NFPA 1710 remains constant.
- Furthermore, MFD would not have the proper staff to commence interior firefighting operations in conjunction with industry standards and OSHA 29 CFR 1910.134(g)(4)(i) guidelines in the City's service area upon dispatch based on current staffing procedures.



Scenario B- Resource Concentration

#1.

- Scenario B the total available ERF for MFD is represented by the daily minimum staffing of six firefighters split between two fire stations. Thus, there are times when only three firefighters are on scene to begin operations.
- Scenario B the daily minimum staffing becomes the ERF MFD can expect to assemble in the teal and grey areas.
- Because of MFD's adopted minimum staffing none of the city service area meets the ability to provide the NFPA ERF for medium- and high-risk occupancies on a first alarm and will require additional alarms and resources from outside the community.



Scenario B-Discussion

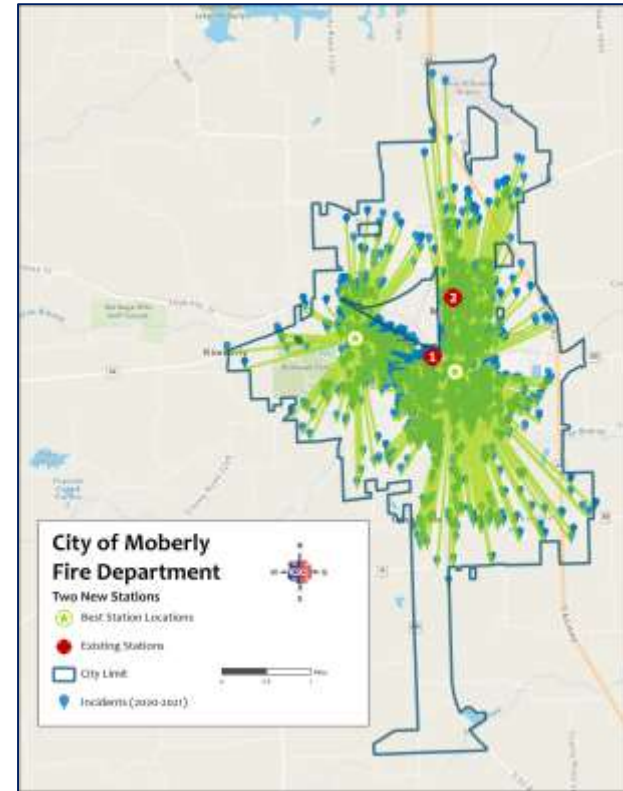
#1.

- Based on the optimization analysis if MFD choses to relocate Fire Station 2 into this location it will have to weigh the risk versus benefit of such a move.
- These benefits could include the ability to take advantage of the larger plot of land to house administration, fire prevention, community rooms, police substations, ambulance substations and the potential to relocate the MFD training facility there. Furthermore, the ability to construct a larger fire station to house additional apparatus in the future and current reserve apparatus are all reasons to consider a relocation if the current location will not support those activities.
- The risks include a decrease in ISO coverage and potential increase of response times from the new location as indicated by the optimization analysis. Because of these risks scenario B is not recommended.**

Scenario C- Relocate both Fire Station 1 and Fire Station 2 with new facilities using GIS Location – Allocation tools.

#1.

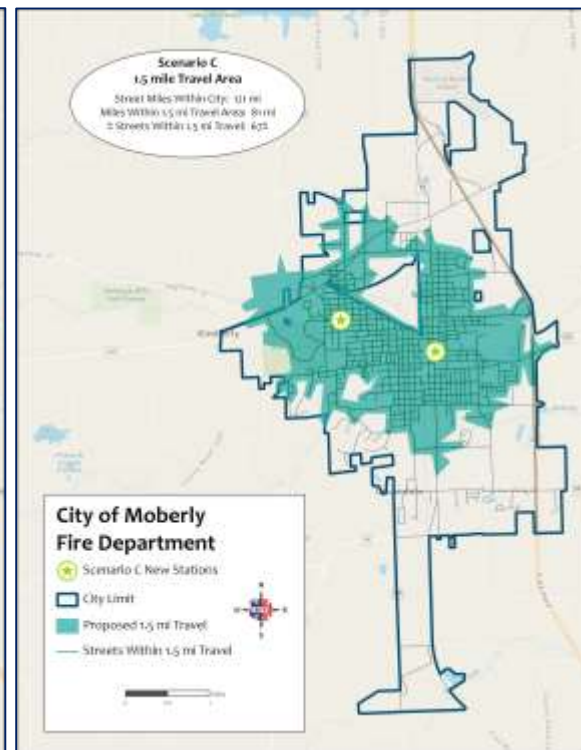
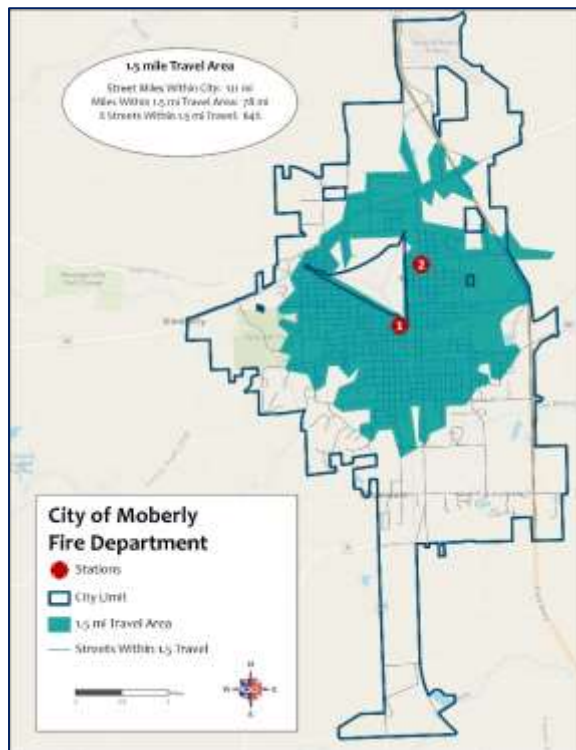
- The analysis for scenario C returned the 10-acre cell closest to parcel identification number (PIN) 07-7.0-35.0-3.0-002-183.000 for the station on the west side of the city and PIN 10-1.0-01.0-1.0-004-042.000 for the station on the east side of the city.



Scenario C- ISO Distribution

#1.

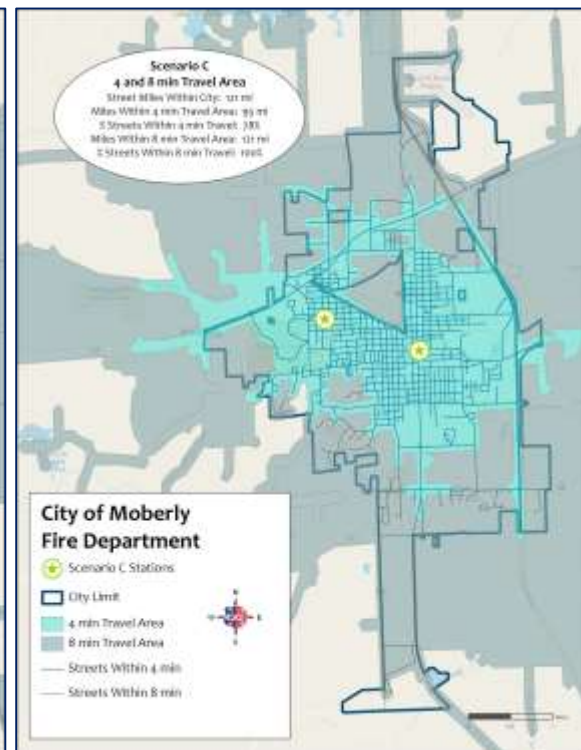
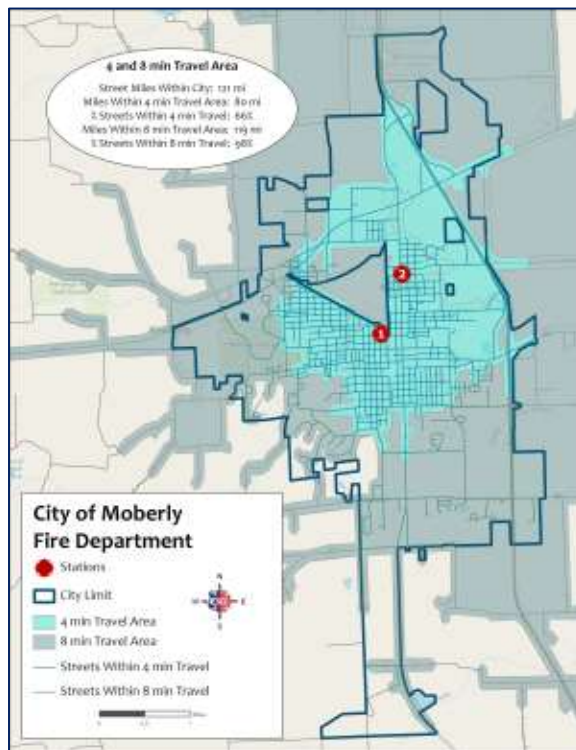
- The City of Moberly has 121 miles of roads.
- Of these 121 miles, 67 percent or 81 miles would now be within 1.5 miles (ISO fire engine coverage metric) of a fire station if both fire stations were relocated.
- This is an increase of 3 percent or 3 additional miles of road coverage compared with the current two fire station model.
- This is a direct increase in fire and EMS service levels for the citizens.



Scenario C- NFPA Distribution 4 and 8 Minute Travel

#1.

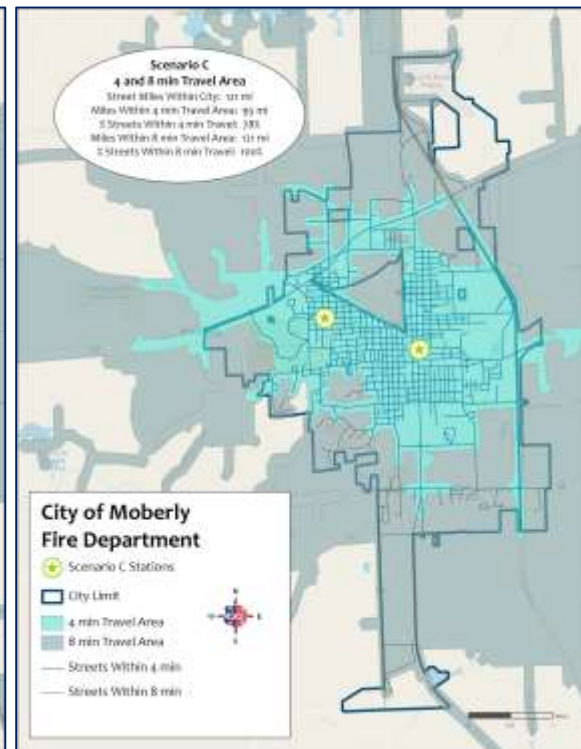
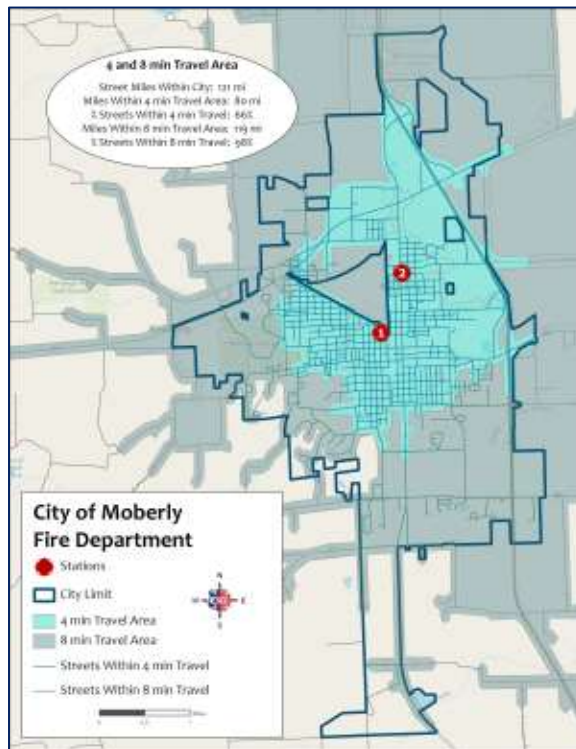
- Scenario C increases the ability to reach an additional 15 road miles of coverage or 12 percent within four minutes.
- The ability to assemble the ERF within the eight minutes recommended by NFPA 1710 reaches the remaining two percent not originally covered for 100 percent coverage.
- MFD still would not have the proper staff to commence interior firefighting operations in conjunction with industry standards and OSHA 29 CFR 1910.134(g)(4)(i) guidelines in the City's service area upon dispatch based on current staffing procedures and would have to wait for the remainder of the assignment to arrive.



Scenario C- Resource Concentration

#1.

- Scenario C the total available ERF for MFD is represented by the daily minimum staffing of six firefighters split between two fire stations. Thus, there are times when only three firefighters are on scene to begin operations.
- The daily minimum staffing becomes the ERF MFD can expect to assemble in the teal and grey areas.
- Because of MFD's adopted minimum staffing none of the city service area meets the ability to provide the NFPA ERF for medium- and high-risk occupancies on a first alarm and will require additional alarms and resources from outside the community.



Scenario C- Discussion

#1.

- Based on the optimization analysis if MFD choses to relocate Fire Station 1 and Fire Station 2 into these new locations it will see an increase in coverage with basically the same risks currently experienced.
- It can also take advantage of the other benefits outlined in the other scenarios. These benefits could include the ability to take advantage of the larger plot of land to house administration, fire prevention, community rooms, police substations, ambulance substations and the potential to relocate the MFD training facility there.
- The ability to construct a larger fire station to house additional apparatus in the future and current reserve apparatus are all reasons to consider a relocation if the current location will not support those activities.
- Additionally, scenario C allows for the city to have one fire station on each side of the railroad tracks that run north and south throughout.
- Based on the increase in coverage and effectiveness presented in scenario C, if both fire stations are to be relocated and rebuilt then scenario C is the overall recommended option.**

Scenario D- Maintain status quo with current Fire Station 1 and relocate Fire Station 2 with a new facility location using MFD supplied parcel identification number (PIN) 10-1.0-12.0-3.0-000-005.000

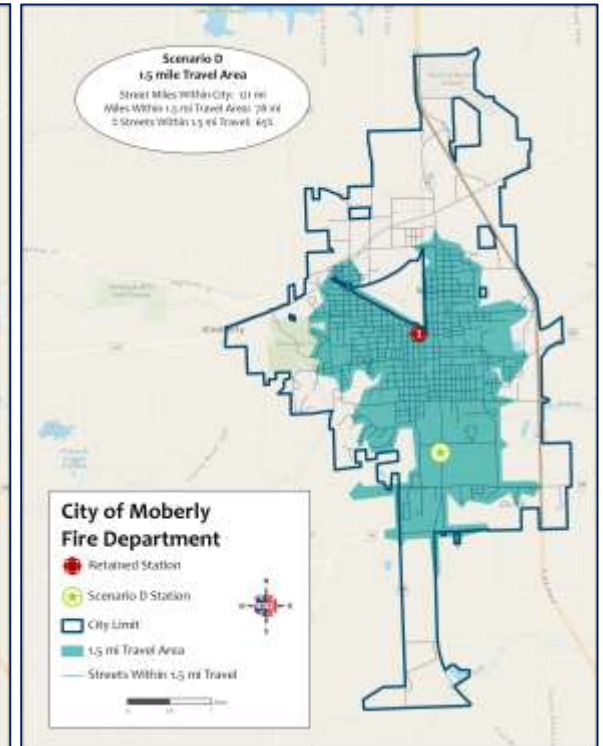
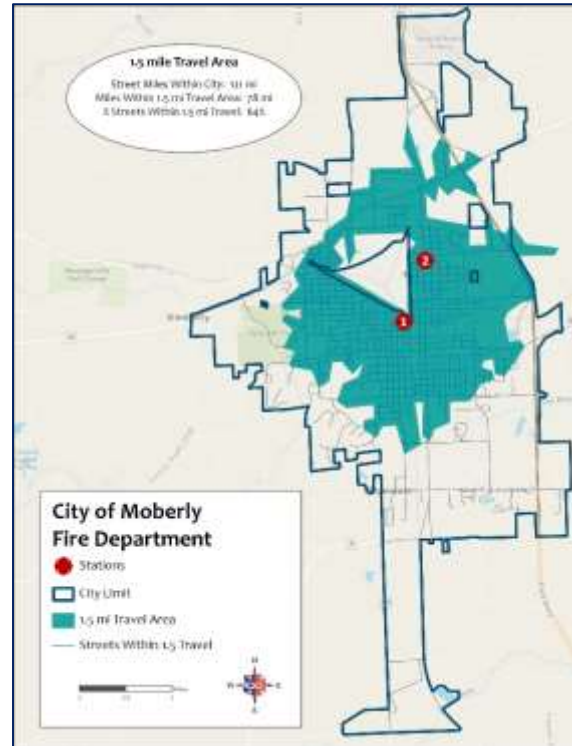
#1.

- The fourth scenario considered includes maintaining current operations from Fire Station 1 and relocating Fire Station 2 in a new location. The proposed property (PIN 10-1.0-12.0-3.0-000-005.000) was used to provide a specific location for this scenario.

Scenario D- ISO Distribution

#1.

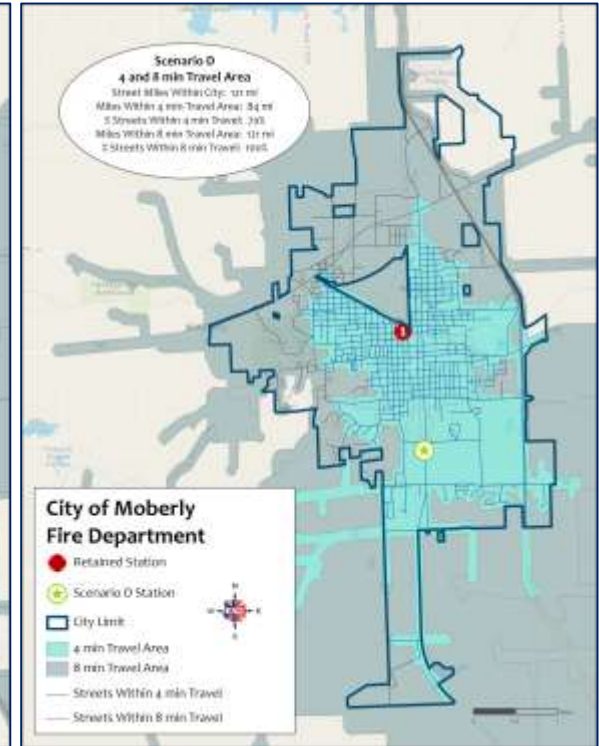
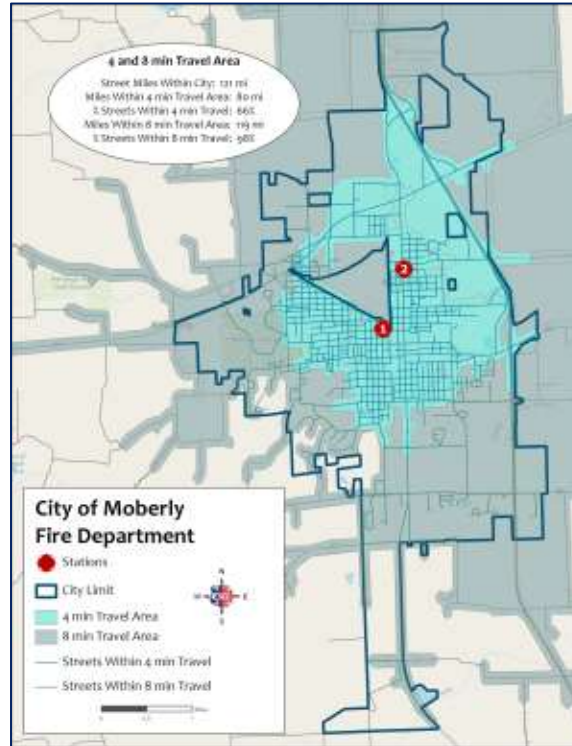
- The City of Moberly has 121 miles of roads.
- Of these 121 miles, 65 percent or 78 miles would now be within 1.5 miles (ISO fire engine coverage metric) of a fire station in scenario D.
- This is an increase of 1 percent of road coverage compared with the current two fire station model.
- This is a direct increase in fire and EMS service levels for those citizens.



Scenario D- NFPA Distribution 4 and 8 Minute Travel

#1.

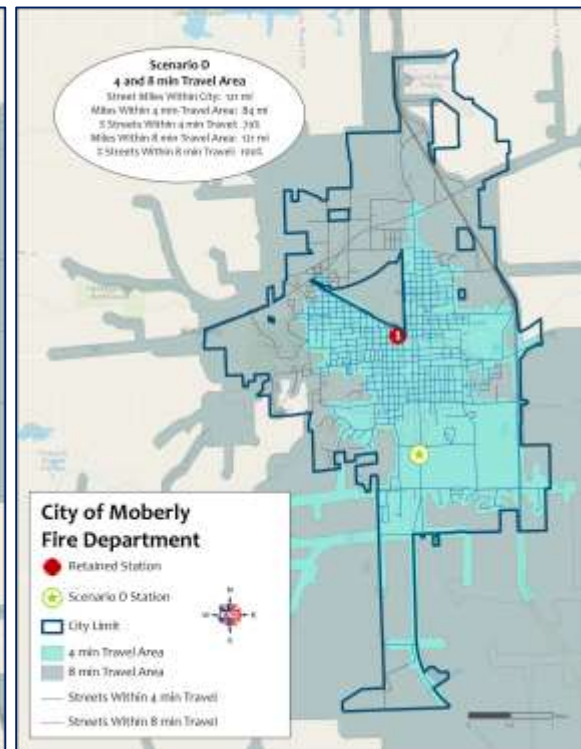
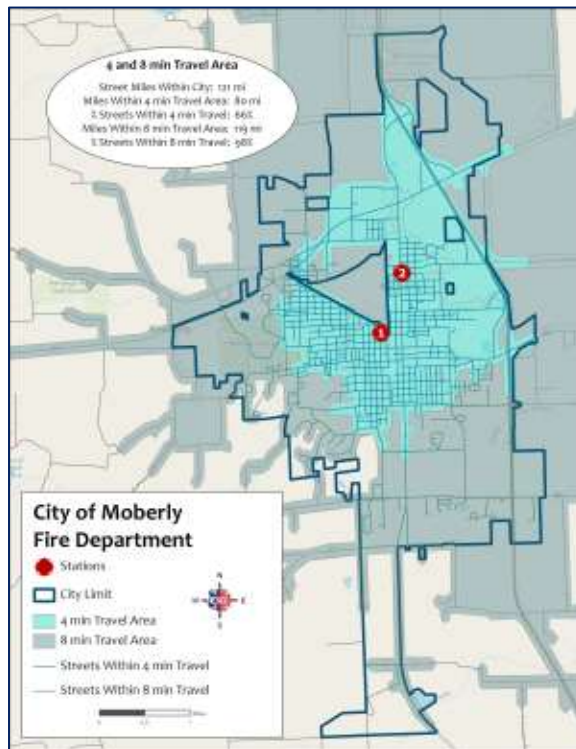
- Scenario D increases the ability to reach 4 road miles of coverage or 4 percent within four minutes.
- Furthermore, the ability to assemble the ERF within the eight minutes recommended by NFPA 1710 reaches the remaining two percent not originally covered for 100 percent coverage now.
- Consideration should still be given to additional staffing as MFD would not have the proper staff to commence interior firefighting operations in conjunction with industry standards.



Scenario D- Resource Concentration

#1.

- Scenario D the total available ERF for MFD is represented by the daily minimum staffing of six firefighters split between two fire stations. Thus, there are times when only three firefighters are on scene to begin operations.
- The daily minimum staffing becomes the ERF MFD can expect to assemble in the teal and grey areas.
- Because of MFD's adopted minimum staffing none of the city service area meets the ability to provide the NFPA ERF for medium- and high-risk occupancies on a first alarm and will require additional alarms and resources from outside the community.



Scenario D- Discussion

#1.

- Using this proposed location can provide several benefits.
- These benefits could include the ability to take advantage of the larger plot of land to house administration, fire prevention, community rooms, police substations, ambulance substations and the potential to relocate the MFD training facility there.
- Furthermore, the ability to construct a larger fire station to house additional apparatus in the future and current reserve apparatus are all reasons to consider a relocation if the current location will not support those activities.
- Additionally, scenario D allows for the city to have one fire station on each side of the railroad tracks that run north and south throughout.
- **Based on the increase in coverage and effectiveness presented in scenario D, if only Fire Station 2 is to be relocated and rebuilt then scenario D is one of three potential options.**

Scenario E- Relocate both Fire Station 1 and Fire Station 2 with new facilities using MFD supplied parcel identification numbers (PIN) 07-7.0-36.0-2.0-000-060.001, PIN 07-7.0-36.0-2.0-000-060.000 and PIN 10-1.0-12.0-3.0-000-005.000..

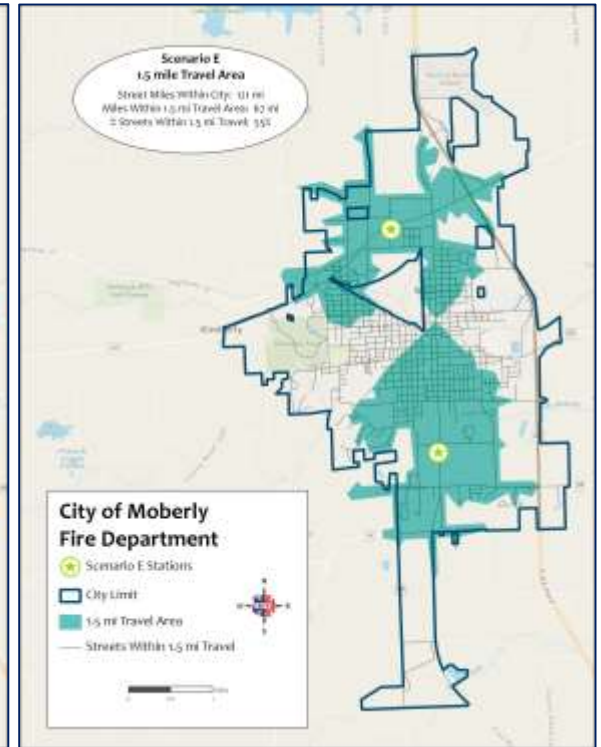
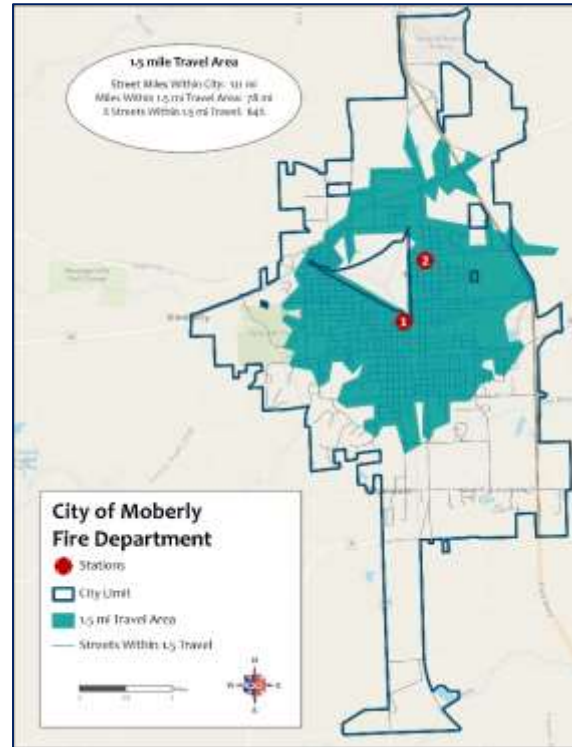
#1.

- The fifth scenario considered includes the relocation of both Fire Station 1 and Fire Station 2 in new locations. The proposed properties (PIN 07-7.0-36.0-2.0-000-060.001, PIN 07-7.0-36.0-2.0-000-060.000 and PIN 10-1.0-12.0-3.0-000-005.000) were used to provide a specific location for each fire stations in this scenario.

Scenario E- ISO Distribution

#1.

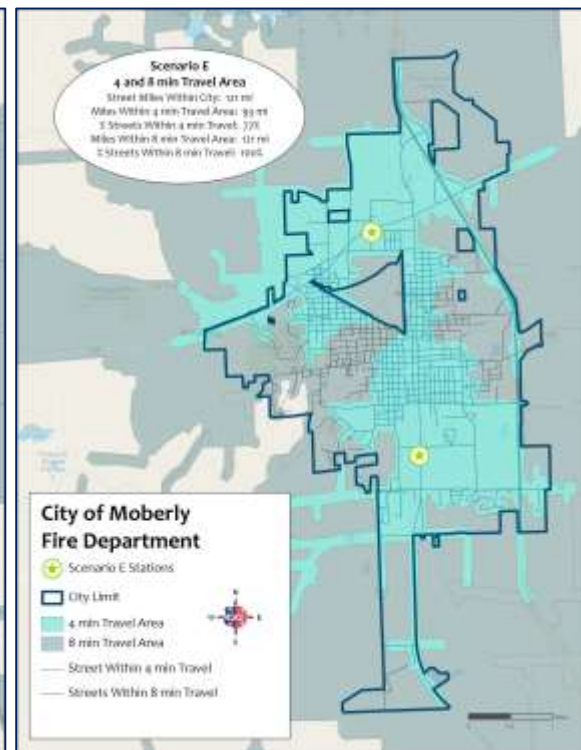
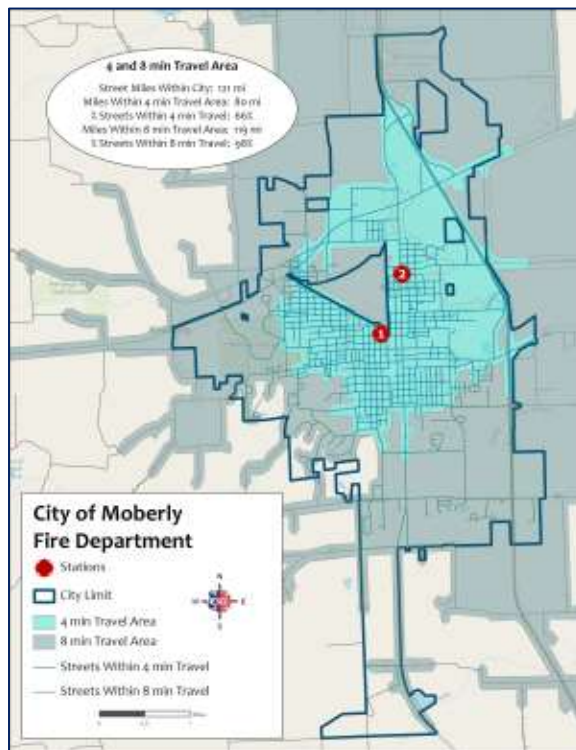
- The City of Moberly has 121 miles of roads.
- Of these 121 miles, 55 percent or 67 miles would remain within 1.5 miles (ISO fire engine coverage metric) of a fire station if both fire stations were relocated.
- This is a decrease of 9 percent or 11 miles of road coverage compared with the current two fire station model.
- This is a direct decrease in fire and EMS service levels for the citizens as well as ISO coverage.



Scenario E- NFPA Distribution 4 and 8 Minute Travel

#1.

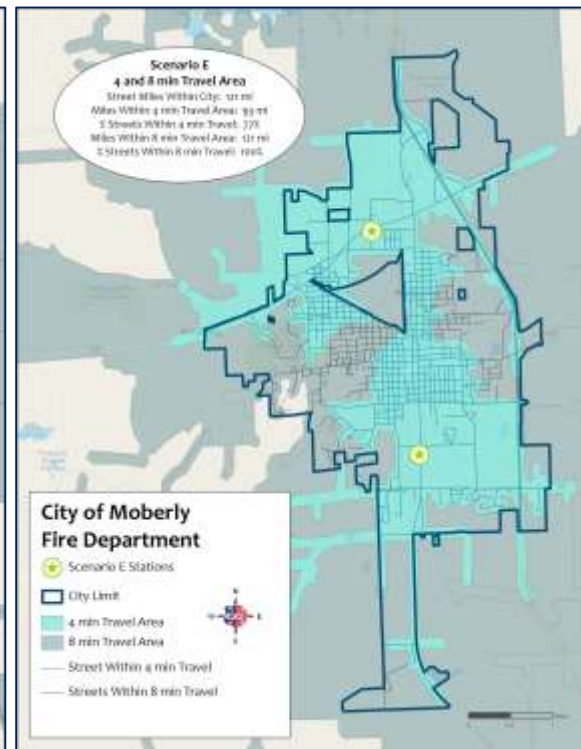
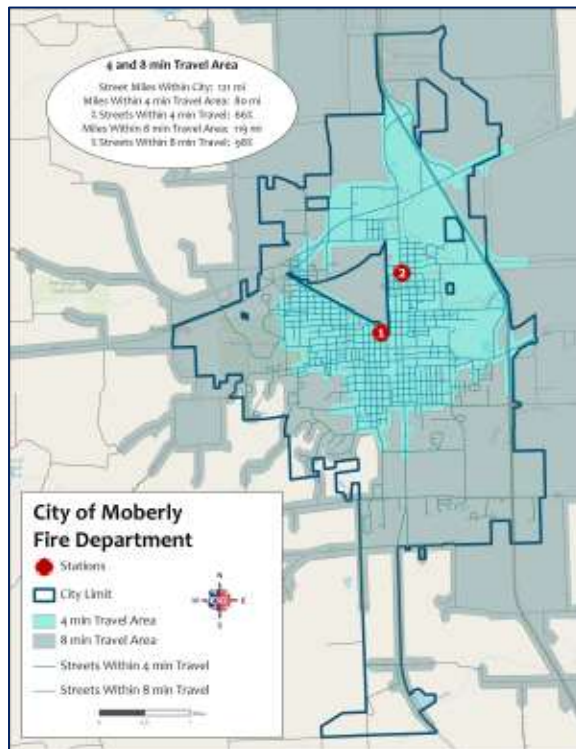
- Scenario E increases the ability to reach an additional 13 road miles of coverage or 11 percent within four minutes.
- The ability to assemble the ERF within the eight minutes recommended by NFPA 1710 reaches the remaining two percent not originally covered for 100 percent coverage now.
- MFD still would not have the proper staff to commence interior firefighting operations in conjunction with industry standards.



Scenario E- Resource Concentration

#1.

- Scenario E the total available ERF for MFD is represented by the daily minimum staffing of six firefighters split between two fire stations. Thus, there are times when only three firefighters are on scene to begin operations.
- The daily minimum staffing becomes the ERF MFD can expect to assemble in the teal and grey areas.
- Because of MFD's adopted minimum staffing none of the city service area meets the ability to provide the NFPA ERF for medium- and high-risk occupancies on a first alarm and will require additional alarms and resources from outside the community.



Scenario E- Discussion

#1.

- Based on the analysis if MFD choses to relocate Fire Station 1 and Fire Station 2 into these new locations it will see a decrease in ISO coverage but an increase in travel time coverage.
- Furthermore a large area of current population will fall outside of the currently protected coverage.
- Additionally, scenario E also allows for the city to have one fire station on each side of the railroad tracks that run north and south throughout.
- Because Scenario E decreases the coverage for ISO criteria and other scenarios that relocate and rebuild both fire stations do not, scenario E is not recommended.**

Scenario F- Maintain status quo with current Fire Station 1 and relocate Fire Station 2 with a new facility location using MFD supplied parcel identification number (PIN) 07-7.0-36.0-2.0-000-001.00

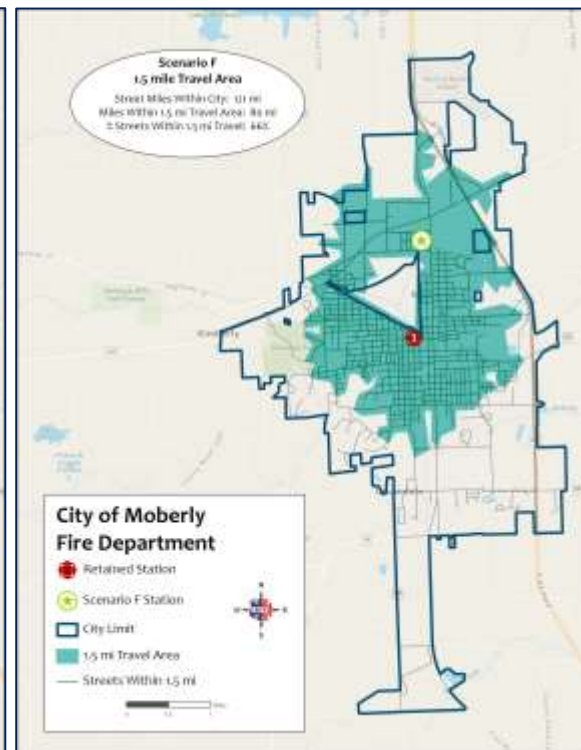
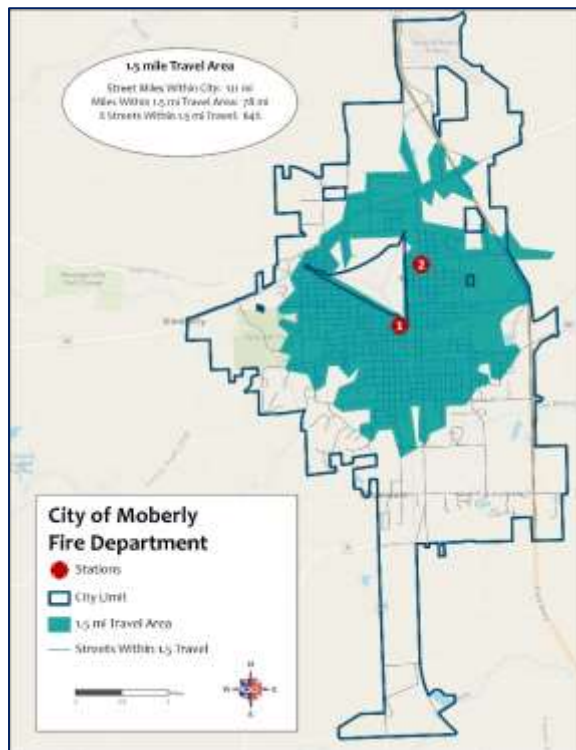
#1.

- The sixth scenario considered includes maintaining current operations from Fire Station 1 and relocating Fire Station 2 in a new location. The proposed property (PIN 07-7.0-36.0-2.0-000-001.000) was used to provide a specific location for this scenario.

Scenario F- ISO Distribution

#1.

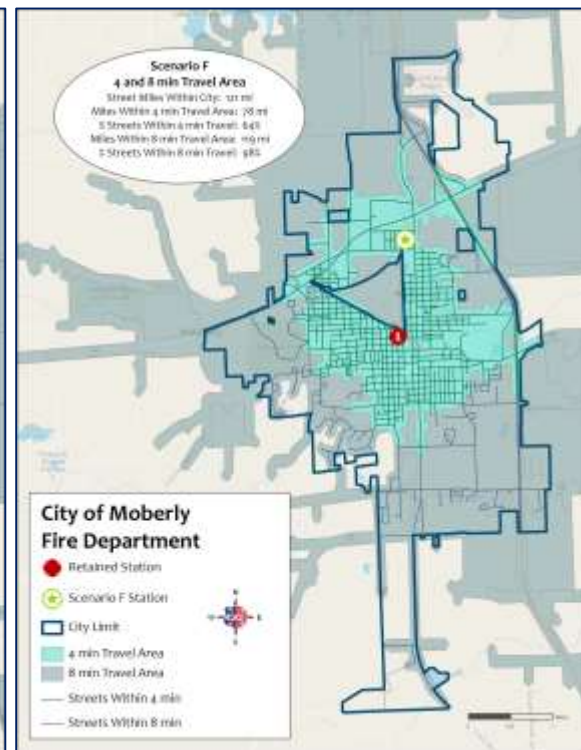
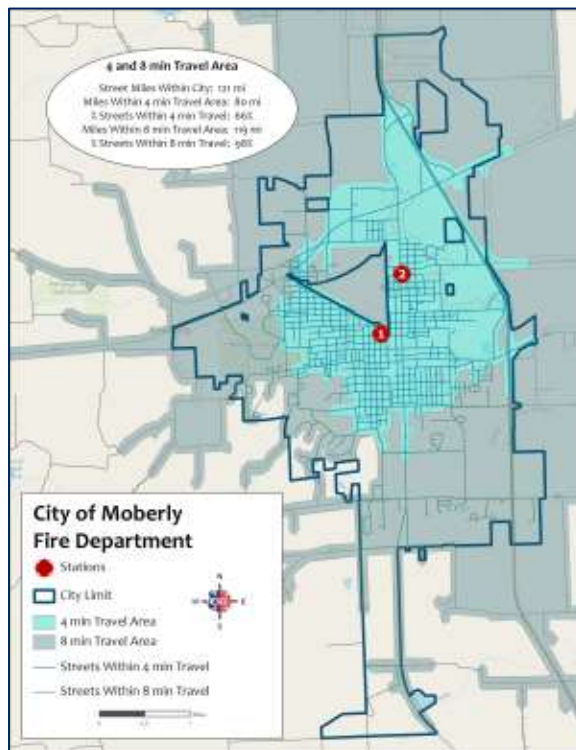
- The City of Moberly has 121 miles of roads.
- Of these 121 miles, 66 percent or 80 miles would now be within 1.5 miles (ISO fire engine coverage metric) of a fire station in scenario F.
- This is an increase of 2 percent of road coverage compared with the current two fire station model.
- This is a direct increase in fire and EMS service levels for those citizens.



Scenario F- NFPA Distribution 4 and 8 Minute Travel

#1.

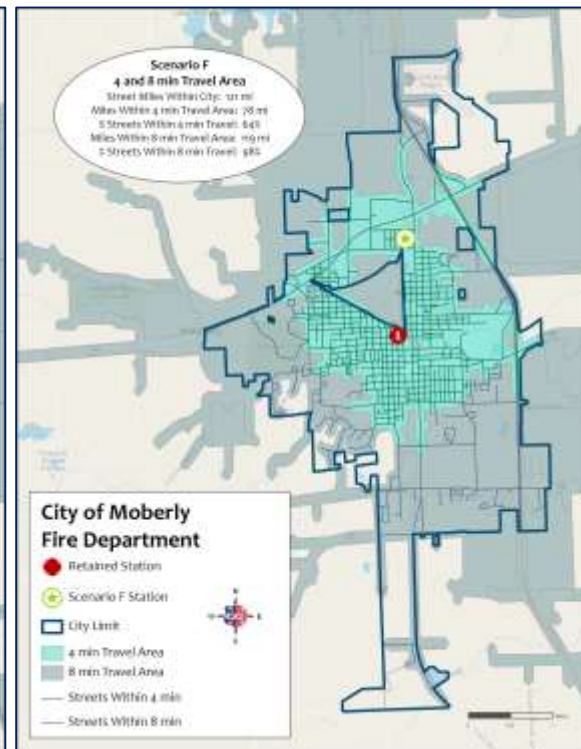
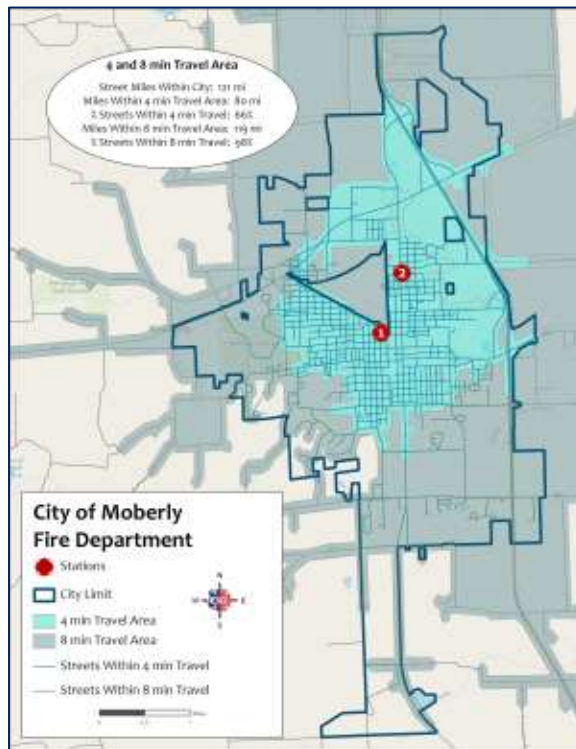
- Scenario F decreases the ability to reach 2 road miles of coverage or 2 percent less within four minutes.
- The ability to assemble the ERF within the eight minutes recommended by NFPA 1710 remains the same.
- Consideration should still be given to additional staffing as MFD would not have the proper staff to commence interior firefighting operations in conjunction with industry standards.



Scenario F- Resource Concentration

#1.

- Scenario F the total available ERF for MFD is represented by the daily minimum staffing of six firefighters split between two fire stations. Thus, there are times when only three firefighters are on scene to begin operations.
- The daily minimum staffing becomes the ERF MFD can expect to assemble in the teal and grey areas.
- Because of MFD's adopted minimum staffing none of the city service area meets the ability to provide the NFPA ERF for medium- and high-risk occupancies on a first alarm and will require additional alarms and resources from outside the community.



Scenario F- Discussion

#1.

- Using this proposed location can provide several benefits. These benefits could include the ability to take advantage of the larger plot of land to house administration, fire prevention, community rooms, police substations, ambulance substations and the potential to relocate the MFD training facility there.
- Furthermore, the ability to construct a larger fire station to house additional apparatus in the future and current reserve apparatus are all reasons to consider a relocation if the current location will not support those activities.
- **Scenario F increase ISO coverage but decreases NFPA effectiveness slightly. Based on the potential decrease in effectiveness even with the increase in coverage, scenario F is not recommended because other scenarios provide an increase in both coverage and effectiveness.**

Scenario G- Maintain status quo with current Fire Station 1 and relocate Fire Station 2 with a new facility location using MFD supplied parcel identification number (PIN) 07-7.0-36.0-2.0-000-070.004 #1.

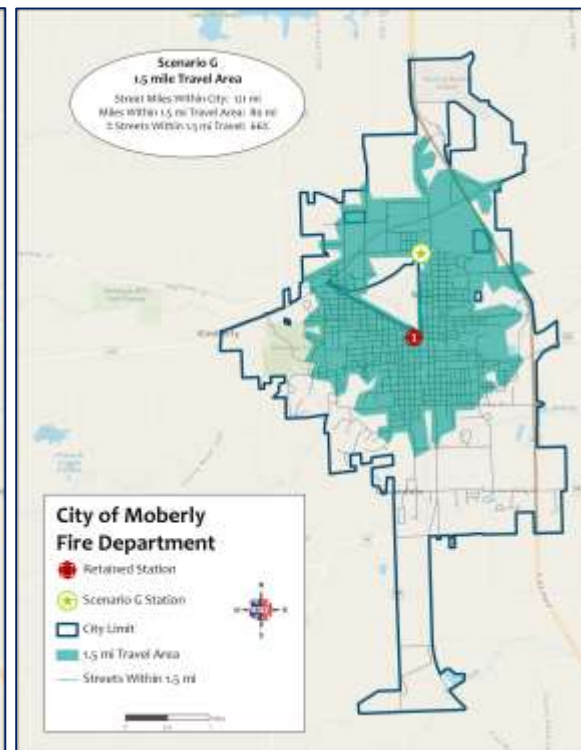
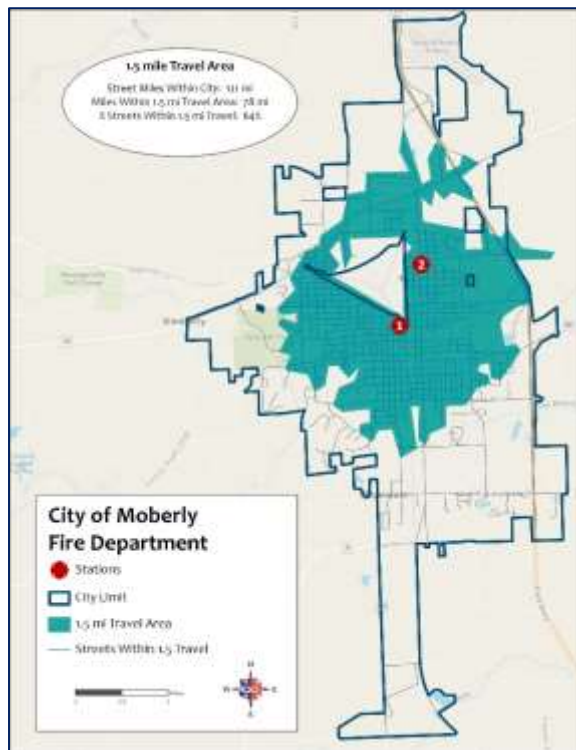
- The seventh scenario considered includes maintaining current operations from Fire Station 1 and relocating Fire Station 2 in a new location. The proposed property (PIN 07-7.0-36.0-2.0-000-070.004) was used to provide a specific location for this scenario.



Scenario G- ISO Distribution

#1.

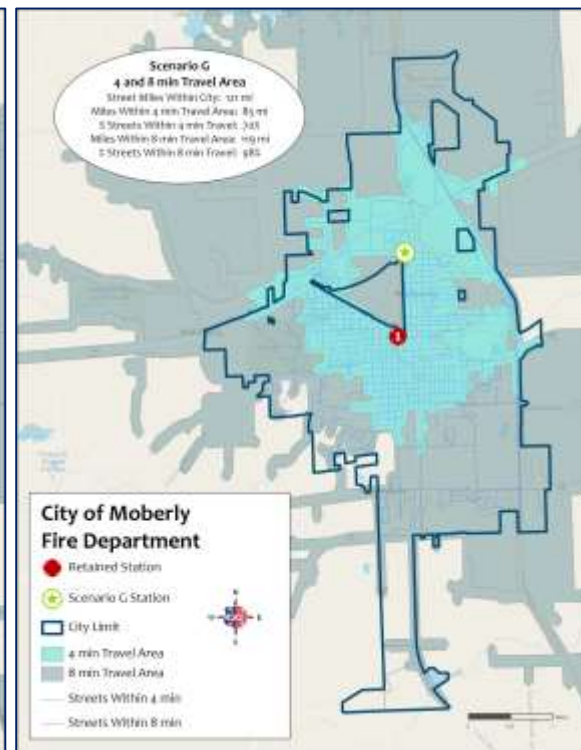
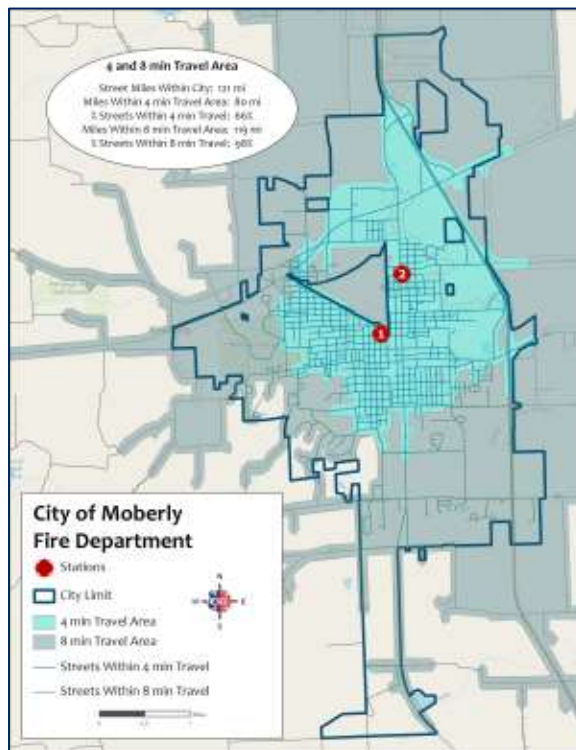
- The City of Moberly has 121 miles of roads.
- Of these 121 miles, 66 percent or 80 miles would now be within 1.5 miles (ISO fire engine coverage metric) of a fire station in scenario G.
- This is an increase of 2 percent of road coverage compared with the current two fire station model.
- This is a direct increase in fire and EMS service levels for those citizens.



Scenario G- NFPA Distribution 4 and 8 Minute Travel

#1.

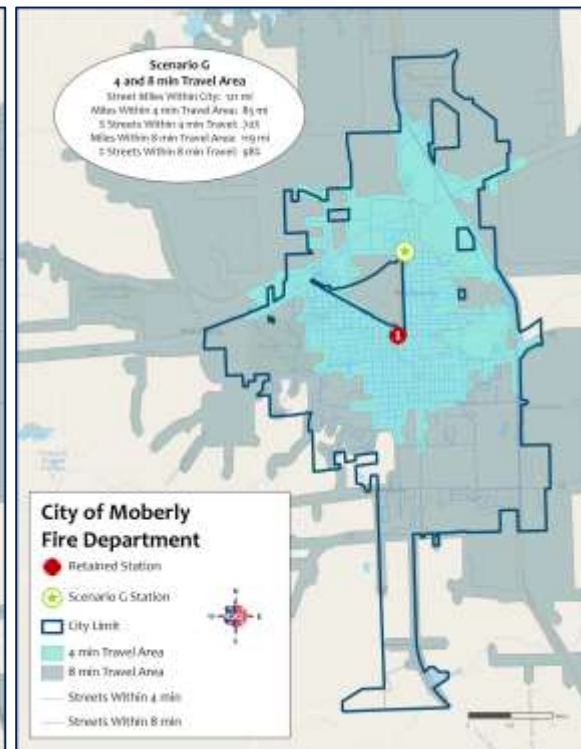
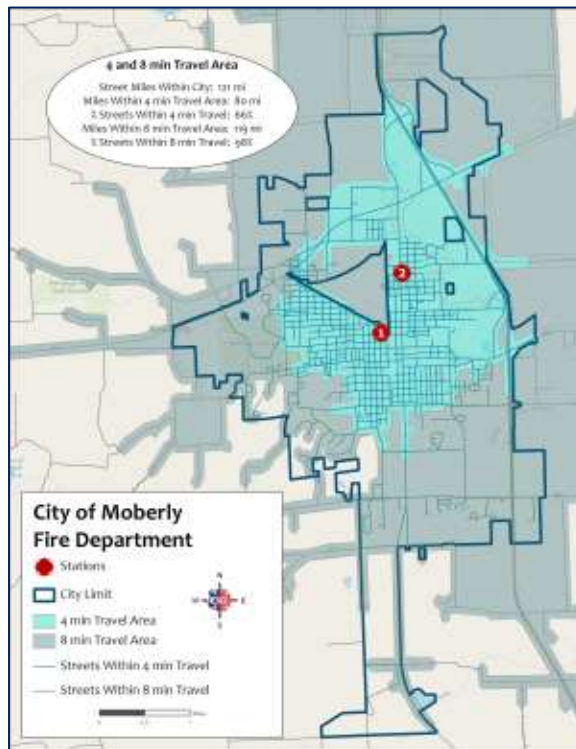
- Scenario G increases the ability to reach 5 additional road miles of coverage or 4 percent more within four minutes.
- The ability to assemble the ERF within the eight minutes recommended by NFPA 1710 remains the same.
- Consideration should still be given to additional staffing as MFD would not have the proper staff to commence interior firefighting operations in conjunction with industry standards.



Scenario G- Resource Concentration

#1.

- Scenario G the total available ERF for MFD is represented by the daily minimum staffing of six firefighters split between two fire stations. Thus, there are times when only three firefighters are on scene to begin operations.
- The daily minimum staffing becomes the ERF MFD can expect to assemble in the teal and grey areas.
- Because of MFD's adopted minimum staffing none of the city service area meets the ability to provide the NFPA ERF for medium- and high-risk occupancies on a first alarm and will require additional alarms and resources from outside the community.



Scenario G- Discussion

#1.

- Using this proposed location can provide several benefits. These benefits could include the ability to take advantage of the larger plot of land to house administration, fire prevention, community rooms, police substations, ambulance substations and the potential to relocate the MFD training facility there.
- Furthermore, the ability to construct a larger fire station to house additional apparatus in the future and current reserve apparatus are all reasons to consider a relocation if the current location will not support those activities.
- Additionally, scenario G also allows for the city to have one fire station on each side of the railroad tracks that run north and south throughout.
- **Based on the increase in coverage and effectiveness presented in scenario G, if only Fire Station 2 is to be relocated and rebuilt then scenario G is one of the three potential options.**

Scenario H- Maintain status quo with current Fire Station 1 and relocate Fire Station 2 with a new facility location using MFD supplied parcel identification number (PIN) 07-7.0-36.0-2.0-000-060.001 and PIN 07-7.0-36.0-2.0-000-060.000.

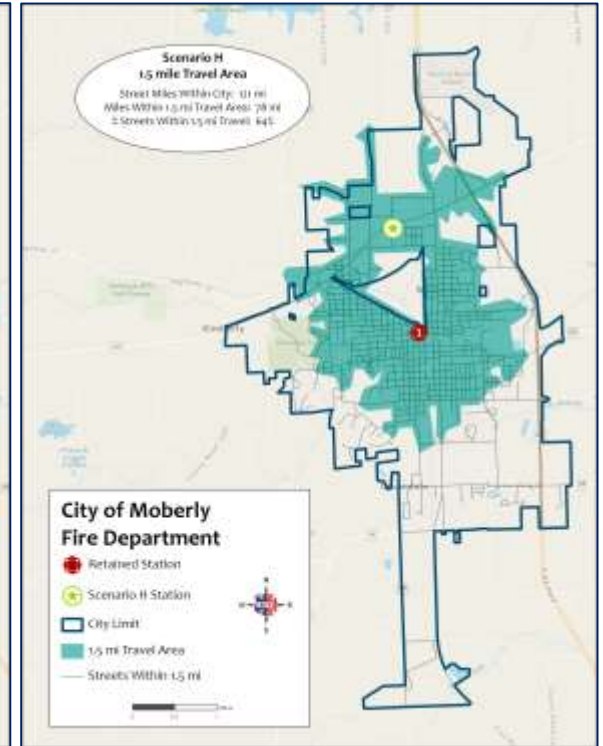
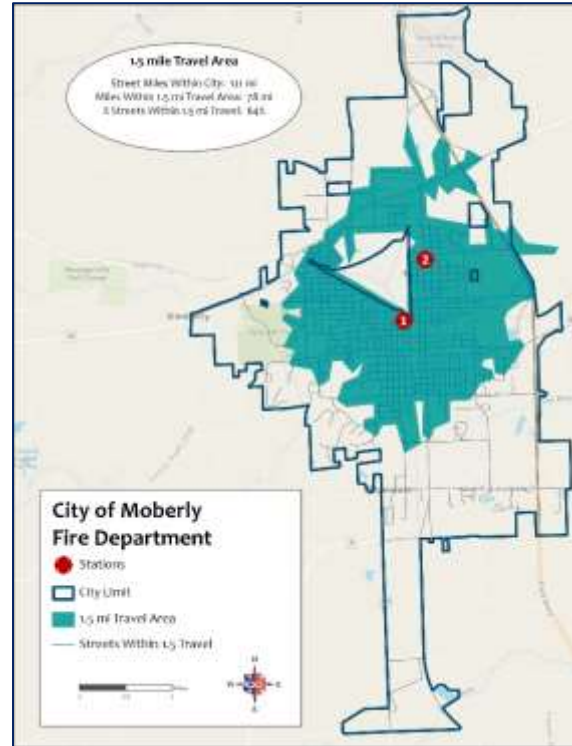
#1.

- The eighth scenario considered includes maintaining current operations from Fire Station 1 and relocating Fire Station 2 in a new location. The proposed properties (PIN 07-7.0-36.0-2.0-000-060.001 and PIN 07-7.0-36.0-2.0-000-060.000) was used to provide a specific location for this scenario.

Scenario H- ISO Distribution

#1.

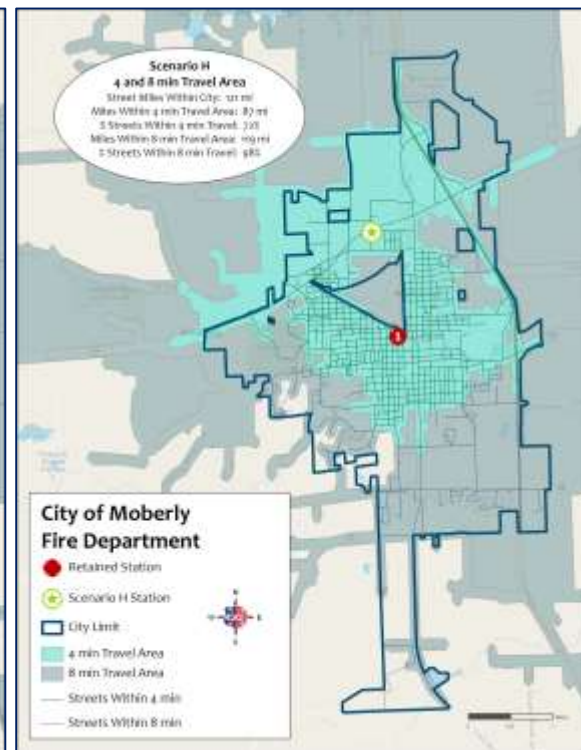
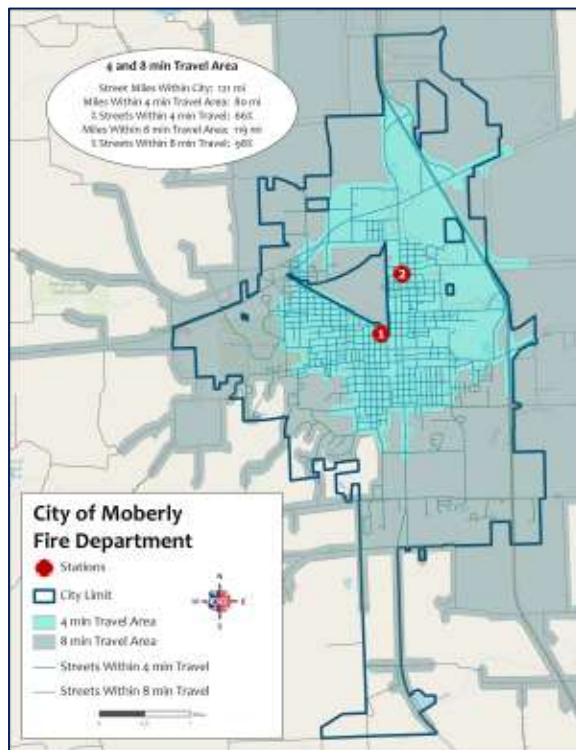
- The City of Moberly has 121 miles of roads.
- Of these 121 miles, 64 percent or 78 miles would still be within 1.5 miles (ISO fire engine coverage metric) of a fire station in scenario H.
- This is exactly the same amount of road coverage compared with the current two fire station model.



Scenario H- NFPA Distribution 4 and 8 Minute Travel

#1.

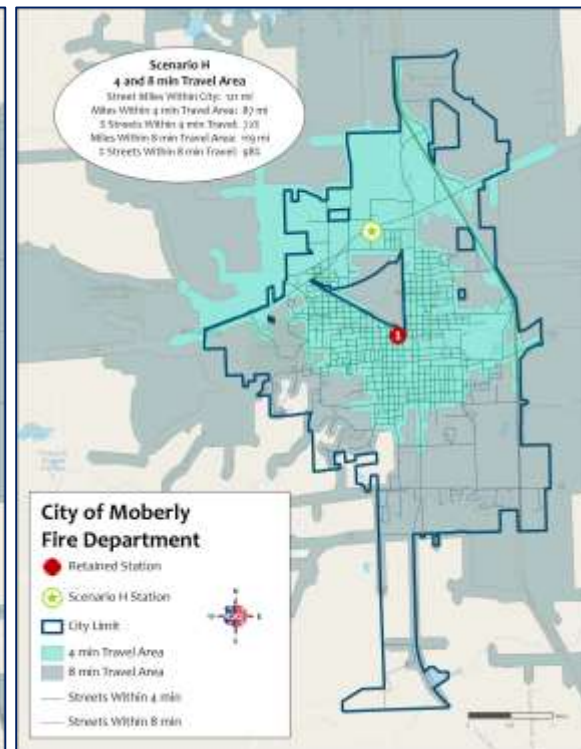
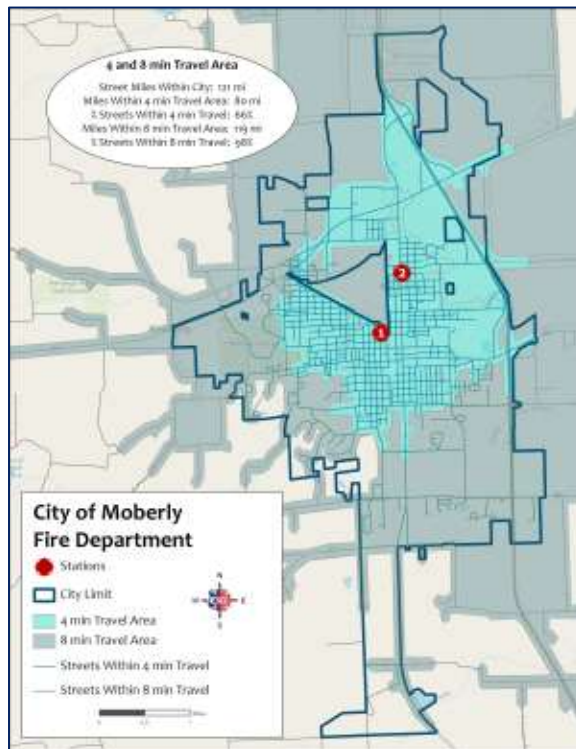
- Scenario H increases the ability to reach 7 additional road miles of coverage or 6 percent more within four minutes.
- The ability to assemble the ERF within the eight minutes recommended by NFPA 1710 remains the same.
- Consideration should still be given to additional staffing as MFD would not have the proper staff to commence interior firefighting operations in conjunction with industry standards.



Scenario H- Resource Concentration

#1.

- Scenario H the total available ERF for MFD is represented by the daily minimum staffing of six firefighters split between two fire stations. Thus, there are times when only three firefighters are on scene to begin operations.
- The daily minimum staffing becomes the ERF MFD can expect to assemble in the teal and grey areas.
- Because of MFD's adopted minimum staffing none of the city service area meets the ability to provide the NFPA ERF for medium- and high-risk occupancies on a first alarm and will require additional alarms and resources from outside the community.



Scenario H- Discussion

#1.

- Using this proposed location can provide several benefits. These benefits could include the ability to take advantage of the larger plot of land to house administration, fire prevention, community rooms, police substations, ambulance substations and the potential to relocate the MFD training facility there.
- Furthermore, the ability to construct a larger fire station to house additional apparatus in the future and current reserve apparatus are all reasons to consider a relocation if the current location will not support those activities.
- **Based on the ability to maintain ISO coverage and increase NFPA effectiveness presented in scenario H, if only Fire Station 2 is to be relocated and rebuilt then scenario H is one of three potential options.**

Fire Station Modification Results

#1.

Total Number of Stations	Total Road Mileage	Road Miles Covered (1.5-Mile ISO Metric)	Percentage Covered	Change	Road Miles Covered (4/8 Minute NFPA Metric)	Percentage Covered	Change
Current 2 Stations	121 Miles	78 Miles	64%	None	(4) 80 miles (8) 119 miles	66% 98%	None
Scenario A 1 Station		64 Miles	53%	Decrease 11%	(4) 60 miles (8) 118 miles	49% 97%	Decrease 17% & 1%
Scenario B 2 Stations		74 Miles	61%	Decrease 3%	(4) 67 miles (8) 119 miles	55% 98%	Decrease 11%
Scenario C 2 Stations		81 Miles	67%	Increase 3%	(4) 95 miles (8) 121 miles	78% 100%	Increase 12% & 2%
Scenario D 2 Stations		78 Miles	65%	Increase 1%	(4) 84 miles (8) 121 miles	70% 100%	Increase 4% & 2%
Scenario E 2 Stations		67 Miles	55%	Decrease 9%	(4) 93 miles (8) 121 miles	77% 100%	Increase 11% & 2%
Scenario F 2 Stations		80 Miles	66%	Increase 2%	(4) 78 miles (8) 119 miles	64% 98%	Decrease 2%
Scenario G 2 Stations		80 Miles	66%	Increase 2%	(4) 85 miles (8) 119 miles	70% 98%	Increase 4%
Scenario H 2 Stations		78 Miles	64%	None	(4) 87 miles (8) 119 miles	72% 98%	Increase 6%

Recommendation 2: Recommend adopting ERF staffing based on occupancy risk. Current practice is defined by unit staffing and not incident required staffing.

#1.

- ESCI recommends the following ERF goal for structure fires:
- Moderate Risk Structure Fire—Effective Response Force (ERF) Response Performance Goal
 - For 90 percent of all emergency structure fire incidents, the ERF with a minimum of 17 personnel deployed, a minimum of two engines, one aerial, and one Captain shall arrive in 8 minutes. The ERF shall be capable of establishing incident command, maintaining a sustained fire flow, advancing fire attack lines and back-up lines, initiating victim search and rescue, ventilation, and controlling utilities. MFD will have to rely on Randolph County to provide an ambulance if needed.

Recommendation 3: Place an aerial ladder truck in service at Fire Station 1 #1.

- The City of Moberly has experienced some development regarding the types of occupancies.
- Firefighting activities significantly get more difficult with every story of height experienced. These types of occupancies require a larger ERF and more specifically the use of aerial ladder trucks.
- The addition of an aerial ladder truck at Fire Station 1 would provide additional ISO credit and benefit.
- The areas of Moberly experiencing the increased ERF by implementing the recommendation of adding an aerial ladder truck to Fire Station 1 are consistent with areas that would require the increased ERF based on risk classification.

Recommendation 4: Develop and fund an appropriate long-range apparatus purchasing and replacement plan.

#1.

- MFD does not have a formal apparatus replacement plan.
- Apparatus replacement within the MFD is primarily based on the age of apparatus, with apparatus being moved to reserve status on a case-by-case basis. Engine (pumpers) and ladder trucks are scheduled for front-line replacement as needed.
- The following figure provides an estimate of replacement costs and replacement years for each of MFD's engines and aerial ladder truck.
- In this figure, ESCI utilized a 15-year life expectancy for frontline engines and 20 years for the truck. As mentioned previously, NFPA 1901 recommends that fire apparatus 15 years of age or older be placed into reserve and replaced after another 10 years of use.

Recommendation 4: Develop and fund an appropriate long-range apparatus purchasing and replacement plan.

#1.

Apparatus	Estimated Replacement Cost	Annual Cash Requirements	Life Expectancy	Replacement Year
300	\$75,000	N/A	15	Overdue
304	\$630,000	N/A	15	Overdue
306	\$75,000	N/A	15	Overdue
305	\$630,000	\$43,680	15	2022
301	\$1,200,000	\$72,999	20	2026
310	\$75,000	\$6,850	15	2028
302	\$630,000	\$57,480	15	2029
303	\$160,000	\$11,386	20	2030
Chief Car	\$75,000	\$7,697	15	2032
313	\$75,000	\$8,005	15	2033
Totals:	\$4,319,343	\$207,828		

Recommendation 5: Establish funding to construct a new training facility.

#1.

- All of the training areas and classrooms are in poor condition and lack the necessary components to conduct an effective training program.
- One option for MFD is to use the identified plot of land for the new station to include a modern training facility.
- ESCI recommends one of the identified sites be approved along with a funding strategy to design and construct a new facility as soon as possible.
- Constructing a modern training facility to comply with industry standards concerning classrooms, practice grounds, training tower, live-fire building, and training props is a significant investment of capital.
- The ability to provide training is not only necessary it is required for ISO requirements. The requirements specifically require training at approved facilities.

Recommendation 5: Establish funding to construct a new training facility.

#1.



Questions?