• AGENDA •
JOINT MEETING
CLOVIS CITY COUNCIL / FRESNO METROPOLITAN FLOOD CONTROL DISTRICT

6:00 p.m. Monday, September 9, 2019
Council Chamber, 1033 Fifth Street, Clovis, CA 93612 (559-324-2060)
www.cityofclovis.com / www.fresnofloodcontrol.org

In compliance with the Americans with Disabilities Act, if you need special assistance to access the City Council Chamber to participate at this meeting, please contact the City Clerk or General Services Director at (559) 324-2060 (TTY – 711). Notification 48 hours prior to the meeting will enable the City to make reasonable arrangements to ensure accessibility to the Council Chamber.

Any writings or documents provided to a majority of the City Council regarding any item on this agenda will be made available for public inspection at City Hall, in the City Clerk's office, during normal business hours. In addition, such writings and documents may be posted on the City's website at www.cityofclovis.com.

Fresno Metropolitan Flood Control District
Chair: James E. "Buzz" Burleson, Jr.
Board of Directors: Vice-Chair Kacey Auston, Roy Spina, Ken Groom, Jennette Williams, Mike Rastegar, Frank Fowler

City of Clovis
Mayor: Drew Bessinger
Councilmembers: Mayor Pro Tem Jose Flores, Lynne Ashbeck, Vong Mouanoutoua, Bob Whalen

The City Council welcomes participation at Council Meetings. Members of the public may address the Council on any item of interest to the public that is scheduled on the Agenda. In order for everyone to be heard, please limit your comments to 5 minutes or less, or 10 minutes per topic.

CALL TO ORDER

FLAG SALUTE

ROLL CALL

Public Comments - This is an opportunity for the members of the public to address the City Council on any matter within the City Council's jurisdiction that is not listed on the Agenda. In order for everyone to be heard, please limit your comments to 5 minutes or less, or 10 minutes per topic. Anyone wishing to be placed on the Agenda for a specific topic should contact the City Manager's office and submit correspondence at least 10 days before the desired date of appearance.

Introductory Comments:

(1) Clovis Mayor Bessinger

(2) FMFCD Board Chair Burleson

JOINT MEETING OF THE CLOVIS CITY COUNCIL AND THE FRESNO METROPOLITAN FLOOD CONTROL DISTRICT

Overview

1.A. Alan Hofmann, FMFCD General Manager

1.B. Luke Serpa, Clovis City Manager

City of Clovis

2. Sustainable Groundwater Management Act (SGMA) Overview (Staff: Paul Armendariz)

3. Future Northwest Expansion. (Staff: Dwight Kroll)

Fresno Metropolitan Flood Control District

4.A. Re-Operation of Redbank and Fancher Creeks Project

4.B. Overview of Proposed Joint City of Clovis United States Bureau of Reclamation WaterSMART Grant to Fund Big Dry Creek Reservoir Weather Station Network.

4.C. Update on Rural Streams Implementation.

4.D. Discussion of Pipeline and Basin Improvements Since Last Joint Workshop.

Council / Board Comments

ADJOURNMENT

MEMORANDUM

File 160.8382

BOARD MEETING: September 9, 2019
AGENDA ITEM NO.: 4.A.
FROM: Alan Hofmann, General Manager-Secretary
SUBJECT: **Re-Operation of Redbank and Fancher Creeks Flood Control Project**

Summary
The Fresno Metropolitan Flood Control District (District) is responsible for the operation and maintenance of the US Army Corps of Engineers (Corps) Redbank and Fancher Creeks Flood Control Project (Project). The Project is composed of a collection of dams and reservoirs, detention basins and conveyances built to control runoff from streams in the rural watershed east of the Clovis and Fresno metropolitan areas between the San Joaquin and Kings Rivers. The largest component of the Project is Big Dry Creek Reservoir, originally built in 1948. In 1986, Congress adopted a Water Resources Development Act (WRDA) that authorized the Project, which included the raising of Big Dry Creek Dam to increase the reservoir's flood control capability. Also included in the Project was the construction of the Fancher Creek Dam and Reservoir and three large detention basins. Included in Congress' authorization was a directive that "The project shall include measures determined appropriate by the Secretary (*of Army Corps*) to minimize adverse impacts on groundwater and to maximize benefits to groundwater, including water recharge."

Work on the enlargement of Big Dry Creek dam, and the other Project facilities, was completed in the early 1990's and, in 1994, the Corps updated the Water Control Manual for Big Dry Creek dam that governs operations at the facility. The revised Water Control Manual ignored the water storage issue and retained operational parameters that required the emptying of the reservoir, along with the other Project features, whenever the temporary storage of floodwaters was no longer necessary. This was despite the fact that both the Corps and the State of California Division of Safety of Dams informally acknowledged the reservoirs' storage potential and the desirability of conducting storage tests to confirm that the facility would perform as expected. In light of repetitive cycles of drought and a declining regional groundwater table, maximizing the water capture, storage and re-distribution potential of the reservoirs, or detention basins, is of utmost importance to our community.

The District has been exploring possible courses of action that would allow "re-operation" of the Project, including the Big Dry Creek and Fancher Creek Reservoirs, to take advantage of opportunities to capture and redistribute stream flows, or flood releases, out to current and future groundwater recharge facilities. Potential pathways include: 1) modifying the language in

the 1994 Water Control Manual; 2) asking Congress to amend the project authorization language in the 1986 WRDA, potentially with the upcoming 2020 WRDA; or 3) fund and complete a study designed to assure the Corps that the reservoir can safely accommodate conservation storage.

Recommendation

This report is for informational purposes only. No action is required unless specific direction is to be given to staff.

Discussion

The Redbank and Fancher Creeks Project protects the urban communities of Clovis and Fresno from storm events exceeding a 200 year level. Early elements of the system were built by the Corps for the Bureau, starting in the 1940's. The project was turned over to Fresno County whom in turn relied upon the Fresno Irrigation District for operations and maintenance. The later elements were constructed in the 1990's through a joint effort of the Corps and District. The District entered into a Local Cooperation Agreement with the Corps to become the "local sponsor", which had funding requirements of the local area, along with long term operation and maintenance responsibilities for all of elements of the Project.

Big Dry Creek Reservoir is the largest component of the Project. The reservoir, as initially built in 1948 with a capacity of 16,500 acre feet of storage, was capable of a certain amount of "conservation storage", which would allow stream flows to be captured by the reservoir and held during the non-flood season for later use. However, while the formal reservoir operating rules adopted by the Corps via the first *Water Control Manual* (1954) did acknowledge or provide for conservation storage, the land behind the dam did not include easements for flooding during the non-flood season so that use was not allowed. In 1986, Congress adopted a Water Resources Development Act (WRDA) that authorized, among other actions related to local flood control, the raising of Big Dry Creek Dam to increase the reservoir's flood control capability to 30,200 acre feet. Included in Congress' authorization was a directive that "The project shall include measures determined appropriate by the Secretary (*of Army Corps*) to minimize adverse impacts on groundwater and to maximize benefits to groundwater, including water recharge."

By the late 1980's, both Corps and District were working steadily to raise the Big Dry Creek Dam, with the work completed in 1993. The District argued that the new Water Control Manual for the updated facility should allow for long-term storage of floodwaters, for downstream beneficial use, consistent with both the reservoir's original design (now improved by the raising of the dam) and Congress' 1986 directive. However, the Water Control Manual issued by the Corps ignored the water storage issue and retained operational parameters that required the emptying of the reservoir whenever the temporary storage of floodwaters was no longer necessary. This was despite the fact that both the Corps and the State of California Division of Safety of Dams informally acknowledged the reservoirs' storage potential and the desirability of conducting storage tests to confirm that the facility would perform as expected.

The District, in collaboration with the other members of the Fresno County Stream Group (Fresno County, Fresno Irrigation District, City of Fresno, City of Clovis) have met to discuss possible courses of action that could take advantage of the water storage potential of the Project,

including Big Dry Creek and Fancher Creek Reservoirs. There is the possibility of enhancing groundwater recharge in the Fresno-Clovis area by "re-operating" these reservoirs to allow the facilities to hold surface water for prolonged periods of time. Water retained in the facility could, through the extensive and interconnected network of surface water conveyances controlled by Fresno Irrigation District and the Fresno Metropolitan Flood Control District, be routed throughout much of the urban area and into existing and future groundwater recharge facilities. Through extensive discussions with the Corps and the examination of other Corps-affiliated projects, the District has identified a number of potential pathways to re-operation of the reservoir. These include:

1. Get the Corps to *administratively modify* the 1994 Water Control Manual to accommodate the storage of water inside Big Dry Creek Reservoir, per the intent of the 1986 WRDA.

2. Get Congress, thru the upcoming 2020 WRDA, to *amend the project authorization language in the 1986 WRDA*, to definitively establish that Congress intended the reservoir to be used to facilitate groundwater recharge. This would serve to resolve the Corps' uncertainty about whether the 1986 WRDA actually directs the Corps to facilitate the operation of the Project for groundwater recharge.

3. Seek a temporary *Deviation Request* from the Corps, which is a short-term authorization to operate a facility differently than is specified in its Water Control Manual.

4. Complete a Flood Control Act of 1970 *Section 216 Post-Authorization Study* to conduct a technical analysis of the reservoir, to establish that it is capable of safely storing water. This could give the Corps the reassurance it needs to modify the Water Control Manual without first seeking further direction from Congress.

5. Complete a *New Start Feasibility Study* to evaluate the reservoir and its capabilities, in support of a future request that Congress adopt new, clear authorizing language for the Project and specify the improvements necessary to have a permanent conservation pool behind the reservoirs.

The time frame to achieve success through any of the above methods is on the order of several years, and the local agency's share of the costs could range up to several million dollars. The District will, on behalf of the community, continue to push the Corps forward towards our goal of fully exploiting the potential of the Redbank and Fancher Creeks Flood Control Project to augment the regional ground and surface water supply.

Respectfully submitted by:
Andrew Remus, Senior Staff Analyst

Attachments
None

MEMORANDUM

File 160.8382

BOARD MEETING: September 9, 2019
AGENDA ITEM NO.: 4.B.
FROM: Alan Hofmann, General Manager-Secretary
SUBJECT: **Overview of Proposed Joint District-City of Clovis United States Bureau of Reclamation WaterSMART Grant to Fund Big Dry Creek Reservoir Weather Station Network**

Summary

The Fresno Metropolitan Flood Control District (District) has been exploring the possibility of enhancing groundwater recharge in the Fresno-Clovis area by "re-operating" the Redbank and Fancher Creek Flood Control Project. The re-operation proposal would allow Big Dry Creek and Fancher Creek Reservoirs to hold surface water for prolonged periods of time for downstream beneficial use.

At present, reservoir operations are governed by the US Army Corps of Engineers (Corps), which does not allow water to be stored in the reservoirs any longer than necessary to fulfill the facility's flood control mandate. One of the elements of gaining Corps permission to alter reservoir operations includes modeling alternative reservoir operation schemes *based on historical watershed data*. The Big Dry Creek and Fancher Creek watersheds are not systematically monitored for weather and stream conditions. The establishment of weather and soil moisture monitoring stations in the larger Big Dry Creek watershed would allow for the collection of data, important to the issue of reservoir re-operation.

Working with City of Clovis staff, the District has identified an opportunity to address the data deficiency through the United States Bureau of Reclamation (Bureau) WaterSMART Grant Program. The establishment of water supply measurement/management tools, such as weather monitoring stations, is one of the project types that can be funded through the program. The lead agency on a WaterSMART grant must be a water supplier. City of Clovis staff have discussed the possibility that the City assume the role of official project/grant lead on a Bureau grant, wherein the District agrees to take the lead on implementing the grant, including equipment acquisition, installation, maintenance and data collection. A map of the watershed and hypothetical weather station locations are shown in Attachment A. The City is expected to take this proposal under formal consideration at its September 16, 2019 Council meeting.

Recommendation

This report is for informational purposes only. No action is required unless specific direction is to be given to staff.

Discussion

Since its construction, the District has been working with the Corps to explore the possibility of enhancing groundwater recharge in the Fresno-Clovis area by "re-operating" Big Dry Creek and Fancher Creek Reservoirs to allow the facilities to hold surface water for prolonged periods of time. At present, the reservoir operations, which are governed by the Corps, do not allow water to be stored in Big Dry Creek or Fancher Creek Reservoirs any longer than necessary to fulfill the facility's flood control mandate.

Following the recent five year drought, representatives of the Fresno County Stream Group (Fresno County, Fresno Irrigation District, City of Fresno, City of Clovis, Fresno Metropolitan Flood Control District) met to discuss possible courses of action to take advantage of the water storage potential of Big Dry Creek Reservoir. Although the reservoir, as initially built in 1948, had operating criteria that provided a certain amount of "conservation storage", during the non-flood season, the operating rules did not allow this storage due to easement restrictions. In 1986, Congress adopted a Water Resources Development Act that authorized, among other actions related to local flood control, the raising of Big Dry Creek Dam to increase the reservoir's flood control capability. Included in Congress' authorization was a directive that "The project shall include measures determined appropriate by the Secretary (*of Army Corps*) to minimize adverse impacts on groundwater and to maximize benefits to groundwater, including water recharge." It is this directive that should allow for alternative use of the reservoir and the District purchased all the land that would be flooded, so this is no longer a restriction for storage.

By the late 1980s, both the Corps and District were working steadily to raise the Big Dry Creek Dam, with the work completed in 1993. The District argued that the new Water Control Manual for the updated facility should allow for long-term storage of floodwaters for downstream beneficial use, consistent with both the reservoir's original design (now improved by the raising of the dam) and Congress' 1986 directive. However, the Water Control Manual eventually published by the Corps ignored the water storage issue and retained operational parameters that required the emptying of the reservoir whenever the temporary storage of floodwaters was no longer necessary. This despite the fact that both Corps and the State of California informally acknowledged the reservoirs' storage potential and the desirability of conducting storage tests to confirm that the facility would perform as expected. The District continues to make the case for using Big Dry Creek Reservoir for storage. However, barring some major change in the regulatory framework governing the Corps, or another act of Congress, an amendment to the existing Water Control Manual appears necessary.

Modification of a Water Control Manual for a flood control facility can be a lengthy and complex process. One of the many components to getting Corps' authorization to alter reservoir operations includes modeling alternative reservoir operation schemes *based on historical watershed data*. With recent cycles of drought and the challenges of meeting the demands of the California Sustainable Groundwater Management Act, there is a renewed interest in using modern weather forecasting and reservoir modeling to maximize the amount of water that can be safely stored in flood control facilities. Accordingly, the National Oceanic and Atmospheric Administration (NOAA), Scripps Institution of Oceanography, California Department of Water

Resources, and Corps are collaborating on the development of "Forecast Informed Reservoir Operations" (FIRO) protocols designed to allow reservoir operators to better predict the impact of incoming major storm events, such as atmospheric rivers. With better forecasting and real-time monitoring of watersheds for precipitation, soil moisture and other weather parameters, reservoir operators should be able to predict reservoir inflows with confidence and retain more water in storage for beneficial use.

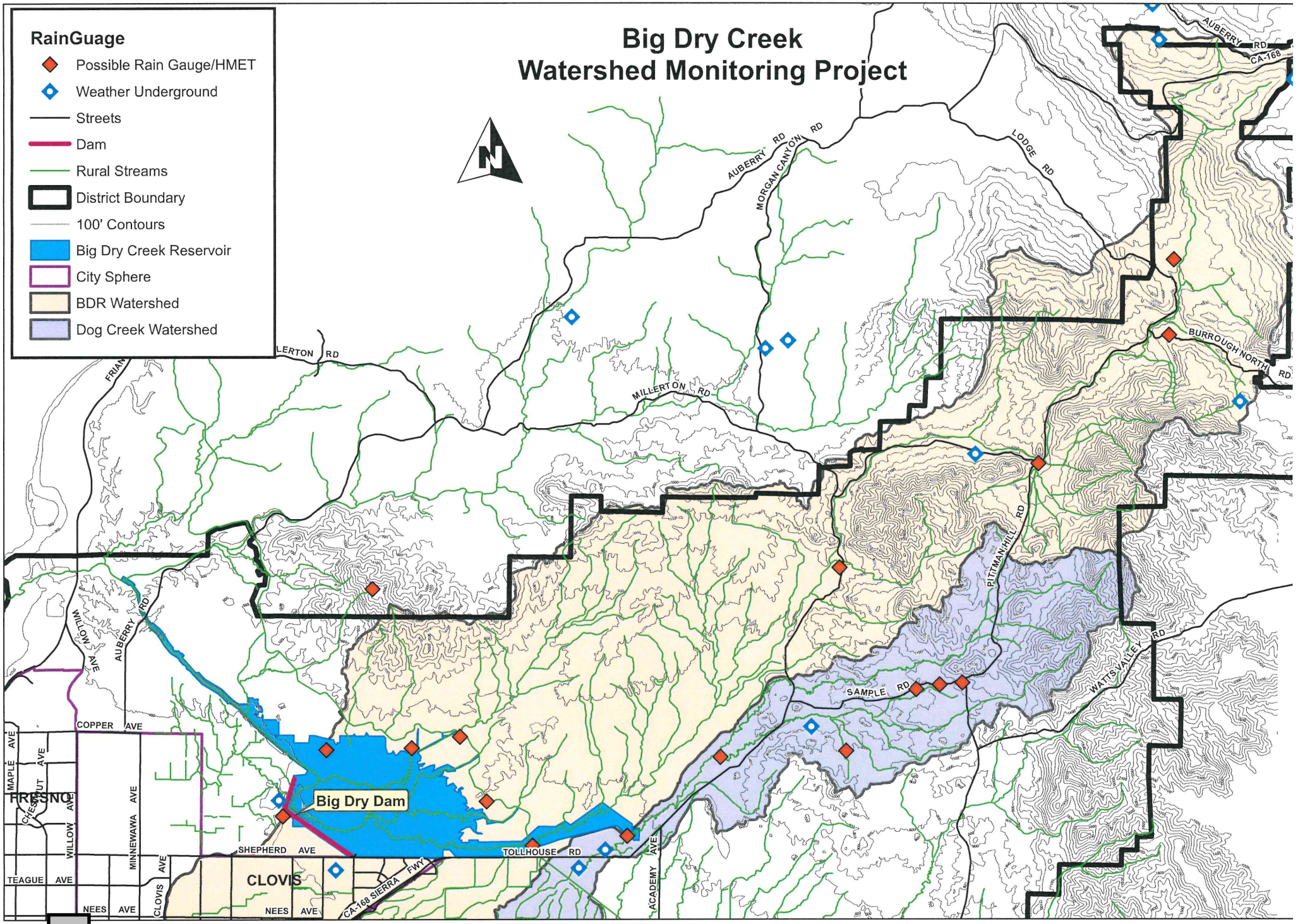
The use of FIRO relies on the availability of historical data on watershed behavior before, during, and after large rain events. Big Dry Creek watershed is not systematically monitored for weather and stream conditions. The lack of supporting data compromises the District's ability to convince the Corps that the reservoir can be safely operated to hold water in long-term storage. The establishment of weather and soil moisture monitoring stations in the Big Dry Creek watershed would allow the collection of data important to the issue of reservoir re-operation.

Last year, the District identified the opportunity to address the data deficiency through the Bureau WaterSMART Grant Program, which funds research and infrastructure projects important to conserving water and enhancing water supply. However, as the District is not a water supplier, it asked City of Clovis staff if they would be interested in being the lead agency for the Grant.

The WaterSMART Grant Program funds up to 50% of the cost of research and infrastructure projects important to conserving water and enhancing water supply. Staff has discussed with the Bureau the possibility of grant funding for a weather monitoring network inside the Big Dry Creek Reservoir watershed, and has been encouraged by the Bureau's interest in such a project. Staff has worked with NOAA's FIRO researchers to identify the type and cost of equipment for a six-station network. Equipment and site development costs are on the order of $90,000, plus additional staff costs. Further, faculty at the Fresno State Engineering School have expressed an interest in entering into an agreement with the District to have engineering and earth sciences students do data collection and data processing for the project.

Respectfully submitted by:
Andrew Remus, Senior Staff Analyst

Attachments
1. Attachment A - Potential Weather Station Map - Big Dry & Dog Creek Watersheds



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MEMORANDUM

File 170.15, 220.34, 630.901

BOARD MEETING: September 9, 2019
AGENDA ITEM NO.: 4.C.
FROM: Peter Sanchez, District Engineer-Assistant General Manager
SUBJECT: **Update on Rural Streams Implementation**

Summary
At its joint meeting on November 9, 2015, the Board of Directors and the Clovis Councilmembers discussed rural streams and their incorporation into urban developments. Staff provided information on standard design requirements for rural streams, how developers are integrating the rural streams into urban developments and how District and Clovis staffs' are approaching channel maintenance funding. Attached for reference is the November 9, 2015 Board Memorandum.

Since then, development has continued to move easterly into the rural setting with successful merriment of rural streams and urban developments. Since rural streams are a newer parameter to urban development, the District and Clovis staffs' have sought to educate developers on the various options and requirements associated with rural stream integration into urban development. The most pressing concern at this time, is the long-term funding and frequency of channel maintenance.

As discussed in the previous joint meeting, the District divides the rural streams into two maintenance categories: District maintained channels and owner (non-District) maintained channels. These categories are shown on Exhibit No. 1 of the November 9, 2015 Board Memorandum. The long-term funding of District maintained channels is not a concern, however the frequency of the maintenance is. For non-District maintained channels, both the funding and frequency of channel maintenance is a concern.

District staff has met with the District's Priorities and Programming Committee to discuss the funding responsibility for non-District maintained channels that are incorporated into the urban setting. District staff then presented a process to determine the funding responsibility to the Building Industry Association (BIA) for input. The BIA requested additional analysis covering projected costs and conformance with the mitigation fee act requirements. As such, District staff is addressing the concerns voiced by the BIA prior to forwarding the proposed process to the full Board of Directors for approval. Once this proposed process is approved, the concern over channel maintenance funding for non-District maintained channels should be eliminated.

The concern over the frequency and extent of channel maintenance is applicable to both District maintained channels and non-District maintained channels. The District recently renewed their 1602 Streambed Alteration Agreement with the California Department of Fish and Wildlife (DFW). As part of the renewal process, DFW modified the previous agreement and incorporated additional restrictions the District must follow regarding channel maintenance activities. District staff is still analyzing the requirements and trying to determine how the modified agreement impacts the District's ability to provide channel maintenance. The latest 1602 agreement could potentially prohibit the District from maintaining the channels as frequently and to the extent that Clovis staff may prefer. District staff will continue to communicate with Clovis staff as determinations are made regarding to what level and frequency the District can maintain the channels located in urban settings.

Recommendation

This report is for informational purposes only. No action is required unless specific direction is given to staff.

Discussion

To date, development activity has continued to only occur along portions of Alluvial Drain Channel and Dog Creek Channel. While Alluvial Drain Channel is designated as a non-District maintained channel, the District and Clovis staffs have been able to work with the developers to solidify long-term funding of channel maintenance. Dog Creek Channel is designated as a District maintained channel so there is no long-term funding concern for channel maintenance. As discussed above, the District and Clovis staffs will continue to work together to provide an acceptable channel maintenance program while adhering to the District's 1602 Streambed Alteration Agreement.

Respectfully submitted by:

Jarrod Takemoto, Rural Streams Program Manager

Attachments

1. November 9, 2015 Board Memorandum

MEMORANDUM

File 170.15
220.34
630.901

BOARD MEETING: November 9, 2015
AGENDA ITEM NO.: 4e

FROM: Peter Sanchez PS
District Engineer

SUBJECT: Coordinated Design and Maintenance of Rural Channels and Trails

Summary
The City of Clovis' General Plan proposed for urban development to the east, which is an area that contains numerous rural streams. As required by the District's obligation under the Army Corps of Engineers Redbank-Fancher Creeks Flood Control project, these rural streams must be preserved and protected to insure the safe conveyance of upland surface runoff to prevent flooding. As development activity encroaches into the rural stream system, projects have been challenged with integrating the rural stream design into the urban setting. The District and Clovis staffs have worked closely to coordinate acceptable channel designs to accommodate the rural streams and have extensively discussed channel maintenance responsibilities.

The District's standard channel design requires a minimum four-foot wide bottom, 2:1 side slopes and access provisions for maintenance. Planting trees in the side slope of the channel is allowed above the designated high water elevation. Shrubs and grasses are allowed on the channel's top of bank provided there are sufficient access points for maintenance operations. To date, developers have been able to locate the City's trail component adjacent to the channels as proposed by the General Plan. The adjacent trail not only provides an appealing public corridor along the channel, but also doubles as a maintenance access road. Incorporating the rural stream into the trail corridor has allowed the City to include the channel maintenance in the Landscape Maintenance District (LMD). However, both agencies recognize that locating a trail along every future rural stream/channel will not be attainable.

While it would be the perfect scenario for the rural streams and trails to be integrated into the urban setting in all locations, because the rural channels will not always be adjacent to a trail, the District continues to discuss the issue of long term channel maintenance in the urban area. The District divides the rural streams into two maintenance categories: District maintained channels and owner (non-District) maintained channels. These categories are more fully depicted and shown on Exhibit No. 1.

District maintained channels do not present a long-term maintenance concern as the District will accept and fund the channel maintenance after a property owner dedicates a channel easement to the District. However, when a rural stream is not planned for District maintenance and is unable

to be located adjacent to a trail component or roadway, it may become the adjacent property owner's responsibility to maintain the channel. It is anticipated that developments, without a Home Owners Association (HOA), may likely try to pass the maintenance responsibility to each individual property owner adjacent to the channel. This raises a concern for the quality of maintenance that would be performed by a property owner and the District does not see this as a viable option for good and consistent channel maintenance.

The District is exploring other alternatives rather than placing the maintenance responsibility on individual property owners. The best option is for an adjacent trail or roadway, but having an HOA assume the responsibility for maintenance within their boundaries is another. Property owner maintenance is viewed as unrealistic and an impractical option. Therefore, the District has begun discussions at the Committee level to evaluate its responsibility for maintenance of rural streams that are incorporated into the urban setting.

The District will continue to dialog with Clovis staff regarding the rural streams and other long-term channel maintenance solutions. The agencies will eventually need to enter into a Master Stream Maintenance Agreement to outline the maintenance responsibilities of each agency.

Recommendation

This report is for informational purposes only. No action is required unless specific direction is given to staff.

Discussion

Thus far, only portions of the Alluvial Drain Channel and Dog Creek Channel have been integrated into the urban setting by developers. The Alluvial Drain Channel, located in the Harlan Ranch area, is currently designated as an owner maintained channel. Whereas, the Dog Creek Channel, located in the Loma Vista area, is designated as a District maintained channel.

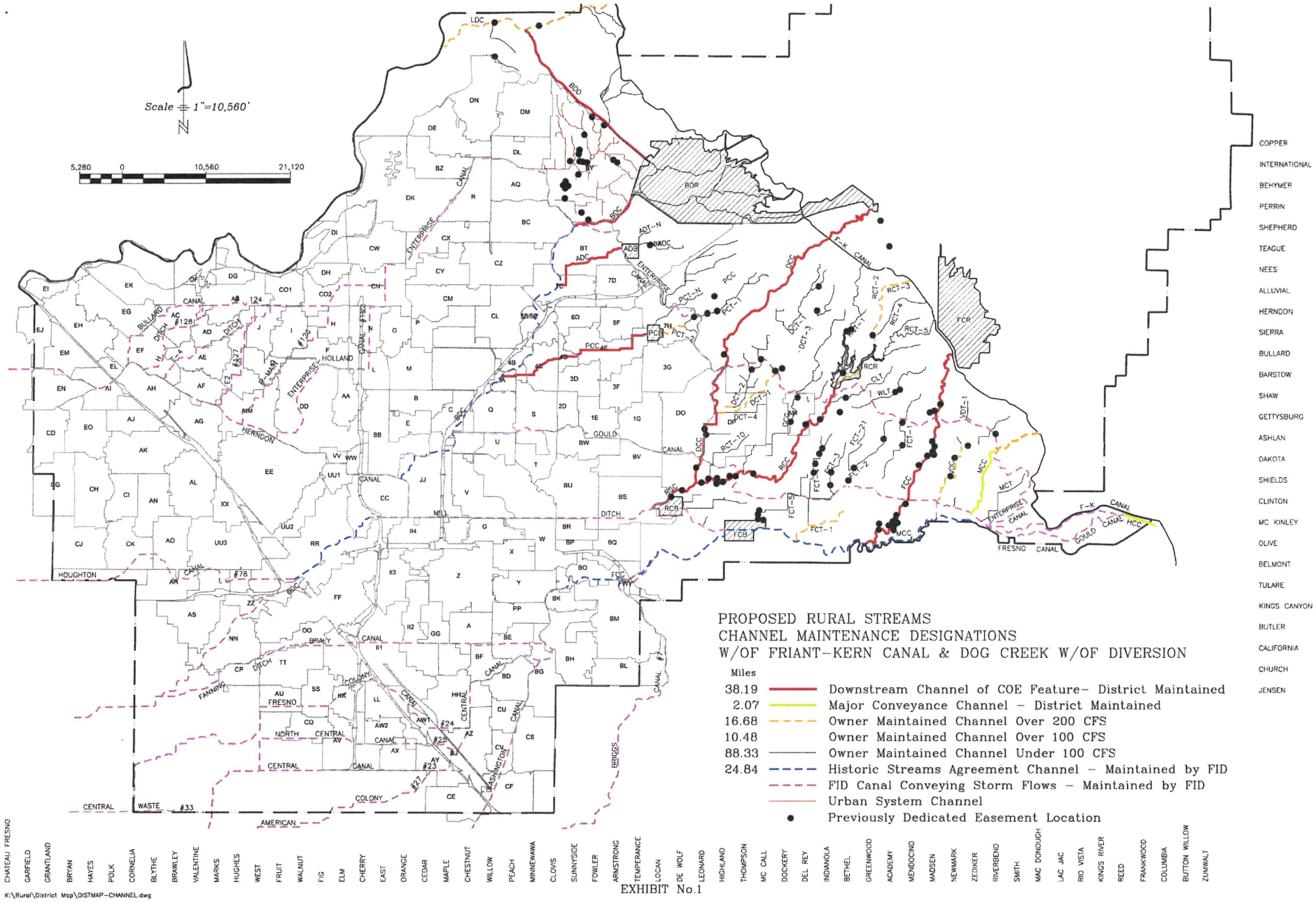
To date, development activity along the Alluvial Drain Channel was able to locate a trail component adjacent to the channel and the channel maintenance will be funded through an LMD as described above. However, because the City of Clovis does not possess a Programmatic Stream Maintenance Agreement (Agreement) with the California Department of Fish and Wildlife (State), which is required to properly maintain the channel, the District has agreed to maintain the channel pursuant to the District's Agreement with the State and be reimbursed by the LMD.

BOARD MEETING: **November 9, 2015**
AGENDA ITEM NO.: **4e**

Developers have constructed several segments of the Dog Creek Channel. In most cases, the channel was constructed adjacent to a trail or transportation corridor making the maintenance viable by the District. Where it is adjacent to a trail, the maintenance will be shared and incorporated into an LMD. Where it is adjacent to a transportation corridor, the District will perform and fund the maintenance.

Jarrod Takemoto
Rural Streams Program Manager

JT/tls
Attachment(s)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5,280 0 10,560 21,120
PROPOSED RURAL STREAMS
CHANNEL MAINTENANCE DESIGNATIONS
W/OF FRIANT-KERN CANAL & DOG CREEK W/OF DIVERSION
Miles
38.19 Downstream Channel of COE Feature- District Maintained
2.07 Major Conveyance Channel - District Maintained
16.68 Owner Maintained Channel Over 200 CFS
10.48 Owner Maintained Channel Over 100 CFS
88.33 Owner Maintained Channel Under 100 CFS
24.84 Historic Streams Agreement Channel - Maintained by FID
FID Canal Conveying Storm Flows - Maintained by FID
Urban System Channel
Previously Dedicated Easement Location
COPPER
INTERNATIONAL
BEHYMER
PERRIN
SHEPHERD
TEAGUE
NEES
ALLUVIAL
HERNDON
SIERRA
BULLARD
BARSTOW
SHAW
GETTYSBURG
ASHLAN
DAKOTA
SHIELDS
CLINTON
MC KINLEY
OLIVE
BELMONT
TULARE
KINGS CANYON
BUTLER
CALIFORNIA
CHURCH
JENSEN
CHATEAU FRESNO
GARFIELD
GRANTLAND
BRYAN
HAYES
POLK
CORNELIA
BLYTHE
BRAWLEY
VALENTINE
MARKS
HUGHES
WEST
FRUIT
WALNUT
FIG
ELM
CHERRY
EAST
ORANGE
CEDAR
MAPLE
CHESTNUT
WILLOW
PEACH
MINNEWAWA
CLOVIS
SUNNYSIDE
FOWLER
ARMSTRONG
TEMPERANCE
LOGAN
DE WOLF
LEONARD
HIGHLAND
THOMPSON
MC CALL
DOCKERY
DEL REY
INDIANOLA
BETHEL
GREENWOOD
ACADEMY
MENDOCINO
MADSEN
NEWMARK
ZEDIKER
RIVERBEND
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MAC DONOUGH
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RIO VISTA
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EXHIBIT No.1

MEMORANDUM

File 170.15

BOARD MEETING: September 9, 2019
AGENDA ITEM NO.: 4.D.
FROM: Peter Sanchez, District Engineer-Assistant General Manager
SUBJECT: **Discussion of Pipeline and Basin Improvements Since Last Joint Workshop**

Summary

Numerous improvements to the storm drainage system in Clovis have been completed since the last joint meeting on November 9, 2015, shown on Attachment No. 1. Storm drain pipelines are represented by green lines, pump stations are represented by purple circles. Many of these projects were constructed by developers. Attachment No. 2 is a list of projects completed within the City of Clovis since November 9, 2015.

The following projects are worth highlighting. Two (2) pump stations were constructed, at Basins "3G" and "7D", allowing greater control of storm water within the basins and easier dewatering for maintenance. In addition, the street improvements along the frontage of Basin "3G", located at Barstow and Locan Avenues, were installed. Collectively, $9,268,210 was expended on projects within the City of Clovis. Each year, as the budget is prepared, staff balances the programs allocation of each of the constituent agencies, including the City of Clovis.

Attachment No. 3 is a summary of basin excavation activity. Excavation is extremely important as it creates the storage for storm water and allows time to manage it as it collects in the basin. From November 2015 through September 2019, approximately 525,940 cubic yards of material was removed from storm water basins in Clovis.

Attachment No. 4 is a summary of the groundwater recharge volumes in storm water basins in the Clovis area since October 2015. Surface water recharge amounts are based on delivery reports provided by the Fresno Irrigation District. Unfortunately, 2019 data is not available. Storm water recharge is estimated with a spreadsheet model.

Recommendation

This report is for informational purposes only. No action is required unless specific direction is to be given to staff.

Discussion

None.

BOARD MEETING: September 9, 2019
AGENDA ITEM NO.: 4.D.

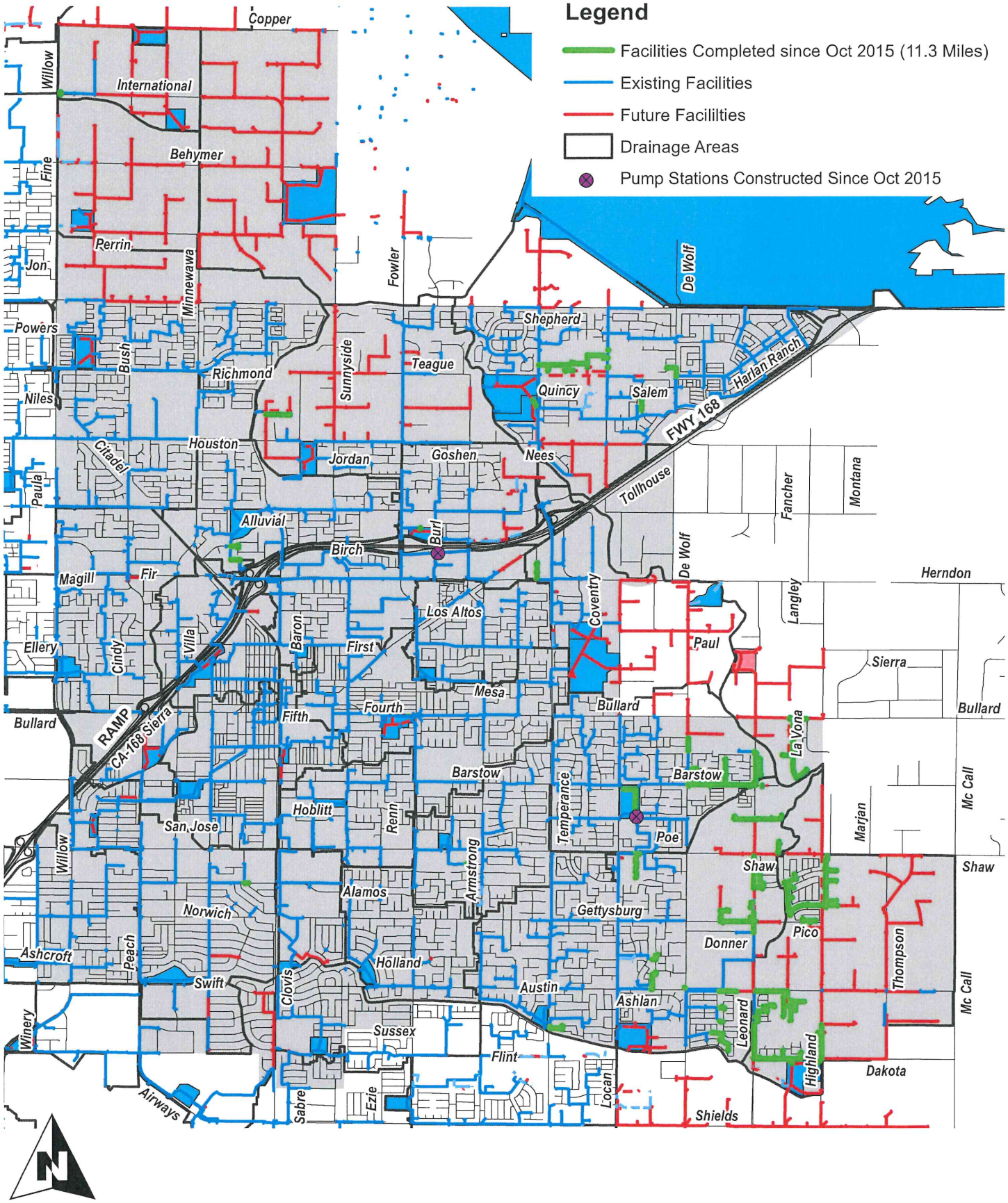
Respectfully submitted by:

Brent Sunamoto, Operations Engineer

Attachments

1. Attachment No. 1
2. Attachment No. 2
3. Attachment No. 3
4. Attachment No. 4

Attachment No. 1



District Facilities Within Clovis Completed Since Oct 2015

FRESNO METROPOLITAN FLOOD CONTROL DISTRICT

Prepared By: KS
Date: 10/1/2010
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Attachment No. 2

Summary of Construction Projects Within the City of Clovis

October 2015 through September 2019

Contract Number	Project Description		Amount
S-38*	Storm Drain near Clovis/Santa Ana	$	65,839
BT-27	Basin Fence Relocation	$	78,059
BT-28	Storm Drain near Nees/Marion	$	41,428
BX-42	Storm Drain in DeWolf n/o Harlan Ranch Blvd	$	94,198
BX-43	Storm Drain near DeWolf/Quincy	$	114,823
BX-44	Basin Internal Pipeline	$	79,886
BX-45*	Storm Drain near Temperance/Deuville	$	506,263
BX-46*	Storm Drain near Locan/Loyola	$	11,072
BX-48*	Storm Drain near Locan/Quincy	$	8,143
BX-49*	Storm Drain near Temperance/Deuville	$	68,950
DL-3*	Storm Drain near International/Willow	$	11,700
DO-23	Storm Drain near Ashlan/Blackwood	$	127,241
DO-34	Storm Drain at Alamos/Amenecer	$	342,332
DO-39	Storm Drain near Ashlan/Leonard	$	112,946
DO-40	Storm Drain in Saginaw/Sanders	$	94,216
DO-41	Storm Drain at Flint/Encino	$	62,319
DO-42	Storm Drain at Shaw/Kaweah	$	22,440
DO-43	Storm Drain in Leonard w/o San Jose	$	143,932
DO-44	Storm Drain at Shaw/Lombard	$	48,684
DO-45*	Storm Drain near Leonard/Gettysburg	$	731,154
DO-47*	Storm Drain near Leonard/Shaw	$	238,314
DP-6	Storm Drain at Agua Dulce/Loma Vista Parkway	$	63,313
DP-7	Storm Drain near Gettysburg/Highland	$	445,525
DP-8	Storm Drain near Ashlan/Leonard	$	211,582
DP-9	Storm Drain in Dakota/Leonard	$	581,894
DP-10	Storm Drain in Loma Vista Parkway	$	78,954
DP-11	Storm Drain in Highland n/o Dakota	$	1,014,596
DP-13*	Storm Drain near Ashlan/Leonard	$	306,922
DP-14*	Fence Relocation	$	27,959
DP-16*	Storm Drain near Shaw/Highland	$	534,024
DP-20*	Storm Drain near Ashlan/Highland	$	169,978
DQ-1	Storm Drain near Bullard/Agua Dulce	$	268,162
DQ-2	Storm Drain near Barstow/Agua Dulce	$	210,540
1G-42	Storm Drain at Temperance/Griffith	$	75,961
3F-37	Storm Drain at Fairmont/Cypress	$	18,949

Attachment No. 2

Summary of Construction Projects Within the City of Clovis

October 2015 through September 2019

Contract Number	Project Description		Amount
3G-40	Pump Station amd Internal Pipelines	$	428,767
3G-46	Storm Drain at Barstow/Encino	$	403,793
3G-50	Storm Drain in DeWolf n/o Barstow	$	103,810
3G-51	Basin Street Improvements (Street Lights)	$	72,526
3G-53	Storm Drain near Leonard/Barstow	$	175,678
3G-54	Storm Drain near Barstow/DeWolf	$	39,900
3G-55	Basin Street Improvements (Sidewalk)	$	138,811
7C-43	Storm Drain near DeWitt/Park Creek Drive	$	119,302
7D-34	Pump Station	$	379,980
7D-36	Storm Drain at Ash/Chennault	$	35,026
7D-37	Basin Drive Entrance	$	14,477
7D-38	Basin Internal Pipeline	$	47,304
7D-40*	Storm Drain near Alluvial/Ash	$	169,978
7H-24	Storm Drain at Herndon/Ash	$	56,687
7H-25	Storm Drain at Herndon/Armstrong	$	69,874
	TOTAL	**$**	**9,268,210**

* In Progress

Attachment No. 3

Summary of Basin Excavation Within the City of Clovis

October 2015 through September 2019

Basin	Location	Cubic Yard Removed
3G	Locan & Barstow	95,450
7D	Fowler & Freeway 168	4,000
AQ	Willow & Perrin	10,000
BT	Nees & Marion	7,500
BX	Temperance & Teague	44,616
DO	Locan & Dakota	146,155
DP	Dakota & Highland	218,219
	TOTAL	**525,940**

Attachment No. 4

Summary of Recharge in FMFCD Basins Within the City of Clovis

November 2015 through September 2018

Imported Surface Water Recharge

Basin	Location	Recharge by Year (values in acre-feet) 2016	2017	2018
1E	Ashlan & Stanford	310	317	200
1G	Temperance & Gould Canal	325	86	-
2D	Clovis & Gould Canal	351	305	208
3A	Shaw & Helm	82	156	36
3D	Hoblitt & Cole	278	440	325
3F	Shaw & Laverne	68	58	22
4E	Bullard & Fowler	-	146	-
5B/5C	Sierra & Fwy 168	134	50	-
5F	Fowler & Vartikian	74	130	-
6D	Sierra & Clovis	148	176	-
7C	Alluvial & Clovis	56	402	172
7D	Fowler & Fwy 168	-	6	-
S*	Ashlan & Peach	32	349	307
BC	Teague & Willow	295	514	213
BW*	Dakota and Clovis	50	325	331
CL*	Willow & Escalon	415	446	103
		2,618	3,906	1,917

* Surface water for Basins S, BW, and CL provided by City of Fresno entitlements

Estimated Stormwater Recharge in all FMFCD Basins in Clovis (values in acre-feet)

Year	Estimated Recharge (ac-ft)	
2015	458	Nov & Dec only
2016	1,903	
2017	1,028	
2018	837	
Total	**4,226**	

Total Est. Recharge (Surface Water & Stormwater) from Nov. 2015 through Sept. 2018 = 12,667 ac-ft