CITY OF MENDOTA

"Cantaloupe Center Of The World"

AGENDA
MENDOTA CITY COUNCIL
Regular City Council Meeting
CITY COUNCIL CHAMBERS
643 QUINCE STREET
August 9, 2022
6:00 PM

The Mendota City Council welcomes you to its meetings, which are scheduled for the 2nd and 4th Tuesday of every month. Your interest and participation are encouraged and appreciated. Notice is hereby given that Council may discuss and/or take action on any or all of the items listed on this agenda. **Please turn your cell phones on vibrate/off while in the council chambers.**

Any public writings distributed by the City of Mendota to at least a majority of the City Council regarding any item on this regular meeting agenda will be made available at the front counter at City Hall, located at 643 Quince Street Mendota, CA 93640, during normal business hours, 8 AM – 5 PM.

In compliance with the Americans with Disabilities Act, individuals requiring special assistance to participate at this meeting please contact the City Clerk at (559) 655-3291 or (559) 577-7692. Notification of at least forty-eight hours prior to the meeting will enable staff to make reasonable arrangements to ensure accessibility to the meeting.

Si necesita servicios de interpretación para participar en esta reunión, comuníquese con la Secretaria de la Ciudad al (559) 655-3291 o (559) 577-7692 entre las 8 a.m. y las 5 p.m. de lunes a viernes. La notificación de al menos veinticuatro horas antes de la reunión permitirá al personal adoptar las disposiciones necesarias para garantizar su participación en la reunión.

CALL TO ORDER

ROLL CALL

FLAG SALUTE

INVOCATION

FINALIZE THE AGENDA

1. Adjustments to Agenda

2. Adoption of final Agenda

CITIZENS' ORAL AND WRITTEN PRESENTATIONS

At this time, members of the public may address the City Council on any matter not listed on the agenda involving matters within the jurisdiction of the City Council. Please complete a "request to speak" form and limit your comments to THREE (3) MINUTES. Please give the completed form to the City Clerk prior to the start of the meeting. All speakers shall observe proper decorum. The Mendota Municipal Code prohibits the use of boisterous, slanderous, or profane language. All speakers must step to the podium and state their names and addresses for the record. Please watch the time.

643 Quince Street Mendota, California 93640
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TDD/TTY 866-735-2919 (English) TDD/TTY 866-833-4703 (Spanish)
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APPROVAL OF MINUTES AND NOTICE OF WAIVING OF READING

1. Minutes of the regular City Council meeting of July 26, 2022.

2. Notice of waiving of the reading of all resolutions and/or ordinances introduced and/or adopted under this agenda.

CONSENT CALENDAR

Matters listed under the Consent Calendar are considered to be routine and will be enacted by one motion and one vote. There will be no separate discussion of these items. If discussion is desired, that item will be removed from the Consent Calendar and will be considered separately.

1. JULY 20, 2022 THROUGH AUGUST 2, 2022
   WARRANT LIST CHECK NOS. 52029 THROUGH 52133
   TOTAL FOR COUNCIL APPROVAL = $689,298.38

2. Proposed adoption of **Resolution No. 22-48**, authorizing the City Manager to execute a contract with Provost & Pritchard Consulting Group for design and bid phase services for the Westside Water Storage Tank and Pump Station.

3. Proposed adoption of **Resolution No. 22-49**, adopting the Water Master Plan, Wastewater Master Plan, and Storm Drain Master Plan documents.

4. Proposed adoption of **Resolution No. 22-50**, claiming local transportation funds for Fiscal Year 2022-2023.

5. Proposed adoption of **Resolution No. 22-51**, approving a lease and maintenance agreement for copy machine services and authorizing signers.

6. Proposed adoption of **Resolution No. 22-52**, approving the proposal submitted by Price Paige & Company for professional auditing services and authorizing signers.

7. Proposed adoption of **Resolution No. 22-53**, approving the scope of services provided by Lighthouse Electrical, Inc., to install upgrades to well number 5 to serve as a water source to irrigate Pool Park.

BUSINESS

1. Discussion regarding current status of Chapter 12.20 of the Mendota Municipal Code regarding City parks and recreation facilities.

    a. *Receive report from City Manager Gonzalez*
    b. *Inquiries from City Council to staff*
    c. *Mayor Castro opens floor to receive any comment from the public*
    d. *City Council provides direction to staff on how to proceed*

PUBLIC HEARING

1. Council discussion and consideration of **Ordinance No. 22-03**, adding Chapter 3.14 to Title 3 of the Mendota Municipal Code to Enact a Mendota General Transactions and Use Tax to be Administered by the California Department of Tax and Fee Administration.

    a. *Receive report from City Clerk Garcia and Finance Director Banda*
    b. *Inquiries from City Council to staff*
    c. *Mayor Castro opens the public hearing*
    d. *Once all comment has been received, Mayor Castro closes the public hearing*
    e. *Council considers waiving the second reading and adoption of Ordinance No. 22-03*

DEPARTMENT REPORTS AND INFORMATIONAL ITEMS

1. Finance Director
    a) Grant Update

2. City Engineer
    a) Update

3. City Attorney
    a) Update

4. City Manager

MAYOR AND COUNCIL REPORTS AND INFORMATIONAL ITEMS

1. Council Member(s)

2. Mayor

CLOSED SESSION

1. CONFERENCE WITH LEGAL COUNSEL – ANTICIPATED LITIGATION
   Potential initiation of litigation pursuant to paragraph (4) of subdivision (d) of Government Code section 54956.9 (one potential case).

2. CONFERENCE WITH LABOR NEGOTIATORS
   Pursuant to Government Code sections 54954.5, subd. (f), 54957.6
   a. Agency Designated Representative: Cristian Gonzalez, City Manager
   b. Employee Organization: American Federation of State, County and Municipal Employees

ADJOURNMENT

CERTIFICATION OF POSTING

I, Celeste Cabrera-Garcia, City Clerk of the City of Mendota, do hereby declare that the foregoing agenda for the Mendota City Council Regular Meeting of August 9, 2022, was posted on the outside bulletin board located at City Hall, 643 Quince Street, on Friday, August 4, 2022 at 5:00 p.m.

Celeste Cabrera-Garcia, City Clerk

AGENDA

MINUTES OF MENDOTA
REGULAR CITY COUNCIL MEETING

Regular Meeting **July 26, 2022**

Meeting called to order by Mayor Castro at 6:05 p.m.

Roll Call

Council Members Present: **Mayor Rolando Castro, Mayor Pro Tem Jesus Mendoza and Councilors Jose Alonso and Joseph Riofrio**

Council Members Absent: **Councilor Oscar Rosales**

Flag salute led by Mayor Castro

Invocation led by Police Chaplain Ophelia Lugo

FINALIZE THE AGENDA

1. Adjustments to Agenda.

2. Adoption of final Agenda.

City Manager Gonzalez requested that Closed Session items 1, 3, and 4 be tabled to a future meeting agenda due to Councilor Rosales' absence.

A motion was made by Councilor Riofrio to adopt the agenda as requested by staff, seconded by Mayor Castro; unanimously approved (4 ayes, absent: Rosales).

PRESENTATION

1. Council to recognize Jenny Ramos for her service to the community.

Mayor Castro presented a Certificate of Recognition to Jenny Ramos for her service to the community.

Jenny Ramos thanked the City and Council for the opportunity to serve.

At 6:19 p.m. Mayor Castro announced that there would be a recess.

At 6:33 p.m. the Council reconvened in open session.

CITIZENS ORAL AND WRITTEN PRESENTATIONS

Albert Escobedo – shared a conversation he had with others regarding a speech that Mayor Castro made at a recent meeting.

Elizabeth Jonasson (Westlands Water District) – provided information about Westlands Water District's 2022 West Side Scholarship recipients for Mendota High School.

APPROVAL OF MINUTES AND NOTICE OF WAIVING OF READING

1. Minutes of the regular City Council meeting of July 12, 2022.

2. Notice of waiving of the reading of all resolutions and/or ordinances introduced and/or adopted under this agenda.

A motion was made by Councilor Riofrio to approve items 1 and 2, seconded by Councilor Alonso; unanimously approved (4 ayes, absent: Rosales).

CONSENT CALENDAR

1. JULY 6, 2022 THROUGH JULY 19, 2022
   WARRANT LIST CHECK NOS.51959 THROUGH 52028
   TOTAL FOR COUNCIL APPROVAL = $449,609.94

2. Proposed adoption of **Resolution No. 22-44**, concerning Local Transportation Purpose Funds (Measure "C" Extension Funds).

3. Proposed adoption of **Resolution No. 22-45**, approving the quotation provided by Lighthouse Electrical, Inc. for a new 400-kilowatt diesel standby generator for the Water Treatment Facility and authorizing its purchase and installation.

4. Proposed adoption of **Resolution No. 22-47**, supporting the Measure C Renewal Expenditure Plan.

A request was made to pull item 2 for discussion.

A motion was made by Councilor Riofrio to approve items 1, 3, and 4 of the Consent Calendar, seconded by Councilor Alonso; unanimously approved (4 ayes, absent: Rosales).

2. Proposed adoption of **Resolution No. 22-44**, concerning Local Transportation Purpose Funds (Measure “C” Extension Funds).

Tony Boren (Fresno COG) – provided information on Measure C.

Discussion was held on proposed road projects for the West side of Fresno County, and on the item.

A motion was made by Councilor Riofrio to approve item 2 of the Consent Calendar, seconded by Councilor Alonso; unanimously approved (4 ayes, absent: Rosales)

BUSINESS

1. Council discussion and consideration of the color options of tire-derived product for its installation at all Citywide sites.

Mayor Castro introduced the item and Finance Director Banda provided the report.

Discussion was held on the item.

Council provided direction to staff on the selected color options for the installation of tire-derived product at various Citywide sites.

2. Council discussion and consideration of **Resolution No. 22-46**, (1) Calling for and ordering a Special Municipal Election to be consolidated with the regularly scheduled General Municipal Election to be held on November 8, 2022, to present to voters a measure to establish the Mendota General Transactions and use tax of 1.25%, as required by the provisions of the laws of the State of California; (2) Requesting the Board of Supervisors of the County of Fresno to consolidate the special municipal election with the Statewide General Election to be held on the same date; (3) Requesting that the Fresno County Board of Supervisors authorize the Fresno County Clerk/Registrar of Voters to render specified services to the City of Mendota related to the conduct of the Special Municipal Election; (4) Approving the proposed ballot measure description; and (5) authorizing the City Attorney to prepare the impartial analysis for the proposed ballot measure.

Mayor Castro introduced the item and City Clerk Cabrera-Garcia and Finance Director Banda provided the report for Business items 2 and 3.

Discussion was held on the item.

A motion was made by Councilor Riofrio to adopt Resolution No. 22-46, seconded by Councilor Alonso; unanimously approved (4 ayes, absent: Rosales).

3. Council discussion and consideration of **Ordinance No. 22-03**, adding Chapter 3.14 to Title 3 of the Mendota Municipal Code to Enact a Mendota General Transactions and Use Tax to be Administered by the California Department of Tax and Fee Administration.

Mayor Castro introduced the item.

A motion was made by Councilor Riofrio to waive the first reading of Ordinance No. 22-03 and set the public hearing for August 9, 2022, seconded by Councilor Alonso; unanimously approved (4 ayes, absent: Rosales).

PUBLIC HEARING

1. Council to hold the Development Agreement Annual Review Hearing for Left Mendota I, LLC.

Mayor Castro introduced the item and City Attorney Kinsey provided the report.

Chris Lefkovitz (Left Mendota I, LLC) – provided information about the facility.

Discussion was held on the item.

At 7:04 p.m. Councilor Riofrio left the Council Chambers and returned at 7:05 p.m.

2. Council discussion and consideration of **Ordinance No. 22-02**, amending Chapter 12.20 of the Mendota Municipal Code to promote access to City park and recreation facilities.

Mayor Castro introduced the item and City Attorney Kinsey provided the report.

Discussion was held on the item.

Direction was provided to staff regarding potential amendments to the ordinance.

DEPARTMENT REPORTS AND INFORMATIONAL ITEMS

1. Animal Control, Code Enforcement, and Police Department
   a) Monthly Reports

Chief of Police Smith provided the report on the Code Enforcement Department, including monthly statistics.

Chief Smith provided the report for the Animal Control Department including monthly statistics; the upcoming dog vaccination clinic; and the work of a volunteer of the department.

Discussion was held on chickens in the City; and how the department addresses dog bites.

Chief Smith provided the report for the Police Department including crime statistics and trends; a personnel update; and reported that Sergeant Galaviz won gold at the World Police Olympics.

Discussion was held on all-terrain vehicles being driven on City streets; and the status of the ongoing road construction of State Routes 33 and 180.

2. City Attorney
   a) Update

City Attorney Kinsey responded to a comment that was made at a previous meeting by a member of the public regarding potential action that the City Council can take in response to inflation.

Discussion was held on the possibility of modifying the City's utility fees, and the water restrictions that are currently in place.

3. City Manager

City Manager Gonzalez provided a personnel update; honor wall project update; City Hall and Police Department building update; reported on ongoing projects; on an accident that recently occurred at the roundabout; and stated that he will be out of office.

Discussion was held on the ongoing construction of the State Routes, and the condition of a speed hump at Kate and 8th Streets.

MAYOR AND COUNCIL REPORTS AND INFORMATIONAL ITEMS

1. Council Member(s)

Councilor Alonso reported on the upcoming National Night Out event; a meeting that he recently attended regarding the housing crisis; and congratulated Sergeant Galaviz for his victory at the World Police Olympics.

Councilor Riofrio reported on the passing of local residents.

Mayor Pro Tem Mendoza reported that the Rojas-Pierce Pierce Park sign and the Eddie Porras Basketball Court sign were updated; that local resident Roger Lua recently won a video contest; and that local resident Hannah Flores competed in a pageant.

2. Mayor

Mayor Castro commented on the upcoming Joaquin Murrieta ride; an event that the Fresno Area Hispanic Foundation will be having in the community; and that the Mexican and Salvadoran consulates were recently serving the community at the AMOR Wellness Center.

CLOSED SESSION

1. ~~CONFERENCE WITH LEGAL COUNSEL – ANTICIPATED LITIGATION~~
   ~~Potential initiation of litigation pursuant to paragraph (4) of subdivision (d) of Government Code section 54956.9 (one potential case).~~

2. CONFERENCE WITH LEGAL COUNSEL – ANTICIPATED LITIGATION
   Significant exposure to litigation pursuant to paragraph (2) of subdivision (d) of Government Code section 54956.9 (one potential case).

3. ~~CONFERENCE WITH LABOR NEGOTIATORS~~
   ~~Pursuant to Government Code sections 54954.5, subdivision (f), and 54957.6~~
   ~~a. Agency Designated Representative: Cristian Gonzalez, City Manager~~
   ~~b. Employee Organization: American Federation of State, County and Municipal Employees~~

4. ~~CONFERENCE WITH LABOR NEGOTIATORS~~
   ~~Pursuant to Government Code sections 54954.5, subdivision (f), and 54957.6~~
   ~~a. Agency Designated Representative: Cristian Gonzalez, City Manager~~
   ~~b. Employee Organization: Unrepresented Management Employees~~

At 8:01 p.m. the Council moved into closed session.

At 8:07 p.m. the Council reconvened in open session and City Attorney Kinsey stated that in regard to item 2 of the Closed Session the City Council voted to reject the claim and approve the related resolution.

ADJOURNMENT

With no more business to be brought before the Council, a motion for adjournment was made at 8:07 p.m. by Councilor Riofrio, seconded by Councilor Alonso; unanimously approved (4 ayes, absent: Rosales).

_____
Rolando Castro, Mayor

ATTEST:

_____
Celeste Cabrera-Garcia, City Clerk

CITY OF MENDOTA
CASH DISBURSEMENTS
7/20/2022-8/2/2022
CK# 52029-52133

AGENDA

Date	Check #	Check Amount	Vendor	Department	Description
July 20, 2022	52029	$ 132,114.00	CITY OF MENDOTA PAYROLL	GENERAL	PAYROLL TRANSFER FOR 7/4/2022-7/17/2022
July 22, 2022	52030	$ 4,500.00	ADMINISTRATIVE SOLUTIONS - FRESNO	GENERAL	MEDICAL CHECK RUN 7/19/2022
July 22, 2022	52031	$ 64.54	ADT SECURITY SERVICES	WATER	SECURITY SERVICES FOR WATER PLANT 8/4/22-9/3/22
July 22, 2022	52032	$ 632.74	AFLAC	GENERAL	AFLAC INSURANCE FOR THE MONTH OF JULY 2022
July 22, 2022	52033	$ 944.01	CORBIN WILLITS SY'S INC.	GENERAL-WATER-SEWER	ENHANCEMENT & SERVICE FEES MOMS SOFTWARE- AUGUST 2022
July 22, 2022	52034	$ 6,862.00	STANTEC CONSULTING SERVICES	SEWER	GROUNDWATER SAMPLING & REPORTING 1ST QTR 2022
July 22, 2022	52035	$ 578.33	M.C REPAIRS FULL DIAGNOSTIC	GENERAL-WATER-SEWER	2018 RAM LARAMIE-BRAKE PADS, AIR FILTER, OIL & OIL FILTER
July 22, 2022	52036	$ 3,062.97	PURCHASE POWER	GENERAL-WATER-SEWER	POSTAGE METER REFILL 6/15/22, 7/11/22, & 7/12/22
July 22, 2022	52037	$ 60.00	STATE WATER RESOURCES CONTROL	WATER	DRINKING WATER TREATMENT OPERATOR CERTIFICATION RENEWAL R. BAEZA
July 22, 2022	52038	$ 300.00	UNDERGROUND SERVICE ALERT OF NORTHERN CALIFORNIA & NEVADA	WATER-SEWER	(181) BILLABLE TICKETS & 2022 MEMBERSHIP FEE
July 22, 2022	52039	$ 300.00	DISCOUNT SHRED	GENERAL	(2) 96 GAL BINS ON SITE DOCUMENT DESTRUCTION (PD)
July 22, 2022	52040	$ 202.00	MENDOTA COMMUNITY CORPORATION	GENERAL	DEBIT TRANSACTIONS FOR 6/24/22 & 6/25/22 SOFTBALL GAME & FIREWORK SHOW
July 22, 2022	52041	$ 1,801.63	THE HOME DEPOT	GENERAL-WATER-SEWER-STREETS	GORILLA DUCT TAPE 30 YARD,BEHR PAINT (2) 4.69GAL, (1) 5/8 CONTRACTOR HOSE, DUAL NOZZLE, EXT CORD, HUSKY 194 PC
July 22, 2022	52042	$ 195,607.85	WEST VALLEY CONSTRUCTION COMPANY	WATER	AUTOMATIC METER READING PROJECT JUNE-2022 PAYMENT #5
July 28, 2022	52043	$ 854.75	ACME ROTARY BROOM SERVICE	STREETS	(1) 58" 4/3 HUB HEAVY FILL SCHWARZE POLY BROOM (STREET SWEEPER)
July 28, 2022	52044	$ 57.09	AG & INDUSTRIAL SUPPLY INC.	STREETS	(1) HYDRAULIC HOSE 1/2 2WIRE, FITTING, FLAT FACE PC
July 28, 2022	52045	$ 506.43	ALERT-0-LITE	GENERAL-WATER-SEWER-STREETS	(1)A-C MAGNETIC STROB & (18)GATORADE 2.5 GAL, 32 PK 21 OZ POWDER SPORTS DRINK MIX-LEMON GATORADE
July 28, 2022	52046	$ 687.98	ALEX AUTO DIAGNOSTICS	GENERAL-WATER-SEWER	EXPLORER POLICE INTERCEPTOR-OIL & FILTER & TIRE ROT. (PD), (1) INSPECT CHARGING SYSTEM-ADVISE R&R PARTS-(PD)
July 28, 2022	52047	$ 732.63	ALLIED ELECTRIC	SEWER	(135) ZWCS08/4 600 VOLT CORD 1000 FT REEL 1000', (2) HBL 2431 GRD LKG PLUG(2) HUB 2433 CONN -WWTP
July 28, 2022	52048	$ 478.78	AQUA NATURAL SOLUTIONS	SEWER	(6) MICROLIFT BLEND, (4) DRAIN CLEANER, (2) SLUDGE AWAY
July 28, 2022	52049	$ 1,050.49	ARAMARK	GENERAL-WATER-SEWER	PUBLIC WORKS UNIFORM RENTAL SERVICES MONTHS OF MAY & JUNE 2022 (1) CUSTOM EMBROIDERY, (3) SS HVY DUTY WORKSHIRTS
July 28, 2022	52050	$ 885.78	AT&T MOBILITY	GENERAL	POLICE DEPARTMENT CELL PHONE SERVICES 6/12/22-6/30/22
July 28, 2022	52051	$ 8.88	AUTOZONE, INC.	STREETS	(1) 3-LEG ADJUSTABLE OIL FILTER WRENCH
July 28, 2022	52052	$ 1,908.00	CENTRAL VALLEY VETERINARY CLINIC	GENERAL	(1) 2021 VACCINE CLINIC, 250CT RABIES, 150 CT DAPP
July 28, 2022	52053	$ 175.00	COMMUNITY MEDICAL CENTER	GENERAL	(1) BLOOD DRAW JUNE 2022 (PD)
July 28, 2022	52054	$ 1,530.00	CORRPRO WATERWORKS	WATER	SYS#-14878&17121 MENDOTA NORTH & SOUTH TANK CONT EXP 2/28/23
July 28, 2022	52055	$ 4,283.53	CORE & MAIN LP	WATER	(6) 1" BADGER METER E-SERIES & ORION CELLULAR SERVICE, (240) ORION CELLULAR LTE SERVICE
July 28, 2022	52056	$ 442.98	CROWN SERVICES CO.	GENERAL-SEWER	(1) TOILET 1XWK JUNE 2022 (PD, POOL PARK, LOZANO PARK), (1) TOILET 1XWK SINK JUNE 2022 (WWTP)
July 28, 2022	52057	$ 1,063.55	CROWN SHORTLOAD CONCRETE	STREETS	(5) YD CONCRETE FOR CITY RIGHT-OF-WAY
July 28, 2022	52058	$ 890.79	DELTA SAND, GRAVEL & RECYCLING	STREETS	CLASS II BASE ROCK (33) TONS STREETS
July 28, 2022	52059	$ 1,054.06	EINERSON'S PREPRESS	WATER-SEWER	10,000 UTILITY BILLING PRINTING PAPER
July 28, 2022	52060	$ 373.44	INDUSTRIAL CHEM LAB	SEWER	(50) LB LIFT STATION DEGREASER
July 28, 2022	52061	$ 245.00	MODESTO INDUSTRIAL ELECTRICAL	SEWER	(1) HR LABOR ON AERATOR, (1) HR LABOR- EVALUATION
July 28, 2022	52062	$ 80.41	J.P. COOKE RABIES & LICENSE TAGS	GENERAL	(200) A-26 BLUE AA LIC TAGS: & 200 FLAT HOOKS FOR DOG LICENSE
July 28, 2022	52063	$ 1,727.60	SIMPLOT GROWER SOLUTIONS	WATER-SEWER	(10) GALLON ROUNDUP POWER MAX (WTP & WWTP), (60) OZ TREEVIX
July 28, 2022	52064	$ 25.00	RAMON'S TIRE & AUTO SERVICE	GENERAL	M82-EXPLORER (1) TIRE REPAIR (INSIDE PATCH) (PD)
July 28, 2022	52065	$ 535.00	TECH MASTER PEST MANAGEMENT	GENERAL-WATER-SEWER	PEST CONTROL SERV. CITYHALL/DMV/YOUTH CENTER, PD, PW, WWTP 6/28/22, ROJAS-PIERCE PARK SERVICE GOPHER MOUNDS
July 29, 2022	52066	$ 4,239.76	ACME ROTARY BROOM SERVICE	STREETS	(1)58" 4/3 HUB MAIN BROOM (20EACH) GUTTER BROOMS, (6 EACH) E5TH SCHWARZE AVALANCHE GUTTER BROOMS

CITY OF MENDOTA
CASH DISBURSEMENTS
7/20/2022-8/2/2022
CK# 52029-52133

AGENDA

July 29, 2022	52067	$ 31,220.94	AETNA LIFE INSURANCE COMPANY	GENERAL	MEDICAL INSURANCE FOR AUGUST 2022
July 29, 2022	52068	$ 70.53	AG & INDUSTRIAL SUPPLY INC.	STREETS	(3) HYDRAULIC HOSE,(1) FITTING (1) FLAT FACE PC & CAP
July 29, 2022	52069	$ 512.82	AT&T MOBILITY	GENERAL	POLICE DEPT CELL PHONE SERVICES 7/1/22-7/11/22
July 29, 2022	52070	$ 23.07	AUTOZONE, INC.	GENERAL	(1) ARMORALL ORIGINAL-TURTLE WAX CAR WASH SOAP-(PD)
July 29, 2022	52071	$ 22.94	BOBCAT OF FRESNO	WATER-SEWER	(1) WASHER CAST. (1) PLUG
July 29, 2022	52072	$ 380.00	BOUNCE HOUSE BONANZA	DONATIONS	(1) DUNK TANK BONANZA FOR NATIONAL NIGHT OUT
July 29, 2022	52073	$ 494.05	CORE & MAIN LP	WATER	(200) 1X100' CTS PE TUBING (4) WRENCH
July 29, 2022	52074	$ 500.00	OPHELIA LUGO MARADIAGA	DONATIONS	2022 NATIONAL NIGHT OUT
July 29, 2022	52075	$ 580.98	M.C REPAIRS FULL DIAGNOSTIC	GENERAL	M87 POLICE INTERCEPTOR-OIL CHANGE, BRAKES,AIR FILTER
July 29, 2022	52076	$ 70.00	MENDOTA SMOG & REPAIR	WATER-SEWER	OIL CHANGE 2021 DODGE RAM LIC 1624608
July 29, 2022	52077	$ 450.00	MENDOTA YOUTH BASEBALL	GENERAL	FACILITY USE DEPOSIT REFUND-BASEBALL DIAMOND 4/25/22
July 29, 2022	52078	$ 2,077.06	MUTUAL OF OMAHA	GENERAL	LIFE, AD&D, LTD & STD INSURANCE FOR AUGUST 2022
July 29, 2022	52079	$ 2,386.75	NORTHSTAR CHEMICAL	WATER	(850) GALLON SODIUM HYPOCHLORITE 12.5%
July 29, 2022	52080	$ 904.11	PETERS BROTHERS NURSERY & GARDEN	GENERAL	(4) BERMUDA SEED 25 LB BAGS
July 29, 2022	52081	$ 1,645.60	SIGNMAX	GENERAL-STREETS	(4) 30X30 HIP ALUM BLK/YEL, ISRAEL EDDIE PORRAS BASKETBALL COURT SIGN, (15) 18X24 ALUM - NO PARKING NO SMOKING RULES
July 29, 2022	52082	$ 577.26	THE HOME DEPOT	WATER-STREETS	(2) EVERBILT 10X10 CANOPY-GREY, (6) 1" SHARKBITE X MALE ADAPTER, (10) COUPLINGS
July 29, 2022	52083	$ 875.95	TRIANGLE ROCK PRODUCTS, LLC	STREETS	HMA -SP-A 1/2" 64-10 QTY:11.23 STREET PATCHING
August 1, 2022	52084	$ 1,240.82	AGRI VALLEY IRRIGATION, INC.	SEWER	(2) ELBOW 90 SCHEDULE 40 S 6" -WWTP, (6) GASKETS WWTP, RELINING OF FLUME RENTAL WWTP
August 1, 2022	52085	$ 121.12	AT&T	GENERAL-WATER-SEWER	CITYWIDE PHONE SERVICES 6/25/22-6/30/22
August 1, 2022	52086	$ 450.00	BAR PSYCHOLOGICAL GROUP	GENERAL	(1) PRE-EMPLOYMENT PSYCHOLOGICAL SCREEN L. GUTIERREZ
August 1, 2022	52087	$ 1,792.53	BELSON OUTDOORS	GENERAL	(1) BENCH
August 1, 2022	52088	$ 1,344.18	BSK ASSOCIATES	WATER-SEWER	WW WEEKLY GRAB SAMPLE 3/8/22, 5/31/22, GENERAL EDT WEEKLY TREATMENT & DISTRIBUTION 6/7/22
August 1, 2022	52089	$ 99.43	CINTAS CORPORATION NO. 2	GENERAL-WATER-SEWER	FIRST AID KIT SUPPPLIES FOR CITY HALL 5/4/22
August 1, 2022	52090	$ 275.00	CIVICPLUS, LLC	GENERAL-WATER-SEWER	(1) MUNICODE ADMIN SUPPORT FEE 6/1/22-5/31/23
August 1, 2022	52091	$ 5,911.81	COOK'S COMMUNICATIONS	GENERAL	2021 FORD F-250 CSO BUILD & INTALLATION MAT. BUNDLE
August 1, 2022	52092	$ 520.02	EXCEL SIGN CO.	GENERAL	(1) INSTALL VEHICLE GRAPHICS FOR PATROL CAR (KIA) (PD)
August 1, 2022	52093	$ 1,153.53	BARTLEY WAYNE FIELDER	GENERAL-WATER-SEWER	(10) TECHNOLOGY SERVICE, HARD DRIVE &REBUILD (PD)
August 1, 2022	52094	$ 209.08	FILTRONICS, INC.	WATER	(4) MANWAY GASKET ACCESS HATCH (WATER)
August 1, 2022	52095	$ 15,472.58	GIERLICH-MITCHELL, INC.	SEWER	(1) EBARA MODEL PUMP (WASTEWATER)
August 1, 2022	52096	$ 200.00	GONZALEZ TRANSPORT, INC.	WATER-SEWER	(1) TOW 2009 FORD F150 TO RAMONS TIRE SHOP
August 1, 2022	52097	$ 610.72	INDUSTRIAL CHEM LAB	SEWER	(50) LB POWDERED CITRUS CLEANER DEGREASER (WWTP), (25) LB GRANULAR CITRUS ODOR CONTROL CLEANER (WWTP)
August 1, 2022	52098	$ 534.26	MENDOTA SMOG & REPAIR	STREETS	WATER PUMP,THERMOSTAT, ROD CLIPS 2005 CHEVY -2593
August 1, 2022	52099	$ 897.57	METRO UNIFORM	GENERAL	(1)LISTEN ONLY MIC(1)JACKET(2)EARMOLD J. URBIETA, (1)MICROSTREAM LED (2) VEHICLE CODE (1) HCUFF M.KAWANA
August 1, 2022	52100	$ 74,369.78	MID VALLEY DISPOSAL, INC	REFUSE	SANITATION CONTRACT SERVICES JUNE 2022
August 1, 2022	52101	$ 879.53	MUNICIPAL MAINTENANCE EQUIPMENT	STREETS	(1) 5 STAGE DIAPHRAM PUMP FOR SWEEPER
August 1, 2022	52102	$ 4,710.78	NORTHSTAR CHEMICAL	WATER	(800, 625, 500) GALLON SODIUM HYPOCHLORITE 12.5%
August 1, 2022	52103	$ 610.97	OFFICE DEPOT	GENERAL-WATER-SEWER	(2)PAPER PERFERATED COPY PAPER & SORTER WALL, (1)BOX STORE,CORRECTION TAPE, GEL PENS, (2) COPY PAPER
August 1, 2022	52104	$ 20,890.57	PG&E	GENERAL-WATER-SEWER-STREETS-AIRPORT	CITYWIDE UTILITIES 6/8/2022-6/30/2022
August 1, 2022	52105	$ 97,324.38	PROVOST & PRITCHARD	GENERAL-WATER-SEWER-STREETS	PROF SERV SAFE ROUTES TO SCHOOL M.P.APRIL 2022 & JUNE 2022, PROF. SERV. STORM DRAIN MASTER PLAN- JUNE 2022

CITY OF MENDOTA
CASH DISBURSEMENTS
7/20/2022-8/2/2022
CK# 52029-52133

AGENDA

August 1, 2022	52106	$ 274.53	RAMON'S TIRE & AUTO SERVICE	WATER-SEWER	FORD F-250 SUPER DUTY XL#1202, DISCOVER HT3, TIRE
August 1, 2022	52107	$ 237.97	SIGNMAX	GENERAL-WATER-SEWER	(1) WATER TREATMENT PLANT SIGN, (4) 16X16 GLOSS SEAL WITH 80TH RIBBON
August 1, 2022	52108	$ 973.00	UNION PACIFIC RAILROAD COMPANY	STREETS	PUBLIC PROJECTS ENGINEERING ORDER#60497
August 1, 2022	52109	$ 137.50	THE BUSINESS JOURNAL	GENERAL	AUDITING RFP
August 1, 2022	52110	$ 400.00	UNITED HEALTH CENTERS	GENERAL	PRE-EMPLOYMENT PHYSICAL EXAM (2)
August 1, 2022	52111	$ 3,178.85	USA BLUEBOOK	WATER-SEWER	(2) CONDUCTIVITY SOLUTION, REPLACEMENT ELITE PH SE, (1) TANK AIR CHARGING SYSTEM, (5) LYSOL DISINFECTANT ORIG.
August 1, 2022	52112	$ 16,586.21	WANGER JONES HELSLEY PC ATTORNEYS	GENERAL-WATER-SEWER	BOCA DEL RIO LEGAL SERVICES THRU 2/15/22, 3/15/22, 4/15/22, LEGAL SERV. RE: GENERAL LEGAL SERV. 6/15/22
August 1, 2022	52113	$ 64.80	WECO	GENERAL-WATER-SEWER	RENT CYL ACETYLENE #4, OXYGEN D,OXYGEN K JUNE 2022
August 2, 2022	52114	$ 860.05	MENDOTA SMOG & REPAIR	GENERAL	TIRE 2019 DODGE CHARGER (PD), WATER PUMP 2019 DODGE CHARGER (PD), CHECK RIGHT REAR LIGHT 2021 FORD F-250 (CE)
August 2, 2022	52115	$ 70.00	MENDOTA COMMUNITY CORPORATION	MCC	(1) DEBIT TRANSACTION (2) HATS (1) SOFTBALL REGISTRATION
August 2, 2022	52116	$ 1,512.24	METRO UNIFORM	GENERAL	(3) UNIFORMS FOR CODE ENFORCEMENT OFFICERS
August 2, 2022	52117	$ 1,150.00	MID VALLEY DISPOSAL, INC	REFUSE-STREETS	(50) YD ROLL OFF 2.55, 5.00, 10.72 TON, (10) YD ROLL OFF SERVICE 4.73 TON
August 2, 2022	52118	$ 801.32	PG&E	GENERAL-STREETS	CITYWIDE UTITLITIES 6/8/22-6/30/22
August 2, 2022	52119	$ 11,178.55	SORENSEN MACHINE WORKS	GENERAL-WATER-SEWER	CITYWIDE DEPARTMENT SUPPLIES MAY & JUNE 2022
August 2, 2022	52120	$ 1,080.09	THOMASON TRACTOR COMPANY	SEWER-STREETS	FUEL TANK
August 2, 2022	52121	$ 323.91	AM CONSTRUCTION SUPPLY, INC	STREETS	(1)AM ELITE MASTER-COMBO CONCRETE-ASPHALT
August 2, 2022	52122	$ 25.00	JOSE LARREYNAGA	GENERAL	REFUND FOR PAYMENT MADE RE: CITATION #11299
August 2, 2022	52123	$ 6,240.04	PG&E	GENERAL-WATER-SEWER-STREETS-AIRPORT	CITYWIDE UTILITIES 7/1/2022- 7/7/2022
August 2, 2022	52124	$ 75.95	PURL'S SHEETMETAL & AIR	GENERAL	(8) 20162 AIR FILTER FOR CITY HALL 20X16X2
August 2, 2022	52125	$ 100.00	GAVINO ANTONIO RUIZ	GENERAL	REFUND FOR PAYMENT MADE RE: CITATION #003722
August 2, 2022	52126	$ 353.77	STEAM CLEANERS, INC.	GENERAL-WATER-SEWER	HOSE, TRIGGER GUN, COUPLER
August 2, 2022	52127	$ 229.07	USA BLUEBOOK	WATER	(3) CURB BOX (1) CURB BOX COVER
August 2, 2022	52128	$ 98.71	SERGIO G. FRANCO	WATER	MQ CUSTOMER REFUND FOR FRA0009
August 2, 2022	52129	$ 12.86	IRMA LAINEZ	WATER	MQ CUSTOMER REFUND FOR LAI0006
August 2, 2022	52130	$ 24.66	GLORIA MARQUEZ	WATER	MQ CUSTOMER REFUND FOR MAR0119
August 2, 2022	52131	$ 11.24	IRMA MEZA	WATER	MQ CUSTOMER REFUND FOR MEZ0014
August 2, 2022	52132	$ 8.02	ULISES Y EVELIA M. REYES REYES	WATER	MQ CUSTOMER REFUND FOR REY0052
August 2, 2022	52133	$ 12.32	JANLY YIM	WATER	MQ CUSTOMER REFUND FOR YIM0002
		$ 689,298.38			

AGENDA ITEM – STAFF REPORT

TO: HONORABLE MAYOR AND COUNCILMEMBERS

FROM: NANCY BANDA, FINANCE DIRECTOR

VIA: CRISTIAN GONZALEZ, CITY MANAGER

SUBJECT: NEW WESTSIDE WATER TANK AND BOOSTER PUMP STATION

DATE: AUGUST 9, 2022

ISSUE

Shall the City Council adopt Resolution No. 22-48, authorizing the City Manager to execute a contract with Provost & Pritchard Consulting Group for design and bid phase services for the Westside Water Storage and Pump Station?

BACKGROUND

The City of Mendota (the "City") owns and operates a water treatment plant for the removal of iron and manganese with a nominal capacity of 3,000 gpm, located in the northern portion of the City. The treatment plant is currently the only source of supply for the distribution system and is able to meet peak hour demand. The topography of the City is relatively flat and currently, the entire system is one pressure zone. Due to the configuration of the existing system, with the sole water distribution source being at the northern end of the system, and with much of the anticipated development taking place in the southwest portion of the system, a new booster pump station located in the southwest corner of the City is recommended to correct the deficiencies noted in the City's Water Master Plan – mainly pressure and velocity during Peak Hour Demand.

ANALYSIS

On February 28, 2020, Provost & Pritchard prepared a Basis of Design memo for this water tank and booster pump station. This proposal is for the design and construction of the tank and booster pump station outlined in that memo. We intend to incorporate this project into the overall California Environmental Quality Act ("CEQA") document for the Belmont Estates development project.

FISCAL IMPACT

The City was awarded $2.5 million in SLFRF/ARPA funding from Fresno County to implement this improvement. There will be no impact to the General Fund.

RECOMMENDATION

Staff recommends that the City Council adopt Resolution No. 22-48, authorizing the City Manager to execute a contract with Provost & Pritchard Consulting Group for design and bid phase services for the Westside Water Storage and Pump Station project.

Attachment(s):

1. Proposal from Provost & Pritchard Consulting Group
2. Consultant Services Agreement from Provost & Pritchard Consulting Group
3. Resolution No. 22-48

AGENDA

EST. 1968
PROVOST& PRITCHARD
CONSULTING GROUP
An Employee Owned Company

455 W Fir
Clovis, CA 93611-0242
Tel: (559) 449-2700
Fax: (559) 449-2715
www.provostandpritchard.com

July 29, 2022

Cristian Gonzalez
City of Mendota
643 Quince Street Address
Mendota, CA 93640

Subject: Proposal for Design of the New Westside Water Tank and Pump Station for the City of Mendota

Cristian,

Thank you for the opportunity to submit this proposal to provide design and construction support services for the New Westside Water Tank and Pump Station project. This proposal discusses our understanding of the project, recommends a scope of services together with associated fees, deliverables and approximate schedules.

Project Understanding

The City of Mendota owns and operates a water treatment plant for the removal of iron and manganese with a nominal capacity of 3,000 gpm, located in the northern portion of the City. The treatment plant is currently the only source of supply for the distribution system and is able to meet peak hour demand. The topography of the City is relatively flat and currently, the entire system is one pressure zone. Due to the configuration of the existing system, with the sole water distribution source being at the northern end of the system, and with much of the anticipated development taking place in the southwest portion of the system, a new booster pump station located in the southwest corner of the City is recommended to correct the deficiencies noted in the City's Water Master Plan – mainly pressure and velocity during Peak Hour Demand. On February 28, 2020, Provost & Pritchard prepared a Basis of Design memo for this water tank and booster pump station. We understand that the City was awarded $2.5 million in SLFRF/ARPA funding from Fresno County to implement this improvement. This proposal is for the design and construction of the tank and booster pump station outlined in that memo.

Scope of Services

Our proposed scope of work for this proposal is segregated into several phases, described below.

Phase SD: Schematic Design

a. Review and confirm design criteria in the Basis of Design memo.
b. Hold schematic design review meeting to confirm site conditions and proposed layout in conceptual design drawings.
c. Conduct site topographic survey.
d. Prepare site base map based on topographic, boundary, and control surveys.
e. Hire a subconsultant to conduct a geotechnical investigation and report

f. Hire a subconsultant to perform electrical design and application for new PG&E electrical power supply

Deliverables

- Attend one (1) Schematic Design review meeting

Phase CD: Construction Documents

A. Based on final Schematic Plans, prepare the following plans
    1. Cover Sheet (1 Sheet)
    2. Legend and Abbreviations (1 Sheet)
    3. Design Criteria (1 Sheet)
    4. Process Flow Diagram (1 Sheet)
    5. Hydraulic Profile (1 Sheet)
    6. General Notes 1 of 2 (1 Sheet)
    7. General Notes 2 of 2 (1 Sheet)
    8. Site Plan (1 Sheet)
    9. Grading Plan (1 Sheet)
    10. Piping Plan (1 Sheet)
    11. Civil Details 1 of 3 (1 Sheet)
    12. Civil Details 2 of 3 (1 Sheet)
    13. Civil Details 3 of 3 (1 Sheet)
    14. Tank Plan (1 sheet)
    15. Tank Elevations and Details (1 sheet)
    16. Pump Station Plan and Section (1 sheet)
    17. Pump Station Details (1 sheet)
    18. Process Details 1 of 3 (1 sheet)
    19. Process Details 2 of 3 (1 sheet)
    20. Process Details 3 of 3 (1 sheet)
    21. Tank Foundation Plan and Section
    22. Electrical Panel Shade Structure and Foundation(1 sheet)
    23. Standby Generator Foundation (1 sheet)
    24. Structural Detail Sheet 1 of 4 (1 sheet)
    25. Structural Detail Sheet 2 of 4 (1 sheet)
    26. Structural Detail Sheet 3 of 4 (1 sheet)
    27. Structural Detail Sheet 4 of 4 (1 sheet)
    28. Electrical cover sheet (1 sheet)
    29. Electrical Single Line Diagram, Control Diagram, and Schedules (1 sheet)
    30. Electrical Plan (1 sheet)
    31. Electrical details 1 of 2 (1 sheet)
    32. Electrical details 2 of 2 (1 sheet)
    33. Instrumentation Cover Sheet (1 sheet)
    34. Process and Control Symbols and Abbreviations (1 sheet)
    35. Tank Fill P&ID (1 sheet)
    36. Pump Station P&ID (1 sheet)
    37. Instrumentation Details 1 of 2 (1 sheet)
    38. Instrumentation Details 2 of 2 (1 sheet)
B. Prepare technical specifications in CSI format
C. Prepare Opinion of Probable Construction Cost.

90% CD Deliverables

- Submit 90% construction documents (PDF format)
- Submit Opinion of Probable Construction Cost. (PDF format)
- Attend one (1) 90% review meeting
- Submit 90% construction documents (PDF format) to DDW for review and approval.

Final CD Deliverables

- Submit final construction documents for approval and bid. (PDF Format)
- Submit final Opinion of Probable Construction Cost.

Phase BID: Bid Phase

- Advertise bid solicitation in the Fresno Business Journal and local Builder's Exchanges, as well as direct solicitation to preferred contractors
- Address bidder's questions or request for information and prepare and issue addenda, as needed
- Conduct public bid opening
- Analyze bids received and provide recommendation for award of construction contract

Fee Estimate

Provost & Pritchard Consulting Group will perform the services in this proposal on a time and materials basis, in accordance with the contract Terms and Conditions described below. These fees will be invoiced monthly as they are accrued, and our total fees, including reimbursable expenses, will not exceed the total estimated fee below without additional authorization.

Westside Water Tank and Pump Station	
Phase	Estimated Fee
SD: Schematic Design	$33,000
CD: Construction Documents	$155,000
BID: Bid Phase	$10,000
Total Estimated Fee:	$198,000

Schedule

Once we receive an executed copy of this Proposal together with the signed Consultant Services Agreement, and are authorized to proceed, we will work with the City to establish a mutually agreed upon schedule.

Assumptions

- Provost & Pritchard will make use of available CAD drawings to the extent feasible and augment the drawings with supplemental topographic survey data collected for this project
- The project will be designed in accordance with City of Mendota, AWWA and DDW requirements, as applicable.
- All permit fees will be paid by the contractor as part of the construction contract.

AGENDA

- The project plans and specifications will require the contractor to prepare and implement the Storm Water Pollution Prevention and Dust Control Plans (if required).
- Engineer's Opinion of Probable Cost will be made on the basis of Consultant's experience and qualifications and represents Consultant's best judgement as to the probable construction costs. However, since consultant has no control over costs or the price of labor, equipment or materials, or over contractor's method of pricing, such opinions of probable construction costs do not constitute representations, warranties or guarantees of the accuracy of such opinions, as compared to bid or actual costs.
- Provost & Pritchard will prepare all front-end specifications for bid package, including bidding, contract and general requirements (Division 0 and 1) as well as the technical specifications.
- Provost & Pritchard's current CAD version and CAD standards and title block will be used for the design of this project.
-

Additional Services

Provost & Pritchard can provide engineering support services outside of this scope of services, when authorized by the City and agreed to by Provost & Pritchard, on a time & materials basis. The following services are not included in this proposal, however these and others can be provided at additional cost, upon request.

- Evaluation of existing water quality and treatment processes;
- Construction Administration and Construction management services;
- Field inspections and material testing;
- Environmental clearances or permitting services;

Terms and Conditions

If this proposal is acceptable, please sign the Consultant Services Agreement, and return a copy to our office. These documents will serve as our Notice to Proceed. This proposal is valid for 30 days from the date above.

Provost & Pritchard Consulting Group

Brandon Stipe, RCE 75956
Principal Engineer

Keith Mortensen, RCE 75865
Director of Operations

Terms and Conditions Accepted

By: City of Mendota

_____

Cristian Gonzalez, City Manager Date

EST. 1968
PROVOST& PRITCHARD
CONSULTING GROUP
An Employee Owned Company

455 W Fir Avenue
Clovis, CA 93611-0242
(559)449-2700
FAX (559)449-2715
www.provostandpritchard.com

CONSULTANT SERVICES AGREEMENT

CSA No:

Client	City of Mendota	Proposal No.	
Attention	Cristian Gonzalez	Telephone	(559) 655-3291 x105
Bill To	City of Mendota	Fax	(559) 655-4064
Billing Address	643 Quince Street	E-Mail	cristian@cityofmendota.com
City, Zip Code	Mendota, CA 93640		
Project Title	Water Tank and Pump Station	Location	Mendota, CA

Description of Services: Please refer to attached proposal dated July 29, 2022, "Proposal for Design of the New Westside Water Tank and Pump Station for the City of Mendota."

The provisions set forth below and on the following paragraphs 1 through 42 are incorporated into and made a part of this Agreement. In signing, the Client acknowledges that they have read and approved all such terms and hires Provost & Pritchard Engineering Group, Inc., dba Provost & Pritchard Consulting Group, (Consultant) to perform the above described services.

TERMS AND CONDITIONS

Client and Consultant agree that the following terms and conditions shall be part of this agreement:

1. In providing services under this Agreement, the Consultant shall perform in a manner consistent with that degree of care and skill ordinarily exercised by members of the same profession currently practicing under similar circumstances at the same time and in the same or similar locality. The Consultant makes no warranty, express or implied, as to its professional services rendered under this Agreement.
2. Client acknowledges that Consultant is not responsible for the performance of work by third parties including, but not limited to, the construction contractor and its subcontractors.
3. Client agrees that if Client requests services not specified in the scope of services described in this agreement, Client will pay for all such additional services as extra services, in accordance with Consultant's billing rates utilized for this contract.

DOCUMENTS

4. Client acknowledges that all reports, plans, specifications, field data and notes and other documents, including all documents on electronic media, prepared by Consultant (collectively Work Product) are instruments of service which shall remain the property of Consultant and may be used by Consultant without the consent of Client. Consultant shall retain all common law, statutory law and other rights, including copyrights. Consultant grants Client a perpetual, royalty-free fully paid-up, nonexclusive and irrevocable license to copy, reproduce perform, dispose of, use and re-use the Work Product in connection with the Project, in whole or in part, and to authorize others to do so for the benefit of Client. Client acknowledges that its right to utilize Work Product pursuant to this agreement will continue only so long as Client is not in default, pursuant to the terms and conditions of this agreement, and Client has performed all its obligations under this agreement.
5. Client agrees not to reuse Work Product, in whole or in part, for any project other than the project that is the subject of this agreement. Client further agrees to waive all claims against Consultant resulting in any way from any unauthorized changes or unauthorized reuse of the Work Product for any other project by anyone on Client's behalf. Client agrees not to use or permit any other person to use versions of Work Product which are not final and which are not signed and stamped or sealed by Consultant.

Client shall be responsible for any such use of non-final Work Product. Client hereby waives any claim for liability against Consultant for use of non-final Work Product. If a reviewing agency requires that check prints be submitted with a stamp or seal, those shall not be considered final for purposes of this paragraph.

6. In the event Client (1) makes, agrees to, authorizes, or permits changes in Work Product, or (2) makes, agrees to, authorizes, or permits construction of such unauthorized changes, which changes are not consented to in writing by Consultant, or (3) does not follow recommendations prepared by Consultant pursuant to this agreement, resulting in unauthorized changes to the project, Client acknowledges that the unauthorized changes and their effects are not the responsibility of Consultant. Client agrees to release Consultant from all liability arising from such unauthorized changes, and further agrees to defend, indemnify and hold harmless Consultant, its officers, directors, employees and subconsultants from and against all claims, demands, damages or costs, including attorneys' fees, arising from such changes.
7. Under no circumstances shall delivery of Work Product for use by the Client be deemed a sale by the Consultant, and the Consultant makes no warranties, either express or implied, of merchantability and fitness for any particular purpose. In no event shall the Consultant be liable for indirect or consequential damages as a result of the Client's unauthorized use or reuse of the Work Product.
8. The Client is aware that differences may exist between electronic files delivered and the printed hard-copy construction documents. In the event of a conflict between the signed construction documents prepared by the Consultant and electronic files, the signed sealed hard-copy documents shall govern.

LIMITATIONS

9. Consultant makes no representations concerning soils or geological conditions unless specifically included in writing in this agreement, or by amendments to this agreement. If Consultant recommends that Client retain the services of a Geotechnical Engineer and Client chooses to not do so, Consultant shall not be responsible for any liability that may arise out of the making of or failure to make soils or geological surveys, subsurface soils or geological tests, or general soils or geological testing.
10. Client acknowledges that, unless specifically stated to the contrary in the proposal's description of services to be provided, Consultant's scope of services for this project does not include any services related in any way to asbestos and/or hazardous or toxic materials. Should Consultant or any other party encounter such materials on the job site, or should it in any other way become known that such materials are present or may be present on the job site or any adjacent or nearby areas which may affect Consultant's services, Consultant may, at its option, suspend or terminate work on the project until such time as Client retains a qualified contractor to abate and/or remove the asbestos and/or hazardous or toxic materials and warrant that the job site is free from any hazard which may result from the existence of such materials.

INDEMNIFICATION

11. To the fullest extent allowed by law, Consultant will indemnify and hold harmless, but shall have no duty to defend Client, its officers, directors, employees, and agents (collectively, the "Client Indemnitees") from, for and against any and all claims, demands, damages, losses, expenses, liabilities, and penalties arising out of or relating to the Project, but only to the extent caused by the negligent or other wrongful acts or omissions of Consultant, its subconsultants, or any person or entity for whose acts or omissions any of them are responsible, or by the failure of any such party to perform as required by this Agreement. To the fullest extent allowed by law, Client will indemnify and hold harmless, but shall have no duty to defend Consultant and its officers, directors, employees and agents from, for and against any and all claims, demands, damages, losses, expenses, liabilities and penalties arising out of or relating to the Project, but only to the extent caused by the negligent or other wrongful acts or omissions of Client or any person or entity for whose acts or omissions it is responsible, or by the failure of any such party to perform as required by this Agreement. The obligations and rights of this Section are in addition to other obligations and rights of indemnity provided under this Agreement or applicable law.

FINANCIAL

12. All fees and other charges due Consultant will be billed monthly and shall be due at the time of billing unless specified otherwise in this agreement. If Client fails to pay Consultant within sixty (60) days after invoices are rendered, Consultant shall have the right in its sole discretion to consider such default in payment a material breach of this entire agreement, and, upon written notice, Consultant's duties, obligations and responsibilities under this agreement may be suspended or terminated for cause

pursuant to Sections 26 through 31. In such event, Client shall promptly pay Consultant for all outstanding fees and charges due Consultant at the time of suspension or termination including all costs and expenses incurred in the performance of services up to suspension or termination.

13. Consultant shall not be liable to Client for any costs or damages that may result from the termination or suspension of services under this agreement due to Client's failure to pay Consultant invoices in accordance with the terms of this paragraph. In the event that Consultant agrees to resume terminated or suspended services after receiving full payment of all late invoices, Client agrees that time schedules and fees, as applicable, related to the services will be equitably adjusted to reflect any delays or additional costs caused by the termination or suspension of services.
14. In all cases where the proposal calls for payment of a retainer, that payment shall be made by Client to Consultant prior to commencement of services under this agreement. Upon receipt of retainer payment, the Consultant shall commence services as provided for under this Agreement. Unless otherwise provided for in the project proposal, such retainer shall be held by Consultant throughout the duration of the contract, and shall be applied to the final project invoice, and to any other outstanding AR, including late payment charges, on the project. Any amount of said retainer in excess of the final invoice and other outstanding AR shall be returned to the Client within 30 days of issuance of the final project invoice.
15. Client agrees that all billings from Consultant to Client will be considered correct and binding on Client unless Client, within ten (10) days from the date of receipt of such billing, notifies Consultant in writing of alleged inaccuracies, discrepancies, or errors in billing. In the event of a dispute over any billing or portion of billing, Client agrees to pay the undisputed portion of any billings in accordance with the payment terms set forth in Section 18.
16. Client agrees to pay a monthly late payment charge, which will be the lesser of one and one half percent (1-1/2%) per month or a monthly charge not to exceed the maximum legal rate, which will be applied to any unpaid balance commencing thirty (30) days after the date of the billing. Client acknowledges that payments applied first to unpaid late payment charges and then to unpaid balances of invoices.
17. In the event Consultant's fee schedule changes due to any increase of costs such as the granting of wage increases and/or other employee benefits to field or office employees or any taxes or fees imposed by local, state, or federal government on consultants' fees during the lifetime of this agreement, the new fee schedule shall apply to all subsequent work on time-and-materials contracts.
18. If payment for Consultant's services is to be made on behalf of Client by a third party lender, Client agrees that Consultant shall not be required to indemnify the third party lender, in the form of an endorsement or otherwise, as a condition to receiving payment for services. Client agrees to reimburse Consultant for all collection agency fees, legal fees, court costs, reasonable consultant staff costs and other expenses paid or incurred by Consultant in the event that collection efforts become necessary to enforce payment of any unpaid billings due to Consultant in connection with the services provided in this agreement.

LIMITATION OF LIABILITY

19. **Notwithstanding any other provisions of this Agreement to the contrary, the aggregate liability of the Consultant under this Agreement, whether for breach of contract, tort, strict liability or any other legal theory, will not exceed the total amount of Consultant's compensation for performing services under this Agreement or $50,000, whichever is greater, however this limitation of Consultant's liability does not apply to third-party claims, or to the Client's reasonable attorneys' fees and expert witnesses' fees and litigation expenses arising out of or related to such third-party claims for which Consultant is liable.**

DISPUTE RESOLUTION

20. In an effort to resolve any conflicts or disputes that arise regarding performance under this agreement by either party, Client and Consultant agree that all such disputes shall be submitted to nonbinding mediation, using a mutually agreed upon mediation services experienced in the resolution of construction disputes. Unless the parties mutually agree otherwise, such mediation shall be a pre-condition to the initiation of any litigation. The parties further agree to include a similar mediation provision in their agreements with other independent contractors and consultants retained for the project and require them to similarly agree to these dispute resolution procedures. This provision shall not be interpreted to restrict the right of either party to file an action in a court of law, in the County of Fresno, State of California, having appropriate jurisdiction or to preclude or limit the Consultant's right to record, perfect or to enforce any applicable lien or Stop Notice rights.

CONSTRUCTION PROJECTS

21. If the scope of services contained in this agreement does not include construction phase services for this project, Client agrees that such construction phase services will be provided by Client or by others. Client assumes all responsibility for interpretation of the contract documents and for construction observation and supervision and waives any claim against Consultant that may in any way be connected thereto. In addition, Client agrees to indemnify and hold Consultant harmless from any loss, claim, or cost, including reasonable attorneys' fees and costs of defense, arising or resulting from the performance of such services by other persons or entities and from any and all claims arising from the modification, clarification, interpretation, adjustments or changes made to the contract documents to reflect changed field or other conditions, except for claims arising from the negligence or other wrongful acts of Consultant, its employees, its subconsultants, or any other person or entity for which Consultant is responsible.
22. Client agrees to include provisions in its contract with the construction contractor to the effect that in accordance with generally accepted construction practices, the construction contractor will be required to assume sole and complete responsibility for job site conditions during the course of construction of the project, including safety of all persons and property, and that this requirement shall apply continuously and not be limited to normal working hours. Neither the professional activities of Consultant nor the presence of Consultant or its employees or subconsultants at a construction site shall relieve the contractor and its subcontractors of their obligations, duties and responsibilities including, but not limited to, construction means, methods, sequence, techniques or procedures necessary for performing, superintending or coordinating all portions of the work of construction in accordance with the contract documents and applicable health or safety requirements of any regulatory agency or of state law.
23. Client agrees to require its contractor and subcontractors to review the plans, specifications and documents prepared by Consultant prior to the commencement of construction phase work. If the contractor and/or subcontractors believe there are deficiencies, conflicts, errors, omissions, code violations, or other deficiencies in the plans, specifications and documents prepared by Consultant, contractors shall notify Client so those deficiencies may be corrected or otherwise addressed by Consultant prior to the commencement of construction phase work.
24. If, during the construction phase of the project, Client discovers or becomes aware of changed field or other conditions which necessitate clarifications, modifications or other changes to the plans, specifications, estimates or other documents prepared by Consultant, Client agrees to notify Consultant and, at Client’s option, retain Consultant to prepare the necessary changes or modifications before construction activities proceed. Further, Client agrees to require a provision in its construction contracts for the project which requires the contractor to promptly notify Client of any changed field or other conditions so that Client may in turn notify Consultant pursuant to the provisions of this paragraph.
25. If, due to the Consultant's error, omission or negligence, a required item or component of the Project is omitted from the Consultant's construction documents, the Consultant shall not be responsible for paying the cost required to add such item or component to the extent that such item or component would have been required and included in the original construction documents. The Consultant will not be responsible for any cost or expense that enhances the value of the Project.

SUSPENSION AND TERMINATION

26. If the Project or the Consultant’s services are suspended by the Client for more than thirty (30) consecutive calendar days, the Consultant shall be compensated for all services performed and reimbursable expenses incurred prior to the receipt of notice of suspension. In addition, upon resumption of services, the Client shall compensate the Consultant for expenses incurred as a result of the suspension and resumption of its services, and the Consultant’s schedule and fees for the remainder of the Project shall be equitably adjusted.
27. If the Consultant’s services are suspended for more than ninety (90) days, consecutive or in the aggregate, the Consultant may terminate this Agreement upon giving not less than five (5) calendar days’ written notice to the Client.
28. If the Client is in breach of the payment terms or otherwise is in material breach of this Agreement, the Consultant may suspend performance of services upon five (5) calendar days’ notice to the Client. The Consultant shall have no liability to the Client, and the Client agrees to make no claim for any delay or damage as a result of such suspension caused by any breach of this Agreement by the Client. Upon receipt of payment in full of all outstanding sums due from the Client, or curing of such other breach that caused the Consultant to suspend services, the Consultant shall resume services, and there shall be an equitable adjustment to the remaining project schedule and fees as a result of the suspension.

29. Client acknowledges Consultant has the right to complete all services included in this agreement. In the event this agreement is terminated before the completion of all services, unless Consultant is responsible for such early termination, Client agrees to release Consultant from all liability for services not performed or completed by Consultant and from liability for any third-party reliance, use, interpretation or extrapolation of Consultant's work product. In the event all or any portion of the services by Consultant are suspended, abandoned, or otherwise terminated, Client shall pay Consultant all fees and charges for services provided prior to termination, not to exceed the contract limits specified herein, if any. Client acknowledges if the project services are suspended and restarted, there will be additional charges due to suspension of the services which shall be paid for by Client as extra services pursuant to Section 26. Client acknowledges if project services are terminated for the convenience of Client, Consultant is entitled to reasonable termination costs and expenses, to be paid by Client as extra services pursuant to Section 31.
30. The Client may terminate this Agreement for the Client's convenience and without cause upon giving the Consultant not less than seven (7) calendar days' written notice.
31. In the event of termination of this Agreement by either party, Consultant shall invoice Client for all outstanding services and expenses reasonably incurred by the Consultant in connection with the orderly termination of this Agreement, including but not limited to demobilization, reassignment of personnel, associated overhead costs and all other expenses directly resulting from the termination. The Client shall within thirty (30) calendar days of termination pay the Consultant for all services rendered and all reimbursable costs incurred by the Consultant up to the date of termination, in accordance with the payment provisions of this Agreement.

OTHER

32. This agreement shall be binding upon the heirs, executors, administrators, successors and assigns of Client and Consultant.
33. This agreement shall not be assigned by either Client or Consultant without the prior written consent of the other.
34. Consultant's or Client's waiver of any term, condition or covenant shall not constitute the waiver of any other term, condition or covenant. Consultant's or Client's waiver of any breach of this agreement shall not constitute the waiver of any other breach of the Agreement.
35. Client and Consultant agree that if any term or provision of this Agreement is determined to be illegal, in conflict with any law, void or otherwise unenforceable, and if the essential terms and provisions of this Agreement remain unaffected, then the validity of the remaining terms and provisions will not be affected and the offending provision will be given the fullest meaning and effect allowed by law.
36. This agreement shall be governed by and construed in accordance with the laws of the State of California.
37. Within the limits of the approved scope and fee, Consultant may engage the services of any subconsultants when, in the Consultant's sole opinion, it is appropriate to do so. Such subconsultants may include testing laboratories, geotechnical engineers and other specialized consulting services deemed necessary by the Consultant to carry out the scope of the Consultant's services.
38. Consultant shall be entitled to immediately, and without notice, suspend the performance of any and all of its obligations pursuant to this agreement if Client files a voluntary petition seeking relief under the United States Bankruptcy Code or if there is an involuntary bankruptcy petition filed against Client in the United States Bankruptcy Court, and that petition is not dismissed within fifteen (15) days of its filing. Any suspension of services made pursuant to the provisions of this paragraph shall continue until such time as this agreement has been fully and properly assumed in accordance with the applicable provisions of the United States Bankruptcy Code and in compliance with final order or judgment issued by the Bankruptcy Court.
39. This agreement shall not be construed to alter, affect or waive any design professional's lien, mechanic's lien or stop notice right, which Consultant may have for the performance of services pursuant to this agreement. Client agrees to provide to Consultant the current name and address of the record owner of the property upon which the project is to be located. Client also agrees to provide Consultant with the name and address of any and all lenders who may loan money on the project and who are entitled to receive a preliminary notice.
40. Consultant shall not be liable for damages resulting from the actions or inactions of governmental agencies including, but not limited to, permit processing, environmental impact reports, dedications, general plans and amendments thereto, zoning matters, annexations or consolidations, use or conditional use permits, project or plan approvals, and building permits. Client agrees that it is the

responsibility of Client to maintain in good standing all governmental approvals or permits and to timely apply for any necessary extensions thereof.

41. Consultant and Client each agree to waive consequential damages for claims, disputes or other matters in question arising out of or relating to this Agreement. This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with paragraphs 26 through 31, except for termination expenses provided for in said paragraph 31. Client further agrees that to the fullest extent permitted by law, Consultant shall not be liable to Client for any special, indirect or consequential damages whatsoever, whether caused by Consultant's negligence, errors, omissions, strict liability, breach of contract, breach of warranty or other cause or causes whatsoever, including but not limited to, loss of use of equipment or facility, and loss of profits or revenue.
42. This Agreement is the entire Agreement between the Client and the Consultant. It supersedes all prior communications, understandings and agreements, whether oral or written. Amendments to this Agreement must be in writing and signed by both the Client and the Consultant.

Client	City of Mendota	Provost & Pritchard Engineering Group, Inc., dba Provost & Pritchard Consulting Group	
By		By	
Name	Cristian Gonzalez	Name	Keith Mortensen, RCE 75865
Title		Title	Director of Operations
Date Signed		Date Signed	July 29, 2022

AGENDA

BEFORE THE CITY COUNCIL
OF THE
CITY OF MENDOTA, COUNTY OF FRESNO

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MENDOTA AUTHORIZING THE CITY MANAGER TO EXECUTE A CONTRACT WITH PROVOST & PRITCHARD CONSULTING GROUP FOR DESIGN AND BID PHASE SERVICES FOR THE WESTSIDE WATER STORAGE TANK AND PUMP STATION

RESOLUTION NO. 22-48

WHEREAS, the City of Mendota (the "City") owns and operates a water treatment plant and distribution system for domestic water; and

WHEREAS, the City's Water Master Plan identified pressure and velocity deficiencies during the Peak Hour Demand in the southwest region of the City's system; and

WHEREAS, the City Engineer, Provost & Pritchard Consulting Group, prepared a basis of design memo dated February 28, 2020, for a new water tank and pump station otherwise referred to as the Westside Water Tank and Pump Station project; and

WHEREAS, the City has been awarded $2.5 million in SLFRF/ARPA funding from Fresno County to implement the proposed Westside Water Tank and Pump Station project; and

WHEREAS, the City intends to retain Provost & Pritchard Consulting Group to provide design services necessary to prepare construction-ready bid documents and assist with the bidding process; and

WHEREAS, the Provost & Pritchard Consulting Group has submitted a proposal for this bid preparation work that is acceptable to City staff.

NOW, THEREFORE, BE IT RESOLVED, that the City Council of the City of Mendota hereby authorizes the City Manager or his designee to execute a contract with Provost & Pritchard Consulting Group for the design and bid phase support services required for the Westside Water Tank and Pump Station project.

_____
Rolando Castro, Mayor

ATTEST:

I, Celeste Cabrera-Garcia, City Clerk of the City of Mendota, do hereby certify that the foregoing resolution was duly adopted and passed by the City Council at a regular meeting of said Council, held at the Mendota City Hall on the 9th day of August, 2022, by the following vote:

AYES:
NOES:
ABSENT:
ABSTAIN:

_____
Celeste Cabrera-Garcia, City Clerk

AGENDA ITEM – STAFF REPORT

TO: HONORABLE MAYOR AND COUNCILMEMBERS

FROM: MICHAEL OSBORN, CITY ENGINEER

VIA: CRISTIAN GONZALEZ, CITY MANAGER

SUBJECT: ADOPTION OF WATER, WASTEWATER AND STORM DRAIN MASTER PLANS

DATE: AUGUST 9, 2022

ISSUE

Shall the City Council adopt Resolution No. 22-49, adopting the Water Master Plan, Wastewater Master Plan and Storm Drain Master Plan documents?

BACKGROUND

Since being retained as City Engineer in 2009, Provost & Pritchard Consulting Group encouraged City staff to authorize preparation of Master Plans for each of the three major utilities operated by the City, namely Water, Sewer and Wastewater Treatment, and Storm Drain. Staff found a way to fund these Master Plans without impact to the General Fund or to the utility operating funds and in late 2018, work began to prepare the documents. There are three major reasons for the City to have current and complete utility master plans.

First, Master Plans provide a solid legal basis for calculation of Development Impact Fees. At the regular City Council meeting held on April 24, 2018, the City Council approved an agreement with the City Engineer for preparation of new studies to allow setting of Development Impact Fees and application processing fees. These two reports have both been in progress. One of the necessary elements of the Development Impact Fee Study is a comprehensive list of water, sewer and storm drain system improvements necessary to support future growth. The costs of these projects can be assessed to the development projects as they occur. Without an approved project plan, there is no way to calculate necessary fees. With a plan in place, Development Impact Fees can be set and collected, creating funds the City can use to build new and expanded utility infrastructure without affecting the General Fund.

Second, having the Master Plans in place gives the City the engineering support needed to prepare complete grant applications. Without that support, requests for funding are very difficult to justify and the success rate of the grant applications is low. With the support, and with Mendota's status as a Severely Disadvantaged Community, we expect that we will be more successful in applying for State and Federal grant funding.

Lastly, the Master Plans serve a very practical purpose in understanding the condition of each utility, and the capacity remaining before expansion or repairs are needed. With that understanding the City can more responsibly plan for capital improvements well in advance, leaving time to assemble funding, whether it be from ratepayers, Development Impact Fees, outside loans and grants, or some combination of all those sources. Having a structured capital

improvement plan based on solid engineering will give the City much more confidence in approving development projects, knowing what improvements will be needed and imposing appropriate development conditions as necessary.

ANALYSIS

The comprehensive documents utilized the best available data, mapping and analysis methods to provide guidance both for necessary repairs for the existing systems and for capital improvements to accommodate future development, as outlined in the 2025 General Plan. These completed Master Plans will allow for the preparation of more accurate fees to complete the Development Impact Fee study.

FISCAL IMPACT

Adoption of these plans have no direct fiscal impact.

RECOMMENDATION

Staff recommends that the City Council adopt Resolution No. 22-49, adopting the Water Master Plan, Wastewater Master Plan and Storm Drain Master Plan documents.

Attachment(s):

1. Resolution No. 22-49
2. Exhibit “A” - Water Master Plan
3. Exhibit “B” - Wastewater Master Plan
4. Exhibit “C” - Storm Drain Master Plan

AGENDA

BEFORE THE CITY COUNCIL
OF THE
CITY OF MENDOTA, COUNTY OF FRESNO

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MENDOTA ADOPTING THE WATER MASTER PLAN, WASTEWATER MASTER PLAN AND STORM DRAIN MASTER PLAN DOCUMENTS

RESOLUTION NO. 22-49

WHEREAS, the City of Mendota ("City") operates certain municipal infrastructure utilities, including a water system, a sewer collection and treatment system, and a storm drain system; and

WHEREAS, prudent and responsible management of the City's General and Development Impact Funds requires a thorough understanding of the condition of each of these infrastructure systems; and

WHEREAS, the City must also know what repairs and improvements will be required to keep each of these infrastructure systems operating smoothly to responsibly accommodate the demands of future growth; and

WHEREAS, the City may only assess Development Impact Fees to the limit of the costs required to build facilities to support planned development; and

WHEREAS, in the past, the City has never had the utility Master Plans necessary to inform long-term planning and cost estimating needed to accomplish these objectives; and

WHEREAS, the completed Water, Wastewater, and Storm Drain Master Plan documents, attached hereto as Exhibits A, B, and C, allow for a better and more thorough preparation of accurate fees for the Development Impact Fee study that is currently in process; and

WHEREAS, City staff have reviewed these Master Plan documents and find they meet the expectations and forecasted needs of the City.

NOW, THEREFORE, BE IT RESOLVED, that the City Council of the City of Mendota hereby adopts the Water Master Plan, Wastewater Master Plan, and Storm Drain Master Plan documents attached hereto as Exhibits A, B, and C.

_____
Rolando Castro, Mayor

ATTEST:

I, Celeste Cabrera-Garcia, City Clerk of the City of Mendota, do hereby certify that the foregoing resolution was duly adopted and passed by the City Council at a regular meeting of said Council, held at the Mendota City Hall on the 9th day of August, 2022, by the following vote:

AYES:
NOES:
ABSENT:
ABSTAIN:

_____
Celeste Cabrera-Garcia, City Clerk

Exhibit A

AGENDA

City of Mendota

Water Master Plan

Mendota, CA
November 2019

Prepared for:
City of Mendota
Mendota, CA

Prepared by:
Provost & Pritchard Consulting Group
286 W. Cromwell Ave. Fresno, CA 93711

AGENDA

City of Mendota

Water Master Plan

Mendota, CA
November 2019

Prepared for:
City of Mendota
Mendota, CA

Prepared by:
Provost & Pritchard Consulting Group
286 W. Cromwell Ave. Fresno, CA 93711

AGENDA

Report Prepared for:

City of Mendota

643 Quince St.
Mendota, CA 93640

Contact:

Cristian Gonzalez, City Manager

(559) 655-4298

cristian@cityofmendota.com

Report Prepared by:

Provost & Pritchard Consulting Group

David McGlasson, PE, PLS
Nicholas Jacobson, PE
Mariham Iskandar, EIT

Contact:

David McGlasson, PE, PLS

dmcglasson@ppeng.com

Michael Osborn, PE

mosborn@ppeng.com

(559) 449-2700

DATE SIGNED 11/14/2019

Date Signed 11/14/2019

Table of Contents

Table of Figures

Table of Tables

Abbreviations

AACE ..... American Association of Cost Engineers
AC ..... Asbestos-Concrete
ADD ..... Average Day Demand
AWMC ..... Agricultural Water Management Council
CCR ..... California Code of Regulations
C-factors ..... Hazen-Williams C-factors
CFC ..... California Fire Code
CIP ..... Capital Improvements Program
City ..... City of Mendota
County ..... Fresno County
CVP ..... Central Valley Project
DDW ..... Department of Drinking Water
DWR ..... Department of Water Resources
GIS ..... Geographical Information System
GSA ..... Groundwater Sustainability Agency
GSP ..... Groundwater Sustainability Plan
MCL ..... Maximum Contaminant Level
MDD ..... Maximum Day Demand
MDD+FF ..... Maximum Day Demand Plus Fire Flow
MMADD ..... Maximum Month Average Day Demand
PHD ..... Peak Hour Demand
PVC ..... Polyvinyl Chloride
SDWIS ..... State Drinking Water Information System
SGMA ..... Sustainable Groundwater Management Act
SOI ..... Sphere of Influence
TDS ..... Total Dissolved Solids
VFD ..... Variable Frequency Drive
WELO ..... Water Efficient Landscape Ordinance
WMP ..... Water Master Plan
WTP ..... Water Treatment Plant

Executive Summary

The City of Mendota operates a municipal water system serving approximately 2,040 residential customers and 170 commercial customers and 20 industrial customers as of 2018. Water supply is entirely from groundwater; no surface water supplies are available. Nearly all water system facilities are 30 or more years old and many are nearing the ends of their anticipated service lives. Since construction of the major system facilities the City has experienced substantial growth. After a several-year period in the middle-2000s where homebuilding was nearly stopped, the City has enjoyed a resurgence in growth, with residential building permits approaching 100 per year.

The system is starting to near its capacity threshold. The City has questions and concerns about how much additional development can occur prior to implementing future capital improvements. Currently, the City water system has capacity to meet peak demands. The individual components of the water system, as described in previously in Section 1.3, each have unique capacity limitations. **Table ES-1** summarizes the individual water system component capacity limitations.

Table ES-1. Water System Component Capacity Summary

Water System Component Capacity Summary			
Water System	Water System Component	Capacity Criteria	Supply Capacity (gallons)
Raw Water	Raw Water Supply[1]	PHD for 4 hours	624,000
	Raw Water Transmission[2]		924,000
WTP	Filtration[3,6]	PHD for 4 hours	720,000
	Storage[4]		2,000,000
	Finished Water Pumping[5]		912,000

The capacity limitations of the distribution system are a more complex analysis and is summarized later in this report in Section 7. Based on the information shown in **Table ES-1** the existing system is constrained by the ground water supply. Given the current water system limitations it is estimated that approximately six hundred (600) additional single-family residential homes can be built and connected to the existing system before the need arises for a new well needs to be constructed.

The City has developed a plan for development out the boundary of its current sphere of influence (SOI). Large uncertainties exist around the timing of the buildout of the SOI. Due to these uncertainties, this report is focused on a 20-year planning horizon, through 2040.

For the purposes of the report horizon the City has identified two specific areas of where development is anticipated:

- In the southwest part of the City near the intersection of Gregg Court and Belmont Avenue
- North of Bass Avenue between Derrick Avenue and Barboza Street

Based on the analysis completed as part of this water master plan process, **Table ES-2** summarizes the recommended capital improvements plan was prepared to support anticipated development over the near term report planning horizon.

Table ES-2. Near Term Capital Improvement Project

Item No.	Description	Alignment	Limits	Status	Recommended Improvement	Cost
Pipeline Improvements					Length (LF)	
P-1	12" Water Main in Amador Ave	Amador Ave	Oxnard Ave to Belmont Ave	New	2,800	$340,000
P-2	12" Water Main in Belmont Ave	Belmont Ave	Amador Ave to Gregg Ave	New	1,300	$160,000
P-3	12" Water Main in Belmont Ave	Belmont Ave	Derrick Ave (SR 33) to the west 180 feet	New	180	$22,000
					Subtotal, Pipe Cost:	$522,000
Tank Improvements					Volume (gallons)	
T-1	Storage Tank Near Intersection of Belmont Ave and Oxnard Ave			New	200,000	$400,000
Pump Station Improvements					Firm Capacity (gpm)	
PS-1	2,000 GPM Pump Station			New	2,000	$300,000
Water Source Improvements					Capacity (gpm)	
W-1	River Well			New	1,000	$3,000,000
					Near Term Total	$4,222,000

Note:

1. Minimum to support Westlands subdivision would be tank, pump station, Belmont and Amador water lines.
2. These could be phased, depending upon where the subdivision construction began.

1 Introduction

The City of Mendota operates a municipal water system serving approximately 2,040 residential customers and 170 commercial customers and 20 industrial customers as of 2018. Water supply is entirely from groundwater; no surface water supplies are available. Details of the water supply, water quality, and system facilities are provided in the sections below. Nearly all water system facilities are 30 or more years old and many are nearing the ends of their anticipated service lives. Since construction of the major system facilities the City has experienced substantial growth. After a several-year period in the middle-2000s where homebuilding was nearly stopped, the City has enjoyed a resurgence in growth, with residential building permits approaching 100 per year.

This report has been prepared as a tool to help City leaders understand the current and upcoming challenges to the water system resulting from growth, and to plan for necessary capital improvements to keep the water system's capacity sufficient to serve the City's growing needs.

1.1 Purpose and Goals

This Water Master Plan (WMP) has a broad-based purpose and is intended to achieve multiple goals:

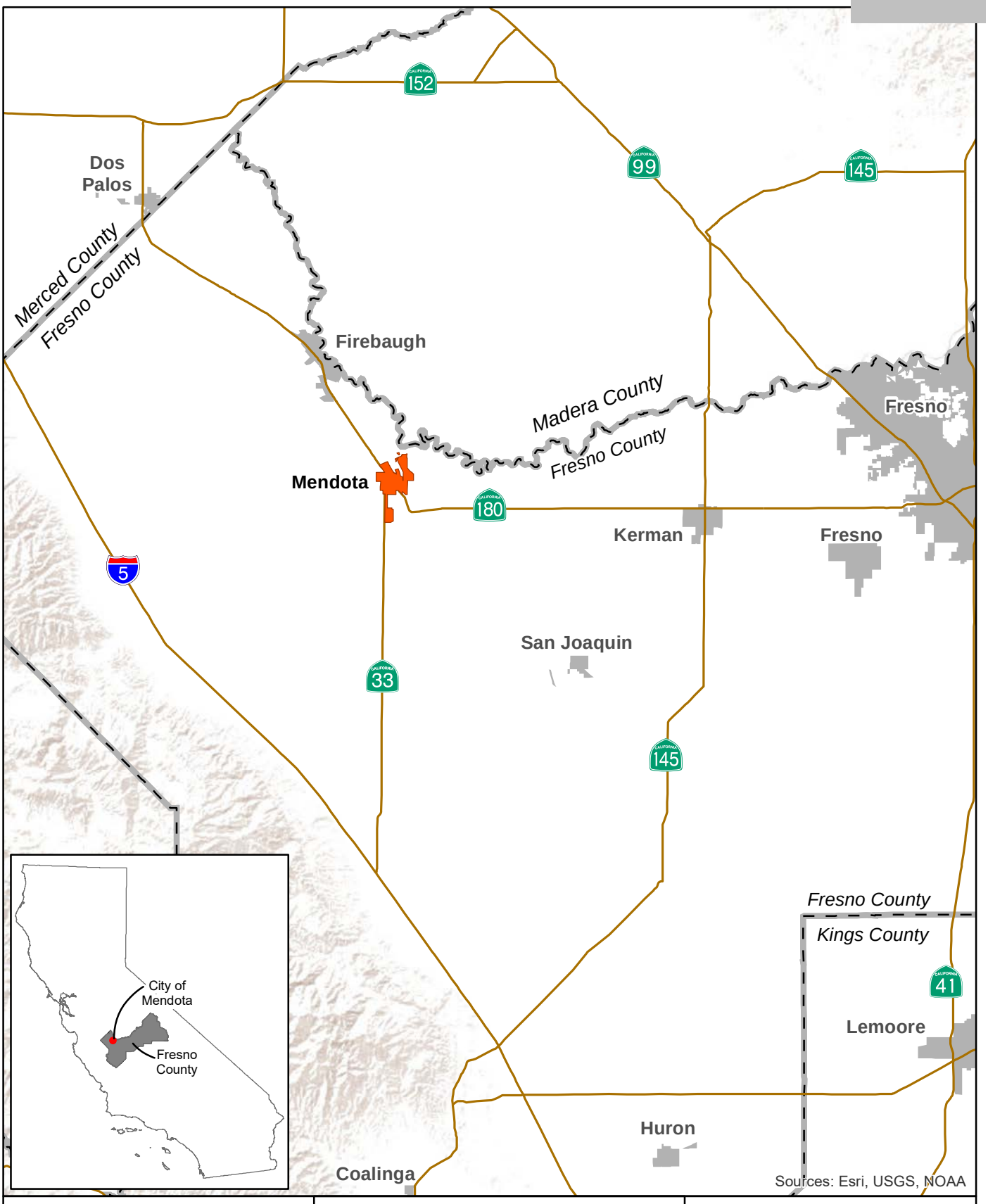
- Analyze the elements of the water system and identify current and future weaknesses and deficiencies
- Evaluate options for maintaining and/or replacing the water supply
- Determine appropriate capital improvement projects to address equipment and facility needs
- Evaluate potential environmental and permitting issues
- Provide budget-level estimates of needed capital over the report's planning horizon
- Determine the proportion of each project benefitting the existing service area versus costs which should be borne by development

The City has adopted a general plan sphere of influence (SOI) boundary which is anticipated to reach buildout over the course of many years. Planning infrastructure over a long period of years is challenging given the large number of uncertainties that can come into play over time. Given the uncertainties associated with of long-term infrastructure planning, where appropriate this WMP will provide insights into the impacts of the buildout of the general plan SOI, but the focus of the analysis and the associated recommendations will be geared towards development impacts expected to occur through a report horizon of 2040.

1.2 Physical Setting

The City is located in northwestern Fresno County (County) near the confluence of the Fresno Slough and the San Joaquin River, in the heart of California's Central Valley. The City is located about ten miles southeast of the City of Firebaugh and about thirty-five miles west of the City of Fresno. Agriculture plays a large part in the local economy. According to 2010 United States census data approximately 11,014 people live in Mendota. The City's climate features hot and dry summers and mild winters. Temperatures in the winter months are in the upper 30s (Fahrenheit) while summer temperatures are in the mid 90's (Fahrenheit) on average. Historically the City receives about 12 inches of annual rainfall, with approximately sixty percent occurring in the winter months. **Figure 1-1** provides a regional context for the City's location in California. **Figure 1-2** shows the Mendota city limits.

AGENDA



EST. 1968
PROVOST& PRITCHARD
CONSULTING GROUP
An Employee Owned Company

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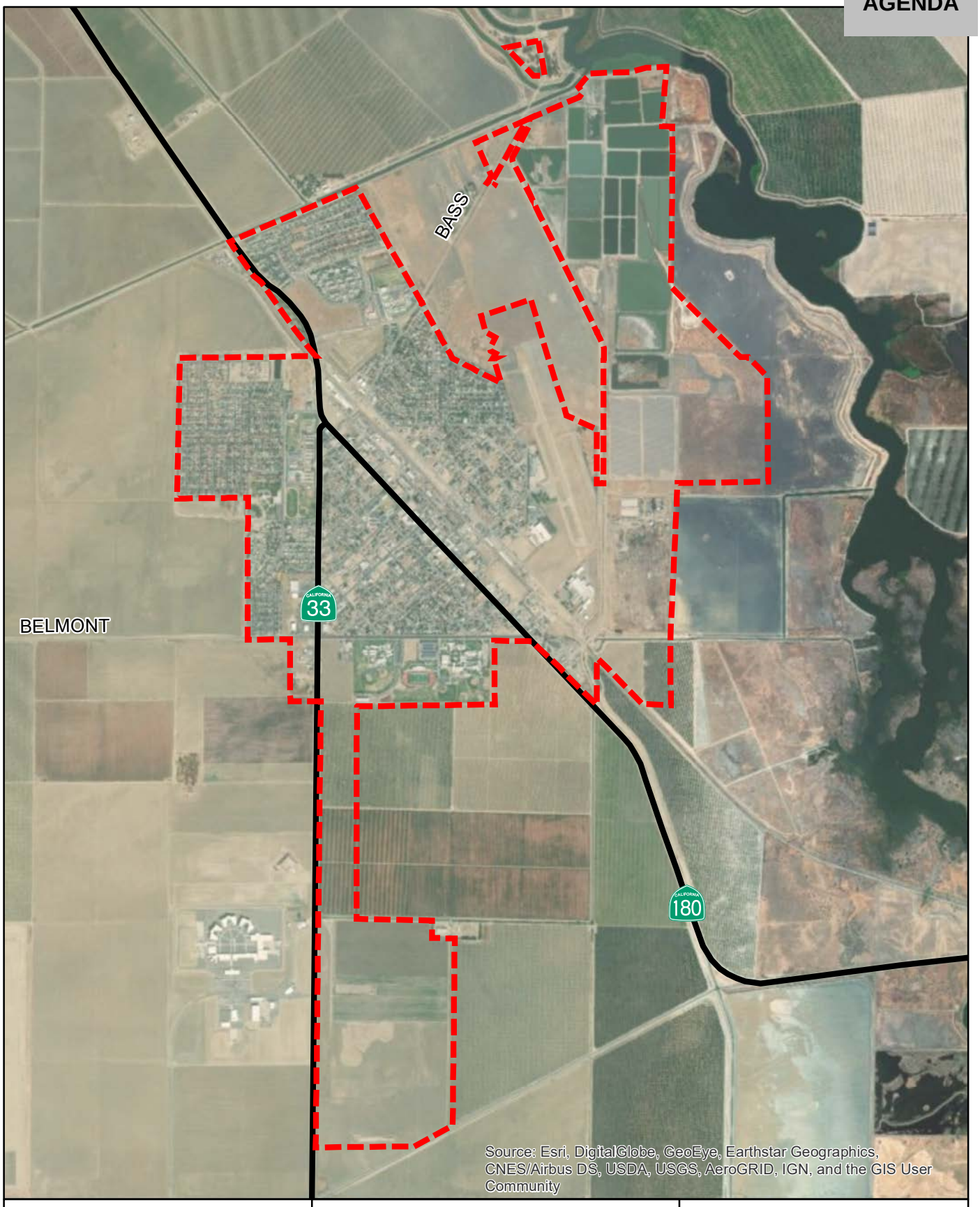
Miles

Legend

- Highway
- City of Mendota
- County
- City/Town

Figure 1-1
Regional Map
Water Master Plan
City of Mendota

8/8/2019 : G:\Mendota_City of-3336\333618013-Water System Master Plan\GIS\Map\Figure 1-1 Regional Map.mxd



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Legend

- Mendota City Limits
- Highway
- County

Figure 1-2
Vicinity Map
Water Master Plan
City of Mendota

8/7/2019 : \\ppeng.com\pzdata\clients\Mendota_City of-3336\333618013-Water System Master Plan\GIS\Map\Figure 1-2 Vicinity Map.mxd

1.3 System Description

1.3.1 Groundwater Wells

The City provides potable water to its residents via a water distribution system comprising several groundwater supply wells, a Water Treatment Plant (WTP), and a network of distribution mains. The City relies solely on groundwater for its water supply. Groundwater is extracted through five groundwater wells, of which three are active wells and two which are on standby status. Wells 7, 8, and 9 are the City's active wells which provide water to the existing Water Treatment Plant (WTP). Wells 3 is a standby well, used only in emergency situations. Well 5 is unique. It is not fully active, in that it cannot be used under every circumstance, but it can be used anytime one of the river wells is down for service or repair. As such Well 5 provides additional reliable production capacity to the City.

Wells 7, 8 and 9 are located east of the Fresno Slough, connected to the WTP via a steel raw water transmission main that ranges in diameter from 18-20 inches. Wells 3 and 5 are located west of the Fresno Slough, along the west side of Bass Avenue in the northeast part of the City. The Fresno Slough is the dividing line between two very different aquifers, which means the two sets of wells pump from distinct aquifers with widely varying quality. This is discussed in more detail below.

As part of the Reach 2B Project of the San Joaquin River Restoration Program, Well 7 will be abandoned and a replacement well will be constructed, in order to keep the City's facilities clear of the southerly flood levee of the reconstructed river. This project is currently in preliminary design, and the new well together with its associated water main extension is planned to be online by late 2020. The new well, to be known as Well 10, is planned to have nearly the same production and water quality as Well 7 and will connect to the WTP through the same raw water main, therefore the impacts to the existing system of changing from Well 7 to Well 10 are anticipated to be minor.

1.3.2 Water Treatment Plant

The City's WTP has the capacity to treat up to 3,000 gallons per minute (gpm) of raw water through four pressurized green sand media filter vessels. The raw water is treated with sodium bisulfite to oxidize iron and manganese. The treated water is injected with sodium hypochlorite before it is stored one of the two 1-million-gallon (MG) steel water storage tanks. The WTP has a finished water booster pump station that comprises five pumps ranging from 15 hp up to 75 hp. The pump station has two jockey pumps to service low demand periods and three larger booster pumps to service high demand periods. The pump station pumps are each controlled by a variable frequency drives (VFDs) which allow the pumps to provide a wide range of flow to meet system demands while maintaining a constant pressure. The pump station has a theoretical maximum pumping capacity of approximately 5,925 gpm at 56 psi, but since the VFD regulates the pumps within an operating window of 58 to 62 psi, the maximum pumping capacity is approximately 5,700 gpm.

1.3.3 Distribution System

The distribution system is comprised of approximately 35.5 miles of pipeline with pipe diameters ranging from 4-inches up to 24-inches. Existing pipe materials are believed to be limited to either asbestos-concrete (AC) or polyvinyl chloride (PVC). We understand the City's construction standard changed from AC to PVC sometime in the 1980s. The entire distribution system is operated as a single pressure zone.

1.4 Existing System Remaining Capacity Estimate

The system is starting to near its capacity threshold. In the southwest corner of the City there are low pressure concerns for existing development. The City has questions and concerns about how much additional development can occur prior to implementing future capital improvements. Currently, the City water system has capacity to meet peak demands (demand estimates are discussed in the next section). The individual components of the water system, as described in previously in Section 1.3, each have unique capacity limitations. **Table 1-1** summarizes the individual water system component capacity limitations.

Table 1-1. Water System Component Capacity Summary

Water System Component Capacity Summary			
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	Storage[4]		2,000,000
	Finished Water Pumping[5]		912,000

Notes
1. This is firm capacity which includes wells 5, 7, and 8. Well 9 is excluded from firm capacity. Firm capacity is 2,600 gpm for 4 hours
2. Flow capacity is determined by limiting the velocity to 5 ft/sec in the 18-inch length of existing pipe. Flow in 18-inch pipe at 5 fps is approximately 3,850 gpm for 4 hours
3. This consists of four 750 gpm Filtronics filters, assumed to be running simultaneously or 3,000 gpm for 4 hours
4. Consists of two 1 MG storage tanks for a total of 2,000,000 gallons
5. This is firm capacity which consists of pumps 3 and 4 only. Jockey pumps and pump 5 are excluded. Firm capacity is 3,800 gpm for 4 hours
6. Filtration equipment will be first facility to exceed capacity with development under existing system condition. Based on PHD for 4 hours this leaves about 400 gpm of additional capacity ((720,000-624,000)/(4*60).

The capacity limitations of the distribution system are a more complex analysis and is summarized later in this report in Section 7. Based on the information shown in **Table 1-1** the existing system is constrained by the ground water supply. Given the current water system it is estimated that approximately six hundred (600) additional single family residential homes can be built and connected to the existing system before the need arises for a new well needs to be constructed.

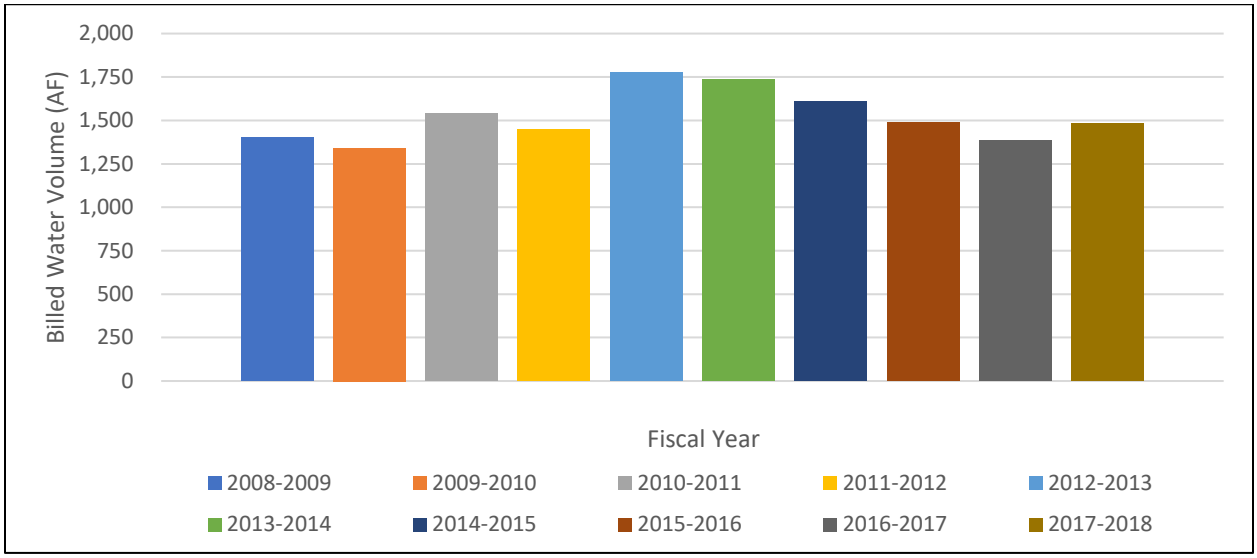
2 Water System Demands

This section of the report summarizes existing water demands and future water demand estimates.

2.1 Existing Demands

City water meter billing data from 2008 through 2018 were used to estimate demands for this study. Figure 2-1 shows a comparison the total billed volume for the years 2008 through 2018. Data for Fiscal year 2017-2018 were chosen because they reflect conservation efforts mandated in response to the recent drought period (2011 – 2017) and also capture an upward trend in demands due to recent development within the City. During the 2017-2018 fiscal year the City had a total of 2,236 metered accounts, which accounted for a total water demand of approximately 1,485 acre-feet (AF) of water.

Figure 2-1. Annual Water Demands 2008-2018



2.1.1 Residential Demands

The City has a population of approximately 11,000 people. It was estimated that during the 2017-2018 fiscal year, the City had approximately 2,035 residential service connections, with the implicit per-unit population being 5.4 persons per dwelling unit, which is exceptionally high. Typical values in Valley communities and counties are approximately 3.2 persons per single-family unit and 2.5 persons per multi-family unit. Residential demands are inclusive of low density, medium density, medium-high density, and high-density residential land use types. The total residential demand for the 2017-2018 fiscal year was approximately 997 AF, which is approximately 67% of the total City demand.

2.1.2 Commercial Users

During the 2017-2018 fiscal year, it was estimated that the City had approximately 169 commercial service connections. Commercial demands are inclusive of general and community commercial land use types. The total commercial demand for the fiscal year was approximately 213 AF, which is approximately 14% of the total City demand.

2.1.3 Industrial Users

During the 2017-2018 fiscal year, it was estimated that the City had approximately 21 industrial service connections. Industrial demands are inclusive of light and heavy industrial land use types. The total industrial demand for the fiscal year was approximately 10 AF, which is approximately 1% of the total City demand.

2.1.4 Other Users

During the 2017-2018 fiscal year, it was estimated that the City had approximately 11 service connections that were classified as agricultural or public facilities (including schools and parks). The total demand for these services for the fiscal year was approximately 265 AF, which is approximately 18% of the total City demand.

2.1.5 Large Water Users

As part of the review of the billing data, the thirty largest water users were identified for the fiscal year 2017-2018. The thirty largest water users represent approximately 1.3% of the total services connections, yet account for approximately 36% of the total annual water demand. **Table 2-1** summarizes the thirty largest water users. The top five water users account for approximately 24% of the total water use for the fiscal year.

2.2 Title 22 Demand Estimates

The California Code of Regulations (CCR) is the codification of the general and permanent rules and regulations announced in the California Regulatory Notice register by California state agencies. Title 22 of the CCR covers rules and regulations associated with Social Security which includes Environmental Health (Division 4). Chapter 16 of Division 4 covers California Waterworks Standards, which provide rules and regulations pertaining to public water systems. Chapter 16 provides recommendations for estimating water system demands. The recommendations pertaining to estimating water demands are summarized in the following sections and are used for model demand estimates.

2.2.1 Average Day Demand

2017-2018 data shows that over the course of the year approximately 484 MG of water were recorded through customer meters. The reported total volume used by the City system equates to an Average Day Demand (ADD) of approximately 920 gpm. ADD is calculated by dividing the entire year's water consumption by the number of days in a year and converting that number of gallons into a flow rate.

2.2.2 Maximum Month Average Day Demand

According to Title 22, Maximum Month Average Day Demand (MMADD) can be used as the basis for estimating peak demands. MMADD is defined as the largest monthly demand during the year and is taken from water records. The largest total volume of water consumed during a month period in 2017-2018 was in August 2017 when metered volume was approximately 84 MG. From that volume, MMADD was calculated to be approximately 1,880 gpm.

Table 2-1. Fiscal Year 2017-2018 Largest Water Users

2017-2018 Largest Water Users			
Location ID	Address	Metered Volume (gallons)	% of Total
FED0002	47 S DERRICK AVE	4,919,200	10.17%
BUS0002	BELMONT ST	2,643,140	5.47%
MEN0075	605 BASS AVENUE	1,426,392	2.95%
HIG0002	BELMONT ST.	1,319,271	2.73%
VIL0030	647 PEREZ ST	1,273,388	2.63%
BAS0001	DERRICK BASEBALL FIELD	671,800	1.39%
PUM0001		459,990	0.95%
COU0003	1000 2ND ST	410,300	0.85%
MEN0022	1100 2ND ST	387,700	0.80%
SON0002	1867 7TH ST	375,620	0.78%
ALI0007	580 DERRICK AVE	326,644	0.68%
MEN0036	785 OLLER ST	285,180	0.59%
MEN0007	202 I ST	276,400	0.57%
WON0001	900 AIRPORT BLVD.	244,170	0.50%
MIR0002	901 MARIE ST	222,490	0.46%
LOZ0032	800 GARCIA	216,210	0.45%
MEN0021	1100 2ND ST	192,190	0.40%
LAA0001	300 RIOS ST.	165,500	0.34%
CAP0003	1161 OLLER ST	144,636	0.30%
CIT0116	DERRICK/SMOOT	143,970	0.30%
BUC0003	550 DERRICK AVE	140,700	0.29%
GAR0015	202 I ST	116,800	0.24%
GAR0013	202 I ST	106,806	0.22%
GOM0002	1225 OLLER ST	99,216	0.21%
FRE0004	778 QUINCE ST	92,470	0.19%
CAP0004	1161 OLLER ST	92,215	0.19%
CEN0004	121 BARBOZA "A"	90,700	0.19%
CAS0064	654 LOZANO ST	82,900	0.17%
CIT0057	248 TUFT A,B,C,D	80,460	0.17%
CIT0068	277 TUFT A & B	78,959	0.16%

2.2.3 Maximum Day Demand and Peak Hour Demand

Title 22 evaluates water systems by their ability to satisfy peak demands such as Maximum Day Demand (MDD) and Peak Hour Demand (PHD). Both of these are calculated by use of peaking factors, not by direct measurement of data from water records.

Peaking factors were applied to the MMADD calculated above to estimate MDD and PHD for Mendota. Title 22 recommends applying a peaking factor of 1.5 to MMADD to estimate MDD. PHD is estimated by applying a peaking factor of 1.5 to the estimated MDD. Using these peaking factors, the MDD is estimated at 2,820 gpm and the PHD is estimated at 4,230 gpm. **Table 2-2** summarizes the estimated system demands.

Table 2-2. Summary of Title 22 Water System Demands

Summary of Water System Demands	
Demand Condition	Demand (gpm)
ADD	920
MDD	2,820
PHD	4,230

2.2.4 Fire Protection

The City has adopted the 2016 California Fire Code (CFC) for guidance in determining fire protection requirements. CFC fire flows are based on several criteria including land use, building type, and building footprint. A majority of the City's existing land uses are single family residential with a footprint less than or equal to 3,600 square feet. According to CFC, Appendix B, Table B105.1(1), required fire flow for low-density residential land use, which makes up most of the City, is 1,000 gpm for a minimum of one hour.

SFR with a footprint larger than 3,600 square feet, multi-family residential, commercial and institutional (other than schools) accounts make up the remainder of the existing land use in the City. Each of those land use classifications requires higher fire flow than does single-family residential, and fire flow requirements for each are to be determined based on building size and construction type as required by Appendix B, Table B105.1(2), of the 2016 CFC. Minimum fire protection requirements are summarized in **Table 2-3**.

Based on the minimum requirements, the total required fire flow capacity of the existing water system is 3,820 gpm, sustainable for two hours at 20 psi.

Table 2-3. Single Family Residential Minimum Fire Protection Requirements

Minimum Fire Protection Requirements	
Requirement	Value
Flow Rate	MDD + 1,000 gpm[1]
Duration	1 Hour[1]
Residual Pressure	20 psi

Notes:
1. Minimum fire flow and duration for SFR with a footprint less than or equal to 3,600 SF. Single family residential with a footprint larger than 3,600 square feet, multi-family residential, commercial, and institutional (other than schools) land uses are subject to requirements stated in Table B105.1(2) of Appendix B of the 2016 CFC. Schools are subject to Table BB105.1 of Appendix BB in the 2016 CFC.

2.3 Future Demand Estimates

2.3.1 Land Use Based Demand Estimate

Part of the master planning effort is estimating future demands for infrastructure evaluation. As stated in a previous section, the City has developed a land use plan that covers development to the extent of its General Plan SOI boundary. The amount of time it will take to fully build out the General Plan SOI boundary is not really known. In an effort to minimize the uncertainties, the future demand estimates for this WMP will only project out to the report horizon of 2040. Land use specific demand factors were developed to estimate future demands. **Table 2-4** summarizes the unit demands used for the future demand estimates.

Table 2-4. Land Use Specific Demand Factors

Land Use Specific Demand Factors	
Land Use	Unit Demand (AFY/acre)
Community Commercial	2.9
General Commercial	2.9
High Density Residential	4.7
Heavy Industrial	1.0
Low Density Residential	2.5
Light Industrial	1.0
Medium Density Residential	2.2
Medium-High Density Residential	3.3
Multi-Use/Open Space	1.5
Public/Quasi Public Facility	1.4
Recreational	3.0

There are approximately 12,400 acres within the SOI boundary, which includes all the land within the existing City limits. **Figure 2-2** shows the land use plan for the buildout of the SOI. Within the SOI there are approximately 6,360 acres of land planned for agriculture and buffer area land uses. For the purpose of the future demand estimate, areas identified as agriculture and buffer are not factored into the future demand estimates since they are assumed to not be served by the City system. The remaining area within the SOI boundary amounts to approximately 6,000 acres. Using the land use specific demand factors shown in **Table 2-4** and applying them to the remainder of the SOI boundary, a future buildout demand can be estimated. **Table 2-5** summarizes the future buildout demand based on land use within the SOI boundary. The estimated annual demand for the buildout of the SOI is approximately 10,642 AFY. As previously stated, knowing when the City will reach full buildout of the SOI boundary is uncertain at best. Given that fact, using an abbreviated report horizon up to 2040, the land use demand factors in **Table 2-4**, and an assumed annual growth rate of 1.5%, the City will have an estimate water demand of approximately 2,100 AFY at this report's 2040 horizon year. **Figure 2-3** shows graphically the future demand projection to the year 2040 assuming a linear 1.5% annual growth over time.

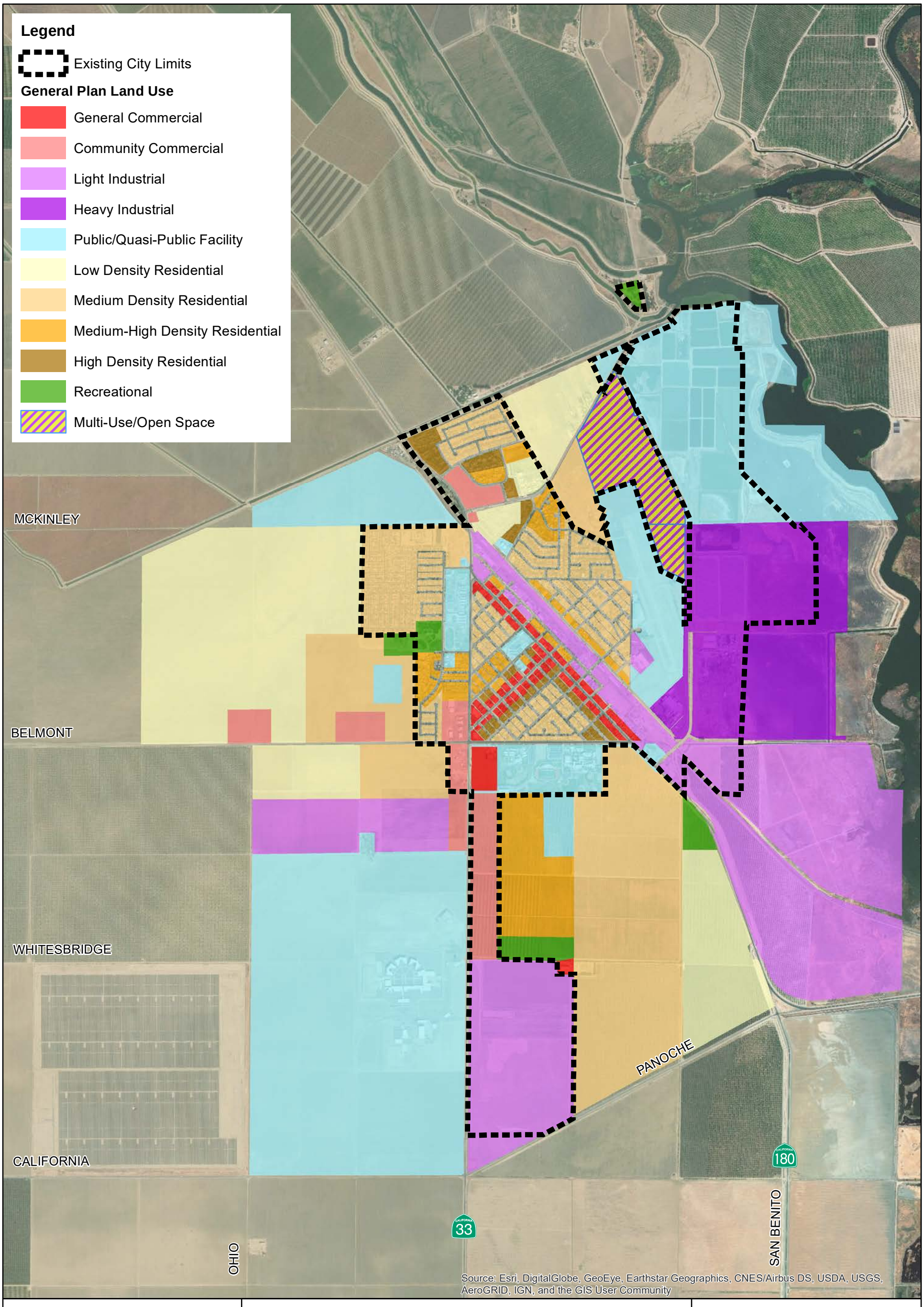


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Figure 2-2
Proposed Land Use

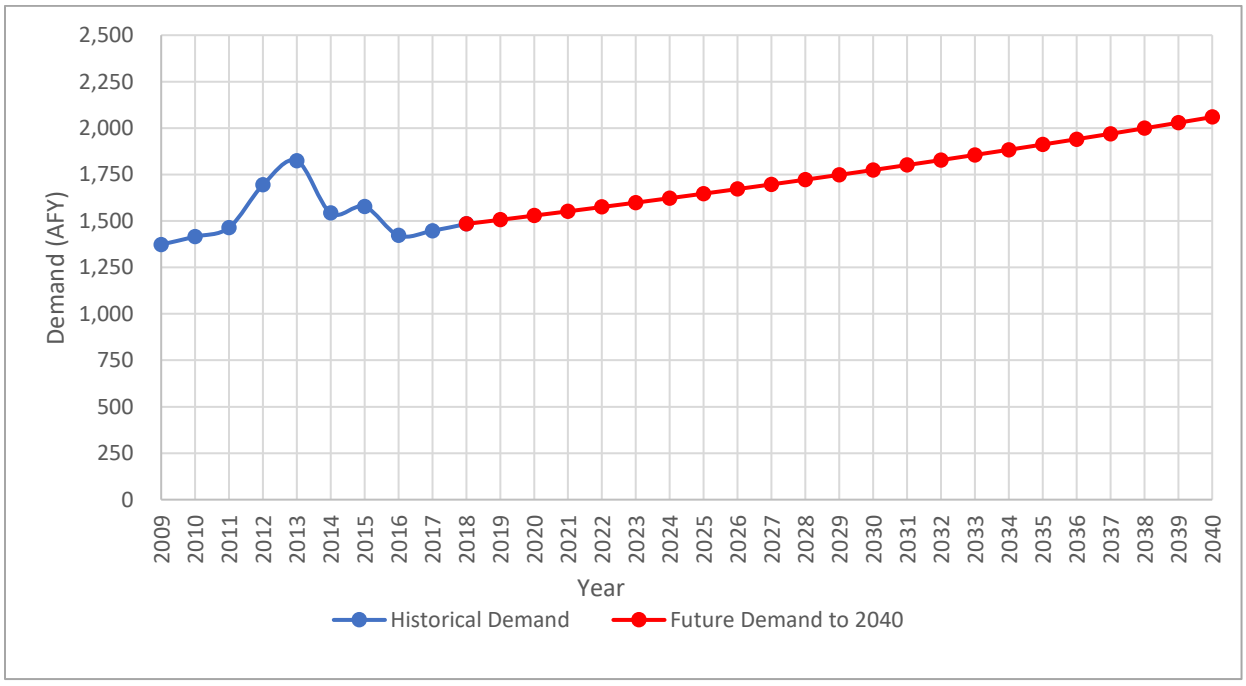
Water Master Plan

City of Mendota

Table 2-5. SOI Buildout Demand Estimate

SOI Buildout Demand Estimate		
Land Use	Area (acre)	Estimated Demand (AFY)
Community Commercial	179	518
General Commercial	68	197
High Density Residential	51	239
Heavy Industrial	481	481
Low Density Residential	883	2,207
Light Industrial	1,108	1,108
Medium Density Residential	1,002	2,203
Medium-High Density Residential	205	678
Multi-Use/Open Space	125	188
Public/Quasi Public Facility	1,872	2,621
Recreational	67	201
Total	6,041	10,642

Figure 2-3. Future Demand Projection



2.3.1.1 Factors Affecting Future Demand Estimates

Many factors will drive the change in water consumption going forward. Two major drivers of change will be:

- State-mandated reductions in indoor and outdoor residential water use
- State-mandated Water Efficient Landscape Ordinance (WELO) legislation affecting all land use classifications

2.3.1.1.1 State-Mandated Reductions in Indoor and Outdoor Residential Water Use

Through recent State of California Department of Water Resources (DWR) Urban Water Management Plan efforts, State mandated water conservation efforts, particularly changes in indoor plumbing fixture demands resulting from implementation of the 2013 CalGreen building code, have reduced per-capita indoor water demands. Where less than 15 years ago it was not uncommon for Central Valley communities, including Mendota, to average 200 to as much as 300 gallons per connection per day water use, real water use in new developments is being measured at just over 100 gallons per connection per day – a very substantial reduction.

Through the Urban Water Management Plan process, to which Mendota will soon be subject, water providers are required to meet forecasted per capita water use reductions, calculated based on mandated state use guidelines, or face penalties. Thanks to the demonstrated lower per-unit water use in new homes, the overall effect of new housing growth is that though population and overall water use continue to grow, the rate of water use growth is substantially reduced and the overall per-connection water demand is reduced, both of which help the community comply with state water use targets.

Many approximations of water demands by land use are available, whether they are measured per person, per housing unit, per commercial square foot, or per plumbing fixture unit. For a water master plan, where use is being projected into areas where little is known about the anticipated future development, many of these methods provide false precision. For example, the model could assume that 70 homes will be built on 10 acres and could then apply a per-connection water use factor. But the reality is that until the development is proposed, we don't know if there will be 60 or 70 or 80 homes or maybe 200 apartments on that parcel. Rather than speculate at that level of precision, the Water Master Plan will apply overall water use factors at a per-acre level.

2.3.1.1.2 State-Mandated Water Efficient Landscape Ordinance (WELO) Legislation

As part of the ongoing State effort to promote water conservation efforts, the State enacted changes to the Water Efficient Landscape Ordinance. The revised version, called Water Efficient Landscape Ordinance, established practices for landscape design and management suited to state climate and conditions. Ultimately WELO will significantly reduce the urban water utilized for outdoor irrigation. WELO requirements have been in effect for new homes and commercial developments since 2015 and must be accounted for in future demand estimates.

2.3.2 Title 22 Future Demand Estimates

Using the 2040 report horizon demand estimate, as stated in Section 2.3.1 of approximately 2,100 AFY, along with the Title 22 recommendations stated in Section 2.2 future water demands can be estimated. For the future demand estimates, the Title 22 recommendations have been calculated using projected ADD rather than working from an actual Maximum Month, since there's no better data available. MDD and PHD have

been calculated using these future ADD values, using peaking factors recommended by the Waterworks standards for water systems of this size.

2.3.3 Future Average Day Demand

As stated above the 2040 average annual demand is projected to be approximately 2,100 AFY, which is equal to production of approximately 1,300 gpm over the entire year.

2.3.4 Future Maximum Day Demand

Title 22 recommends applying a peaking factor of 2.25 to the ADD to estimate a MDD, for water systems of this size. In general, smaller systems use larger peaking factors while larger systems are less prone to spikes in demand and use smaller peaking factors. Applying this peaking factor, the estimated future MDD is approximately 2,925 gpm.

2.3.5 Future Peak Hour Demand

In a similar manner, Title 22 recommends applying an additional peaking factor of 1.5 to the MDD to estimate a PHD for a water system of this size. The PHD estimates the total water demand which can be expected in the highest-demand hour of the highest-demand day of the year. It is one measure of the required system delivery capacity. Applying this peaking factor, the estimated future PHD is approximately 4,400 gpm.

3 Water Supply

The City relies solely on groundwater to satisfy water demands. The City has five existing groundwater wells, of which, three are currently active (Wells 7, 8, and 9) and two (Wells 3 and 5) are on reserve or standby status.

3.1 River Wells

The Fresno Slough is the dividing line between two very different subsurface aquifers, which means the two sets of wells pump from distinct water supplies with widely varying quality. Well water quality will be discussed in more detail in Section 4. Wells 7, 8 and 9 are located east of the Fresno Slough, connected to the WTP via a 20-inch steel raw water transmission main. These three wells are collectively known as the River Wells. Wells 3 and 5 are located west of the Fresno Slough, along the west side of Bass Avenue in the northeast part of the City and are also connected to the 20-inch raw water transmission main. These wells are considered standby wells and are used sparingly.

As part of the Reach 2B Project of the San Joaquin River Restoration Program, Well 7 will be abandoned and a replacement well will be constructed, in order to keep the City's facilities outside of the southerly flood levee of the reconstructed river. The well replacement project is currently in preliminary design, and the new well together with its associated water main extension is planned to be online by late 2020. The new well, to be known as Well 10, is planned to have nearly the same production and water quality as Well 7 and will connect to the WTP through the same raw water main, therefore the impacts to the existing system are anticipated to be minor. **Figure 3-1** summarizes the capacities of the City's existing groundwater wells. **Figure 3-1** shows the locations of the City's current groundwater supply wells.

Historical pumping data for the River Wells was provided by the City for the years 2015 -2017. Production data for these wells is summarized in **Table 3-2.**

Table 3-1. Summary of Existing Groundwater Wells

Summary of Existing Groundwater Wells			
Well Number	Status	Power Rating (HP)	Capacity (gpm)
3	Stand by	75	950
5	Stand by	75	600
7[1]	Active	100	1,000
8	Active	100	1,000
9	Active	100	1,000

Note:
1. This well to be replaced by a new Well 10 in 2020

AGENDA

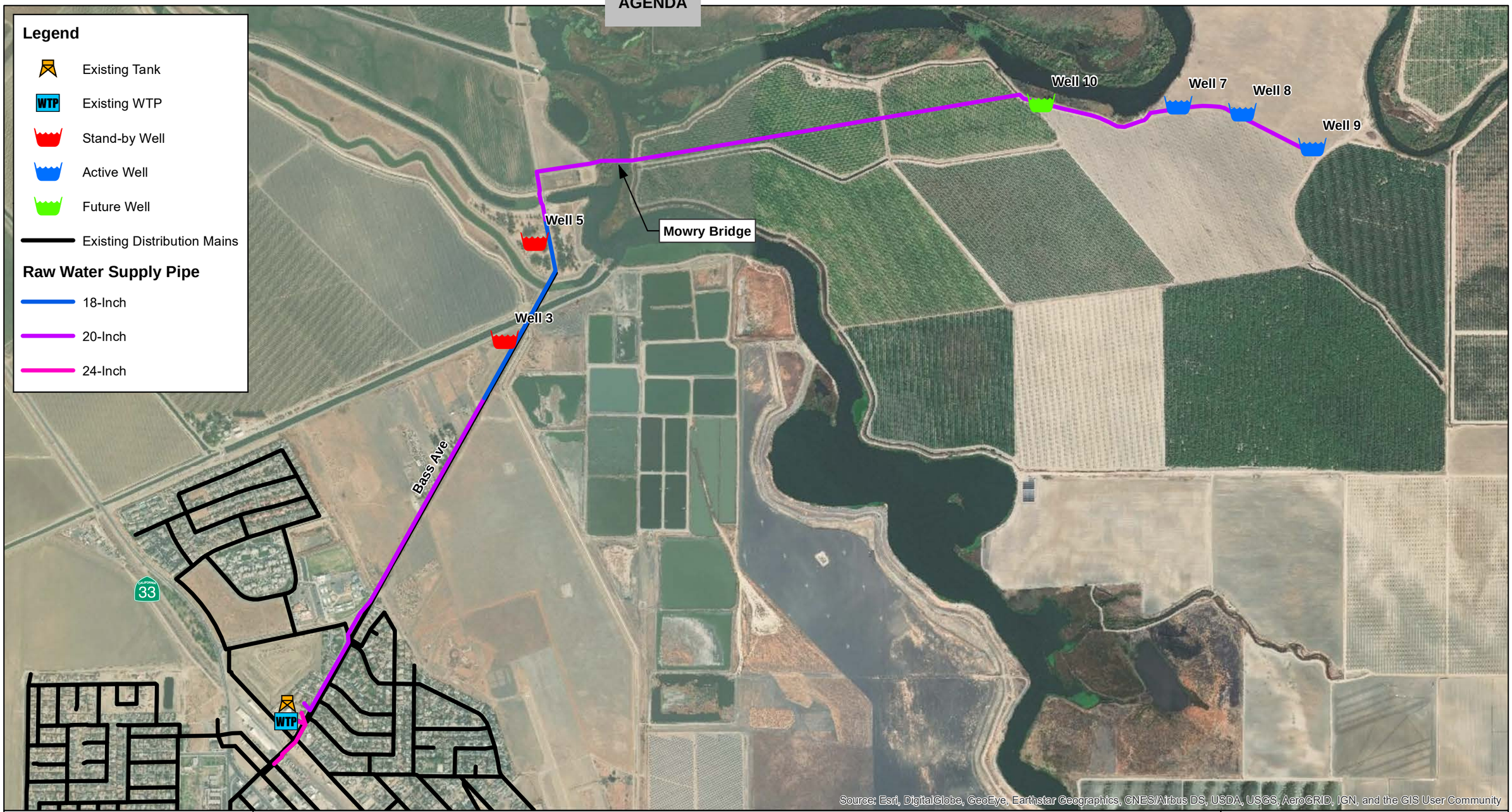


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Figure 3-1
Existing Groundwater Supply Infrastructure

Water Master Plan

City of Mendota

10/29/2019 : G:\Mendota_City of-3336\333618013-Water System Master Plan\GIS\Map\Figure 3-1 Existing Groundwater Supply Infrstructure.mxd

Table 3-2. Well Production Summary

Well Production Summary (AF/year)			
Year	Well Number		
	7[1]	8	9
2015	708	514[2]	623[2]
2016	792	326	656
2017	821	403	646
Average	774	414	642

Note:
1. This well to be replaced by a new Well 10 in 2020
2. January 2015 data was omitted due to anomalous negative volume readings for both wells 8 and 9

3.1.1 Growth Potential

As discussed in Section 2, the City has developed a plan to build out to its current sphere of influence boundary. With growth comes the need for additional water source capacity. Article 2 Section 64554 of Title 22 states that for systems with 1,000 or more service connections, the system shall be able to meet four hours of peak hourly demand (PHD) with source capacity, storage capacity, and/or emergency capacity, and/or emergency source connections. The City has an existing firm well pumping capacity of approximately 2,600 gpm.

Firm capacity is defined as the capacity with the largest source offline and is used to evaluate source capacity. Since the three river wells are the City's largest sources and are all of the same capacity, the City's firm capacity is defined as any two of the river wells, plus Well 5. This assumes that one of the river wells is offline. Under the permit granted by Department of Drinking Water, the City may operate Well 5 only when one of the river wells is offline, as a means of maintaining the highest possible firm capacity.

The City also has 2.0 MG of existing storage capacity. As stated in Section 2.2.3, the existing City PHD is estimated at 4,230 gpm, or a total of 1.02 MG over four hours. Therefore, the City meets Title 22 requirements for source capacity. **Table 3-3** summarizes the existing available supply capacity according to Title 22 standards.

Table 3-3. Title 22 Source Capacity Analysis

Title 22 Source Capacity Analysis		
Source	Supply (gallons)	Demand (gallons)
Wells (2,600 gpm for 4 hours)[1]	624,000	-
Storage (total volume)	2,000,000	-
Total Source Volume	2,624,000	-
PHD (4,230 gpm for 4 hours)	-	1,015,200
Total Demand	-	1,015,200
Source Capacity Excess	1,608,800	

Note:
1. Total well capacity is approximately 3,600 gpm. However, water systems are evaluated using firm capacity which is the capacity assuming the largest source offline. Wells 7,8, and 9 each have a capacity of 1,000 gpm, while Well 5 has a capacity of 600 gpm, therefore firm capacity would be 2,600 gpm,
2. Existing WTP finished water booster pump station has a maximum capacity 5,700 gpm which equates to approximately 1,368,000 gallons over a four-hour period.

Despite the apparent available capacity to support growth as shown in **Table 3-3**, the ability for the City to adequately provide water service to growth areas within the SOI is limited. The main limitations are:

- Hydraulic limitations in the existing well manifold piping (3,800 gpm max)
- Hydraulic limitations for existing WTP (3,000 gpm max)

The existing manifold piping that conveys raw groundwater to the WTP for treatment was sized for the current groundwater well capacity and has little excess capacity for new wells. Pipelines are typically sized to limit flow velocities to five feet per second (fps) during an average demand period. The existing raw water transmission main ranges from 18-20 inches in diameter. 18-inch pipe has capacity to convey up to approximately 3,800 gpm while maintaining flow velocities under five fps. Firm capacity of the system in accordance with State Waterworks Standards is the production of all wells with the largest well out of service. In the City's case, that is Well 5 plus any two of the river wells, or approximately 2,600 GPM. Firm capacity is an industry standard measure of water system supply capacity. Because of the inferior quality of the water produced by Well 5, the City water system permit limits use of Well 5 to times when one of the River wells (7, 8 or 9) is out of service." By limiting flow velocity to five fps, given the existing well capacity of approximately 2,600 gpm, hydraulic calculations show that there is approximately 1,200 gpm of additional flow capacity in the existing raw water pipeline.

The existing WTP is sized to treat the combined capacity of wells 7, 8, and 9 which is approximately 3,000 gpm. The WTP treatment system consists of four filter tanks which are each sized to treat a flow rate of 750 gpm or 3,000 gpm total. Based on the capacity of the filter tanks, there is no additional capacity to additional raw water. In order to service growth using through the existing WTP an expansion would have to occur to allow for additional water to be treated to Title 22 standards.

3.2 Supply and Demand Reconciliation

Existing and future water demands were summarized in Section 2 of this report. As previously discussed in this section, the existing system has available capacity to support growth according to Article 2 Section 64554 under Title 22 of the California Code of Regulations. However, due to the configuration of the system, the existing system is hydraulically constrained and has little ability to support new development. The analysis to support the hydraulic limitations is discussed later in this report. An important part of a water supply plan is to reconcile water demands against the available supplies to estimate how much additional source capacity will be needed to support future development. It is estimated that to support growth consistent with the land use plan for the 2040 report horizon, the City will need to have water supply in excess of 2,100 AFY. The City currently has supply totaling approximately 4,197 AFY. The City will have to track supply and demand over the report horizon to ensure the system can continue to adequately service development within the SOI. Table 3.4 summarizes the reconciliation of the projected water demands against the projected supplies for the buildout of the SOI.

Table 3-4. 2040 Supply and Demand Reconciliation

2040 Supply and Demand Reconciliation		
Source	Supply (AFY)	Demand (AFY)
Existing Capacity	4,194[1]	-
2040 Demand Estimate	-	2,100[2]
Source Capacity Surplus (Deficit)	2,094	

Note:
1. Firm capacity of existing well supply (2,600 gpm.)
2. Estimated using the demand factors previously stated in Section 2 of this report and applying them to the future land use plan

3.3 Other Potential Sources

As stated previously, the City currently relies solely on groundwater treated at its WTP to satisfy water demands. The City currently has no access to surface water supplies. Several options exist for the City to expand its source water capacity including:

- Additional groundwater wells west of the San Joaquin River
- Contracting for surface water
- Development of Recycled Water Supply

3.3.1 Additional Groundwater Wells West of the San Joaquin River

The City has almost entirely relied on groundwater from west of the San Joaquin River for its water supply. Water quality east of the Fresno Slough is of much higher quality than the water west of the Fresno Slough. Water west of the Fresno Slough has numerous water quality issues that makes it largely unusable for potable water supply. However, in the deeper aquifers, there may be opportunities to source water that may be suitable for potable use.

Delivering untreated groundwater is not expected to be a feasible option. All groundwater expansion options, no matter the well location, will involve expanded or additional water treatment facilities. Additional river-area wells will overtax the existing WTP, which would require expansion. Wells west of the slough would require more extensive treatment, which could take the form of either wellhead treatment systems or a new water treatment plant in the western part of the City. If the City decides to drill groundwater wells west of the Fresno Slough, proper due diligence should be performed by the City prior to constructing the well, including coordination with the Groundwater Sustainability Agency (GSA) to ensure that the requirements of the Groundwater Sustainability Plan (GSP) with regard to ground subsidence are met.

3.3.2 Contracting for Surface Water

Surface water is scarce on the Westside of the Central Valley, and due to environmental constraints surface water has become increasingly unreliable during both dry and "normal" periods. Obtaining contracted surface water could be attractive to the City to help offset groundwater pumping to comply with the Sustainable Groundwater Management Act (SGMA). The City of Firebaugh has a DWR contract, and it is possible that the City of Mendota could secure a quantity of water for itself. Mendota is extremely well positioned to take delivery of State Contract water. The Delta-Mendota Canal, one of two primary delivery facilities for the State

Water Project, actually crosses the City's 20-inch Raw Water Transmission Main at Bass Avenue and connection at that point would be a matter of constructing a pipe connection and pumping station.

Aside from actual availability of contracted supplies, the issue of reliability would be foremost. Based on recent (past 10 years) history, the City would be unwise to rely on more than 30 to 40 percent of the contracted supply to be available in any given water year. While the State has delivered more than that in some years, 30 to 40 percent has become an increasingly familiar number as the State has increased its deliveries of Project water for environmental mitigation purposes and shortchanged municipal and agricultural contracts. Securing surface water supplies could provide a means to allow the City to reduce groundwater pumping and assist with SGMA compliance. The City is currently having discussions with Central California Irrigation District regarding securing or exchanging for surface water supply. At this time it's unclear if the City will be successful in securing a reliable surface water allocation.

Ultimately this becomes a financial decision. If the City chooses to purchase 3,000 AF/year, for example, in order to have some reasonable assurance of seeing 1,000 AF/year, it might be able to accomplish that, at a substantial cost. However, that cost would have to be compared with the alternative cost of developing wells and treatment facilities and could turn out to be a good value for the City. This report does not have sufficient information available to make such a decision and recommends that additional study be done.
A variation on this option would be to purchase surface water rights from a third party. Such water deals are made every year and can be beneficial. However, most such deals between third parties are single-year or short-term and don't commit either party to a set of financial terms over the long term. It seems most likely that a short-term deal will not serve the City's interests well and so a third party deal may prove difficult to structure in a satisfactory manner.

3.3.3 Development of Recycled Water Supply

Application of recycled water involves treating wastewater to California Code of Regulations Title 22 water quality standards and using it in ways permitted by the law. For water treated to Title 22 requirements for tertiary, disinfected effluent, permitted uses include unrestricted irrigation of public landscapes, parks, sports fields and more. In a municipal setting, replacement of potable irrigation water with recycled water for just those uses can make a meaningful difference in overall potable water demand.

In order to make use of recycled water, the City would have to upgrade its wastewater treatment process, or at least increase the treatment of a portion of the wastewater, to the tertiary, disinfected level mentioned above. While construction of irrigation pipes to serve all the parks and school yards within the City may not be economically practical, Mendota Elementary School and Lozano Park are both relatively close to the WWTP and could be candidates for recycled water irrigation.

3.4 Permitting Issues

All of the water supply alternatives above come with additional permitting issues. Both surface water and recycled water would require permitting above and beyond what the City is currently used to. Additional groundwater wells west of the Fresno Slough would require additional permitting pertaining to potential groundwater quality issues, but the permitting would be similar to what the City historically has dealt with.

Additional groundwater wells will require permits from Department of Drinking Water (DDW) after demonstration that the water produced meets all Federal and State primary and secondary Maximum Contaminant Levels (MCLs) after treatment, which may include blending with other sources. These permits are familiar ground for the City and have always applied to the existing wells. No additional permitting

programs would apply as the City's water production expands. Calculation of the City's firm water supply would always be done as it is now, as the production of all the wells with the largest well out of service. So, the more wells there are, the less effect having the largest well out of service has on the overall firm supply. Adding additional wells adds significantly to overall system reliability.

Permitting for surface water deliveries is not the same as for groundwater deliveries. The same primary and secondary MCLs apply, but additional rules must be followed. Most importantly, the Surface Water Treatment Rule, which requires settling, flocculation, filtration and disinfection of all surface water supplies, must be implemented. There are also rules with respect to removal of giardia and cryptosporidium, which are microorganisms which may be found in surface waters. They are harmful to humans and must be removed as part of the water treatment process. All treatment processes must be cleared through DDW and proper operation demonstrated before a permit to operate is issued.

4 Water Quality

As stated previously, Mendota relies solely on groundwater. Groundwater quality can vary greatly by location and by depth. In general, the wells that are located east of the Fresno Slough produce water of a higher quality than wells west of the Fresno Slough. The main concern for groundwater in the Mendota area is total dissolved solids (TDS). TDS levels east of the slough are generally much lower than TDS levels west of the slough.

4.1 River Wells 7, 8 and 9

Water quality for Wells 7, 8, and 9 in general meets Title 22 water quality standards without treatment. Pumping records for the years 2015 – 2017 were provided. **Table 4-1** summarizes the water quality for Wells 7, 8, and 9. A review of the Division of Drinking Water (DDW) State Drinking Water Information System (SDWIS) shows that currently the City does not have any ongoing water quality violations. Historically, the City has not had any nitrate issues, which tend to be common in rural agricultural areas like the area around the City.

Table 4-1. Water Quality Summary for River Wells 7, 8 and 9

Summary of River Wells Water Quality By Year										
Constituent	MCL	Well Number								
		7			8			9		
		2016	2017	2018	2016	2017	2018	2016	2017	2018
Iron (µg/L)[1]	300	35	0	5	139	51	46	20	0	37
Manganese (µg/L))[1]	50	26	28	31	8	20	19	21	18	22
Sulfate (mg/L[1]	250	-	-	120	-	-	74	-	-	85
Total Dissolved Solids (mg/L)[1]	500	486	506	528	322	426	380	455	452	437
Specific Conductance (µs/cm)[1]	900	768	799	814	485	664	579	717	694	685
Arsenic (µg/L)[2]	10	-	-	8.4	-	-	4.3	-	-	3.8

Note:
1. This contaminant is regulated to a secondary water quality standard
2. This contaminant is regulated to a primary water quality standard

4.2 Other Sources

The City also has limited ability to use the existing Wells 3 and 5. These wells are largely inactive due to DDW permit limitations and poor water quality. Major water quality issues include high levels of iron, manganese and total dissolved solids, which results in high specific conductance. All four of these constituents are regularly measured above their respective MCLs. **Table 4-2** shows recent water quality results for some of the major constituents for Well 5, which were taken as part of the City's application to return the well to partially

active status. Recent water quality data for Well 3 was not available on the SDWIS site due to the well being placed on standby status.

The City does not have any rights to surface water supplies nor any other potential water sources at this time.

Table 4-2. Water Quality Summary for Well 5

Summary of Well 5 Water Quality By Year				
Constituent	Secondary MCL	2016[1]	2017[1]	2018
Iron (µg/L)	300	-	-	580[2]
Manganese (µg/L)	50	-	-	690[2]
Sulfate (mg/L)	250	-	-	680[2]
Total Dissolved Solids (mg/L)	500	-	-	1,600[2]
Specific Conductance (µs/cm)	900	-	-	2,370[2]

Note:
3. Most recent SDWIS water quality data for these constituents prior to 2018 was 2010.
4. Level is in excess of the MCL

5 Water Treatment

Details pertaining to the water treatment plant (WTP) are presented in the following section.

5.1 Existing Water Treatment Plant

The City treats its groundwater supply through a single central water treatment plant located on 2nd Street between Marie Street and L Street. Record drawings show the existing WTP being constructed in approximately 1981, making the plant nearly 40 years old. The City's WTP has the capacity to treat up to 3,000 gallons per minute (gpm) of raw water through four pressurized green sand media filter vessels. The raw water is treated with sodium bisulfite to treat for iron and manganese, and then sodium hypochlorite is injected into the treated water before it is stored two 1-million-gallon (MG) steel water storage tanks.

The pressure filters were renewed in 2016, with new green sand media, and are in excellent condition. The disinfection system was replaced in 2015 and is also in excellent condition. The VFDs at the distribution pump station were all replaced in 2015 as part of a new maintenance agreement.

The condition of the interior coating of the steel tanks is not known. The date of the last coating inspection was October 2017.

Overall condition of the site and the office reflects the 40-year age of the facility and needs maintenance work. Both the site and the office function adequately but will require work in the next several years to avoid continued deterioration that will result in damage to the facilities.

5.2 Water Treatment Plant Capacity

The WTP and the River wells are well-matched as a production and treatment system, with both sized to deliver a maximum of 3,000 gpm on a sustained basis. The sustainable water production from the supply and treatment system defines a water system's ability to meet a Maximum Day Demand, which must be repeatable day after day and typically cannot be met by drawing water from a storage tank. This suggests that the City would be limited to a Maximum Day Demand of 3,000 gpm at the very highest, without any margin of safety. Currently, the City's highest demand days run between 2,300 and 2,400 gpm, suggesting adequate safety for the time being but also that there is a need to be planning for building and financing additional supply options.

Expansion of the existing WTP will be complicated by the small size of the WTP site and geometric constraints of the current filter and tank layout. Addition of filters may be possible but new filters likely would have to be separated and in a different location on the site than the older filters, which would not be ideal for operational personnel. While that is unfortunate, it's not uncommon for expansion of older facilities where the original design may have never considered the expansion that could be needed decades later.

5.3 Other Treatment Options

With development having already occurred or planned adjacent to the existing WTP site the City is limited by the amount of expansion that can take place at the existing WTP site. Also, given the centralized nature of the source water, the City has begun to experience issues with providing adequate distribution pressures to all

parts of the system under high-demand conditions. While that issue can be addressed through distribution system improvements to some extent (see Section 6), ultimately there will be need for water supplies to be introduced at other parts of the system.

Give the water quality issues associated with the aquifers that underly the City and the surrounding development area, additional treatment is likely to be required. The City has potentially three means to treat future water sources should treatment be required. The alternatives are:

- Additional groundwater wells distributed around the City, with appropriate wellhead treatment systems
- Additional centralized WTP in an area of the City away from the current WTP
- Decentralized WTPs, similar to the alternative above but smaller and not limited to one single new WTP

Each of these treatment alternatives is discussed in the following sections. Each comes with large capital and operations and maintenance costs (O&M). Whichever option(s) is selected, the City is going to have to devise a water portfolio strategy to address demands up through the report horizon.

5.3.1 Additional Groundwater Wells

The river wells provide the highest quality groundwater to the City, requiring the least treatment, and expanding the river wellfield along with the City's growth would seem to be an ideal solution. However, there are two substantial challenges to that expansion which may prove to be insurmountable.

First, the City doesn't own the land on which the wells are drilled and would need to negotiate additional land leases to secure drilling rights for additional wells in the area. These well leases were difficult and expensive to secure 35 years ago. Since then, the Sustainable Groundwater Management Act (SGMA) has come into play, potentially limiting every landowner's right to extract groundwater from his own land and thereby limiting the opportunity to enter into groundwater sale or exchange agreements such as BB Ranch has had with the City.

Second, the raw water transmission main is nearing its capacity. While the production from one more well might reasonably be transported through the pipeline, more than that would have adverse effects on the production of the original wells unless the pumps were changed to higher horsepower units capable of producing higher head pressures.

Developing new groundwater supplies to serve the ongoing growth of the City will require looking west of the Fresno Slough to source groundwater. The aquifers west of the Fresno Slough have high levels of iron and manganese, in excess of the State secondary MCLs, and have total dissolved solids (TDS) levels above the secondary MCL of 1,000 milligrams per liter (mg/L). If those aquifers are tapped for water supply, the City will have to treat the water to reduce those concentrations to meet State requirements.

Several years ago, Dr. Ken Schmidt prepared a hydrogeological report for the City that suggested that deeper aquifers, beneath the Corcoran Clay at a depth of approximately 500 feet, may have water with TDS levels below the secondary MCL. A test well should be constructed to test this proposition. If better water is available at that depth, substantial treatment savings may be realized even with the additional costs associated with constructing wells to those depths. The water beneath the Corcoran Clay is very commonly used by other communities, particularly in the southern part of the San Joaquin Valley, for the same reasons that it would be considered here. It is simply the best groundwater available in many locations. The City should coordinate with all relevant GSP stakeholders if it decides to investigate sourcing groundwater west of the

Fresno Slough in aquifers beneath confining clay layers (like the Corcoran Clay), in an effort to avoid undesirable results like subsidence.

5.3.2 New Centralized Water Treatment Plant

Another approach to supplying water to meet future demands would be to construct a new second centralized WTP. A new WTP, if planned properly, could be scaled to meet new demands over time so the City doesn't have to pay the upfront capital costs for a plant to service the entire buildout of the SOI before it's needed. The City would have to decide where to locate source water to feed the plant. Sourcing groundwater to supply the new water treatment plant would require a large well field and a large transmission main to get water to the plant. A new centralized WTP would also require large transmission mains to move water to remote areas of the SOI in an energy efficient manner. This option does not provide a lot of flexibility for development to leapfrog to remote areas of the SOI without constructing infrastructure to move water to those areas.

5.3.3 Decentralized Water Treatment Plants

This approach involves developing WTPs at strategic locations throughout the SOI with the intent of treating groundwater from several wells located in close proximity to each decentralized plant. The wells feeding each plant would pump water into a common manifold pipe which would convey water to the WTP where it would be treated and pumped out to the distribution system. This option allows the City the flexibility to locate critical water infrastructure adjacent to wherever development is taking place at that point in time.

6 Distribution System

Details pertaining to the water distribution system are presented in the following section.

6.1 Overview

The distribution system comprises approximately 35.5 miles of pipeline with pipe diameters ranging from 4 inches up to 24 inches. Existing pipe materials are believed to be either asbestos-concrete (AC) or polyvinyl chloride (PVC), with a few very old steel and cast iron pipelines in the oldest areas of downtown. **Table 6-1** summarizes the lengths of pipe for each pipe size. **Figure 6-1** shows a map of the City's existing water distribution system. The entire distribution system is operated as a single pressure zone.

Table 6-1. Summary of Pipe Length by Diameter

Summary of Pipe Length by Diameter			
Pipe Diameter (inches)	Length (feet)	Length (miles)	Percent of Total (%)
4	3,893	0.7	2.1
6	60,935	11.5	32.6
8	65,616	12.4	35.1
10	24,176	4.6	12.9
12	11,300	2.1	6.1
14	1,192	0.2	0.6
16	205	0.1	0.1
18	2,586	0.5	1.4
20	15,836	3.0	8.5
24	1,101	0.2	0.6
Total	186,840	35.5	100

6.2 Anticipated Growth Areas

The City has developed a plan for development out the boundary of its current sphere of influence (SOI). **Figure 2-2** (see Section 2) shows the various land uses planned for the buildout of the SOI. Large uncertainties exist around the timing of the buildout of the SOI. Due to these uncertainties, this report is focused on a 20-year planning horizon, through 2040.

For the purposes of the report horizon the City has identified two specific areas of where development is anticipated:

- In the southwest part of the City near the intersection of Gregg Court and Belmont Avenue
- North of Bass Avenue between Derrick Avenue and Barboza Street

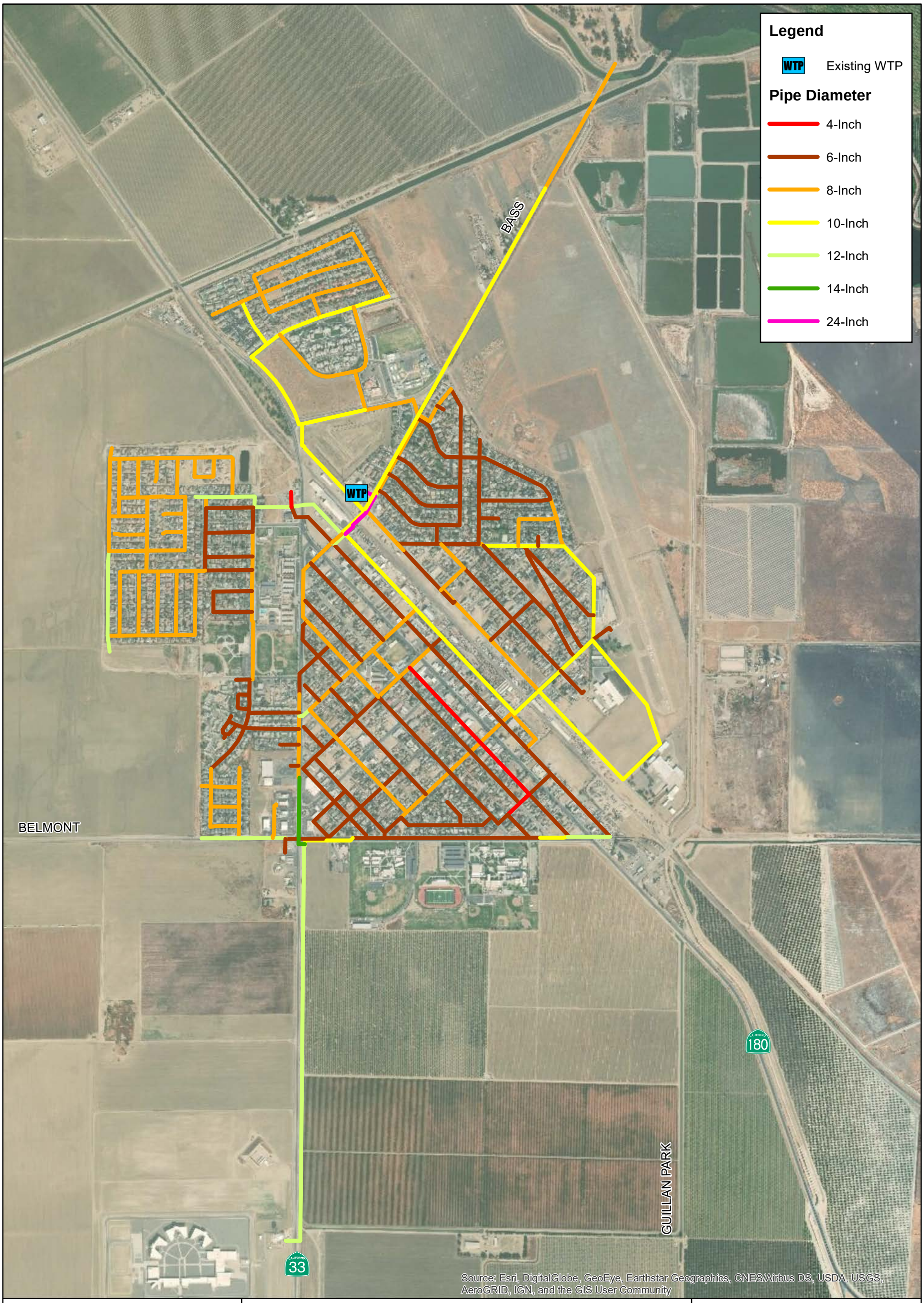

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Figure 6-1
Existing Water Distribution System

Water Master Plan

City of Mendota

10/29/2019 : G:\Mendota_City of-3336\333618013-Water System Master Plan\GIS\Map\Figure 6-1 - Existing Water Distribution System.mxd

Figure 6-1 identifies the two areas identified for near term development. The near-term development areas are anticipated to build out over the next 15-20 years and will be the focus of the capital improvement plan, discussed later in this section.

6.3 Pressure Zones

As stated previously, the City distribution system operates on a single pressure zone. Given the generally flat topography of the City, along with the single a single pressure zone works to serve the entire system with similar service pressures. Depending on how the City develops in the future it may make sense to separate the distribution system into distinct pressure zones to ensure similar service pressures City wide.

6.4 Water Storage

The City has two existing one-million-gallon finished water storage tanks located at the existing WTP site. Total existing water storage is 2 million gallons (MG). Article 2 Section 64554 of Title 22 states that for systems with 1,000 or more service connections, the system shall be able to meet four hours of peak hourly demand (PHD) with source capacity, storage capacity, and/or emergency capacity, and/or emergency source connections. Given the existing water demands estimated stated in Section 2 of this report, to comply with Title 22 requirements the City needs to have at least 1.25 MG, therefore the existing system complies with Title 22 using water storage alone. Considering the existing groundwater pumping capacity, according to Title 22, the City has excess source capacity to serve development. Issues arise, when the system configuration is examined. With all the existing water storage and pumping capacity centralized at the WTP, the system will have issues serving growth areas outside of the current City limits without additional decentralized water sources (i.e. wells or tanks/booster pumps) constructed at strategic locations throughout the SOI.

6.5 Pumping Capacity

The WTP has a finished water booster pump station that is comprised of five pumps ranging from 15 hp up to 75 hp. The pump station has two jockey pumps to service low demand periods and three larger booster pumps to service high demand periods. The pump station pumps are controlled by VFDs which allow the pumps to provide a wide range of flow to meet system demands while maintaining a constant pressure. The pump station has a theoretical maximum pumping capacity of approximately 5,925 gpm, but since the pumps are controlled by a VFD, which operates the pumps between 58-62 psi, the maximum pumping capacity is approximately 5,700 gpm. Pump station pumping capacity is often expressed as firm pumping capacity, or the capacity with the largest pump offline. The pump station has a firm pumping capacity of approximately 3,800 gpm. Table 6.2 provides a summary of the design details for the existing WTP pump station.

Table 6-2. Water Treatment Plant Booster Pump Information

Water Treatment Plant Booster Pump Information			
Pump Number	Pump Type	Power Rating (HP)	Capacity (gpm)
1	Jockey	15	320
2	Jockey	25	600
3	Booster	75	1,900[1]
4	Booster	75	1,900[1]
5	Booster	75	1,900[1]

Note:
1. Pumping capacity at 58 psi according the manufacturer's pump curve.

Given the demands stated in Section 2, the City has sufficient pumping capacity to meet both current PHD and fire flow demands. Again, the system, while adequate for the existing system, is limited due to its physical layout and configuration which has all system pumping capacity centralized at the existing WTP. To support growth outside of the current City limits the City will have to look to construct additional water sources (wells or tanks/booster pumps) at strategic locations throughout the SOI.

7 Hydraulic Model and Analysis

This section summarizes the development of the City's water distribution system hydraulic model. The hydraulic model was utilized to evaluate the existing water system and develop future system improvements.

7.1 Modeling Software

The City does not have an existing computerized hydraulic model of its water distribution system. As part of the Water Master Plan process, a computerized model has been developed using Bentley's WaterCAD version 8i modeling software. WaterCAD is a decision support tool for water distribution infrastructure. It operates in both AutoCAD and MicroStation computer-aided design platforms and also as a standalone software. In this case we took advantage of its AutoCAD compatibility so we could make use of existing City base mapping. It has numerous features that streamline the modeling development process, allowing an accurate model to be developed in an expedient manner, and has advanced modeling capabilities which allow a modeler to easily manage and manipulate database and customer information to streamline the analysis process.

7.2 Hydraulic Model Development

The basis for the water system layout was the AutoCAD-based distribution system bas map which we maintain in our library as part of our City Engineering responsibilities. **Figure 7-1** shows the Auto-CAD based distribution system map. The system map was loaded into the water model as a shapefile and digitized to create the existing system pipe layout. In order to create a true three-dimensional model and account for pressure variations due to elevation change, ground elevations for the junctions were assigned from USGS contour data. Model facility attributes were then inputted into the model based on data compiled during the research phase of the master planning effort. **Figure 7-2** shows the existing system as represented in the hydraulic model.

7.2.1 Modeled Water Sources

7.2.1.1 Groundwater Wells

All City wells are located along and connected to a 18-inch to 20-inch raw water transmission main that conveys water to the WTP, where it is treated, stored, and ultimately distributed to the end users. The groundwater wells are hydraulically disconnected from the distribution system by the existing water storage tanks. As a result, while essential to the operation of the distribution system, the groundwater wells are not part of the distribution system modeling. They serve only to keep the storage tanks full, or within their operating range.


RAILROAD
INTAKE CANAL
MENDOTA CITY LIMITS
STATE ROUTE 33
LOZANO CITY PARK
BASS AVE.
BASS AVENUE
BOYER STREET
PEREZ STREET
BARBOZA STREET
DANIEL STREET
SAUCEDO STREET
GIL STREET
YLLAN STREET
SECOND ST.
FOURTH ST.
"I" ST.
"J" ST.
"K" ST.
"L" ST.
"L" ST.
MARIE ST.
KATE ST.
KATE CT.
BOU CIRCLE
CITY WATER PLANT CORP. YARD
EASTSIDE CITY PARK
DIVISADERO ST.
JUANITA ST.
INEZ ST.
FIFTH ST.
SIXTH ST.
SEVENTH ST.
EIGHTH ST.
NINTH ST.
TENTH ST.
ELEVENTH ST.
AIRPORT BLVD.
CANAL ST.
NAPLES ST.
GIVENS ST.
BECKWITH ST.
DIAZ CT.
OUROSA CT.
CASTRO ST.
SILVA CT.
SEIZER CT.
GURROLA ST.
AMADOR AVE.
HOLMES AVE.
CASTANEDA CT.
BANDONI CT.
McCABE AVE.
BARAJAS CT.
MARTINEZ CT.
ROWE AVE.
FLEMING AVE.
GAMEZ CT.
PERRY CT.
CERVANTEZ ST.
BLACK AVE.
CDF FIRE DEPT.
BROADS VALE
SCHOOL DISTRICT OFFICES
SORENSEN AVE.
HWY 33
GREGG COURT N.
GREGG COURT WEST
McCABE SCHOOL
ESPINOZA ST.
VALENZUELA ST.
MALDONADO ST.
SANTA CRUZ ST.
SAN PEDRO ST.
OXNARD ST.
ROJAS/PIERCE CITY PARK
SMOOT AVE.
FRESNO COUNTY HOUSING AUTHORITY
STRAW ST.
FRESNO COUNTY TUFT AVE.
HOUSING AUTHORITY
LOCUST AVE.
ELM AVE.
ASH AVE.
PEACH AVE
BELMONT AVE.
MENDOTA CITY LIMITS
THIRD ST.
OLLER ST.
MAPLES ST.
HWY 180
PUCHEU ST.
FOURTH ST.
QUINCE ST.
WASHINGTON ELEM. SCHOOL
SOUTHERN PACIFIC RAILROAD
MENDOTA CITY HALL
RIO FRIO ST.
STAMOULES ST.
TULE ST.
UNIDA ST.
DERRICK AVE.
JENNINGS
CIRCLE
JENNINGS ST.
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CITY OF MENDOTA
WATER SYSTEM MAP
Figure 7-1

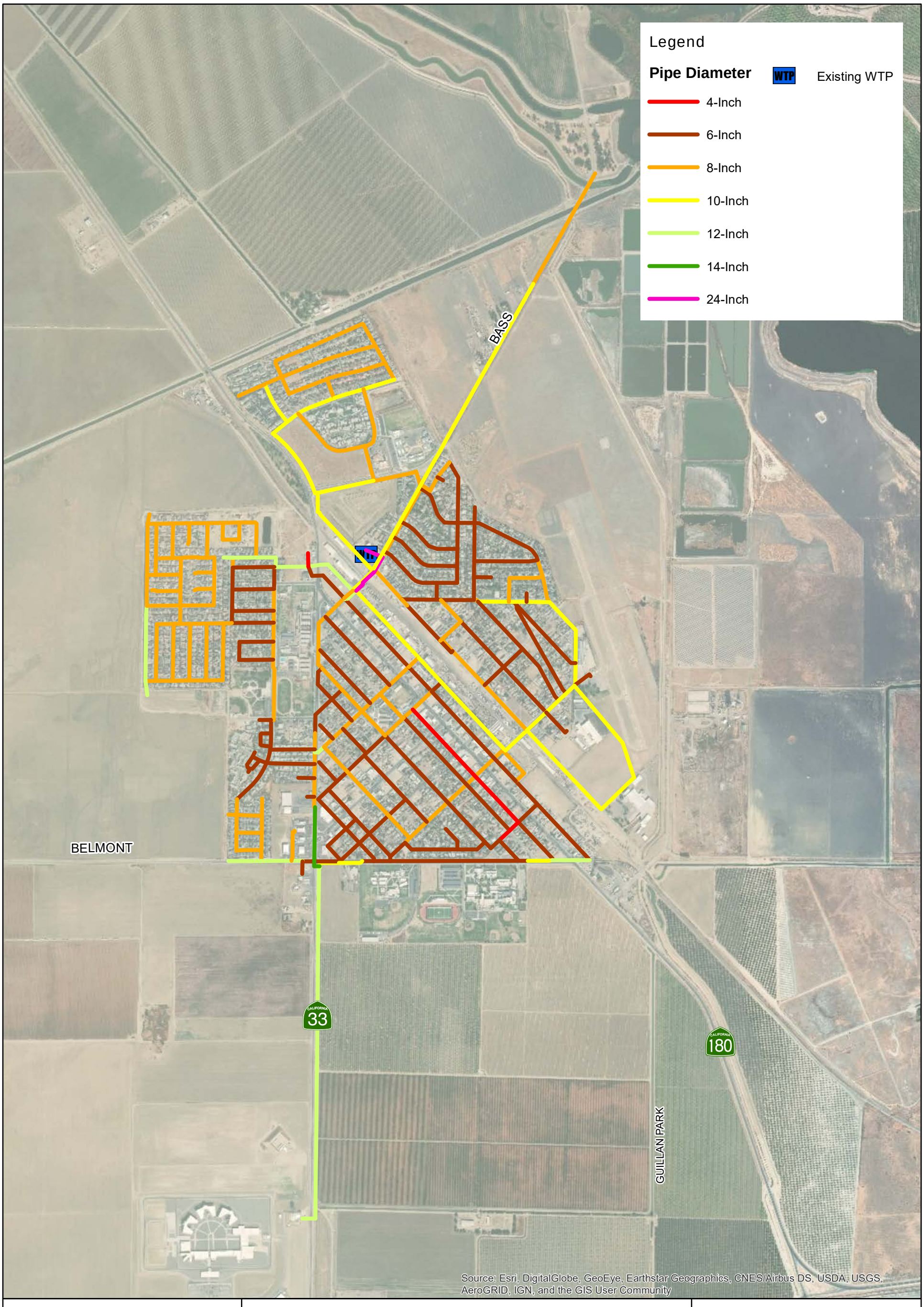

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Figure 7-2
WaterCAD Based Water Distribution System Map
Water Master Plan
City of Mendota

10/30/2019 : G:\Mendota_City of-3336\333618013-Water System Master Plan\GIS\Map\Figure 7-2 - WaterCAD Based Water Distribution System.mxd

7.2.1.2 Water Treatment Plant

For the purposes of the hydraulic model, there is only one water supply to the distribution system: the WTP. As mentioned, none of the wells add to the distribution capacity. They all serve to fill the storage tanks. They have to do that job effectively, but the only water available to the distribution system is pumped from the single pump station at the WTP.

The WTP pump station comprises five pumps in parallel, each of which is controlled by VFDs allowing more precise control of WTP production to meet system demand. According to City Water Department staff, the pumps are set to maintain a system pressure measured at the WTP of between 58-62 pounds per square inch (psi).

This pressure range is relatively small and allows an opportunity to simplify the model. Rather than try to electronically re-create the five pumps, their pump curves, their VFDs, and exactly how each will react under varying demand, we can assume that the pumps do react in some reasonable manner and do maintain system pressure in the desired range. We know that because the performance can be observed under a variety of operating conditions. Since that is the case, we can for modeling purposes replace the five-pump station with a fixed-head reservoir, set to provide flow at a pressure of 58 psi. At times and under certain conditions this simplification may be a little bit conservative, but overall it will provide a more stable and reliable model for the system.

In the language of a water model, a reservoir doesn't have to be a lake, although it can be. A reservoir in the water model is simply a supply of water of up to a certain flow rate, delivered at a specific pressure. In the case of the WTP pump station, it can be modeled as a reservoir producing as much as 5,700 gpm at 58 psi. System demands over and over that amount cannot be met by the current pumping station.

7.3 Scenario Development

Water demand scenarios are established to conduct hydraulic analysis under different demand or operational conditions. For this master planning effort, four primary demand scenarios have been be analyzed. These are:

- Average Day Demand (ADD)
- Maximum Day Demand (MDD)
- Peak Hour Demand (PHD)
- Maximum Day Demand Plus Fire Flow (MDD+FF)

These four scenarios have been analyzed to assess the system's operation both under low- and high-demand "normal" conditions, such as a typical winter and summer day, as well as to point out potential deficiencies in the existing system under high-stress conditions including the highest demand hour on a high-demand day, and potential fire flow demands added on top of that high-demand day. These conditions are commonly used in the industry to assess system health, and often lead to analysis of other, more focused scenarios if particular weaknesses are revealed. In addition to analyzing existing system performance, these analyses also help to determine the improvements that will be needed to provide adequate water service throughout the City as it grows to full buildout.

7.4 Demand Allocation

7.4.1 Existing System Demand Allocation

Existing system demands were located in the hydraulic model through a process called geocoding. Geocoding is the process of transforming a description of a location, such as a postal address, into a location on the earth's surface. Geocoding produces an accurate spatial depiction of the elements being located. As stated previously, the City provided billing data for the ten most recent fiscal years. Included with the data was a physical address for each meter. This data was checked against County Geographical Information System (GIS) parcel data to locate water meters on the ground.

As discussed above, the 2017-2018 billing data was used as the basis for model demands. The geocoding process successfully yielded a physical location for over ninety-one percent of the meters provided by the City, which translated to over ninety-four percent of the 2017-2018 metered consumption. The end result of the geocoding was the creation of a point shapefile, which represented water meter locations and contained annualized water consumption data for each geocoded meter. **Figure 7-3** shows the spatial depiction of the meters that were successfully geolocated in the master planning effort.

Using the geocoded meter shapefile, meter demands were allocated in the model using a "nearest node" methodology. The nearest node demand allocation method utilizes the Thiessen polygon method[1] to assign a unique tributary area to each model junction. Junctions are locations in the model that connect pipes hydraulically and places where water demands enter or exit the system. Once the Thiessen polygons are established and assigned to a junction, a spatial analysis is conducted that links each geocoded meter within a given polygon to that junction, and then sums the meter demands allocated to the junction.

[1] Thiessen polygons are generated from the meter locations and model junctions such that each polygon defines a group of meters (with their associated water use) around each model junction, so that any meter inside the polygon is closer to that junction than to any of the other junctions.

7.4.2 Buildout System Demand Allocation

The future system demand estimate will utilize a land use-based demand allocation methodology. **Figure 2-2** (See Section 2) shows the future development areas along with the proposed land uses. Similar to the existing system demand allocation, model junctions will be assigned a tributary area using the Thiessen polygon method. The polygons will then be spatially analyzed against the land use map shown in **Figure 2-2**. Land use specific unit demands will be inputted into the model and used to determine demand allocations at each model junction.

The City is not currently tracking demands by land use or customer class. Land use specific unit demands (discussed below) were determined by reviewing unit demands for similar cities in the Central Valley.

7.5 Model Verification and Calibration

Upon completion of the existing system model development a verification process was performed to check that model facilities were behaving as expected. The verification process showed that the model was operating as expected given the inputs entered, which is an excellent result.

Upon completion of the model verification, it is very common to have to calibrate the model using an iterative computerized process to fine-tune the model such that model output matches existing data records, within a specific tolerance. The computer algorithm typically attempts to adjust Hazen-Williams C-factors (C-factors) system wide until model results satisfactorily compare to observed data.

In Mendota's case, the water distribution system is known to be a mix of Asbestos-Cement and PVC pipe, which are not known to corrode internally under normal conditions. Very old pipe materials, such as unlined cast iron pipe, do commonly corrode internally and would be good candidates for a C-factor adjustment performed in a calibration. Given the materials of the existing pipes it is not likely that model calibration would yield C-factors that reflect the existing internal pipe conditions, therefore a calibration effort could artificially manipulate model results. Given the operational set up of the system and the existing pipe materials, a full water model calibration is considered unnecessary and is not recommended for this master planning effort.

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Figure 7-3
Geocoded Water Meters

Water Master Plan

City of Mendota

7.6 Modeling Evaluation Criteria

System modeling criteria must be established to determine existing system deficiencies and the adequacy of future improvements. Typical criteria used to evaluate water distribution systems include:

- System Pressure
- Pipeline Velocity
- Pipeline Headloss

The following section summarizes the modeling criteria that will be used to evaluate the existing and future systems.

7.6.1 Pressure

Service pressure is a basic level of service requirement to maintain good system operations and a reliable water supply to customers. Service pressures will vary depending on elevation, proximity to sources of supply, and by demand condition. Thus, pressure criteria must be established to mitigate unnecessary reductions in levels of service. These criteria are established to avoid undesirable flow reductions that can occur when service pressures are too low, or the damage and unnecessarily high flow rates that can occur when service pressures are routinely too high. High and low system pressures can often occur due to elevation changes. As the ground rises, water pressure in the system falls and flows decline.

The converse is also true. If the land falls, the pressure in the water system increases, and can increase to the point of being destructive. In systems such as that, the system can be broken into pressure zones by use of pressure reducing valves or pressure sustaining valves as needed. The City of Reedley is a local example, as the city lands fall toward the Kings River there is a separate pressure zone to keep system pressure from getting too high.

Because Mendota is so nearly flat, the City operates as a single pressure zone, which means that the water pressure in every part of the system is directly related to the pressure in every other part of the system. This results in satisfactory pressure performance in all areas of the City at normal flow rates, so we don't see any reason to plan for implementation of pressure zones in the foreseeable future.

Table 7-1 summarizes the recommended pressure ranges for the City. Fire flow requirements dictate that residual pressures during a fire flow stay above 20 psi at all times during the fire flow event.

Table 7-1. System Pressure Criteria

System Pressure Criteria		
Demand Scenario	Minimum Pressure (psi)	Maximum Pressure (psi)
ADD	50	80
MDD (existing development)	35	80
MDD (future development)	40	80
PHD	35	80

7.6.2 Velocity

In addition to pressure criteria, distribution systems are evaluated on flow velocities throughout the entire system. Pipelines are designed to convey the maximum expected flow condition. High flow velocities create high head loss and can lead to pipe damage, mostly caused by sand abrasion.

In certain cases, much more catastrophic damage can be caused by sudden changes in high velocities, which create reflective pressure waves within the water system known as "water hammer." This phenomenon is well named, as it can burst pipe, damage fittings and water services, and wreck all sorts of havoc on a water system. The best cure is avoidance, which is best achieved through reasonable limitation of water main velocities. Therefore, it is desirable to keep the velocity below a predetermined limit. **Table 7-2** summarizes the criteria for maximum pipeline velocities.

Table 7-2. Pipeline Velocity Criteria

Pipeline Velocity Criteria	
Demand Scenario	Maximum Velocity (ft/sec)
ADD	5
MDD	5
PHD	7
MDD+FF	10

7.6.3 Headloss Gradient

Headloss is a loss of energy within pipes that results in reduced pressure within the water system. In an effort to mitigate the potential loss of pressure, water systems typically are sized to reduce the potential for headloss. Though systems can and do operate with more headloss in most or all of the distribution piping, the guideline for maximum headloss in the pipes is 10 ft/1,000ft of pipeline, or 0.010 ft/ft.

7.7 Model Results

The following section summarizes the results stemming from the analysis of normal operating scenarios and fire flow scenarios.

7.7.1 Existing System Normal Operating Scenarios

A steady-state analysis performed on the existing system model against the criterial previously stated in this section. The existing system was analyzed under the following demand scenarios: ADD, MDD, and PHD. The following discussion summarizes the findings of the analysis.

7.7.1.1 System Pressures

Table 7-1, above, shows the minimum and maximum allowable pressures for each of the demand scenarios analyzed. The model results show that the existing system can provide pressures in the distribution system above the minimum 35 psi requirement up to the PHD. No pressure related deficiencies were identified in the existing system. **Figure 7-4**, **Figure 7-5**, and **Figure 7-6** show the pressure results for ADD, MDD, and PHD, respectively.

7.7.1.2 Flow velocities

Table 7-2, above, shows the maximum allowable flow velocities for each of the demand scenarios analyzed. The model results show that the existing system flow velocities in the distribution system were below the maximum allowable velocities for all the demand scenarios analyzed. No velocity related deficiencies were identified in the existing system. **Figure 7-7**, **Figure 7-8**, and **Figure 7-9** show the flow velocity results for ADD, MDD, and PHD, respectively.

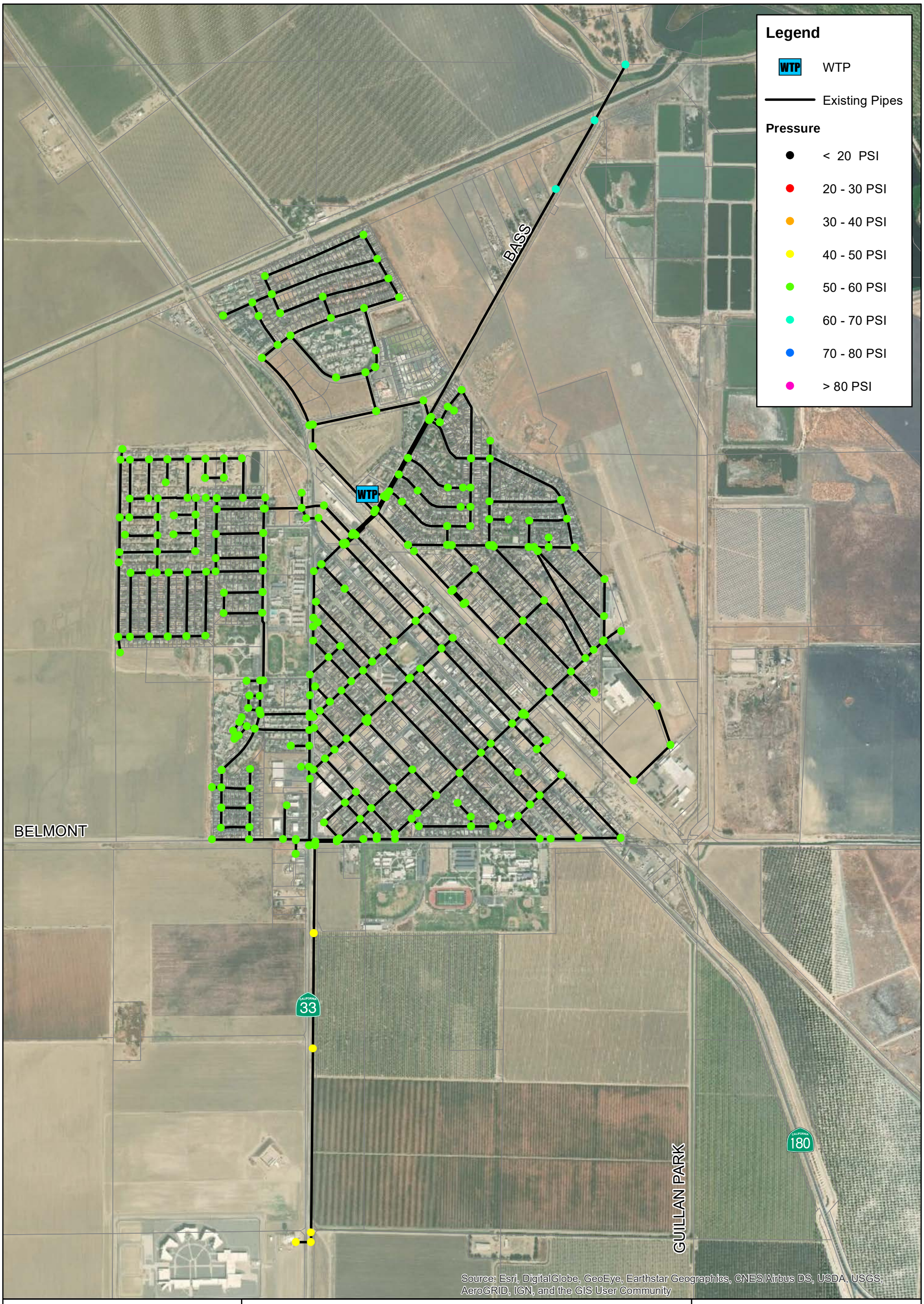
7.7.1.3 Headloss Gradient

Section 7.6.3, above, discussed the maximum allowable headloss gradient for pipelines. The model results show several segments of pipeline within the existing system that exceed the maximum allowable headloss gradient of 0.01 FT/FT. **Table 7-3** summarizes the pipeline alignments that exceed maximum allowable headloss gradient guidelines. **Figure 7-10**, **Figure 7-11**, and **Figure 7-12** show the headloss gradient results for ADD, MDD, and PHD, respectively.

High headloss gradient results indicate that energy is not being expended efficiently and that a pipeline is reaching its maximum flow capacity. Despite the design criteria exceedances identified, flow velocities in these pipelines are below the maximum allowable velocities shown in **Table 7-2**. In addition, system pressures are above the minimum requirements shown in **Table 7-1**. The City will need to decide whether to make improvements to these pipes, but because velocities and pressures are still within overall design criteria, any improvements should be considered lower priority repairs. Improving these sections of pipe alone likely won't provide the system with additional capacity to support the growth forecasted for the planning horizon of this report.

Table 7-3. Maximum Allowable Headloss Gradient Exceedances

Maximum Allowable Headloss Gradient Exceedances				
Model Pipeline ID	Pipe Diameter (in.)	Pipeline Alignment Description	Headloss Gradient (FT/FT)	Demand Scenario
P-239	6	Belmont Ave. at 8th Street	0.011/0.013/0.014	ADD/MDD/PHD
P-87	6	Intersection of Smoot Ave. and Sorensen Ave	0.011	PHD
P-264	8	2nd Street between Naples St. and Oller St.	0.013	PHD
P-364	6	Intersection of Divisadero St. and Lolita St.	0.014	PHD
P-405	8	Intersection of 2nd St. and Naples St.	0.016	PHD
P-460	8	Intersection of 2nd St. and L St.	0.020	PHD
P-406	10	Intersection of 2nd St. and Naples St.	0.012	PHD
P-402	8	Intersection of 2nd St. and L St.	0.012	PHD
P-253	6	Intersection of Smoot Ave. and Sorensen Ave	0.011	PHD
P-238	6	Belmont Ave. at 8th Street	.010	PHD



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0 500 1,000
Feet

Figure 7-4
Average Day Demand Pressures

Water Master Plan

City of Mendota

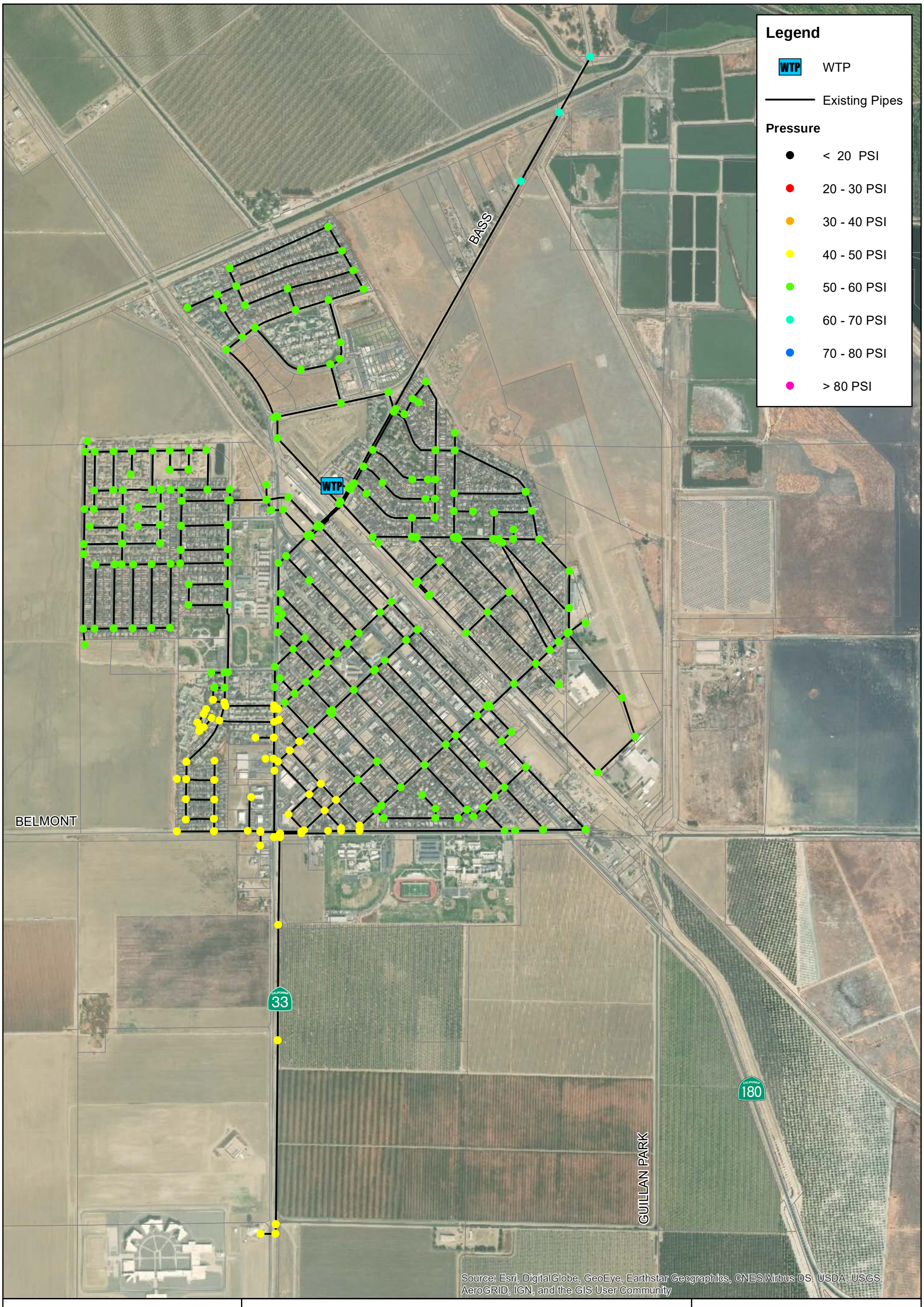

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Figure 7-5
Maximum Day Demand Pressures

Water Master Plan

City of Mendota

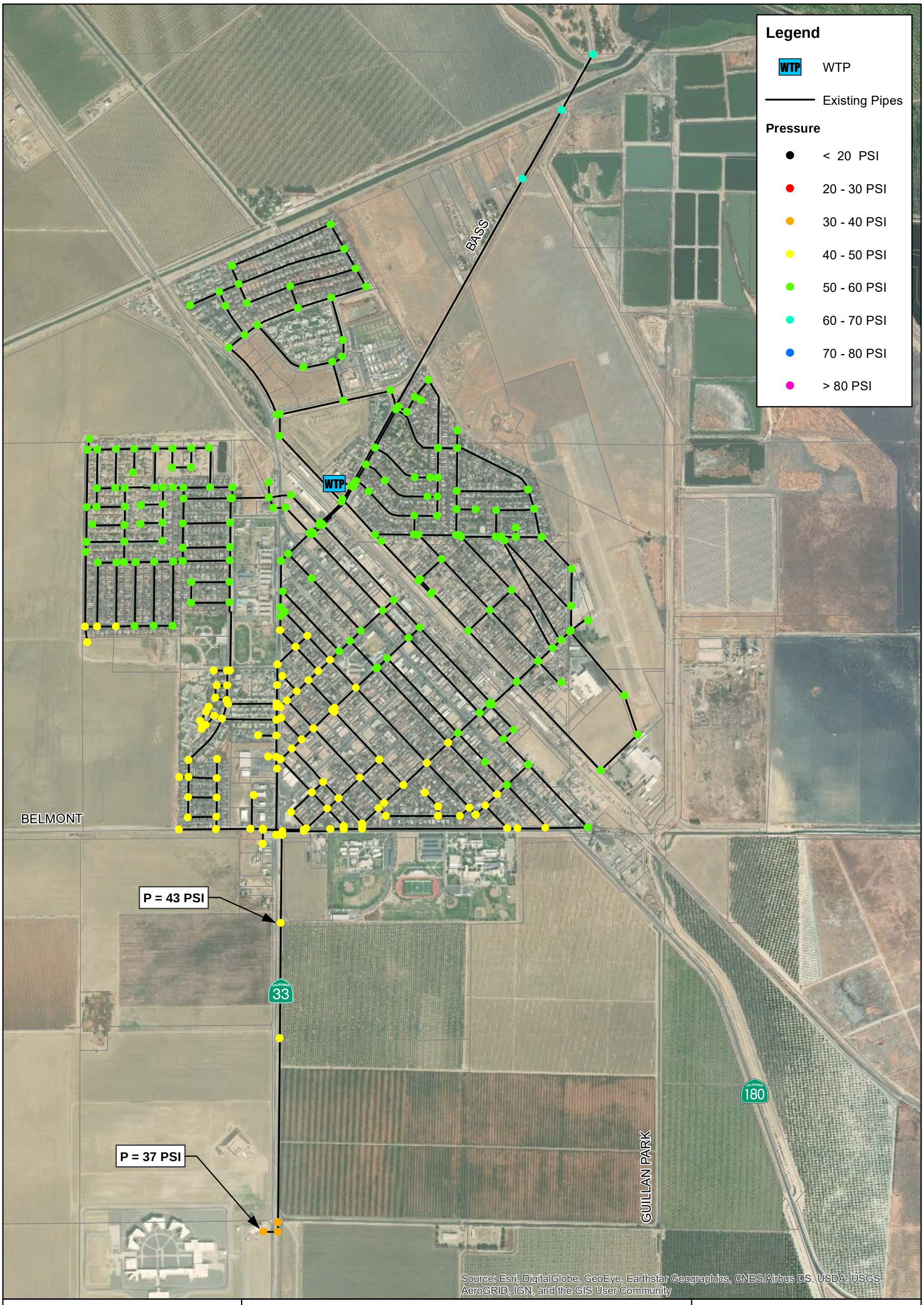

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Figure 7-6
Peak Hour Demand Pressures

Water Master Plan

City of Mendota

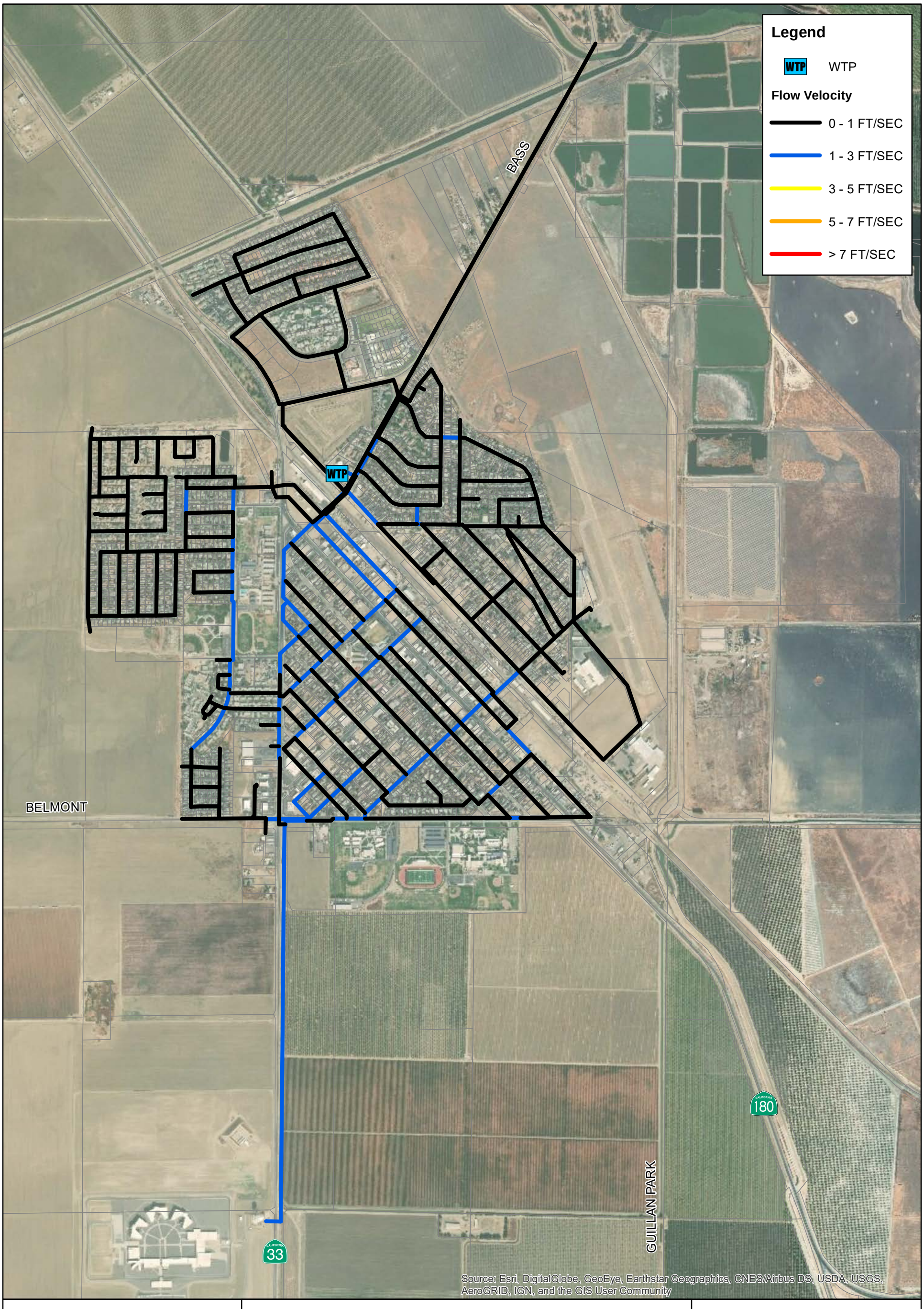

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Figure 7-7
Average Day Demand Velocities

Water Master Plan

City of Mendota

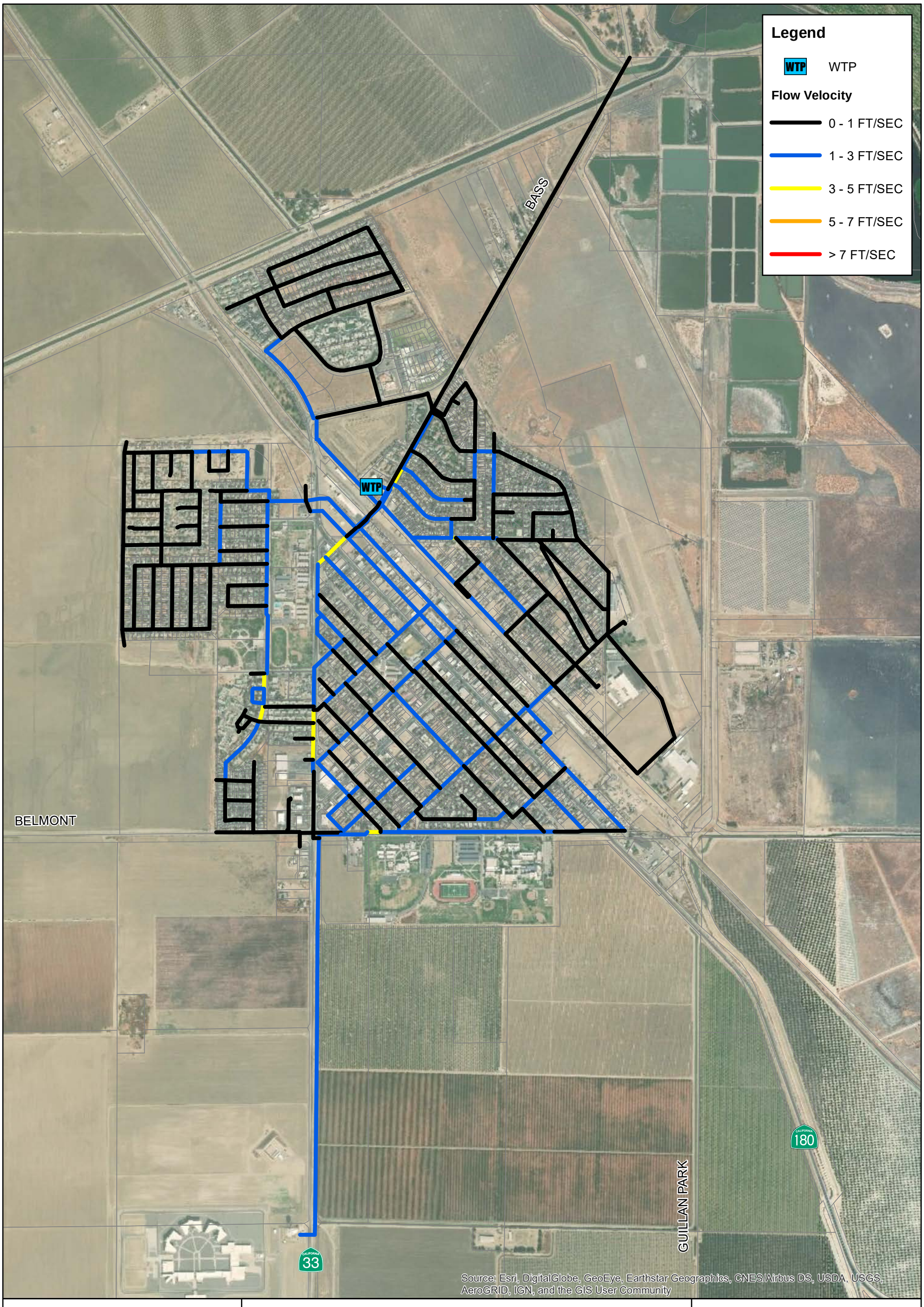

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Figure 7-8
Maximum Day Demand Velocities

Water Master Plan

City of Mendota

10/29/2019 : G:\Mendota_City of-3336\333618013-Water System Master Plan\GIS\Map\WMP Figures\DRAFT\Figure 7-8 MDD Velocities.mxd

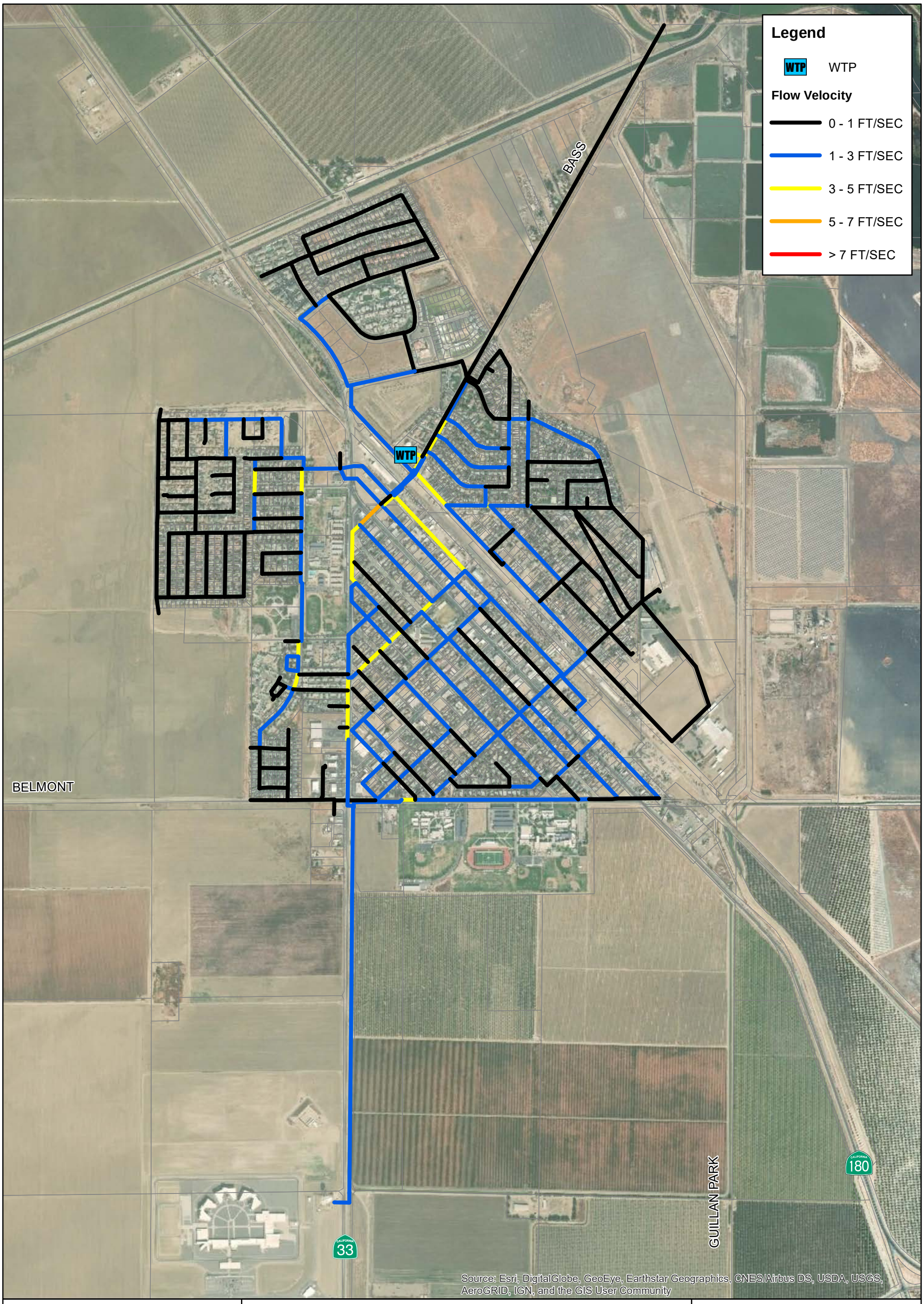

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Figure 7-9
Peak Hour Demand Velocities

Water Master Plan

City of Mendota

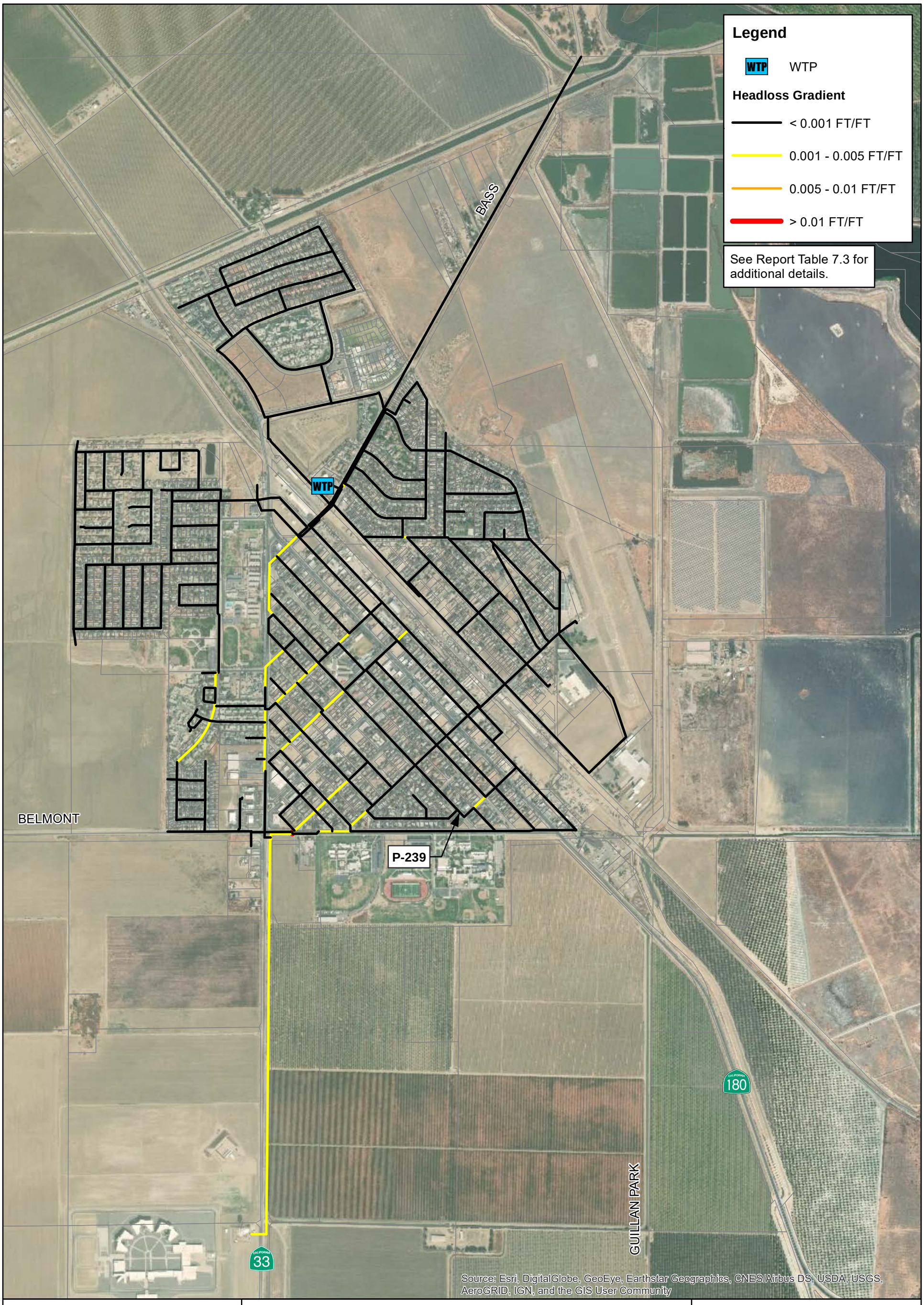

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Figure 7-10
Average Day Demand Headloss Gradient

Water Master Plan

City of Mendota

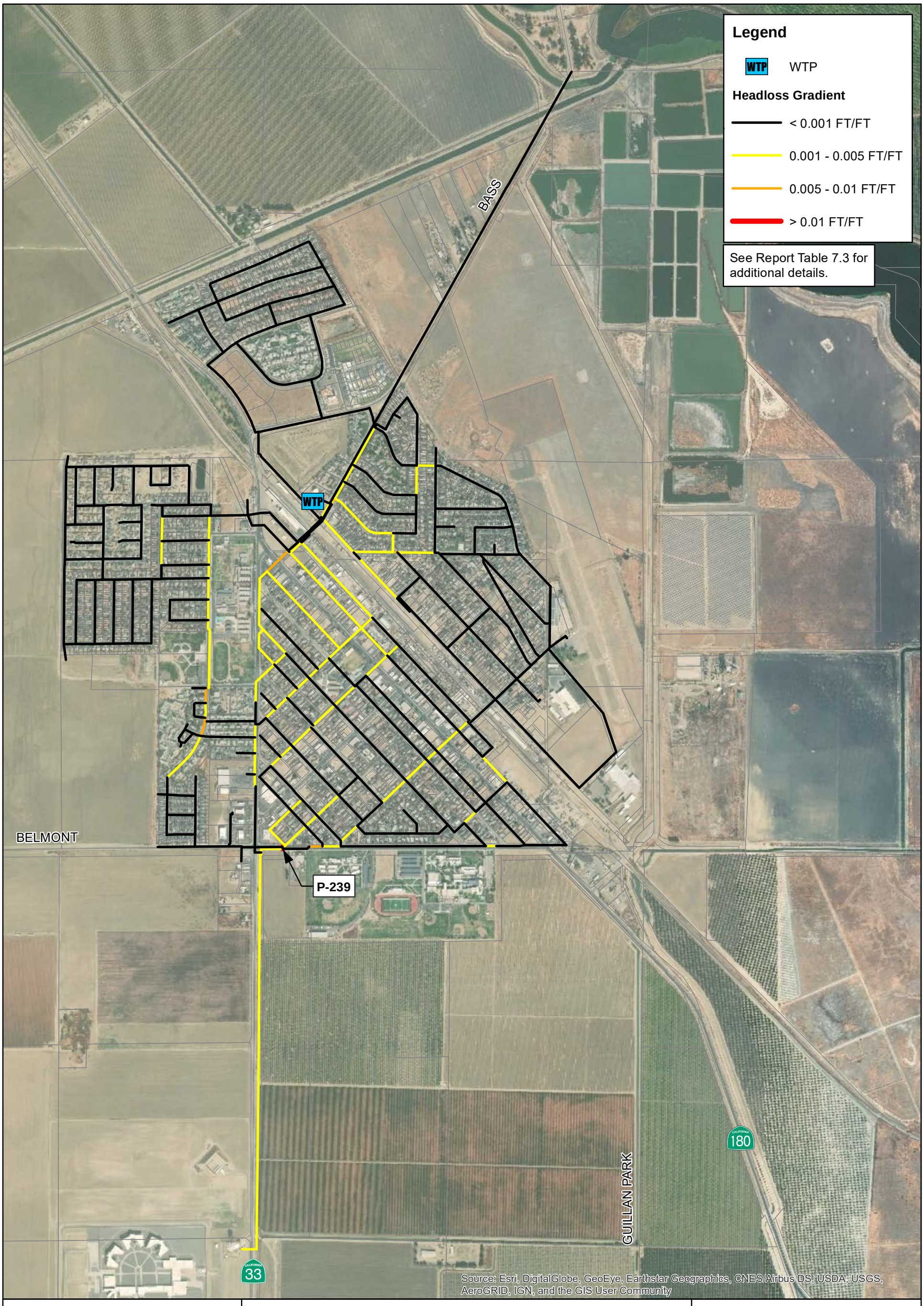

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Figure 7-11
Maximum Day Demand Headloss Gradient

Water Master Plan

City of Mendota

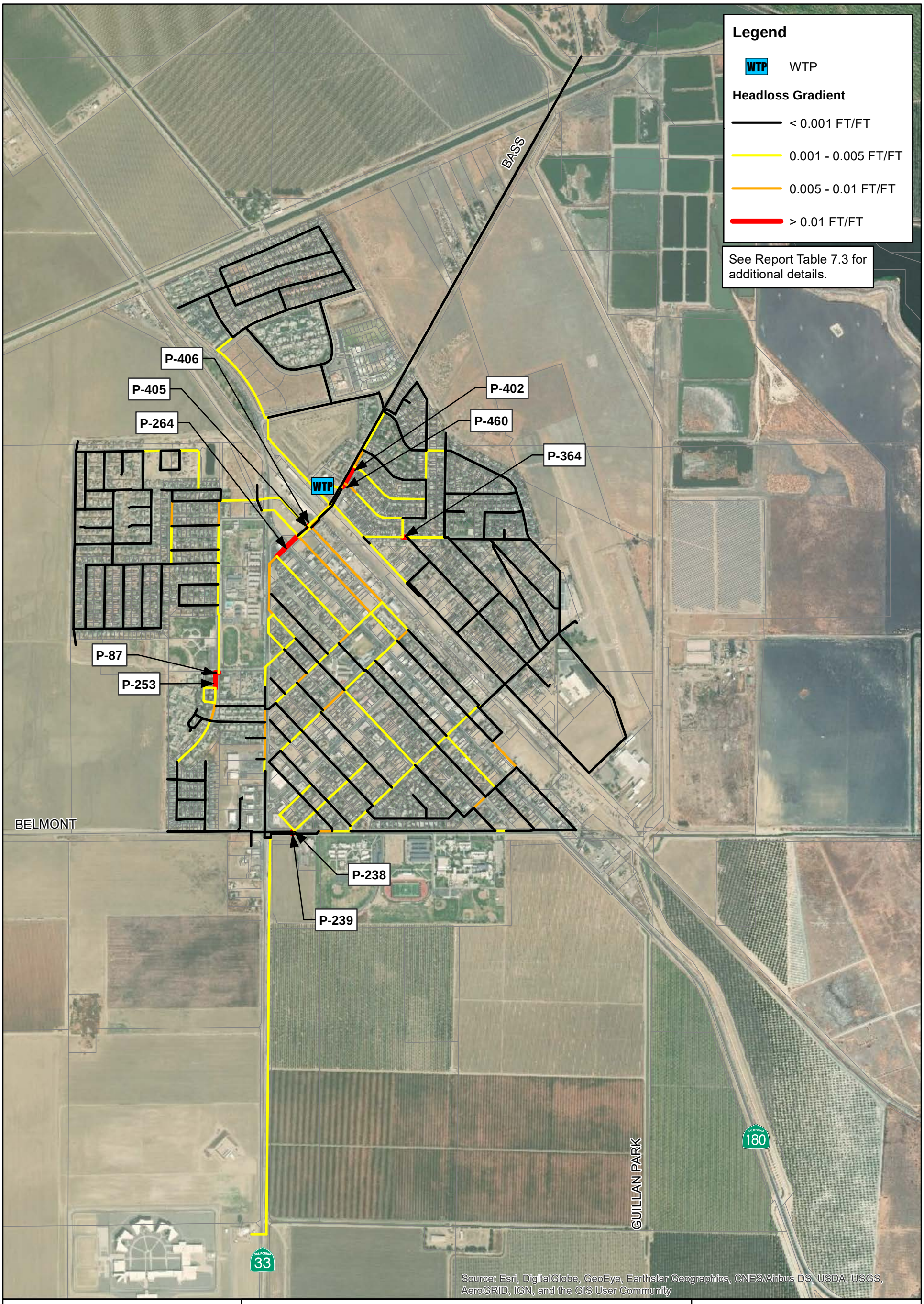

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Figure 7-12
Peak Hour Demand Headloss Gradient

Water Master Plan

City of Mendota

7.7.2 Existing System Fire Flow Scenario

A separate analysis was performed to check the system response during a fire emergency. WaterCAD has a fire flow analysis tool that performs a steady-state analysis and also checks available fire flow at each active model node. For the fire flow scenario, a fire demand of 1,000 gpm was applied to each active model node during a MDD demand scenario. A flow of 1,000 gpm has been established by ISO as the minimum desirable residential fire flow for a municipal water system, and must be maintained, with a 20 psi residual pressure, at all points in the distribution system, in order for the water system to maintain a favorable ISO rating, which is very important to residents' fire insurance rates.

The system was evaluated on its ability to provide at least 20 psi system wide during a MDD event with the minimum required fire flow of 1,000 psi. **Figure 7-13** shows the results of the fire flow analysis. In general, the nodes identified as deficient in **Figure 7-13** are due to dead end water mains. It is common to see dead-end mains fail to meet the minimum fire flow requirements due to the lack of a looped feed and due to high flow velocities generated by the large flows required for firefighting. Two locations were identified in the existing system model where fire flow deficiencies were identified. The deficiencies were not triggered by limitations associated with dead-end water mains. The two areas are as follows:

- Tuft Street/Arnaudon Drive neighborhood
- Intersection of 10th Street and Oller Avenue

Figure 7-13 shows the overall fire flow results along with the areas identified as deficient. **Figure 7-14, Figure 7-15**, and **Figure 7-16** show the available fire flow for the existing system while maintaining 20 psi across the system.

7.7.3 Future System Normal Operating Scenarios

Based on input from the City, the focus of the future system analysis was too be placed on development that is anticipated over the course of the nest 15-20 years. This timeframe includes two areas:

- To the southwest near Belmont and Derrick Avenues
- Along the Bass Avenue corridor

Areas included in the modeling analysis for the near-term future system are shown in **Figure 7-17**. These areas accounted for 748 AFY of additional demand on average. A steady-state analysis of the PHD was performed using the existing system model along with the additional development mentioned above.

7.7.3.1 System Pressures

Table 7-1, above, shows the minimum and maximum allowable pressures for each of the demand scenarios analyzed. The model results show that the existing system, along with pipeline infrastructure to serve the additional development can provide pressures in the distribution system above the minimum 35 psi requirement up to the PHD with the exception of near the existing prison to the south of the City. **Figure 7-18** shows the pressure results for PHD, with the near-term development accounted for. **Table 7-4** summarizes the deficiencies shown in **Figure 7-18**.

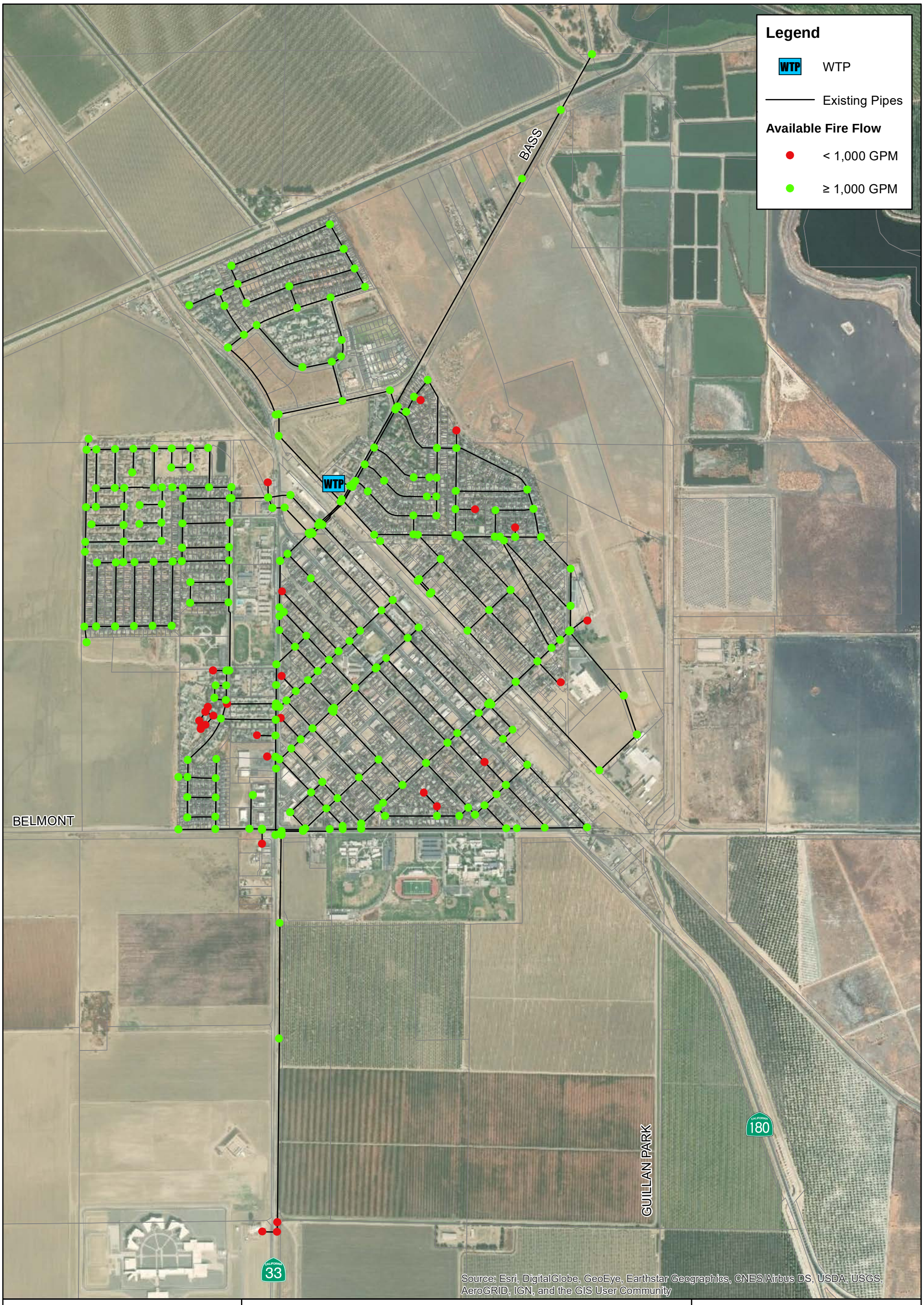

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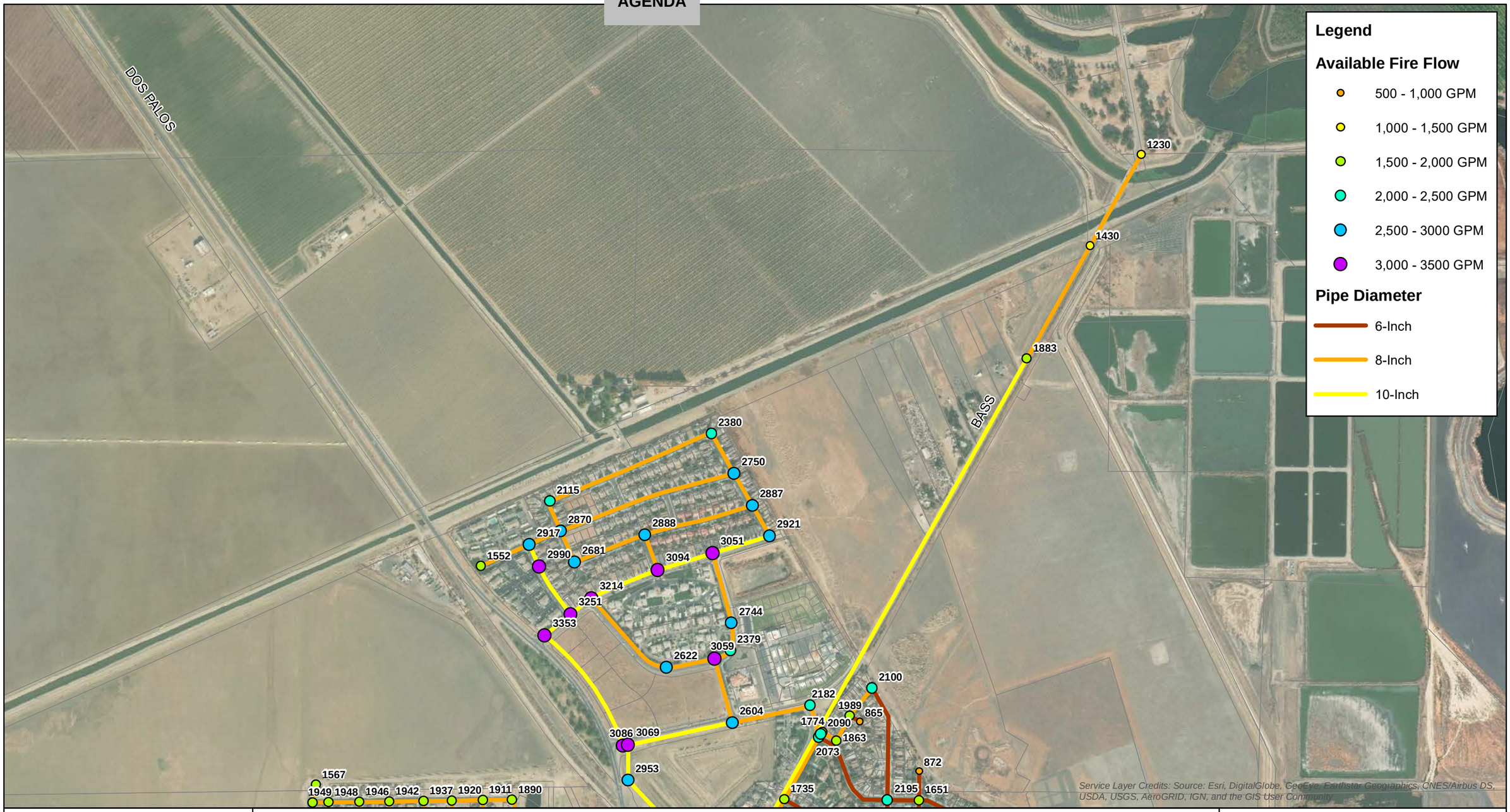
Figure 7-13
Fire Flow Analysis

Water Master Plan

City of Mendota



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City of Mendota adheres to the requirements set forth in the California Fire Code.

Minimum fire flows shall be in accordance with Appendices B and BB of the California Fire Code.

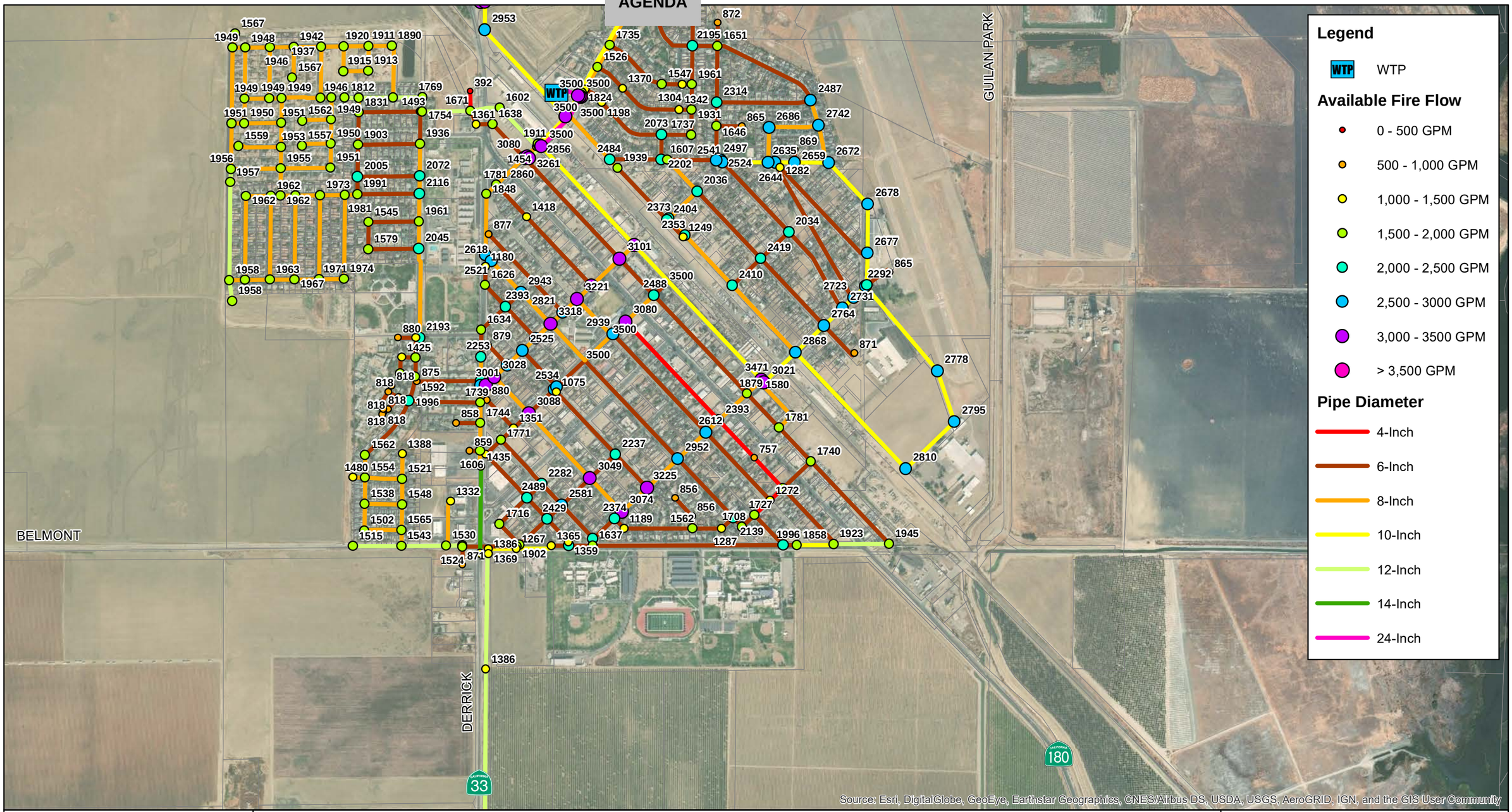
Available fire flow shown is the flow available while providing at least 20 psi and with flow velocities less than 10 ft/sec.
Flow units are gallons per minute.

Figure 7-14
Available Fire Flow (North)

Water Master Plan

City of Mendota

AGENDA



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City of Mendota adheres to the requirements set forth in the California Fire Code.

Minimum fire flows shall be in accordance with Appendices B and BB of the California Fire Code.

Available fire flow shown is the flow available while providing at least 20 psi and with flow velocities less than 10 ft/sec.
Flow units are gallons per minute.

Figure 7-15
Available Fire Flow (Central)

Water Master Plan

City of Mendota

10/29/2019 : G:\Mendota_City of-3336\333618013-Water System Master Plan\GIS\Map\WMP Figures\DRAFT\Figure 7-15 Available Fire Flow (Central).mxd

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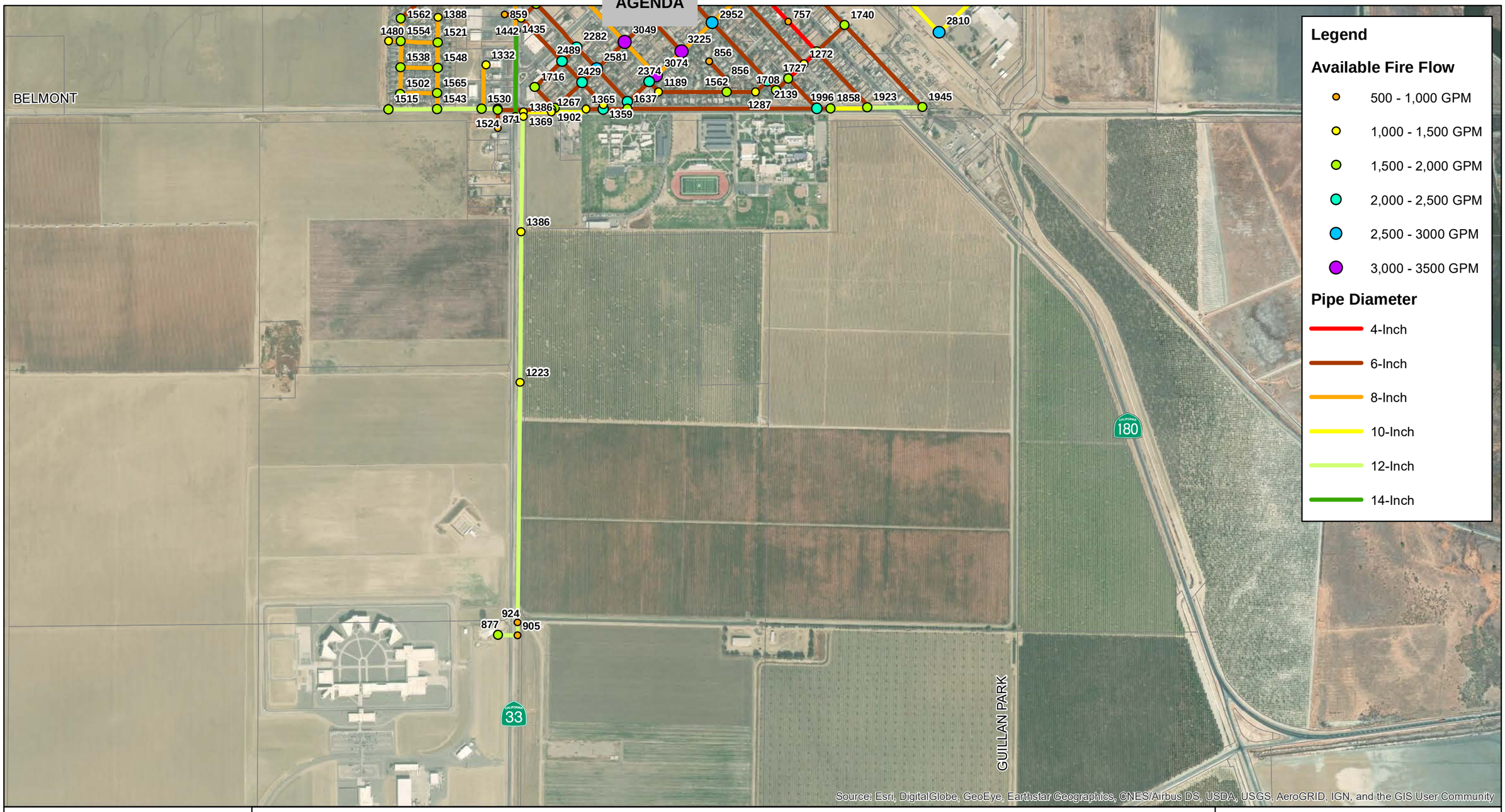

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City of Mendota adheres to the requirements set forth in the California Fire Code

Minimum fire flows shall be in accordance with Appendices B and BB of the California Fire Code.

Available fire flow shown is the flow available while providing at least 20 psi and with flow velocities less than 10 ft/sec.
Flow units are gallons per minute.

Figure 7-16
Available Fire Flow (South)

Water Master Plan

City of Mendota

10/28/2019 : G:\Mendota_City of-3336\333618013-Water System Master Plan\GIS\Map\WMP Figures\DRAFT\Figure 7-16 Available Fire Flow (South).mxd

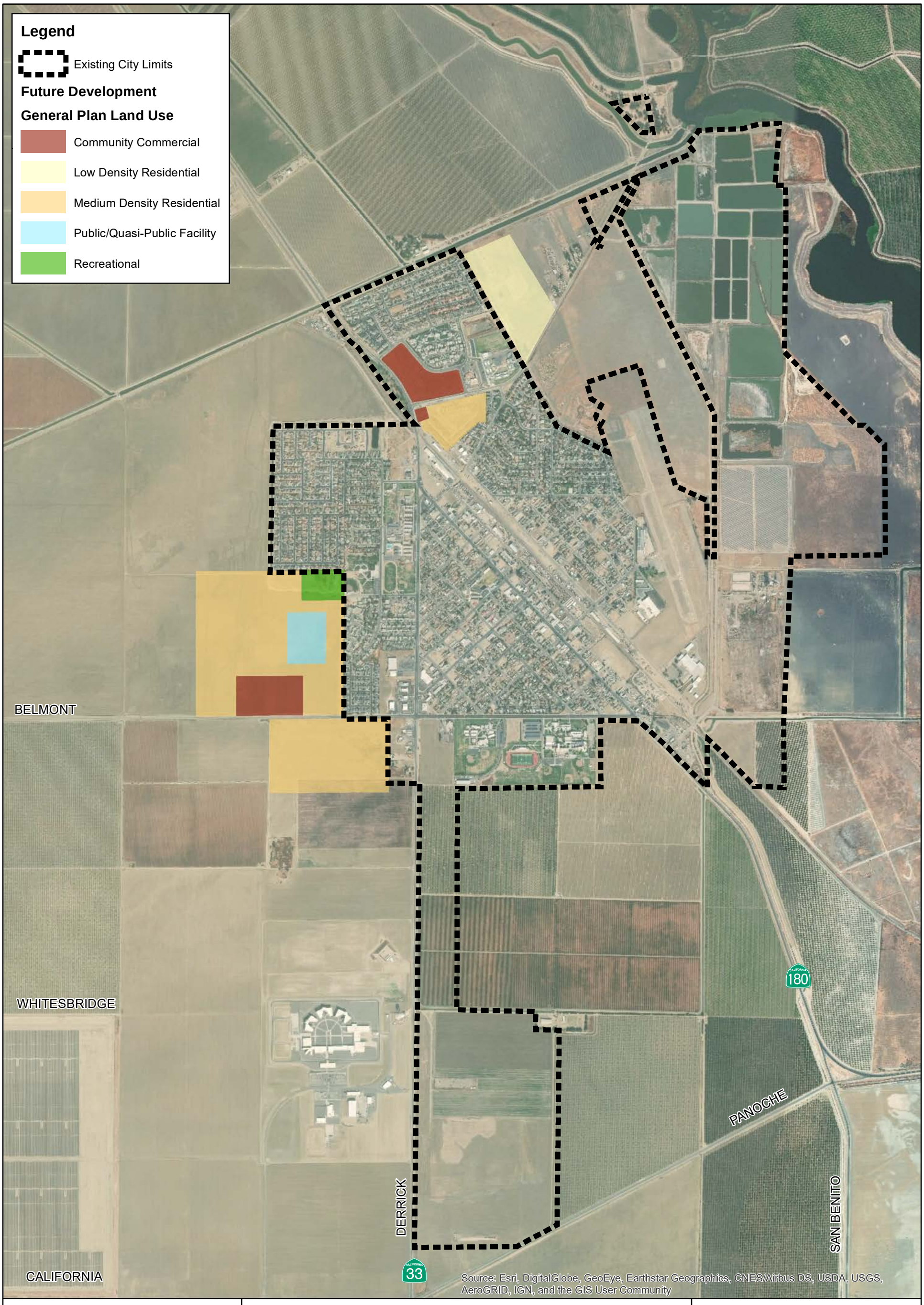

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Figure 7-17
Near Term Development

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City of Mendota

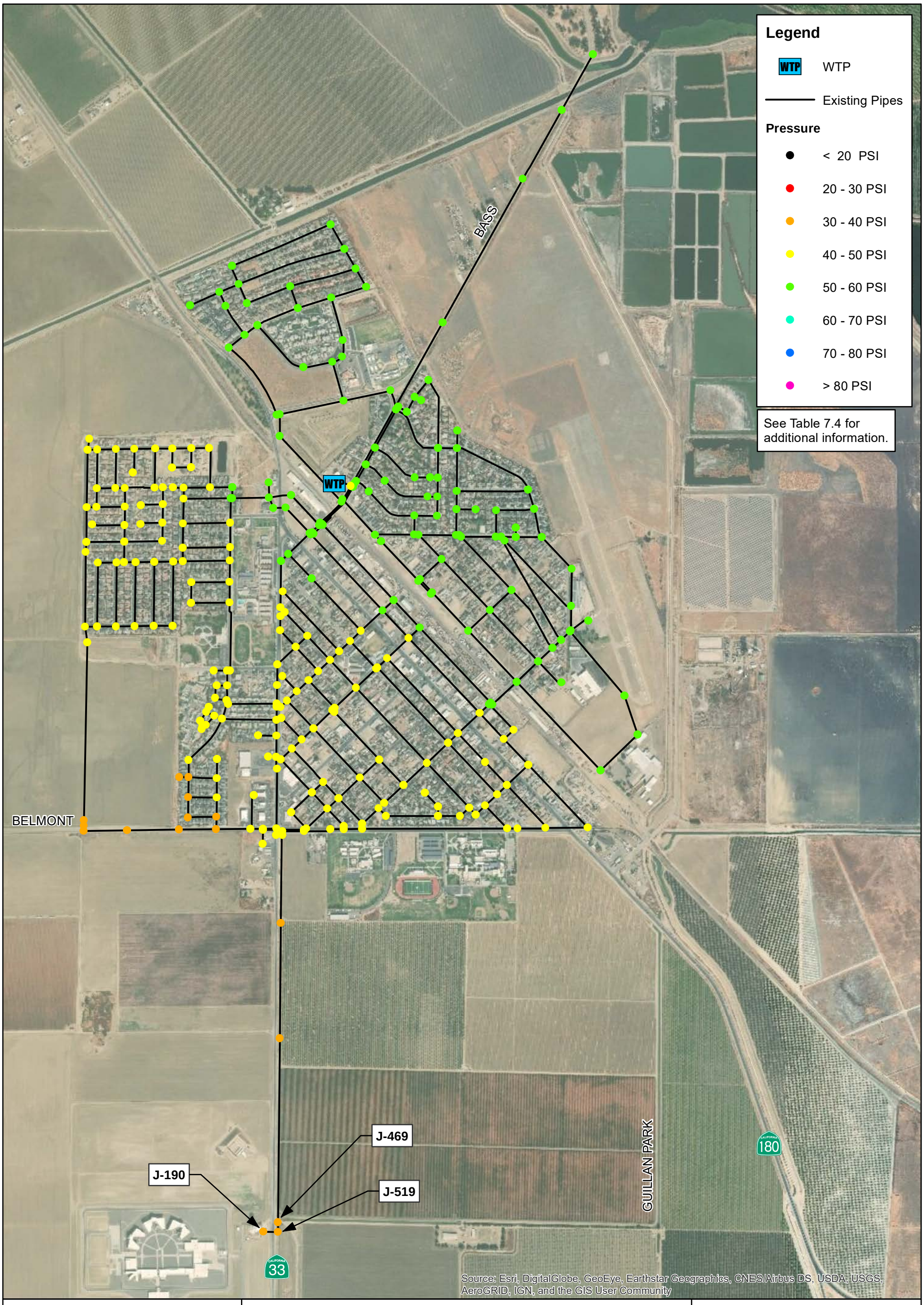

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Figure 7-18
Future System Peak Hour Demand Pressures

Water Master Plan

City of Mendota

Table 7-4. Near Term Development Pressure Deficiencies

Near Term Development Pressure Deficiencies		
Model Junction ID	Location Description	Pressure (psi)
J-469	Near Prison	34
J-190	Near Prison	34
J-519	Near Prison	34

7.7.3.2 Flow Velocities

Table 7-2, above, shows the maximum allowable flow velocities for each of the demand scenarios analyzed. The model results show that the existing system, along with pipeline infrastructure to serve the additional development flow velocities in the distribution system exceeding the maximum allowable velocity during PHD. **Figure 7-19** show the flow velocity results for PHD. **Table 7-5** summarizes the velocity exceedances shown in **Figure 7-19**. It is worth noting that the same pipes show velocity exceedances during MDD of the near-term development scenario; these are short-term issues that need to be addressed over the next few years, not long-term issues that can be postponed well into the future.

Table 7-5. Near Term Development Velocity Exceedances

Near Term Development Velocity Exceedances				
Model Pipeline ID	Pipe Diameter (in.)	Pipeline Alignment Description	Velocity (ft/sec)	Demand Scenario
P-460	8	Intersection of 2nd St. and L St.	5.23/7.54	MDD/PHD
P-406	10	Intersection of 2nd St. and Naples St.	5.98/8.45	MDD/PHD
P-405	8	Intersection of 2nd St. and Naples St.	6.35/8.70	MDD/PHD

7.7.3.3 Headloss Gradient

Section 7.6.3, above, discussed the maximum allowable headloss gradient for pipelines. The model results for the near-term development show several segments of pipeline within the existing system that exceed the maximum allowable headloss gradient of 0.01 FT/FT. **Figure 7-20** shows the headloss gradient results for the PHD. **Table 7-6** summarizes the pipeline alignments that violate maximum allowable headloss gradient.

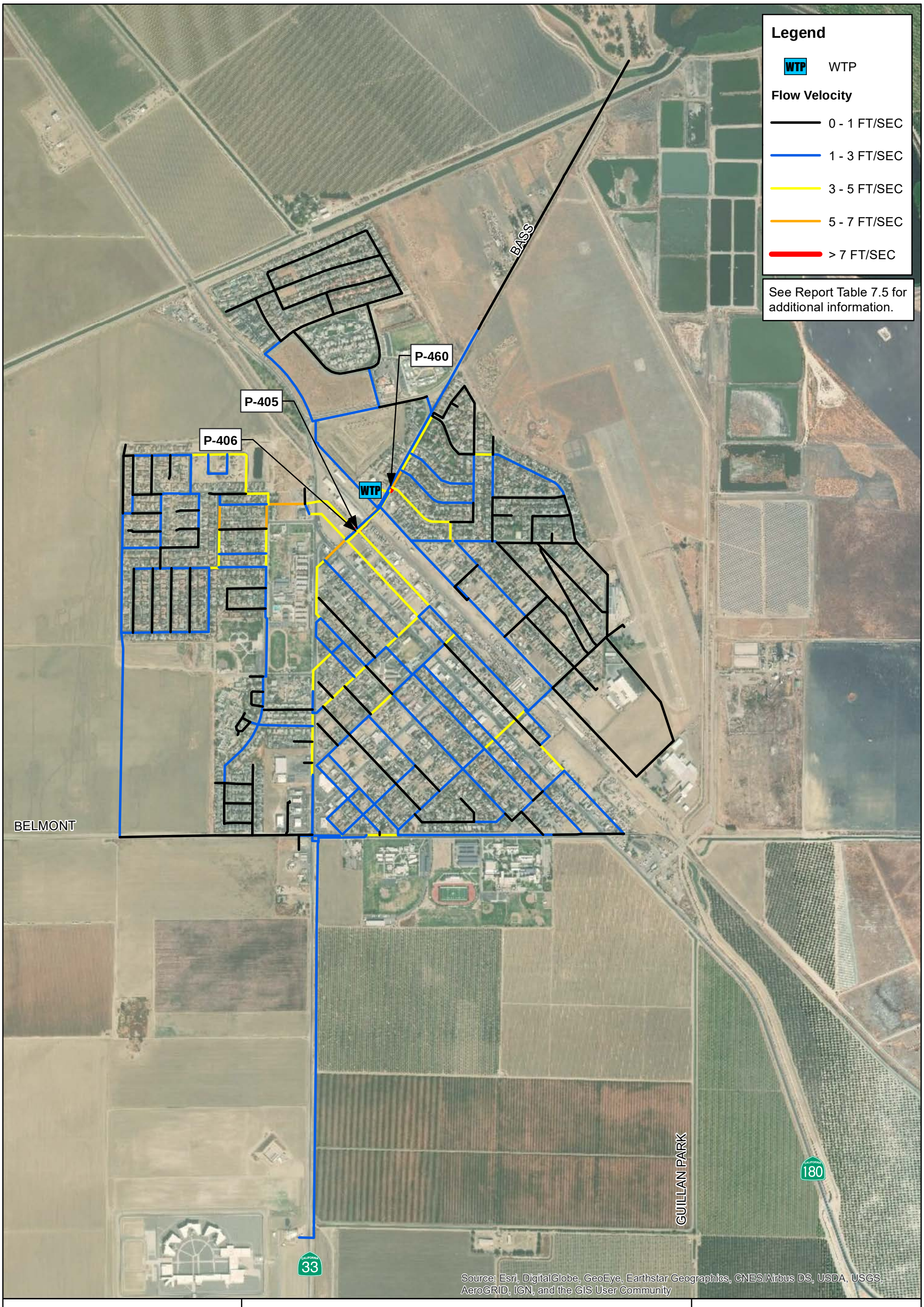

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Figure 7-19
Future System Peak Hour Demand Velocities

Water Master Plan

City of Mendota

8/8/2019 : G:\Mendota_City of-3336\333618013-Water System Master Plan\GIS\Map\WMP Figures\DRAFT\Figure 7-19 Future PHD Velocities.mxd

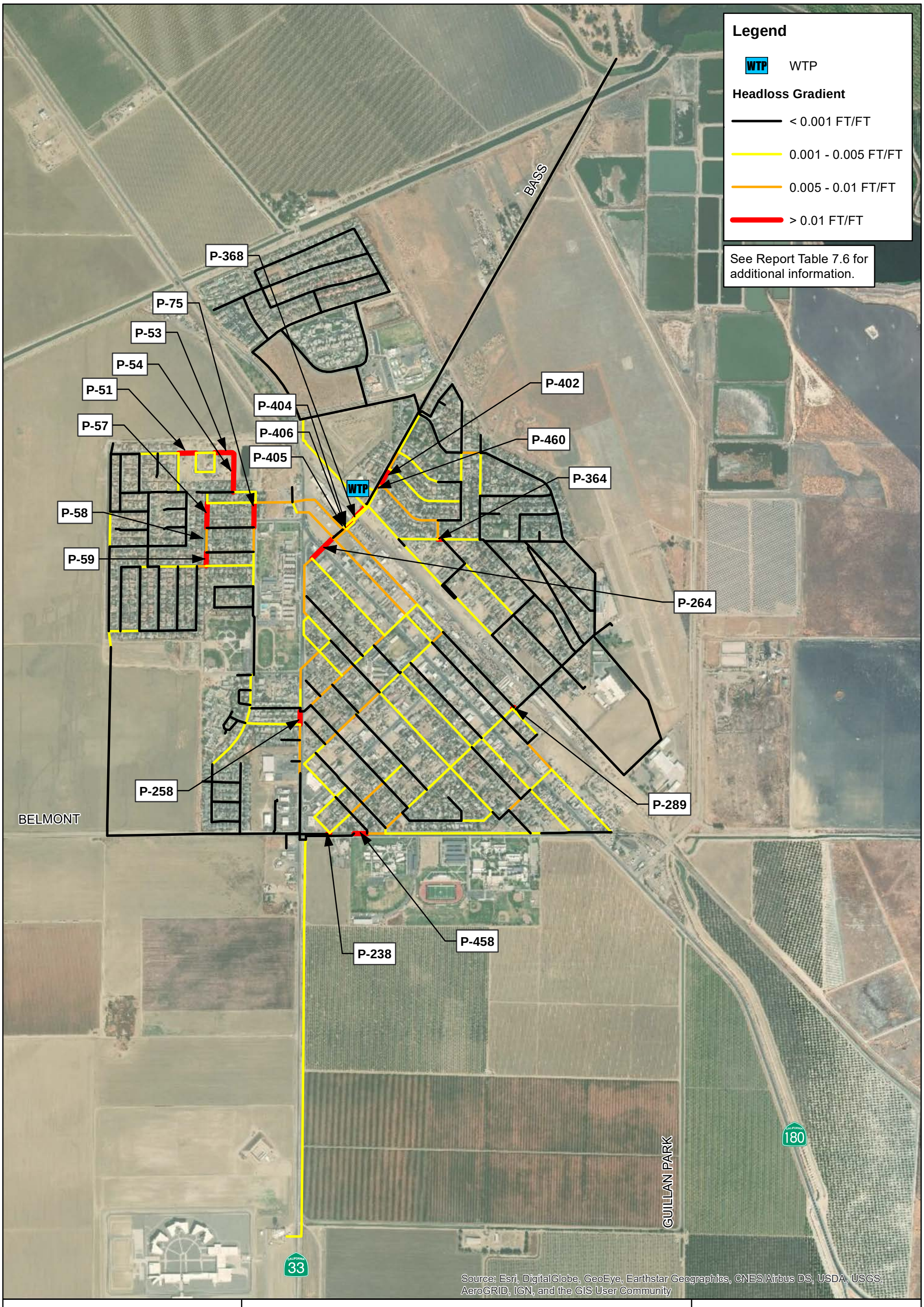

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Figure 7-20
Future System Peak Hour Demand Headloss Gradient

Water Master Plan

City of Mendota

8/8/2019 : G:\Mendota_City of-3336\333618013-Water System Master Plan\GIS\Map\WMP Figures\DRAFT\Figure 7-20 Future PHD Headloss Gradient.mxd

Table 7-6. Near Term Development Maximum Allowable Headloss Gradient Exceedances

Near Term Development Maximum Allowable Headloss Gradient Exceedances				
Model Pipeline ID	Pipe Diameter (in.)	Pipeline Alignment Description	Headloss Gradient (FT/FT)	Demand Scenario
P-405	8	Intersection of 2nd St. and Naples St.	0.018/0.032	MDD/PHD
P-460	8	Intersection of 2nd St. and L St.	0.013/0.025	MDD/PHD
P-75	6	Sorensen Ave between Fleming Ave. and McCabe Ave.	0.013/0.023	MDD/PHD
P-406	10	Intersection of 2nd St. and Naples St.	0.012/0.024	MDD/PHD
P-364	6	Intersection of Divisidero St. and Lolita St.	0.17	PHD
P-57	6	Rowe Ave between Fleming Ave. and McCabe Ave	0.010/0.017	MDD/PHD
P-264	8	In 2nd Street between Naples St. and Oller St.	0.016	PHD
P-238	6	Intersection of 8th Street and Belmont Ave.	0.010/0.015	MDD/PHD
P-59	6	Rowe Ave between Fleming Ave. and Black Ave	0.015	PHD
P-402	8	2nd St. between K St. and L St.	0.014	PHD
P-458	6	Belmont Ave. between 8th St. and 9th St.	0.012	PHD
P-258	8	Derrick Ave. between Tuft St. and Straw St.	0.011	PHD
P-289	8	Intersection of 9th St. and Naples St.	0.011	PHD
P-368	10	In 2nd Street between Marie St. and L St.	0.011	PHD
P-53	8	In Givens St. between Selzer Ct. and Gurrola St.	0.011	PHD
P-54	8	In Gurrola St. between Holmes Ave. and Givens Ct.	0.011	PHD
P-51	8	In Givens St. between Castro St. and Silva Ct.	0.011	PHD
P-58	6	In Rowe Ave. between Fleming Ave. and Black Ave.	0.010	PHD
P-404	8	Intersection of 2nd St. and Naples St.	0.010	PHD

7.7.4 Future System Fire Flow Scenario

Fire flow analysis was performed on the future system to account for near-term development. The results for the near term were similar to the existing system fire flow analysis discussed above. **Figure 7-21** shows the overall fire flow results along with the areas identified as deficient.

7.8 Future System Improvements

As discussed previously, the anticipated development in the near-term future triggers deficiencies in the system. The hydraulic deficiencies should be remedied before additional development takes place to ensure adequate water service to throughout the City. Due to the configuration of the existing system, with the sole water distribution source being at the northern end of the system, and with much of the anticipated development taking place in the southwest portion of the system, a new distribution source is recommended to help rectify the deficiencies identified. A water storage tank and a booster pump system located near the intersection of Belmont Ave and Gregg Court is recommended to correct the deficiencies noted previously. **Figure 7-22** through **Figure 7-25** show the model results if a tank and booster pump station are constructed at Belmont Avenue and Gregg Court. Pressure and velocity deficiencies during the PHD are remedied. The analysis shows several headloss gradient exceedances with the new tank and booster pump station. **Table 7-7** summarizes the headloss gradient exceedances identified due to the tank and booster pump station addition.

Table 7-7. Maximum Allowable Headloss Gradient Exceedances

Maximum Allowable Headloss Gradient Exceedances				
Model Pipeline ID	Pipe Diameter (in.)	Pipeline Alignment Description	Headloss Gradient (FT/FT)	Demand Scenario
P-460	8	Intersection of 2nd St. and L St.	0.017	PHD
P-406	10	Intersection of 2nd St. and Naples St.	0.012	PHD
P-402	8	2nd St. between K St. and L St.	0.011	PHD

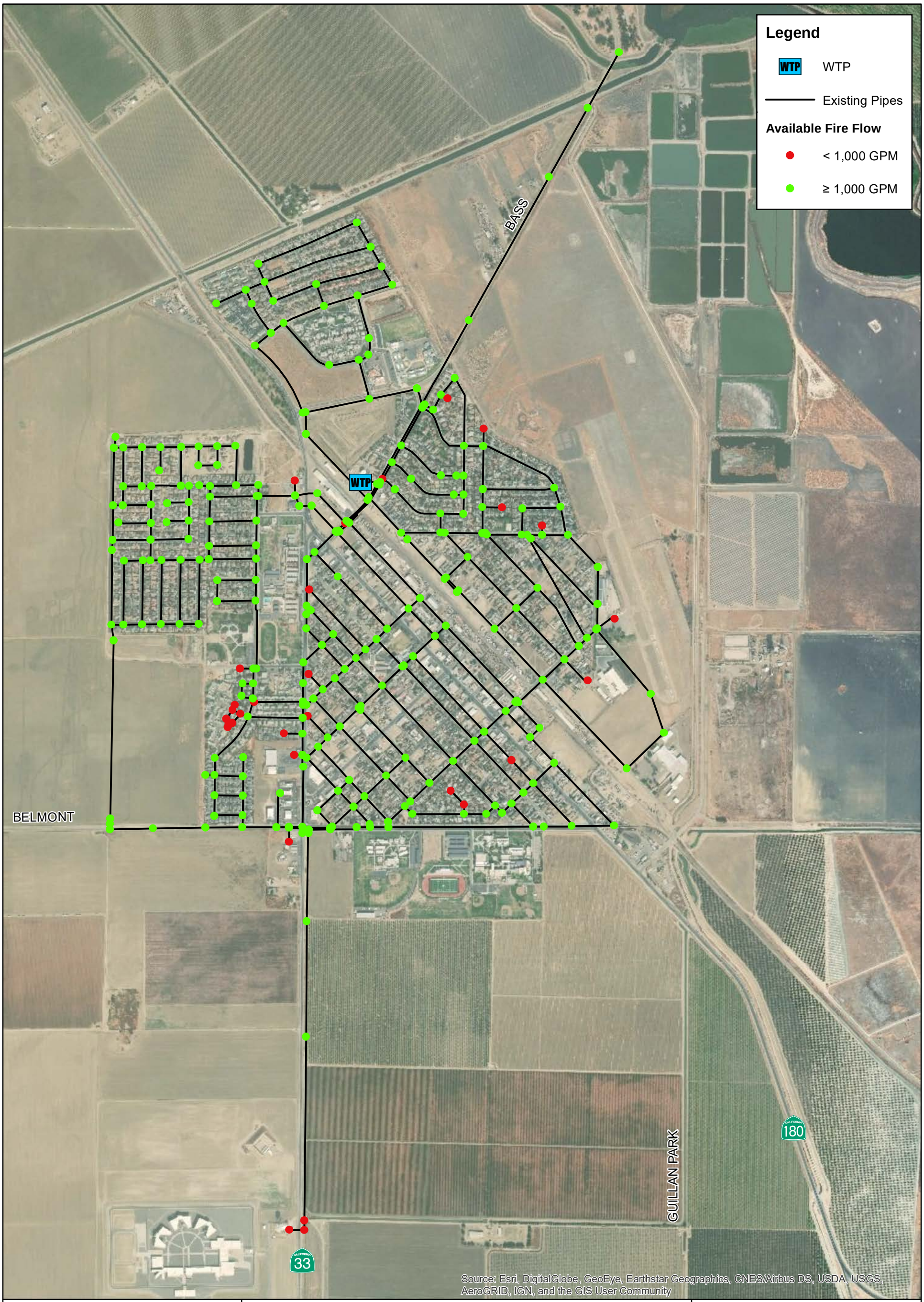

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Figure 7-21
Future System Fire Flow Analysis

Water Master Plan

City of Mendota

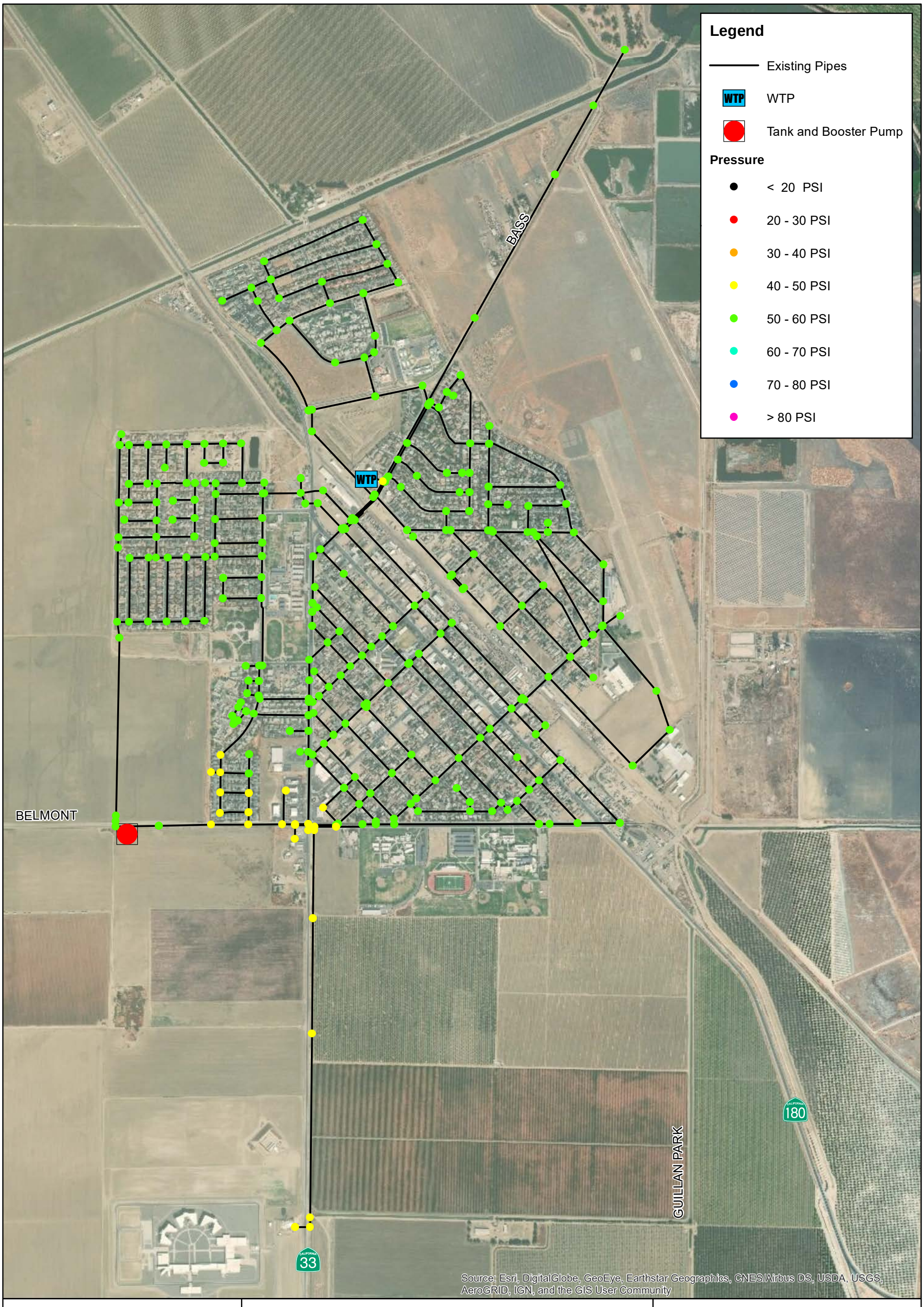

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Figure 7-22
Future System Peak Hour Demand Pressures with Tank and Pump

Water Master Plan

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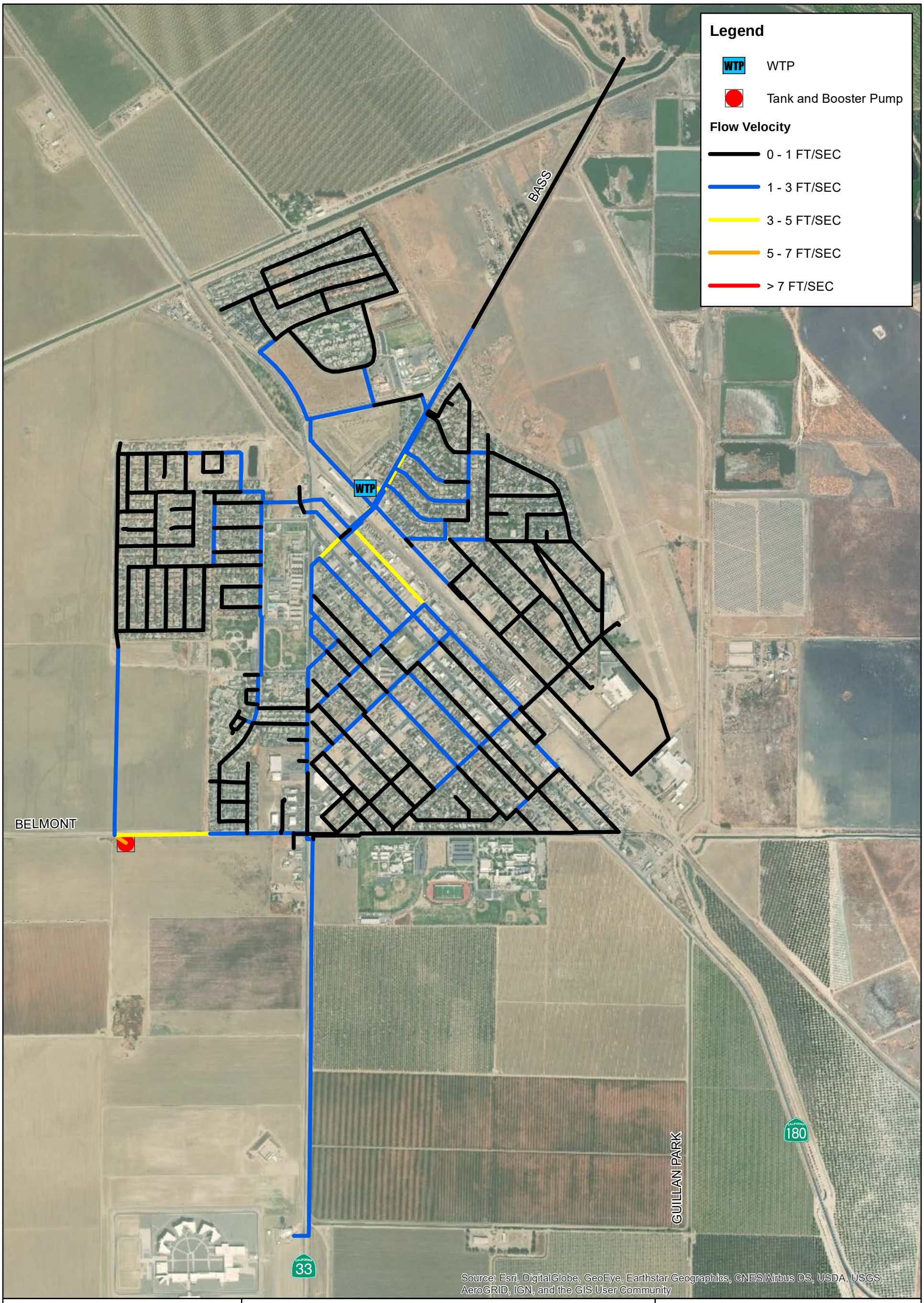

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Figure 7-23
Future System Peak Hour Demand Velocities with Tank and Pump

Water Master Plan

City of Mendota

8/8/2019 : G:\Mendota_City of-3336\333618013-Water System Master Plan\GIS\Map\WMP Figures\DRAFT\Figure 7-23 Future PHD Velocities With Tank and Pump.mxd

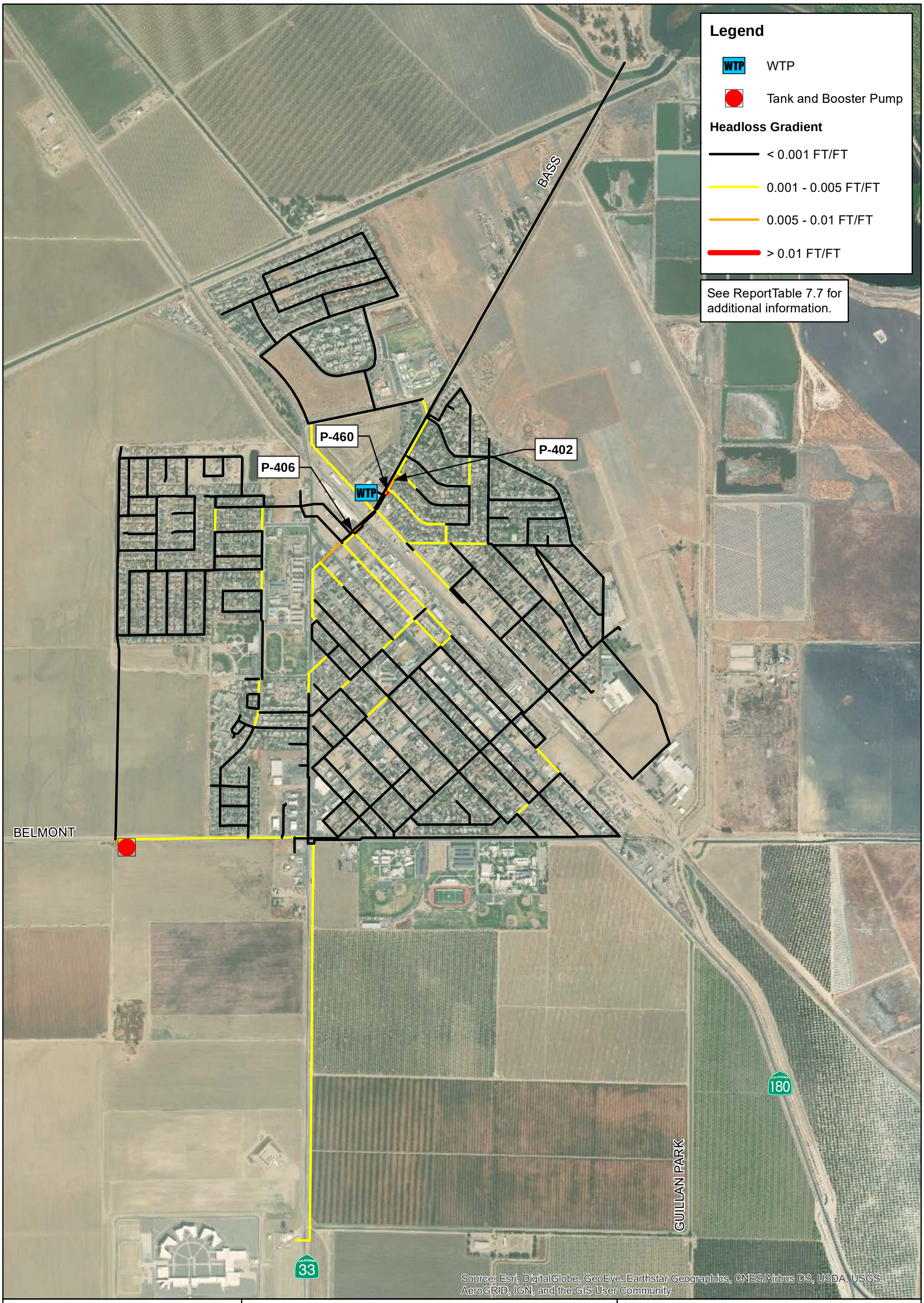

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Figure 7-24
Future System Peak Hour Demand Headloss Gradient with Tank and Pump

Water Master Plan

City of Mendota

8/8/2019 : G:\Mendota_City of-3336\333618013-Water System Master Plan\GIS\Map\WMP Figures\DRAFT\Figure 7-24 Future PHD Headloss With Tank and Pump.mxd

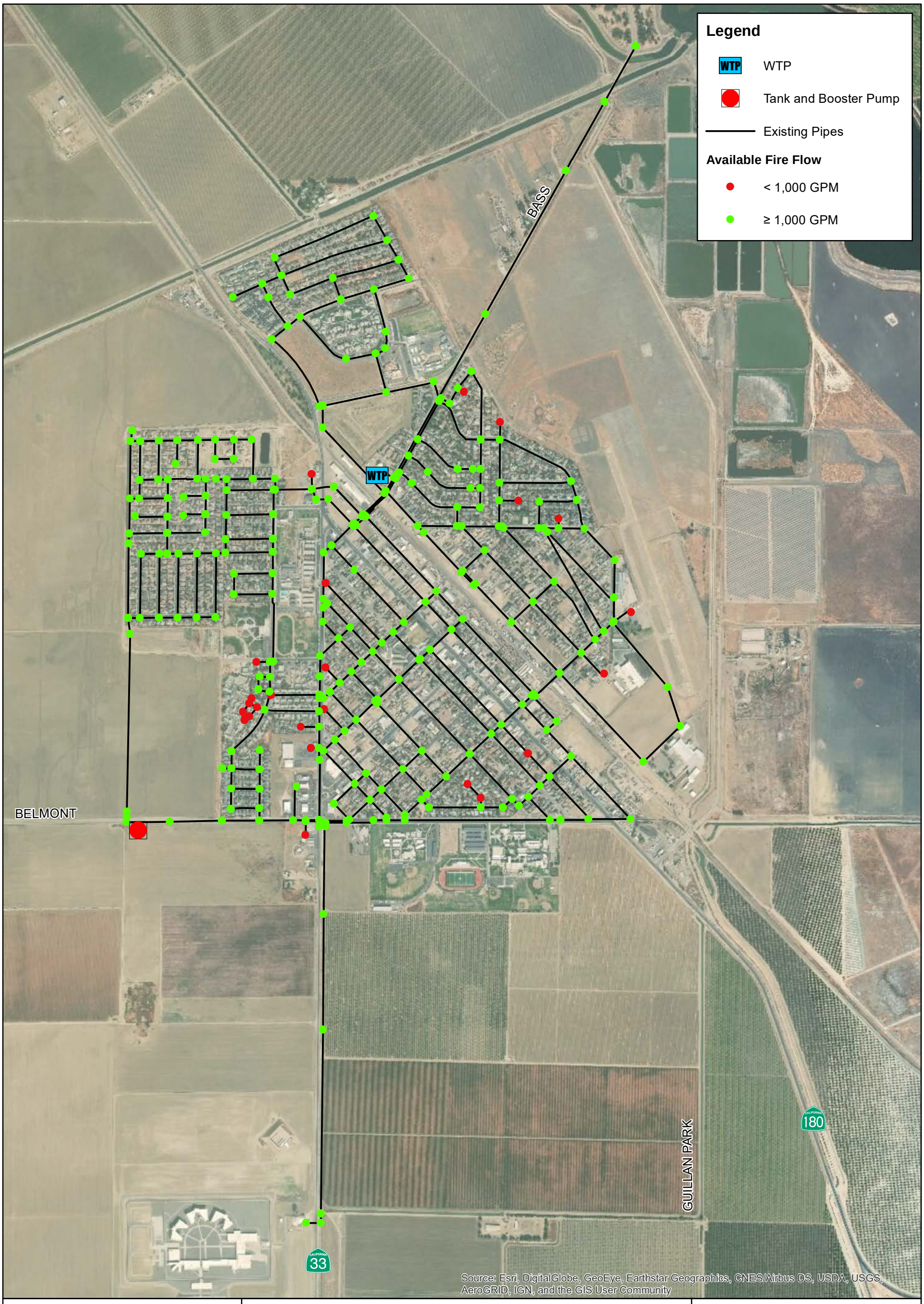

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Figure 7-25
Future System Fire Flow Analysis with Tank and Pump

Water Master Plan

City of Mendota

8 Capital Improvements

As the City embarks on urbanization in growth areas beyond the current city limit it will trigger a need to expand the existing water distribution system. Water demands will require the City to construct additional infrastructure to deliver water supplies to the growth areas. The purpose of this chapter is to develop a capital improvements program (CIP) which the City can use a road map for the expansion of its water distribution system.

This section provides an overview of the primary components associated with the proposed CIP. Major components include 1) cost assumptions, 2) cost components, 3) buildout conditions, and 4) phasing.

8.1 Assumptions and Limitations

A number of assumptions were made in development of this section of the Water Master Plan. Should any of these assumptions be modified or turn out to be incorrect, recommendations contained herein may need to be updated as well. Given that most of the proposed facilities will be installed by and are triggered by new development, the City should revisit this plan and update this plan when conditions vary from those stated herein. Below is a list of assumption instrumental in development of this section.

- Facilities sizing are influenced by land uses from the land uses shown in **Figure 2-2**.
- Unit costs are consistent with a Class 3/4 designation as defined by the American Association of Cost Engineers and are appropriate for feasibility studies and master plan level work.
- Capital projects only include infrastructure associated with the "backbone" of the water distribution system and as such other local improvements may be necessary for connecting to this system.
- Land acquisition cost was excluded from unit cost values and as such should be incorporated into project level budgets as needed, unless noted otherwise. It's worth noting that land value varies widely based on land use in the area, but given that a large portion of land in the future development area is agricultural land, the value is assumed to be representative for planning purposes.
- Sub-mains and local piping necessary for connecting to the "backbone" of the water system are the responsibility of developers of projects that will utilize this resource.
- Lengths are based on data obtained from hydraulic modeling software.
- Costs include construction contingency of thirty percent (30%) and eighteen percent (18%) for engineering, survey, and project administration.

8.1.1 Capital Costs

A budget level estimate of the various costs associated with the conveyance of potable water supplies is presented in detail below. Although the potable water costs presented below include the capital construction costs, there will also be annual costs associated with the operation and maintenance of those facilities.

Order-of-magnitude unit cost estimates were developed for pipelines, storage reservoirs, wells, and booster pump stations for 2016 conditions. Infrastructure cost estimates also include contingencies of twenty percent (20%) construction contingency for pipeline projects and thirty percent (30%) construction contingency for all other facilities and eighteen percent (18%) engineering, survey, and administration factors applied to unit costs.

Table 8-1 presents a summary of probable construction costs for major water infrastructure.

The cost estimates presented in this study are developed from cost curves, vendors, information obtained from previous studies, and recent project experience. The costs should be considered order-of-magnitude and have an expected accuracy range of +30 percent to -20 percent as defined by the American Association of Cost Engineers (AACE).

The cost estimates have been prepared for guidance in project evaluation and implementation from the information available at the time of the estimate. As constructed, final costs of the project will depend on actual labor and material costs, competitive market conditions, specific details of recommended modifications, final project scope, implementation schedule, and other variable factors. As a result, the final capital and operating project costs will vary from the estimates presented. Therefore, project feasibility and funding needs must be reviewed carefully prior to specific financial decisions to help ensure proper project evaluation and adequate funding.

8.1.2 Cost Components

8.1.2.1 Wells

Cost components for constructing new groundwater wells include test well construction, well development, furnishing and installation of controls and site work. Property acquisition costs were excluded because of the high level of variability of cost of property acquisition; some well sites do not necessitate property acquisition for a variety of reasons.

8.1.2.2 Pipelines

Construction cost for pipelines includes furnishing and installation of key components and activities necessary for a fully operational facility. Major components and activities include Class 235 (C-900) pressure pipe, valves, minor utility interference, and minor street resurfacing when connecting to the existing system. Easement costs were excluded because it was assumed construction activity occurs within existing rights-of-way for Mendota. Since most of the water system is in future growth areas, street resurfacing was also assumed minimal because existing roadways in rural areas would be improved as part of the development work. Pipeline unit costs range from a low of one hundred dollars ($100) per linear foot (LF) for a ten (10) inch diameter pipeline up to one hundred twenty dollars ($120) per LF for a twelve (12) inch diameter pipeline.

8.1.2.3 Water Treatment Facilities

The existing WTP has a capacity of approximately 4.3 MGD. An expansion of the WTP would entail construction of new tanks, drying beds, a filtration system, new supply wells, new raw water pipeline capacity, and distribution system improvements. Land acquisition is not anticipated since property adjacent to the existing WTP is developed or in the process of being developed. Due to challenges related to expanding the existing WTP, it seems more practical to construct new WTPs. Additional WTPs, whether a single centralized

WTP or several decentralized WTPs, may be required to support future development with the SOI. Unit cost for this type of facility was based on a value of $1.50 per gpm.

8.1.2.4 Raw Water Facilities

The existing Water Treatment Plant (WTP) is supplied with ground water through manifold piping in Bass Avenue and out in the existing well field. A raw water pipeline ranging from 18-inch to 20-inch connects existing River Wells to the existing WTP. The existing raw water pipeline is nearing its capacity limit. It is not anticipated that the existing raw water line will be improved, but rather additional raw water lines may be required to supply future water treatment plants. Pipeline unit costs range from a low of one hundred dollars ($100) per linear foot (LF) for a ten (10) inch diameter pipeline up to three hundred ninety-two dollars ($392) per LF for a forty-eight (48) inch diameter pipeline

8.1.2.5 Booster Pump Station

Utilizing cost data from past projects along with estimates from recent bids, a preliminary opinion of probable cost was developed for a booster pump station. Unit cost for this type of facility was based on a value of $150 per gpm. The master planned infrastructure maps show one (1) booster pump station, at the proposed water storage tank.

8.1.2.6 Water Storage Tank

The costs for constructing water storage facilities was generated from past similar projects. The total cost for this type of project is based on a 200,000-gallon tank at $2.00 per gallon, including the site improvements and property acquisition. The lump sum cost including contingency and design is approximately $400,000. A single reservoir is planned in this CIP.

8.2 Capital Projects

8.2.1 Near Term Capital Projects

There are two main areas that are considered for the proposed potable water distribution system expansion in the near term including near the intersection of Derrick and Belmont Avenues in the southwest portion of the City and along Bass Avenue in the northern portion of the City.

The backbone infrastructure necessary for conveying potable water to these areas is shown in **Figure 8-1**. The total cost of the proposed water system improvements is approximately $1.3 million dollars. **Table 8-1** shows the anticipated distribution of capital costs and cumulative length of pipe within each area associated with these facilities as well as the total capital cost for the potential infrastructure.

8.2.2 Long Term Capital Projects

Long term capital projects will be dependent on how the City continues to develop over time. If the City does continue to expand towards its SOI boundary, it's imperative that it continues to construct additional supply, treatment, distribution, and storage facilities. Given large uncertainty of exactly how and when the City will develop over time, it is difficult to put together a capital improvement plan for the buildout of the SOI.

Conceptually, it's anticipated that the City will need a well looped grid like water distribution system comprised of mainly 12-inch (minimum) distribution mains. Alignments of these pipelines are yet to be determined since much of the SOI lies in existing farmland where City right-of-way does not exist. In addition to the 12-inch, larger diameter pipelines may be required around treatment and storage facilities to efficiently move water out to the distribution systems. The City will have to determine how it's going to acquire the additional source capacity, whether via groundwater extraction or other means, that will be required to support development out to the SOI boundary.

8.3 Permitting Issues

8.3.1 Caltrans

A portion of CIP P-3 (see **Figure 8-1** below), will lie within the California Department of Transportation (Caltrans) District 6 ROW. As currently envisioned, CIP P-3 will connect to the existing main which is located within State Route (SR) 33 (Derrick Ave.). The City has existing water distribution system infrastructure that runs in SR 33 and some that crosses SR 180 (Oller Ave.). Accordingly, the City has experience with the Caltrans permitting process. It is anticipated that the Caltrans permitting process will be similar to what has been done in the past on other projects within the Caltrans ROW.

8.3.2 County Encroachment

CIPs P-2, T-1, and PS-1 will likely need an encroachment permit from the County of Fresno. This will depend on exactly where these projects are constructed. This assumes the projects, or portions thereof, will encroach in a County ROW, specifically County Road J1 (Belmont Ave.). It is anticipated that the permitting process with the County would be similar to the effort needed for obtaining Caltrans encroachment permits.

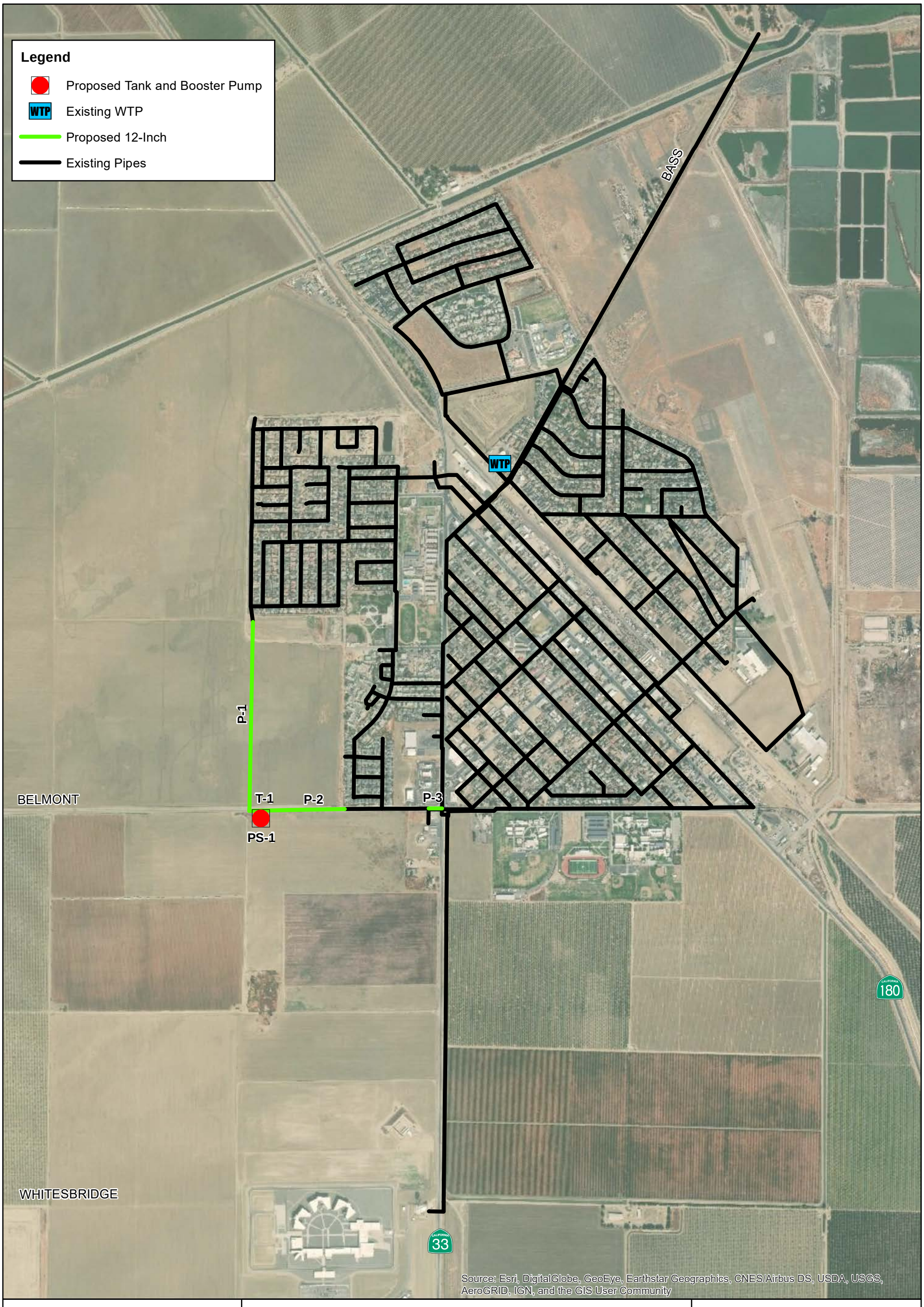

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Figure 8-1
Capital Improvements Projects

Water Master Plan

City of Mendota

Table 8-1. Near Term Capital Improvement Projects

Item No.	Description	Alignment	Limits	Status	Recommended Improvement	Cost
Pipeline Improvements					Length (LF)	
P-1	12" Water Main in Amador Ave	Amador Ave	Oxnard Ave to Belmont Ave	New	2,800	$340,000
P-2	12" Water Main in Belmont Ave	Belmont Ave	Amador Ave to Gregg Ave	New	1,300	$160,000
P-3	12" Water Main in Belmont Ave	Belmont Ave	Derrick Ave (SR 33) to the west 180 feet	New	180	$22,000
					Subtotal, Pipe Cost:	$522,000
Tank Improvements					Volume (gallons)	
T-1	Storage Tank Near Intersection of Belmont Ave and Amador Ave			New	200,000	$400,000
Pump Station Improvements					Firm Capacity (gpm)	
PS-1	2,000 GPM Pump Station			New	2,000	$300,000
Water Source Improvements					Capacity (gpm)	
W-1	River Well			New	1,000	$3,000,000
					Near Term Total	$4,222,000

Note:

3. Minimum to support Westlands subdivision would be tank, pump station, Belmont and Amador water lines.
4. These could be phased, depending upon where the subdivision construction began.

9 Public Benefit Versus Development Charges

Many of the projects identified in this report will be required only as the City grows and will benefit only the growth areas. As a result, the cost of those projects should rightly be borne completely by the new water users. That can be accomplished by having the improvements constructed by developers as construction progresses, or by imposition of Development Impact Fees designed to capture the funds required for the City to construct the projects as they are needed. Calculation of the necessary Development Impact Fees is beyond the scope of this report but will be addressed in a separate Development Impact Fee Study prepared by the City.

Other projects will have a mixed benefit, in that they will allow for some new development but will also address deficiencies in current infrastructure. To the extent that these projects benefit current users, the costs must be borne by current users and cannot be pushed off onto development. The Development Impact Fee study will also consider this split of benefits for the recommended projects.

Exhibit B

City of Mendota

Wastewater Master Plan

Mendota, CA
March 2021

Prepared for:
City of Mendota
Mendota, CA

Prepared by:
Provost & Pritchard Consulting Group
286 W. Cromwell Ave. Fresno, CA 93711

AGENDA

City of Mendota

Wastewater Master Plan

Collection, Treatment and Disposal

March 2021

Prepared for:
City of Mendota

Prepared by:
Provost & Pritchard Consulting Group
286 W Cromwell Ave, Fresno, CA 93711

Report Prepared for:

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DATE SIGNED 04/15/2020

Date Signed 04/15/2020

Table of Contents

List of Figures

List of Tables

Abbreviations

AWMC	Agricultural Water Management Council
CVP	Central Valley Project
WWTP	Wastewater Treatment Plant
City	City of Mendota
MGD	Million Gallons Per Day
BOD	Biochemical Oxygen Demand
TSS	Total Suspended Solids
EC	Electroconductivity
DO	Dissolved Oxygen
TOC	Table of Contents
WWMP	Wastewater Master Plan
ADF	Average Daily Flow
PHF	Peak Hour Flow
MFR	Multiple Family Residence
SFR	Single Family Residence
RCP	Reinforced Concrete Pipe
AC	Asphalt Concrete
PVC	Polyvinylchloride
SDR	Standard Dimension Ratio
Lf	Lineal Feet
Cfs	Cubic Feet Per Second

Executive Summary

On August 11, 2009 the City of Mendota (City) adopted a General Plan Update for the years 2005-2025 to outline the framework for planning the future of the City. To keep up with the projected City growth outlined in the General Plan the wastewater collection infrastructure must also develop. The primary focus of the City's Wastewater Master Plan (WWMP) is to outline strategies to adequately convey and treat the City's existing and future wastewater flows. This encompasses the maintenance of collection and conveyance infrastructure, the construction of new collection and conveyance infrastructure, and the expansion of the Wastewater Treatment Plant (WWTP). This WWMP will outline the future upgrades that are needed to address aging infrastructure and population growth within the City as outlined in the Mendota General Plan update. The future areas of development outlined in the General Plan update are shown in **Figure ES-1** below.

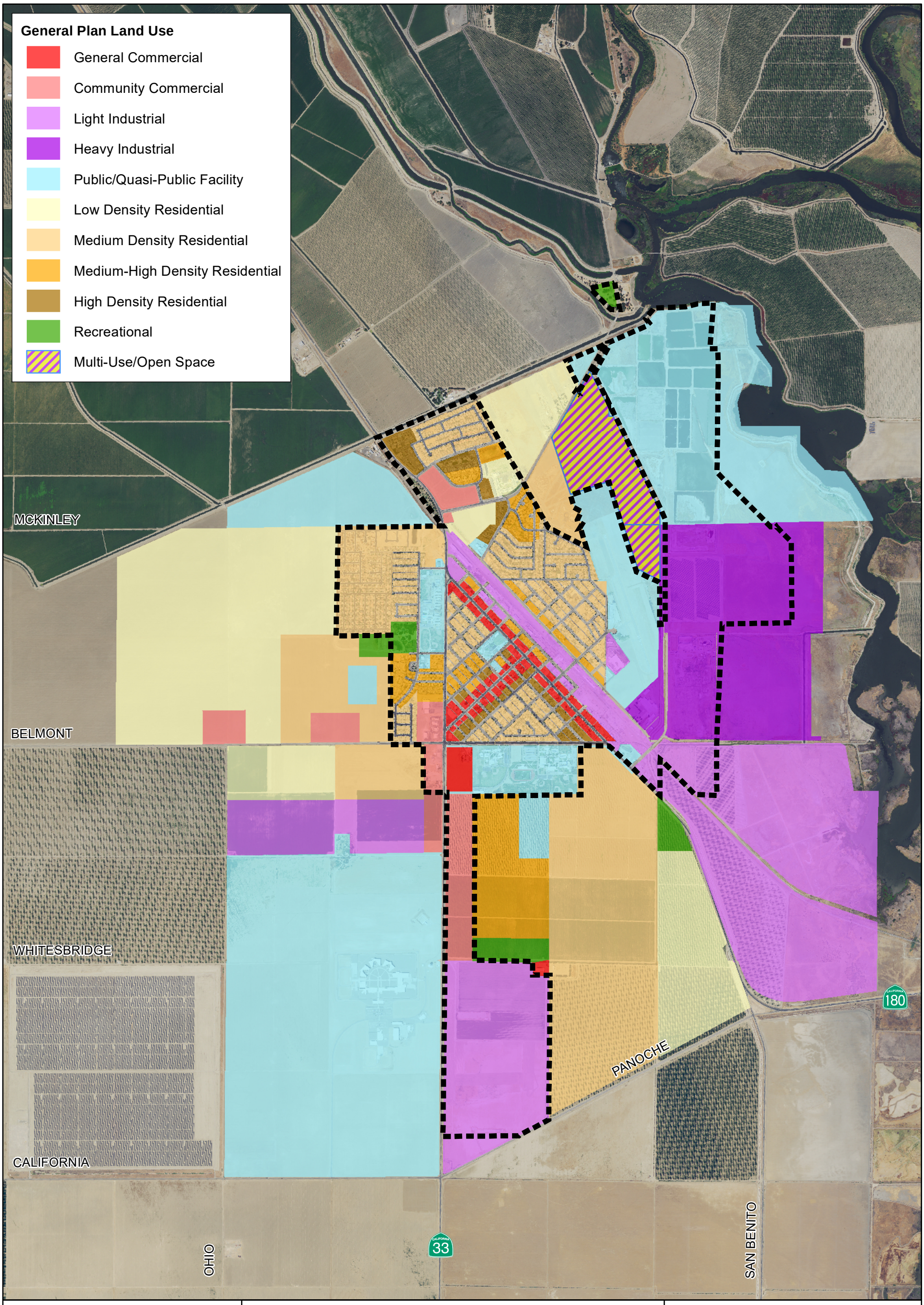
The analyses performed in this WWMP were done in compliance with the City of Mendota's *Sewer Design Criteria* (Appendix A). P&P utilized Autodesk's Storm and Sanitary Analysis (SSA) software to create multiple hydraulic modeling scenarios in order to either demonstrate compliance with City's Sewer Design Criteria or identify areas of need.

The City's sanitary sewer collection system services the entire City with three (3) Collection Zones that funnel into two (2) primary trunk lines.

> The first trunk line, known as the Southside Sewer Interceptor, originates at the prison, southwest of town as a 21" pipe and runs approximately ½-mile east before increasing in size to a 30" pipe and turning north for 2/3 -mile; from this location the line turns northeast and crosses State Route 180, and runs within Belmont Avenue, continuing north to the wastewater treatment plant located northeast of the City. The majority of the sewage in the Southside Sewer Interceptor is from the prison; few other service connections exist on this line.
>
> The second trunk line, known as the Westside Sewer Interceptor, originates as a 24" pipe near the intersection of Castro Street and what was intended to be a roadway along the McKinley Avenue alignment north of the Las Palmas subdivision. This line runs east to where it merges with the Las Palmas sewer at the north east corner of the Las Palmas Storm Drainage basin and then heads northeasterly across the railroad tracks and State Route 33, continuing northeasterly in Bass Avenue to a location just north of H Street where sewage from the majority of the City enters the pipe. From there, the pipe increases to a 30-inch pipe and continues ½-mile in Bass Avenue to the abandoned Bass Avenue Lift Station where the line turns, flows east under the San Luis Drain and continues parallel to and on the east side of the San Luis Drain until it merges with the Southside Sewer Interceptor and discharges into the WWTP.

With relatively minor modifications and additions, the existing wastewater treatment facility has capacity to adequately treat the future anticipated wastewater flows. Upgrades to the existing effluent disposal methods will be needed to accommodate additional users and disposal alternatives are explored in Chapter 5 of this report.

Future sanitary sewer collection and wastewater treatment plant infrastructure needs were determined in accordance with calculations based on the Wastewater Generation Criteria established for this plan and provided in **Table 2-1**. An additional three (3) Collection Zones have been identified to address full development of the City's 2025 General Plan. These Collection Zones all discharge to the existing trunk lines and can be viewed in **Figure ES-2**; Section 3 of this report covers recommended sanitary sewer collection infrastructure.



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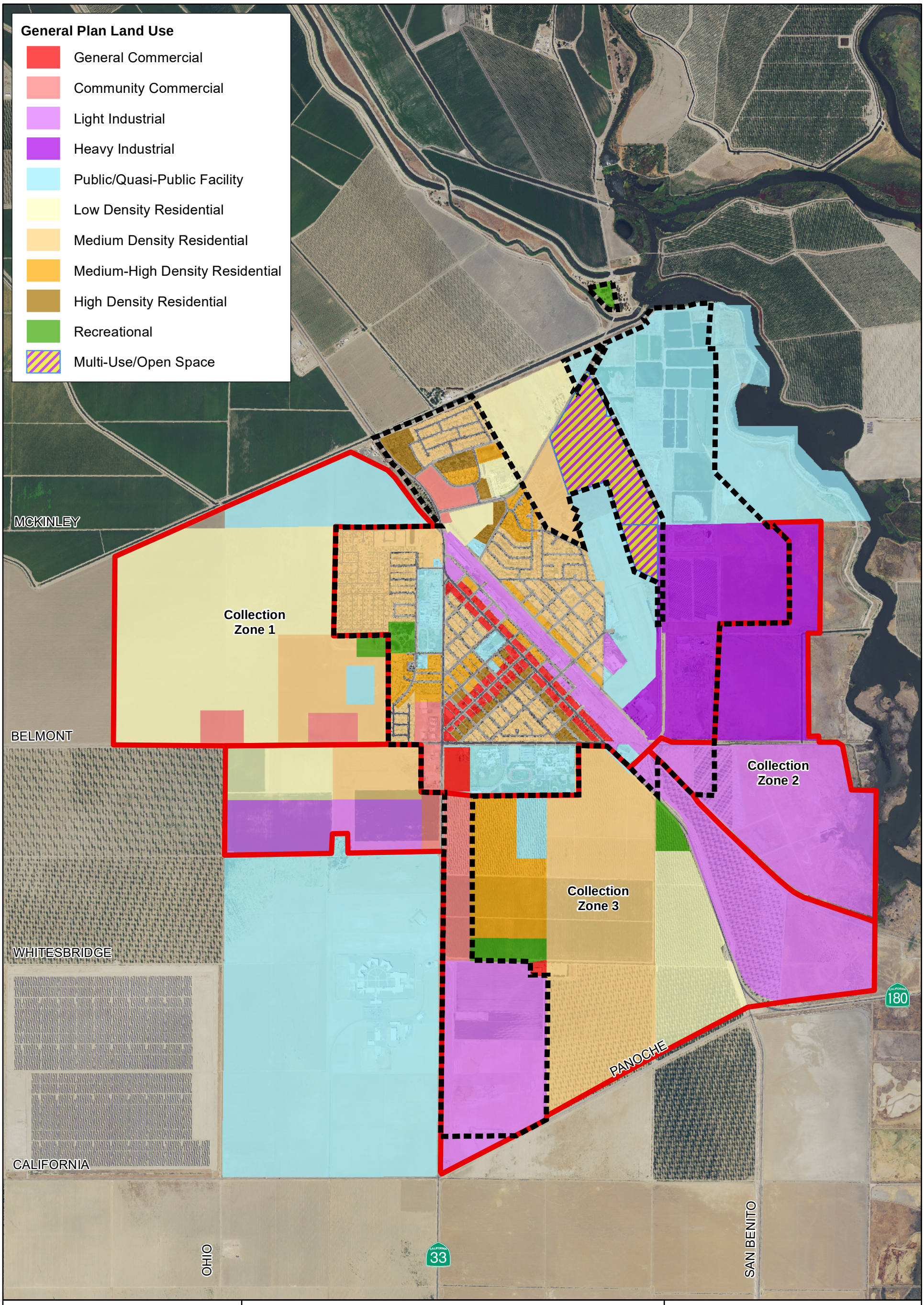
Existing City Limits

Figure ES-1
Proposed Land Use

Wastewater Master Plan

City of Mendota



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Proposed Collection Zones

Existing City Limits

Figure ES-2
Collection Zones

Wastewater Master Plan

City of Mendota

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1 Introduction

The City of Mendota is a General Law City in western Fresno County, located at the intersection of State Routes 33 and 180, south of the San Joaquin River. Its population in the 2010 census was approximately 11,400 persons. The City provides a full range of public services including police protection, fire protection (via contract with Fresno County Fire Department), water, storm drainage, solid waste collection (via a franchise agreement with a private waste hauler), recreation, and the subject of this report, wastewater collection, treatment and disposal.

The City operates a wastewater treatment plant (WWTP) located northeast of the City along the west bank of the Fresno Slough. The WWTP provides secondary treatment with no disinfection of effluent, which is common to many of the small cities in the San Joaquin Valley.

Wastewater is collected in a network of gravity sewers, which converge at the influent lift station at the WWTP. After treatment, effluent is disposed into a series of earthen lagoons. Effluent is allowed to evaporate and percolate. Because of very limited soil permeability and a shallow perched groundwater aquifer less than 10 percent of effluent actually percolates, while the balance evaporates. The relatively large size of the earthen lagoons allows for water to be stored over winter when evaporation rates are reduced. The storage space is recovered when evaporation increases during the summer months. There is currently no discharge of effluent to any location outside the WWTP site.

This Wastewater Master Plan (WWMP) was prepared to provide City with information needed to plan the improvements and financing needed to keep the City's wastewater collection, treatment and disposal facilities updated for reliable service and to provide adequate system capacity to support the City's growing population. The WWMP includes a review of the three major components of the system: collection, treatment and effluent disposal.

1.1 Purpose and Goals

The purpose of the WWMP is to evaluate various aspects of the sewer collection, treatment, and disposal systems, including the following:

- Evaluate the existing sewer collection system and identify locations where capacity is insufficient to support current or anticipated future sewer flows; and
- Evaluate the configuration and performance of the wastewater treatment plant, to project available treatment capacity and plan for capacity increases. Also, to evaluate the feasibility of increasing treatment level to broaden the range of available effluent disposal alternatives; and
- Evaluate the capacity of the current evaporative effluent disposal system. Develop short- and long-term capacity improvement alternatives; and
- Identify environmental and regulatory hurdles to project implementation.

The City has adopted a General Plan with a proposed sphere of influence (SOI) boundary which is anticipated to reach buildout over the course of many years. Planning infrastructure over a long period of years is challenging given the large number of uncertainties that can come into play over time. Given the uncertainties associated with long-term infrastructure planning, where appropriate, this WWMP will provide insights into the impacts of the buildout of the General Plan proposed SOI, but the focus of the analysis and the associated recommendations will be geared towards development impacts expected to occur through a report horizon of 2040.

2 Design Criteria

The analyses performed as part of this WWMP were largely based on the City's Design Criteria and supplemented with additional assumptions based on standard industry practices. Below is a summary of the design criteria and assumptions made for this study.

2.1 Wastewater Generation Criteria

The City of Mendota has set standards for residential sewage generation based the age of each home. Commercial and Industrial sewage generation is more subjective. **Table 2-1** summarizes the design criteria for sewage generation used for this WWMP. An additional breakdown of residential generation rates is provided in the following section.

Table 2-1. City of Mendota Wastewater Generation Criteria

City of Mendota Wastewater Generation Criteria	
Residential built prior to 2013	85 gallons/person/day
Residential built 2013 or later	60 gallons/person/day
Commercial	2,320 gallons/acre
Light Industrial	2,320 gallons/acre
Heavy Industrial	4,850 gallons/acre
Public Schools / Facilities	25 gallons/student/day

Additionally, the City does not have established peaking factors for wastewater generation. In an effort to provide an adequately conservative analysis for this report, P&P assumed a peak-hour factor of 2.0 for industrial land use areas and 1.8 for all other land uses.

2.1.1 Residential Wastewater Generation for Future Development

There are four residential land use categories identified in the Mendota General Plan Update: Low Density Residential; Medium Density Residential; Medium-High Density Residential and High Density Residential. Although there are several existing regions of the City that are High Density Residential, there is no High Density Residential planned land use in the General Plan Update, and so that land use was not considered for the purpose of calculating proposed flows in this study. A breakdown of the three remaining categories used for this study is shown in the table below. Average capita per dwelling unit and average daily flow per capita values were taken from the City's Sanitary Sewage Design Criteria, see **Appendix**.

Table 2-2. Average Daily Flows for Residential Land Uses

Average Daily Flows for Residential Land Uses					
Land Use	General Plan DU/acre	Masterplan DU/acre	Avg Capita / DU	ADF / Capita (gpd / capita)	ADF / acre (gpd/ac)
Low Density Residential	1.0 – 3.5	3.5	4.4	60	924
Medium Density Residential	3.6 – 6.0	5.25	4.4	60	1,386
Medium-High Density Residential	6.1 – 11.0	11.0	3.3	60	2,178

2.1.2 Existing Wastewater Generation

In 2018 the average dry-weather flows through the WWTP were about 1.1 million gallons per day (MGD). Wastewater flows are slowly increasing at a rate of about one percent per year as new residential developments are constructed within the City. The rate of housing construction has been consistent for the last three years and is expected to sustain at least through 2021. However, the growth rate in Mendota has been particularly sensitive to available mortgage rates, and any increase may depress housing demand.

The majority of the existing City wastewater collection connects to the existing Westside Interceptor in just a few locations; for this reason, as well as that there are no known locations of sanitary sewer back-ups and flooding, these connection points were modeled by adding nodes along the trunk line with equivalent flow values to what is anticipated in the system. The equivalent flow values from the existing portions of the City were determined based on area-weighted-averages of the existing flows and land uses, and then applied to their respective "tie in" nodes.

2.1.3 Future Wastewater Generation

Applying the generation factors above to the total areas of each land use type within the proposed Sphere of Influence shown in the General Plan update (less land that is designated as "Open Space Buffer") gives the best available estimate of the quantity of wastewater the City will need to plan for at the time of that buildout.

Table 2-3. Proposed SOI Buildout Wastewater Generation Estimate

Proposed SOI Buildout Wastewater Generation Estimate		
Land Use	Area (acres)	Estimated Wastewater Generation (gpd)
Community Commercial	179	415,280
General Commercial	68	157,760
High Density Residential	51	111,078
Heavy Industrial	481	2,332,850
Low Density Residential	883	815,892
Light Industrial	1,108	2,570,560
Medium Density Residential	1,002	1,388,772
Medium-High Density Residential	205	446,490
Multi-Use/Open Space*	125	2,500
Public/Quasi Public Facility	1,872	62,500
Recreational	67	70,000
Total	6,041	8,373,682

* Open Space Buffer is not intended to contribute to wastewater generation and is therefore not included

However, this level of development will not be reached over any reasonable planning horizon. If the City maintains its the 1.5 percent growth rate that it has seen over the last decade, this level of development would represent over 100 years of growth, which cannot be planned for at this time. Twenty years is a more reasonable planning horizon, and so this report is based on planning facilities to accommodate the demands that will be present in 2040 after steady 1.5 percent linear growth throughout the coming 20 years, without

regard of types and ratios of land uses. From the current 1.12 mgd average daily flow at the WWTF, the future WWTF flow in 2040 would then be 1.50 mgd.

2.2 Pipe Design Criteria

Pipe slope requirements are defined by the diameter of the pipe and the depth of flow in the pipe, with the objective of reaching a minimum velocity of 2.0 feet/second in the pipe at peak daily flow, to ensure pipe cleansing. The velocity requirement is measured at 50% or 100% full. If the line being designed will never reach 50% flow even at the daily peak, then the slope must be adjusted to achieve a minimum of 2.0 feet/second velocity at the actual depth/diameter ratio that will be achieved.

Pipes flowing more than 75% full in the model were increased to the next standard nominal size.

Table 2-4. Minimum Sewer Pipe Slopes

Minimum Sewer Pipe Slopes (ft/ft)		
Pipe Diameter	n = 0.011	n = 0.013
6-inch	0.0034	0.0047
8-inch	0.0025	0.0034
10-inch	0.0018	0.0025
12-inch	0.0014	0.0019
15-inch	0.0010	0.0015
18-inch	0.0008	0.0011
21-inch	0.0007	0.00095
24-inch	0.00055	0.00075

3 Collection Facilities

3.1 Overview

The City is anticipated to grow in all directions around the existing City limits. The growth is expected to extend south of the City to Panoche Road, east to the Fresno Slough, and about a mile west along Belmont Avenue. Growth to the north will fill in gaps but not extend north of the Firebaugh Canal District Intake Canal. This Master Plan includes designations for seven different types of land use. These include Low Density Residential, Medium Density Residential, Medium-High Density Residential, Community Commercial, General Commercial, Heavy Industrial, Light Industrial, and Public/Quasi-Public and Recreational.

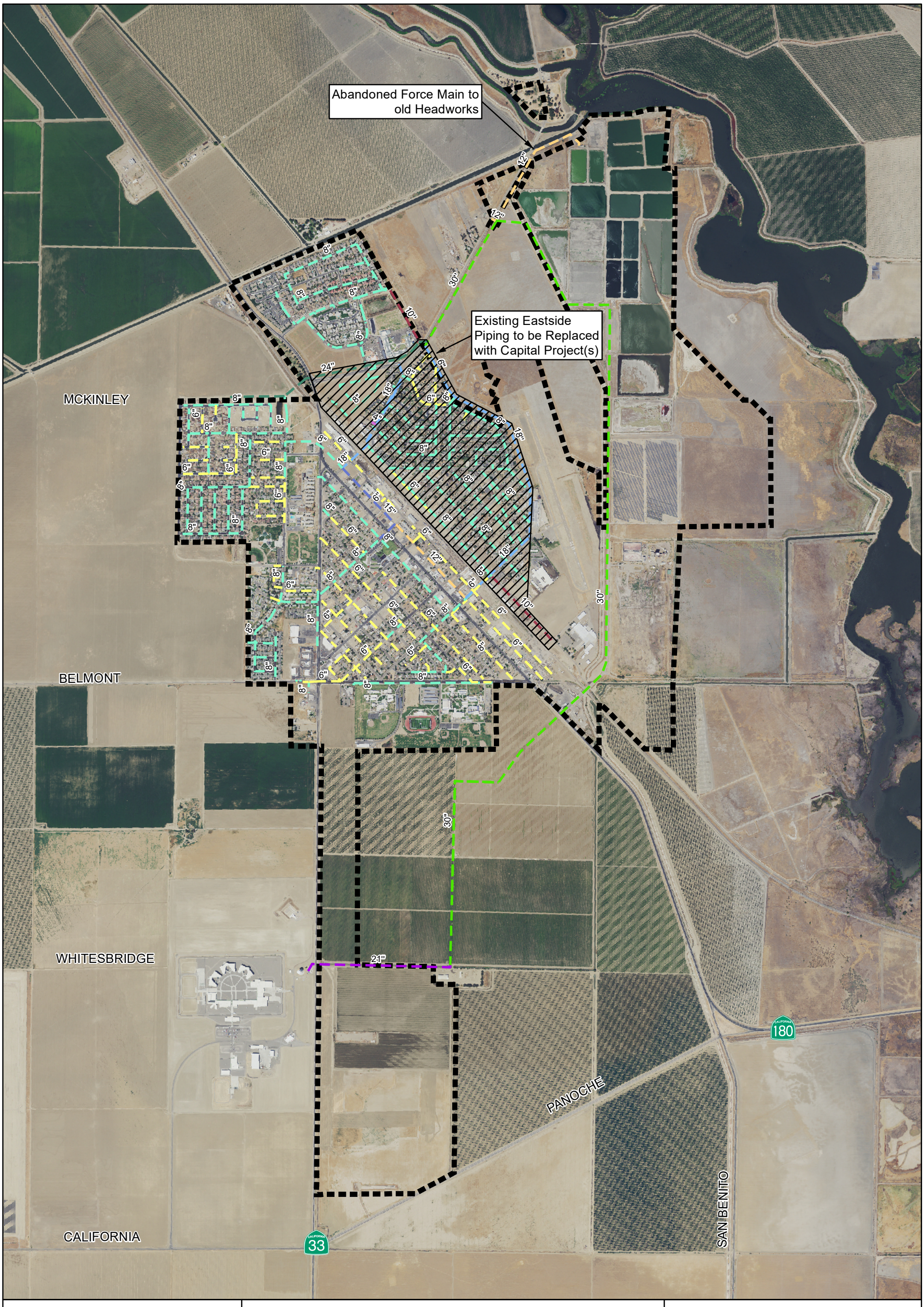
The City's sanitary sewer collection system services the entire City with three (3) Collection Zones that funnel into two (2) primary trunk lines. The first, known as the Southside Sewer Interceptor, originates at the prison, southwest of town as a 21-inch pipe and runs approximately ½-mile east before increasing in size to a 30-inch pipe and turning north for 2/3 -mile; from this location the line turns northeast and crosses State Route 180 and runs within Belmont Avenue, continuing north to the wastewater treatment plant located northeast of the City. The majority of the sewage in the Southside Sewer Interceptor is from the prison; few other service connections exist on this line.

The second trunk line, known as the Westside Sewer Interceptor, originates as a 24-inch pipe near the intersection of Castro Street and what was intended to be a street along the McKinley Avenue alignment north of the Las Palmas subdivision. This line runs east to where it merges with the Las Palmas sewer at the northeast corner of the Las Palmas Storm Drainage basin and then heads northeasterly across the railroad tracks and State Route 33, continuing northeasterly in Bass Avenue to a location just north of H Street where sewage from the majority of the City enters the pipe. From there, the pipe size increases to 30-inch and continues ½-mile in Bass Avenue to the abandoned Bass Avenue Lift Station where the line turns and continues east under the San Luis Drain, then continues parallel to and on the east side of the San Luis Drain until it merges with the Southside Sewer Interceptor and discharges into the main lift station at the WWTP. The following sections look at the conditions of the existing facilities overall, and then at the specifics of individual Collection Zones within the City. Recommendations for remedial and additional facilities, together with estimated capital costs, are included.

3.2 Existing Facilities

There are no known sewer capacity deficiencies in the collection system at the time of preparation of this report. However, it appears that all of the sewer lines in east Mendota that were installed in the mid-1970's as part of a federally funded Fresno County project (prior to annexation into the City) were constructed out of unlined asbestos-cement pipe (**Figure 3-1**). This pipeline material has broken down over the years as sewer gases have corroded the crowns of the unlined concrete pipe, and now some of the pipe in this area has collapsed, causing flow blockage and failure of the road surface above the pipe.

The nature of this failure is progressive and irreversible. The City has two choices. It can continue to make spot repairs as sections fail and the failures become visible from the surface. Or it can program the systematic replacement of all the pipelines in the area over a several-year period, knowing that all of the pipe will eventually require replacement. The latter alternative is more predictable, though it is unlikely that it will completely avoid the occurrence of some necessary spot repairs along the way in addition to the budgeted programmatic replacements. Following is a summary of the estimated construction costs for replacement of the pipelines within the affected area.



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Existing City Limits

Figure 3-1
Existing Wastewater Collection Infrastructure

Wastewater Master Plan

City of Mendota

3/12/2021 : G:\Mendota_City of-3336\333618012-Wastewater Treatment Master Plan\GIS\Map\ExistingCollectionZones.mxd

Table 3-1. Summary of East Mendota Pipeline Replacement Costs

Summary of East Mendota Pipeline Replacement Costs				
Description	Quantity[1]	Units	Unit Cost	Cost
General Contracting Requirements	1	LS	$1,132,350	$1,132,350
Remove and Replace Ex. 6" AC Pipe with 6" PVC SDR 35	4,100	LF	$45	$184,500
Remove and Replace Ex. 8" AC Pipe with 8" PVC SDR 35	22,850	LF	$60	$1,371,000
Remove and Replace Ex. 10" AC Pipe with 10" PVC SDR 35	1,700	LF	$75	$127,500
Remove and Replace Ex. 18" AC Pipe with 18" PVC SDR 35	5,500	LF	$110	$605,000
48" Manhole	80	EA	$6,000	$480,000
Street Resurfacing	1,195,250	SF	$4	$4,781,000
Contingency				15%
Total:				$9,983,600

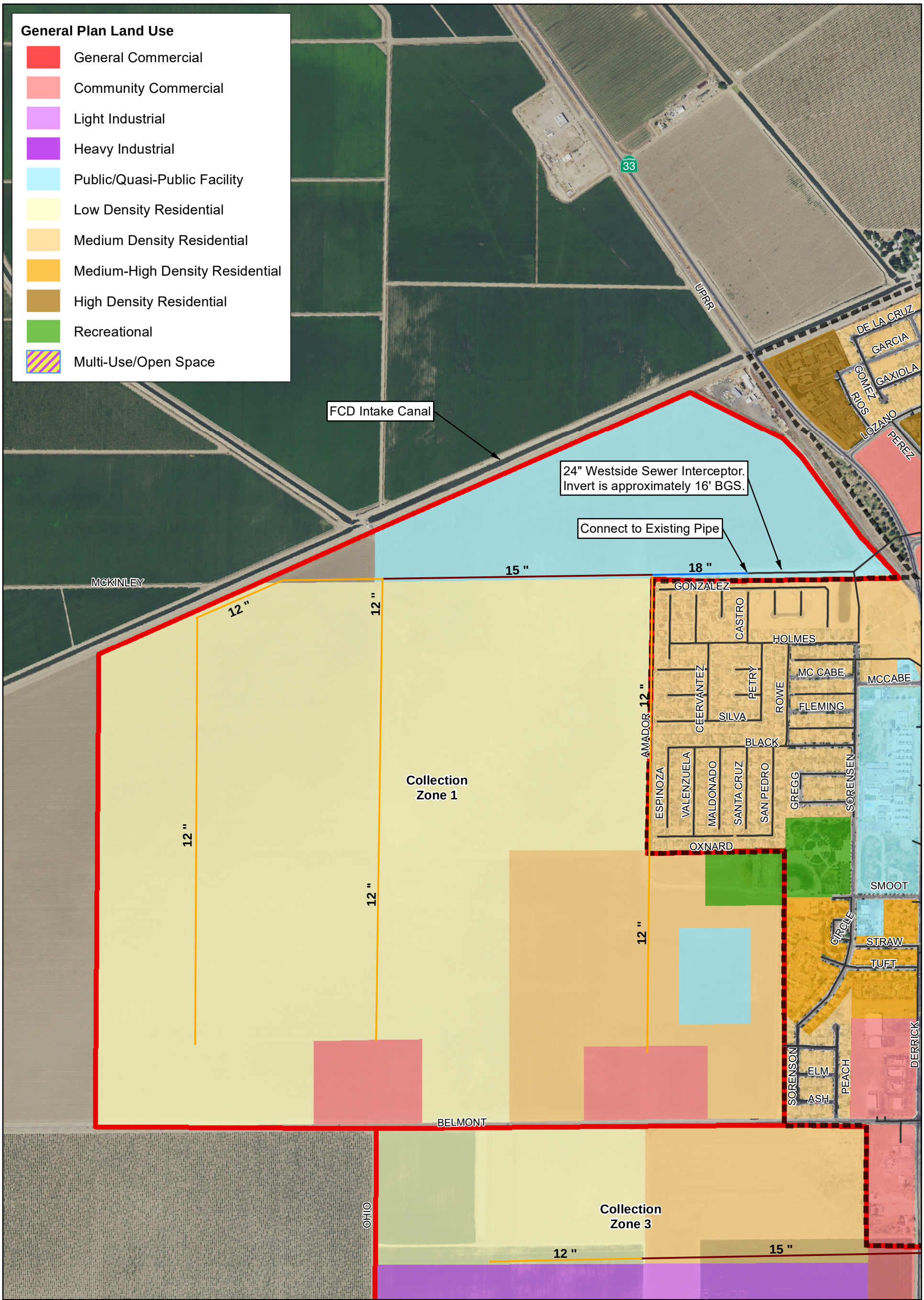
3.3 Proposed Collection Zone 1

Proposed Collection Zone 1 (**Figure 3-2**) is located to the west of the existing City Limits. Proposed Collection Zone 1 is bounded geographically by the Intake Canal on the northwest; on the east (from north to south respectively) by the Union Pacific Railroad, residential subdivisions; on the south by Belmont Avenue; and on the west by the City's General Plan proposed Sphere of Influence. The total area for this collection zone is 835 acres. This collection zone will tie into the existing 24" Westside Sewer Interceptor north of the Las Palmas Subdivision.

3.3.1 Land Uses and Sewage Generation

Collection Zone 1 is comprised of Low Density Residential, Medium Density Residential, Recreational, Commercial and Public/Quasi-Public Facility. Acreages, flow criteria, average daily flow rates and peak hour flow rates are summarized in the table below.

[1] All pipeline quantities are estimates rounded to the nearest 25-foot increment.



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Existing City Limits
Proposed Collection Zones
Existing Wastewater Pipeline

Proposed Wastewater Pipeline
12"
15"
18"
21"
24"

Figure 3-2
Collection Zone 1

Wastewater Master Plan

City of Mendota

3/11/2021 : G:\Mendota_City of-3336\333618012-Wastewater Treatment Master Plan\GIS\Map\CollectionZone1.mxd

Table 3-2. Collection Zone 1

Collection Zone 1					
Land Use	ADF / acre (gal/day/acre)	Area (acres)	ADF (MGD)	Peaking Factor	PHF[2] (cfs)
Low Density Residential	924	535.3	0.495	1.8	1.38
Medium Density Residential	1,386	110.6	0.153	1.8	0.43
Commercial	2320	39.8	0.092	1.8	0.26
Public/Quasi-Public & Recreational	238	149.5	0.036	1.8	0.10
Total:		835.2			2.17

3.3.2 Collection Facilities

The master planned collection facilities (**Figure 3-2**) for Collection Zone 1 include extension of the Westside Sewer Interceptor, along the north side of the Las Palmas subdivision, to the west and then three trunk lines which will convey flow from the southern end of the Collection Zone to the trunk line and then east to the existing collection system.

3.3.3 Necessary Projects

The proposed collection facilities will be constructed as development proceeds and will include the pipes tabulated below as well as approximately 40 manholes.

3.3.4 Summary of Costs

Table 3-3. Summary of Wastewater Collection System Costs Collection Zone 1

Summary of Wastewater Collection System Costs Collection Zone 1				
Description	Quantity[3]	Units	Unit Cost	Cost
General Contracting Requirements	1	LS	$281,175	$281,175
12" SDR35 PVC	14,000	LF	$90	$1,260,000
15" SDR35 PVC	2,700	LF	$100	$270,000
18" SDR35 PVC	950	LF	$110	$104,500
48" Manholes	40	EA	$6,000	$240,000
Contingency				15%
Total:				$2,479,100

[2] Peak Hour Flow, cubic feet per second
[3] All PVC quantities are estimates rounded to the nearest 25-foot increment.

3.4 Collection Zone 2

Collection Zone 2 (**Figure 3-3**) is located to the south and east of the existing City Limits. Collection Zone 2 is bound on the south by the Union Pacific Railroad, the west by the industrial land south of the City WWTP and on the east by the Open Space Buffer area adjacent to the Fresno Slough. The total area for the Collection Zone is 877 acres. This collection zone will tie into the existing 30" Southside Interceptor sewer pipeline at the intersection of West Belmont Avenue and Guillan Park Drive that continues north to the WWTP.

3.4.1 Land Uses and Sewage Generation

Collection Zone 2 is comprised of Light and Heavy Industrial Land Uses, it is anticipated that due to the current land uses, proximity to the Fresno Slough, and remoteness from City services that this area is likely to be the last collection zone developed. Acreages, flow criteria, average daily flowrates and peak hour flow rates are summarized in the table below. Development in this area will need to be reviewed by the City Engineer on a case-by-case basis, as the sewage generation rates for the current land use would exceed the capacity of the existing Southside Interceptor trunk line that Collection Zone 2 will discharge to.

Table 3-4. Collection Zone 2

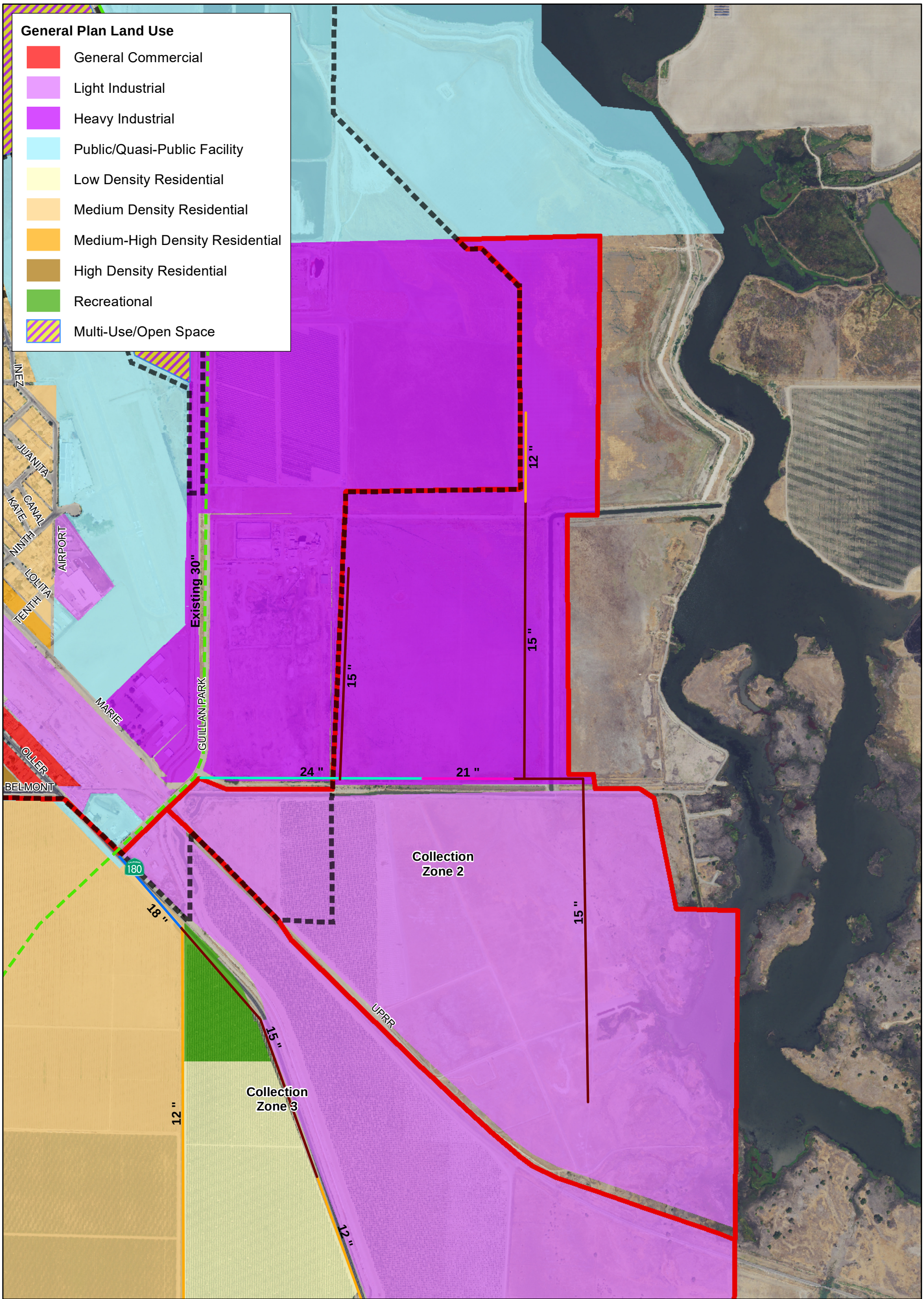
Collection Zone 2					
Land Use	ADF (gal/acre/day)	Area (acres)	ADF (MGD)	Peaking Factor	PHF (cfs)
Light Industrial	2320	611.6	1.419	2.0	4.39
Heavy Industrial	4850	265.8	1.289	2.0	3.99
Totals			877.4		8.38

3.4.2 Collection Facilities

The master planned collection facilities for Collection Zone 2 include several branch lines (**Figure 3-3**) the quantities of which are listed in the table in Section 3.4.4 below that come together and discharge into the Southside Sewer Interceptor of the City's existing collection system.

3.4.3 Necessary Projects

The proposed collection facilities will be constructed as development proceeds and will include the pipes tabulated below as well as approximately 40 manholes.



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Existing City Limits
Proposed Collection Zones
Existing 30" Wastewater Pipeline

Proposed Wastewater Pipeline
12"
15"
18"
21"
24"

Figure 3-3
Collection Zone 2

Wastewater Master Plan

City of Mendota

3/12/2021 : G:\Mendota_City of-3336\333618012-Wastewater Treatment Master Plan\GIS\Map\CollectionZone2.mxd

3.4.4 Summary of Costs

Table 3-5. Summary of Wastewater Collection System Costs Collection Zone 2

Summary of Wastewater Collection System Costs Collection Zone 2				
Description	Quantity[4]	Units	Unit Cost	Cost
General Contracting Requirements	1	LS	$256,275	$256,275
12" SDR35 PVC	725	LF	$90	$65,250
15" SDR35 PVC	8,750	LF	$100	$875,000
21" SDR35 PVC	850	LF	$155	$131,750
24" SDR35 PVC	2,250	LF	$170	$382,500
48" Manholes	40	EA	$6,000	$240,000
Contingency				15%
Total:				$2,259,500

3.5 Collection Zone 3

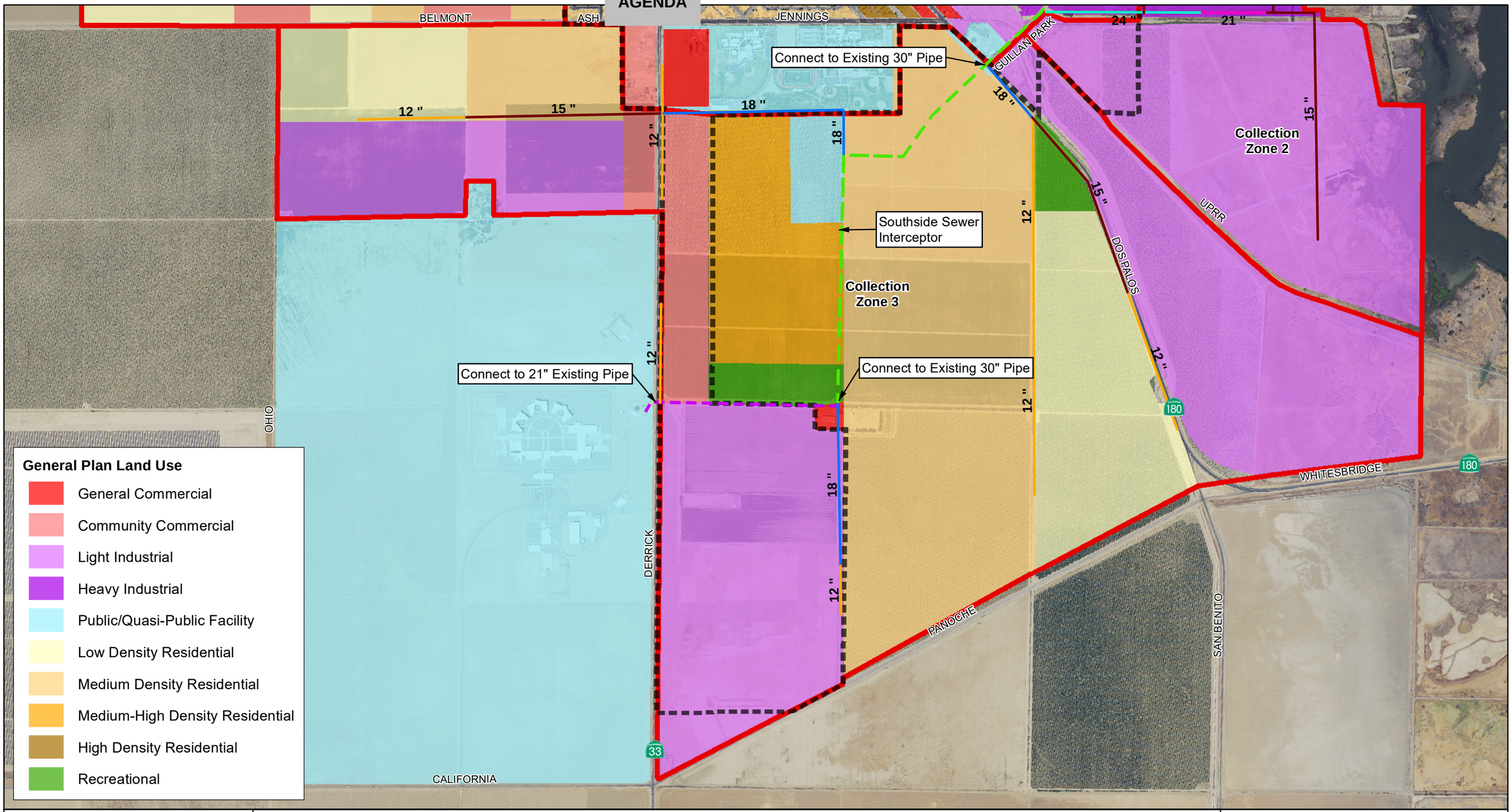
Collection Zone 3 is planned to service all of the City's planned future growth south of Belmont Ave, between SR 33 and the Union Pacific Railroad and north of Panoche Road (**Figure 3-4**). The existing Southside Sewer Interceptor trunk line that currently conveys flows from the Federal Correction Institution to the Wastewater Treatment Plant will serve as the backbone of the collection infrastructure for Collection Zone 3. As part of our analysis, we have identified several branch connections to the existing trunk line that can service the planned growth of the Collection Zone 3 area on an as needed basis, as development dictates.

3.5.1 Land Uses and Sewage Generation

Collection Zone 3 is comprised of Low Density Residential; Medium Density Residential; Medium-High Density Residential; Open Space Recreational; Light Industrial and Commercial Land Uses. Acreages, flow criteria, average daily flowrates and peak hour flow rates are summarized in the table below.

[4] All pipe quantities are estimates rounded to the nearest 25-foot increment.

AGENDA



General Plan Land Use

- General Commercial
- Community Commercial
- Light Industrial
- Heavy Industrial
- Public/Quasi-Public Facility
- Low Density Residential
- Medium Density Residential
- Medium-High Density Residential
- High Density Residential
- Recreational

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Feet

- Existing City Limits
- Proposed Collection Zones
- Existing 21" Wastewater Pipeline
- Existing 30" Wastewater Pipeline

Proposed Wastewater Pipeline

- 12"
- 15"
- 18"
- 21"
- 24"

Figure 3-4
Collection Zone 3

Wastewater Master Plan

City of Mendota

3/12/2021 : G:\Mendota_City of-3336\333618012-Wastewater Treatment Master Plan\GIS\Map\CollectionZone3.mxd

Table 3-6. Collection Zone 3

Collection Zone 3					
Land Use	ADF (gal/acre/day)	Area (acres)	ADF (MGD)	Peaking Factor	PHF (cfs)
Low Density Residential	924	259.5	0.240	1.8	0.67
Medium Density Residential	1386	551.8	0.765	1.8	2.13
Medium-High Density Residential	2178	123.2	0.268	1.8	0.75
Commercial	2320	229.2	0.532	1.8	1.48
Light Industrial	2320	413.3	0.959	2.0	2.97
Public/Quasi-Public & Recreational	238	149.5	0.036	1.8	0.10
Totals		1726.5			8.09

3.5.2 Collection Facilities

As mentioned above it is planned that several branch lines (**Figure 3-4**) be constructed in order to convey flow to the existing Southside Sewer Interceptor trunk line of the City's wastewater collection system, which will in turn convey the flows to the wastewater treatment plant. Quantities of the various pipe sizes required for the master planned branch lines are included in the table in **Section 0** below.

3.5.3 Necessary Projects

The proposed collection facilities will need to get implemented as needed by development and include the pipes tabulated below as well as approximately 50 manholes.

3.5.4 Summary of Costs

Table 3-7. Summary of Wastewater Collection System Costs Collection Zone 3

Summary of Wastewater Collection System Costs Collection Zone 3				
Description	Quantity[5]	Units	Unit Cost	Cost
General Contracting Requirements	1	LS	$426,865	$426,865
12" SDR35 PVC	12,850	LF	$90.00	$1,156,500
15" SDR35 PVC	8,750	LF	$100.00	$875,000
21" SDR35 PVC	850	LF	$155.00	$131,750
24" SDR35 PVC	2,250	LF	$170.00	$382,500
48" Manholes	50	EA	$6,000	$300,000
Contingency				15%
Total:				$3,763,600

[5] All pipe quantities are estimates rounded to the nearest 25-foot increment.

4 Treatment Facilities and Effluent Disposal

The City's wastewater treatment plant (WWTP) is located about one mile northeast of the City between the Fresno Slough and the San Luis Drain near the Slough's connection to the San Joaquin River. This facility was originally constructed in 1972 and has undergone incremental modifications throughout the years, with the most recent "Expansion Phase II" occurring in 2010. Currently the WWTP serves a total population of roughly 13,000 persons from both the City and the nearby federal prison. This WWTP is permitted to discharge secondary treated wastewater into evaporation/percolation ponds with average flows of up to 1.24 MGD under the RWQCB Order R5-2016-0054.

The facility consists of a wet well/triplex submersible pump station headworks, a pair of parallel treatment/facultative lagoons leading to the compliance point, and an interconnected array of nine active evaporation/percolation ponds that serve as the sole disposal facilities. The WWTP has no external effluent disposal.

Since the completion of the most-recent reconstruction project in 2011, the approximate flow capacities of the subsystems of the WWTP are as follows:

Influent Lift Station:	2.0 mgd
Biological Capacity (aeration)	1.2 mgd
Hydraulic Capacity (treatment ponds)	2.0 mgd
Disposal Capacity (evaporation[6])	1.12 mgd

At the time of preparation of this report, the Average Daily Wastewater Flow (ADWF) of the WWTP averaged between 1.11 and 1.12 mgd, making disposal capacity critical. Each of the subsystems is discussed in more detail in the sections below.

4.1 Treatment Process and Capacity

Prior to 2011, the WWTP used three unlined treatment ponds (numbered one through three) in series for wastewater treatment along with four evaporation ponds (four through seven) for effluent disposal.

The WWTP was upgraded and expanded from 2010 to 2012. During this expansion a new, modernized headworks building was constructed; two new aerated, primary treatment ponds were installed (T1 and T2) along with two new secondary facultative treatment ponds (F1 and F2); and t additional deep disposal ponds were also installed (Ponds 7 & 8). Additionally, the existing disposal ponds (current Ponds 4 & 5) were rehabilitated with the objective of increasing percolation rates. The City stopped using the three older treatment ponds (formerly 1, 2 and 3, currently 2, 3 and 1, respectively) in 2011 and reserved them for emergency disposal. Sludge from Ponds 2 and 3 was removed in 2015, allowing them to be converted to disposal ponds. Sludge from Pond 1 was removed in Fall 2018 and is pending authorization from the Waterboard to come on-line. In 2020, the berms around the north and east sides of Pond 6 were built up and this pond is also pending authorization from the Waterboard to come on-line.. The current footprint of the WWTP is shown in **Figure 4-1** at the end of this section.

[6] Per WDR Order R5-2016-0054, the average annual evapotranspiration for this site is 45.75 inches which equates to approximately 3,404 gpd/acre of pond area. The average annual pan evaporation for this site is 79.22 inches.

The flow through the aeration basins (treatment ponds) and facultative treatment ponds is run in parallel as depicted in **Figure 4-2**. There are future concept plans to construct two additional treatment ponds (T3 and T4) and two new facultative treatment ponds (F3 and F4), but they are not needed at this time since existing capacity of the WWTP is sufficient to handle the average daily flows through the plant, and will be adequate up to an average daily flow of at least 2.0 MGD.

Although the expansion of the WWTP was predicated on the goal of both expanding treatment capacity and enhancing percolation to increase effluent disposal capacity, it did not accomplish percolation improvement. About a week after the introduction of the two new deep lagoons (Ponds 7 & 8), percolation effectively stopped due to the saturation of the soil between the bottom of the pond and the top of the shallow aquifer, which is approximately 25 feet below ground surface elevation. This saturation blocks further percolation almost entirely. Due to the limited capacity for groundwater percolation, the main mechanism for the disposal of treated effluent is through evaporation. The greater the surface area of ponds available, the greater the disposal capacity of the plant.

This method has been mostly successful until recent years, when the City has been near the disposal capacity of the plant on an annual average basis. The amount of water retained in the ponds increases in the winter when evaporation rates are lower, and it decreases in the summer when evaporation rates increase. This annual cycle has maintained a tenuous balance, but it is subject to disruption by a series of high-rainfall years or a spurt of growth in the City, which would increase annual discharge.

In the future, as the flows to the wastewater treatment plant increase, additional methods of effluent disposal will be needed.

4.2 Potential Biological and Hydraulic Capacity at Current Treatment Level

The treatment process designed into the 2011 reconstruction project included a 2.5 mgd hydraulic capacity for the initial treatment train, with parallel lagoons T1/F1 and T2/F2 in service, and expanding to 4.5 mgd in the future when the second set of parallel lagoons, T3/F3 and T4/F4, are constructed and brought on line.

However, because the City's current flow was only 0.80 mgd at the time of the project, it was not found cost effective to purchase and install all of the surface aerators that will ultimately be needed to biologically treat 2.5 mgd of flow in the first treatment train. Only a limited number of aerators were installed, and biological capacity is currently approximately 1.2 mgd. Expansion beyond that level, even to the original 2.5 mgd design flow, is a matter of installing more of the originally planned surface aerators. The electrical infrastructure exists already, so that installation is relatively simple, requiring only power, anchoring wires, and wiring into the SCADA system. Additional aerators should be installed when tests reveal that required dissolved oxygen rates are not being maintained at the compliance point, or when necessary BOD reduction is not being achieved. Both are symptoms of inadequate aeration.

Sludge buildup in the initial treatment train requires removal to re-establish the full original design treatment capacity of 2.5 mgd. Sludge removal is normal maintenance for any WWTP and must be carried out periodically. This plant has been in service in its current configuration for over 10 years. While sludge has not been expected to accumulate as quickly as it has, BOD levels in the treatment train have been somewhat higher than were planned, which has led to increased sludge and the need for earlier maintenance. Sludge was removed from T1/F1 in 2016.

4.3 Potential Disposal Capacity of Current Footprint

Although the WWTP has a substantial amount of remaining secondary treatment capacity, the plant is limited by the 40 MG volume of the existing evaporation basins. Due to the large hydraulic retention time (approximately thirty days) these evaporation ponds frequently approach capacity in the summer and exceed capacity in the winter. At this time, effluent is not discharged to any location outside the WWTP site. Only about 10% of the treated water percolates and the remaining balance evaporates. The design intent for the relatively large size of the earthen lagoons is to allow water to be stored over winter when evaporation slows and to recover that volume when evaporation increases during the summer months. Currently the evaporation ponds are near capacity in the summer and exceed capacity in the winter, indicating additional space is needed.

While some additional lands remain available for evaporation pond construction, that solution has a limited future. In 2018, the City purchased two mechanical evaporators. These devices are simple pumps with an atomizer which spray effluent from the evaporation ponds into the air above the ponds in a fine mist. This vastly-increases the surface area of the mist droplets and multiplies the evaporation rate of the water, substantially increasing the overall effluent evaporation rate. The City has reported satisfaction with these units, despite their significant capital and operating costs. Barring development of a more permanent and effective solution for disposal, a wider implementation of these mechanical evaporators may prove to be the correct path forward for the City.

Since the overall WWTP capacity is currently limited by effluent disposal capacity, the City must identify and analyze alternatives for the discharge of treated effluent. At the plant's current size and footprint all undeveloped City-owned land around the WWTP is allocated for future disposal capacity. Given the need for additional effluent disposal capacity, the City must consider ways to dispose of the treated effluent. Options include: acquiring available land around the WWTP to expand the capacity of the evaporation ponds, sending secondary treated water to farmland for the irrigation of feed and fodder crops, treating a sidestream of the effluent to a higher standard so it can be sent to nearby farmers for the irrigation of higher value crops, discharging disinfected tertiary treated effluent into the Fresno Slough, and implementing mechanical means of enhancing evaporation rates.

The near future capacity expansion of the WWTP relies on expansion of the existing evaporation ponds and enhancement of evaporation rates. The area and effectiveness of these ponds are the limiting factors in the day-to-day operations of the plant and optimization of the existing evaporation ponds will have the most benefit on the long-term prognosis of the facility.

4.4 Water Treatment Quality and Future Needs

At this time, effluent generated from the WWTP consistently meets most but not all of the discharge limitations set forth in the City's Waste Discharge Requirements (WDRs), issued by the Regional Water Quality Control Board in 2016. Under the current waste discharge order R5-2016-0054, average monthly Biochemical Oxygen Demand (BOD_5) is limited to 40 mg/L and the monthly maximum is not to exceed 80 mg/L. These monthly average results have been acceptable. In the years 2016-2019 the plant discharged water with an average BOD_5 of 30 mg/L. On the other hand, there have been issues with spikes in the BOD_5 levels from time to time. During that same period, the monthly maximum BOD_5 level was 150 mg/L, or nearly twice the permit limit.

The 2010 expansion project incorporated a benthic stabilization treatment process consisting of deep (14 foot) lagoons with aerated treatment and non-aerated facultative zones. This process is well supported in academic literature and is intended to provide a high level of treatment with very low energy consumption,

leading to economical operation, which is a very high design priority for the City. Operational data over the years has demonstrated this system has not functioned as reliably as planned, and it is not due to process failure. Rather, BOD is adequately removed during treatment but treated effluent only contains about one percent (1%) or 1 mg/L dissolved oxygen (DO) at the compliance point (the discharges of the facultative ponds) which is insufficient to maintain control of BOD during the extraordinarily long detention time the effluent is held in the evaporation ponds. In practice, the residual DO is quickly consumed and BOD begins to rise, frequently reaching levels of 100 mg/L or greater, which is in violation of the WDRs for the plant.

There are several additional consequences. The high BOD levels cause issues with the production of excess sludge in the evaporation ponds, which has led to excessive build-up of sludge which must now be removed several years earlier than anticipated. It has led to water quality issues during seasonal turnover when ambient air temperatures fall and colder water on the top of ponds flips with warmer water on the bottom bringing contaminants from the bottom of the ponds surface. In situations like this, the water essentially self-treats since it is retained in the evaporation ponds for long periods of time.

Increasing the aeration capacity at the WWTP is an effective way to increase DO in the initial effluent and control the BOD in the evaporation ponds. The City is currently assessing the need for installing additional aerators in the T1/F1 and T2/F2 aeration basins. At this time only 25 Hp of surface aeration is supplied during the treatment process and ultimately much more will be needed to adequately control the BOD in the evaporation basins for as long as the effluent must be retained currently. At this time the WWTP's operational costs are minimal, and the addition of aerators would increase the City's annual power costs.

The root of the problem is that effluent is not disposed quickly. It is, for the most part, being treated adequately and in compliance with the Waste Discharge Requirements at the Point of Compliance, but the existing system of evaporation ponds is small. The limited evaporative surface means water is retained in the evaporation ponds for weeks or even months, during which time the water quality degrades: BOD increases, algae grows, and of course salts build up in the ponds over time. The City and the Water Board agree that this long-standing situation is not optimal; however, so far, no better system has been available to replace it.

The current treatment process is very cost-effective, particularly in light of how the effluent will be disposed.

The City is in a place now where there is no need for higher treatment level because there is no feasible place to dispose of higher quality effluent. This is a common situation. Treatment level and effluent disposal are two parts of the same question and must be considered together. Just as additional treatment does not make sense at the moment, in light of the current disposal options, it is possible that future disposal options could make a higher treatment level more desirable or even necessary. One example of this will be presented in the disposal alternatives in **Section 5**.

It is important to keep in mind that the overarching purpose of this report is to help the City with the most cost-effective system of providing regulatory-compliant wastewater treatment and disposal to its citizens.

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Wastewater Treatment Facility

Figure 4-1
Mendota Wastewater Treatment Facility
Wastewater Master Plan
City of Mendota

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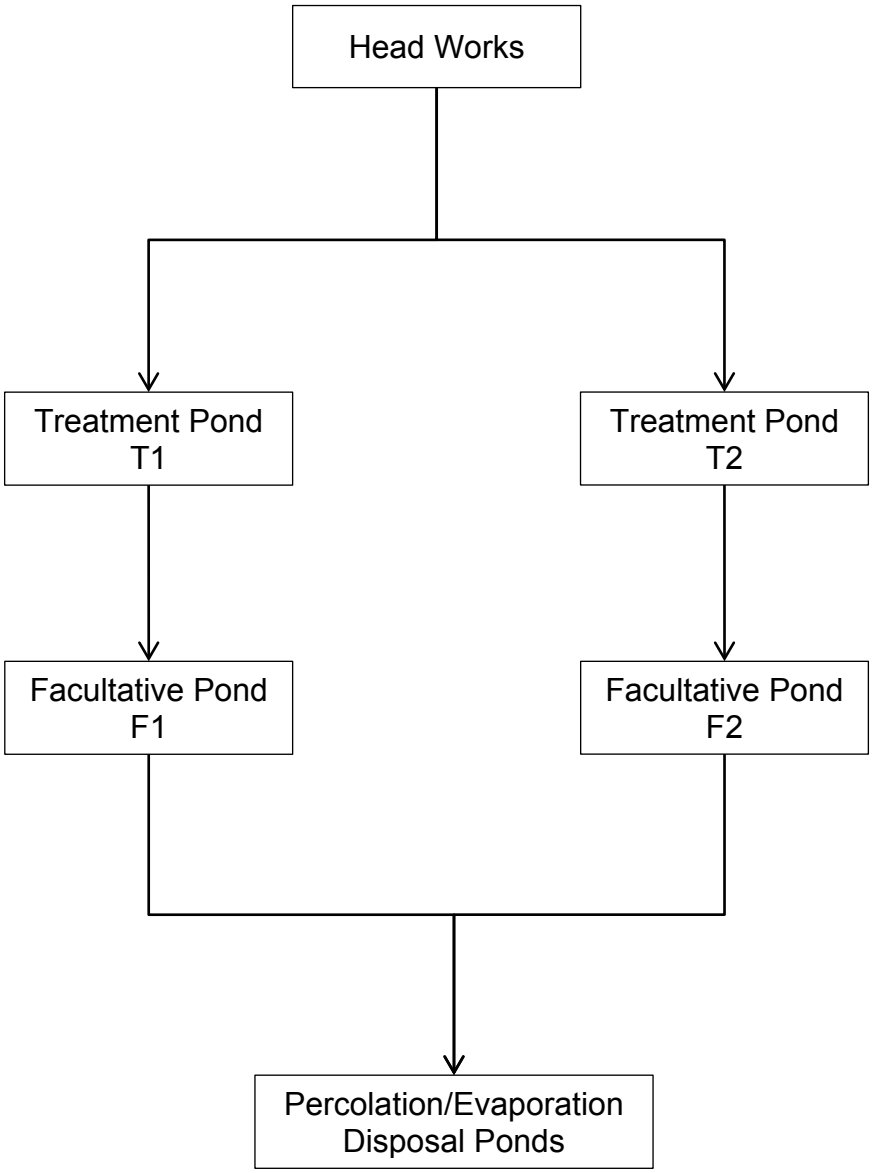


DRAWING REFERENCE:

November 2015 Report of Waste Discharge
Provost & Pritchard Consulting Group

FLOW SCHEMATIC

CITY OF MENDOTA
MENDOTA WASTEWATER TREATMENT FACILITY
FRESNO COUNTY

5 Effluent Disposal Alternatives

The most critical issue facing the City and its WWTP as the City grows is effluent disposal. This is a critical issue today and must be immediately faced. The immediate solutions must be followed by long-term plans to allow for the City to increase disposal capacity to 1.5 mgd to accommodate growth over the next 20 years. That has never been done. The current plant has never had an effluent disposal plan; the current evaporation ponds were simply constructed one or a few at a time, and now the limit of that program has been reached. The following sections are discussions of a number of possible alternatives, both short- and long-term.

5.1 Alternative 1 – On-Site Expansions

The two most expeditious alternatives for additional disposal capacity are maximization of land area at the WWTP for evaporation ponds and installation of additional mechanized evaporators. Either or both of these actions can be undertaken by the City without additional environmental review and are not so expensive as to require outside funding.

The City is in the process of retrofitting Ponds 1 and 6 and will bring them on-line once authorized to do so by the Water Board. This is anticipated to occur in Winter/Spring 2021. The total surface area of these ponds is 7.8 acres, and the evaporation disposal capacity would average 0.03 mgd, raising total on-site disposal capacity to 1.15## mgd without additional mechanical evaporators.

The land readily available for additional evaporation ponds is effectively limited to the footprints of the future T3/F3 and T4/F4 ponds, referred to as Future Evaporation Pond 12. The total area of this pond complex is just over 19 acres, and the evaporation disposal capacity would average 0.07 mgd, raising total on-site disposal capacity even further, to 1.22 mgd without additional mechanical evaporators.

This isn't enough to fully achieve the 20-year goal, but it is enough to support addition of approximately 370 additional single-family residences, so it is worth consideration.

Additional ponds could also be created west of Pond 11/T1/F1 and south of the headworks (T1/T2/Pond 12). There is approximately 120 acres available within the WWTP boundary (per current Order) and on an additional 48 acres of City-owned land south of this, all of which is covered by the Environmental Impact Report for this purpose. Much of this area is currently used for informal shallow ponding an evaporation of overflow when the disposal ponds reach their capacity in the winter. Creation of additional ponds will require coordination with and approval by the Waterboard.

This alternative is based on the assumption that 80 acres of land would be needed to construct the 0.28 mgd of evaporation capacity required to reach a total of 1.50 mgd disposal capacity. Expenses related to this alternative would include the cost to prepare the land and the construction of the ponds, as shown in **Table 5-2**

Mechanical evaporators vary in size and performance but do provide a measurable and cost-effective increase in evaporation rate. The City has been using two such machines since 2018; more could be purchased given sufficient capital and operating funds. Because of the very flexible scope of these machines, we have not sized a particular project, but would encourage the City to continue to consider implementing additional evaporators if and when evaporation capacity is at critical low points. They represent the quickest and easiest way available to add measurable capacity to the system.

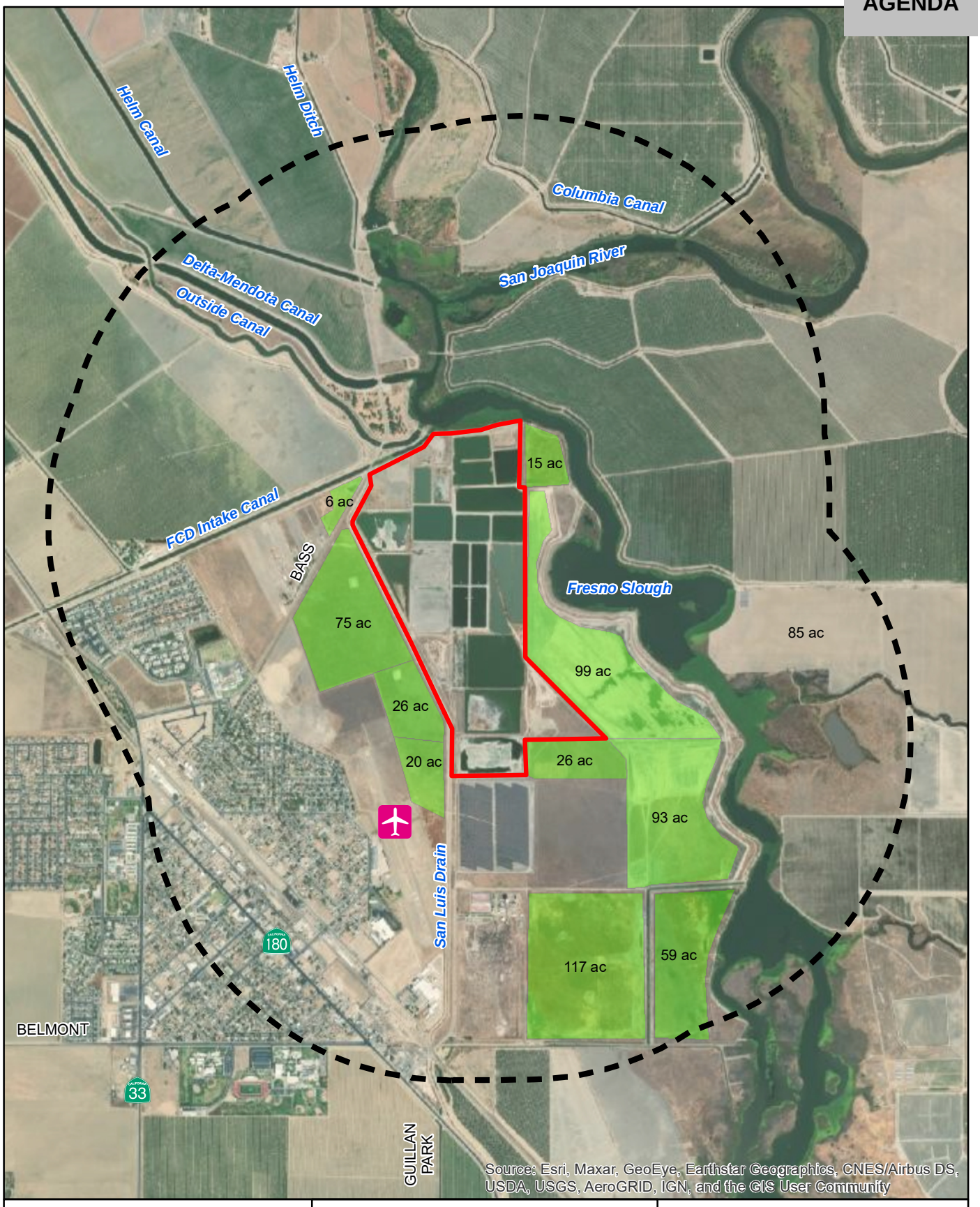
Table 5-1. Alternative 1 Summary of Costs

Summary of Cost for On-Site Evaporation Ponds				
Description	Quantity	Units	Estimated Unit Cost	Estimated Cost
Prepare ROWD, ADR	1	LS	$30,000	$30,000
Process WDRs	1	LS	$10,000	$10,000
General Contracting Requirements	1	LS	$132,000	$132,000
Compaction Testing	1	LS	$30,000	$30,000
Clearing and Grubbing	80	Acres	$5,000	$400,000
Evaporation Pond Earthwork	80,000	CY	$2.50	$200,000
Gravel Access Roads	17,500	LF	$12.00	$210,000
Pipe & Valves	1	LS	$40,000	$40,000
Contingency				15%
Total:				$1,203,800

5.2 Alternative 2 – Additional Evaporation on Surrounding Lands

The most economical long-term alternative is to purchase additional land surrounding the wastewater treatment plant for the construction of additional evaporation ponds. The WWTP is limited by the current footprint, but there are several fallow parcels around the WWTP that may be suitable for the construction of additional evaporation ponds. Since these identified parcels are not actively in use, they may be available for purchase. These parcels are depicted on **Figure 5-1**. This alternative is based on the assumption that 80 acres of land would be needed to construct the 0.28 mgd of evaporation capacity required to reach a total of 1.50 mgd disposal capacity. Expenses related to this alternative would include the cost to purchase the land, and the construction of the new conveyance system and ponds shown in **Table 5-2**. The cost analysis for this alternative factors in the installation of a pump station and up to one mile of new force main pipeline to convey this water to the new ponds.

Not only would additional land allow for expansion of disposal at current evaporation rates, it offers another opportunity as well. As discussed above, the primary driver of non-compliance with the WDRs is not a failure of the treatment process but rather the need to retain effluent for extended periods of time while it awaits evaporation. If additional lands could be acquired such that the total evaporative area was increased substantially over what is currently available, the necessary average evaporation time would be reduced, and the degradation of effluent being held for evaporation would be reduced. The quicker the evaporation can be facilitated, the better the overall effluent results will be.



EST. 1968
PROVOST& PRITCHARD
CONSULTING GROUP
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N

0 750 1,500
Feet

Open/Idle Land (approx. 536 ac)

1 Mile Buffer

Wastewater Treatment Facility

Figure 5-1
Possible Open/Idle Land

Wastewater Master Plan

City of Mendota

3/11/2021 : G:\Mendota_City of-3336\333618012-Wastewater Treatment Master Plan\GIS\Map\open_land_around_WWTP.mxd

Implementation of off-site evaporation ponds would involve several administrative steps including preparation of a CEQA document for the proposed pond site(s) and pipeline route(s), preparation and processing of a new Report of Waste Discharge and Groundwater Antidegradation Report, and processing new Waste Discharge Requirements with the Regional Water Quality Control Board.

Table 5-2. Alternative 2 Summary of Costs

Summary of Cost for Off-Site Evaporation Ponds				
Description	Quantity[1]	Units	Estimated Unit Cost	Estimated Cost
Prepare CEQA (Assume EIR) and Regulatory Permits	1	LS	$200,000	$200,000
Prepare ROWD, ADR	1	LS	$30,000	$30,000
Process WDRs	1	LS	$10,000	$10,000
General Contracting Requirements	1	LS	$879,150	$879,150
Land Acquisition	80	Acres	$15,000	$1,200,000
Clearing and Grubbing	80	Acres	$5,000	$400,000
Evaporation Pond Excavation	100,000	CY	$7.50	$750,000
Chain Link Fencing with Slats and Gate	116,160	LF	$25.00	$2,904,000
Gravel Access Roads	17,000	LF	$12.00	$210,000
6" PVC Force Main	5,280	LF	$25.00	$132,000
Pump Station	1	LS	$250,000	$250,000
48" Outlet Structure	1	EA	$15,000	$15,000
Contingency				15%
Total:				$8,027,200

5.3 Alternative 3 – Secondary Effluent to Contract Farmers

Another option for the disposal of effluent is to send a sidestream, or a portion of the total, of the current secondary-treated effluent to farmers for irrigation of feed and fodder crops not for human consumption, or allowable food crops like Pistachios (such as the Myers Farms orchard south of Belmont, east of SR 180. This option would be relatively low-cost as it would not add an additional level of treatment or plant

operation for the City. Assuming a suitable local grower could be found, the grower would have to be willing to enter into a long-term (30- to 40-year) agreement to take effluent from the City. A small pump station and a pipeline would be needed to convey the effluent to the site where it would be used; this alternative also assumes the new pipeline would convey the effluent for up to one mile.

Although this alternative is relatively low-cost it may be less appealing to farmers since feed and fodder crops do not yield a high profit margin and cropping options are fewer. This alternative would likely only be feasible if there is a receiver for this product close to the WWTP.

Implementation of Alternative 3 would involve several administrative steps including negotiation and execution of a water reclamation agreement with the local farmer, preparation of a CEQA document for the proposed receiver site and pipeline route(s), preparation and processing of a new Report of Waste Discharge, Groundwater Antidegradation Report, and Report of Water Reclamation, along with processing new Waste Discharge Regulations with the Water Board. The costs associated with this option are summarized in **Table 5-3.**

Table 5-3. Alternative 3 Summary of Costs

Summary of Costs to Send Secondary-Treated Effluent to Contract Farmers				
Description	Quantity[1]	Units	Unit Cost	Cost
Prepare CEQA (Assume EIR) and Permitting	1	LS	$200,000	$200,000
Prepare ROWD, ADR, RWR	1	LS	$50,000	$50,000
Process WDRs	1	LS	$10,000	$10,000
General Contracting Requirements	1	LS	$59,550	$59,550
6" PVC Force Main	5280	LF	$25.00	$132,000
Pump Station	1	LS	$250,000	$250,000
48" Outlet Structure	1	EA	$15,000	$15,000
Contingency				25%
Total:				$895,700

5.4 Alternative 4 – Secondary Effluent to Farms on City Lands

This is a variation on Alternative 3, except that rather than finding a local farmer agreeable to taking effluent for 30 to 40 years, as would be required under a reclamation agreement, this version would have the City purchase the land and be the water recycler. The City would hire a contract farmer to cultivate the land on a year-to-year or short-term basis, as desired. As in Alternative 3, the City would send a sidestream of the secondary-treated effluent to the land for irrigation of feed and fodder crops not for human consumption or allowable food crops such as Pistachios. A small pump station and a pipeline would convey the effluent to

the site where it would be used; this alternative also assumes the new pipeline would convey the effluent for up to one mile.

This alternative has higher capital costs than Alternative 3, but places more under the control of the City. Profit isn't as necessary, though reasonable cash flow would still be required. The crop could be anything that could be sold for cash, including alfalfa, straw hay, turf, hemp and even duck weed. The City would have to periodically advertise for and contract with farmers to cultivate the fields.

Implementation of Alternative 4 would involve several administrative steps including preparation of a CEQA document for the proposed receiver site and pipeline route(s), preparation and processing of a new Report of Waste Discharge, Groundwater Antidegradation Report, and Report of Water Reclamation, along with processing new Waste Discharge Regulations with the Water Board. The costs associated with this option are summarized in **Table 5-4.**

Table 5-4. Alternative 4 Summary of Costs

Summary of Costs to Send Secondary-Treated Effluent to Farms on City Lands				
Description	Quantity[1]	Units	Unit Cost	Cost
Prepare CEQA (Assume EIR) and Permitting	1	LS	$200,000	$200,000
Prepare ROWD, ADR, RWR	1	LS	$50,000	$50,000
Process WDRs	1	LS	$10,000	$10,000
General Contracting Requirements	1	LS	$299,500	$299,550
Land Acquisition	80	Acres	$15,000	$1,200,000
Land Prep, Clearing and Grubbing	80	Acres	$5,000	$400,000
6" PVC Force Main	5280	LF	$25	$132,000
Small Pump Station	1	EA	$250,000	$250,000
Outlet Structure	1	EA	$15,000	$15,000
Contingency				15%
Total:				$2,940,100

5.5 Alternative 5 – Tertiary Effluent to Contract Farmers

There are many situations where an upgrade to the effluent quality leads to new options for effluent disposal, so it is always prudent to look at what those options might be. In the City's case, there are currently no nearby potential effluent receivers where Title 22[7] effluent would be an advantage. There are no sufficiently large parks, or school yards, nor farms growing food crops in quantities anywhere near sufficient to use all of the

[7] Title 22 of California Code of Regulations (CCR)

City's current volume of effluent. Very recently a potential recipient has approached the City in need of approximately 1,200 acre-feet per year (approximately 1.07 mgd) of Title 22 effluent for a hydrogen-solar plant. This project is very new but could prove very beneficial to the City.

Consideration could be given to sending a portion of the effluent, or a sidestream, to a Title 22 receiver. However, implementation of this option would require major changes to or reconstruction of the wastewater treatment process to create Title 22 level (tertiary treated) effluent. That would be a substantial and costly step for the City, and should only be undertaken if the City came to believe that none of the above alternatives, singly or in combination, would be feasible for ongoing operation of the WWTP.

The capital expense to upgrade the plant's treatment system would require a very large capital expenditure and would greatly increase the City's ongoing operations and maintenance expenses, requiring a significant increase in municipal sewer rates. Depending upon the size of the sidestream treated, the increase in rates could range as high as 100 percent or more. The treated sidestream water would be used to irrigate higher-value food crops which can permissibly be irrigated by Title 22 water, sometimes known as "recycled" or "reclaimed" water, which includes a broad range of fruits, vegetables, tree fruits, nuts and cannabis.

This option would make sense only if there were a private grower nearby who was willing to enter into a long-term reclamation contract with the City, similar to what is described in Alternative 3. A situation as in Alternative 4 would also make sense for this option with a longer term farming contract. Physically, it would require upgrades to the existing aeration basins to produce a consistent quality effluent, installation of secondary clarifiers, construction of a filtration system and disinfection facilities, and the installation of a pump station and pipeline to convey the recycled water for use, including storage and pumping for the tertiary treated effluent.

This options provides for a wider selection of uses and disposal methods for the treated effluent; however, as flexible as this alternative would make the recycled water, the high capital and maintenance costs make this alternative an unlikely choice if any of the previous alternatives remain feasible. The recycled water would have high value only to the grower(s) able to use it as recycled water on high-value crops. Use of recycled water for irrigation of City parks and school yards is costly and can only be feasible with substantial financial assistance from a grant program or partnership with project proponent in need of the treated water. Should the City make a deal with a grower to create such a system, and then have that grower go out of business a number of years down the way, due to a change in the commodity market or the crops otherwise loosing value, other growers may not find the water as valuable and would not be willing to pay a premium price for it, rendering the City's capital investment in tertiary treatment technology worthless and resulting in a serious financial hit to the City.

Implementation of Alternative 5 would involve several administrative steps including finding and entering into a reclamation agreement with a farmer, preparation of a CEQA document for both the Wastewater Treatment Plant and the proposed receiver site and pipeline route(s), preparation and processing of a new Report of Waste Discharge, Groundwater Antidegradation Report, and Report of Water Reclamation, along with processing new Waste Discharge Regulations with the Water Board. A summary of the anticipated costs for advanced treatment and disposal of 300,000 gpd is shown in **Table 5-5.**

Table 5-5. Alternative 5 Summary of Costs

Summary of Costs to Tertiary Treat 300,000 gpd and send to Contract Farmers				
Description	Quantity[1]	Units	Unit Cost	Cost
Prepare CEQA (Assume EIR) and Permitting	1	LS	$250,000	$250,000
Prepare ROWD, ADR, RWR	1	LS	$50,000	$50,000
Process WDRs	1	LS	$10,000	$10,000
General Contracting Requirements	1	LS	$236,400	$236,400
Upgrade Aeration Basin (300 Hp)	1	LS	$300,000	$300,000
Strainers Prior to Microfiltration	1	LS	$70,000	$70,000
Cloth Media Filtration and Disinfection	1	LS	$159,000	$159,000
Civil Site Work	1	LS	$500,000	$500,000
Electrical, Instrumentation and Controls	1	LS	$150,000	$150,000
6" PVC Force Main	5280	LF	$25	$132,000
Small Pump Station	1	EA	$250,000	$250,000
48" Outlet Structure	1	EA	$15,000	$15,000
Contingency				25%
Total:				$2,653,000

5.6 Alternative 6 – Tertiary Effluent to the Fresno Slough

Finally, the City could possibly have the option to treat its wastewater effluent to a level beyond Title 22 standards and discharge it to the Fresno Slough. The Fresno Slough is tributary to the San Joaquin River, connecting about 0.5 miles north of the WWTP at the Mendota Pool. This alternative will require all the aforementioned treatment upgrades in addition to acquiring a National Pollutant Discharge Elimination System (NPDES) permit from the Water Board as well as permits from Central Valley Flood Protection Board, U.S. Army Corps of Engineers, U.S. Fish & Wildlife and/or California Department of Fish & Wildlife. Preliminary meetings with the Water Board have confirmed that the regulatory path to such a permit would be very difficult, with both permit and monitoring requirements being very strict and being accompanied by serious monetary fines which are rigorously imposed. While at least one other city (Modesto) is permitted to discharge into the San Joaquin River, it is very clearly not the preference or policy of the Water Board to allow such discharges and additional discharges will be strongly discouraged.

From a plumbing standpoint, this would be an easy and simple connection. Roughly one-half mile of new pipeline would be needed to convey water from the WWTP to the Fresno Slough. All effluent discharged would have to reliably meet Title 22 quality requirements plus supplemental requirements for a number of constituents not considered under Title 22. Temperature of discharge water is strictly monitored and controlled, and penalty fines accrue for violations as small as 0.1 degree above or below the target discharge temperature. Other requirements are similarly strict, meaning the level of operation and maintenance required is very high and quite sophisticated.

This alternative is not recommended for serious consideration, due to the highly regulated nature of discharge. In fact, due to the variability of effluent quality of the discharge waters and the strict water quality reporting requirements this option is not feasible for the City to pursue at this time.

5.7 Selection of Preferred Disposal Alternative

5.7.1 Primary Options

The alternatives in this Section 5 are presented with the easiest to implement first on the list, but the easiest alternatives are not necessarily the best in the long term. The two on-site alternatives, optimizing the existing WWTP footprint to create more evaporation ponds and implementing more mechanical evaporators, are both completely under the City's control, covered by existing CEQA document, and can be accomplished by public works crews and/or informal bid processes. Those advantages make both alternatives attractive as short-term tactics to maintain adequate disposal capacity while longer-term solutions are developed and implemented.

Due to the stringent regulatory requirements for discharging to the Fresno Slough, discharge to that body (Alternative 6) is not considered feasible and should not be pursued. Even if all of the permits were to be secured, the costs of ongoing testing and compliance would be very high and the alternative would prove to be uneconomical both to secure and to operate and maintain.

Given the poor percolation rates of the surrounding lands, the most easily-accomplished option for long-term effluent disposal is Alternative 2, to convey secondary treated water to additional evaporation ponds located within an approximate one-mile radius of the WWTP,. Currently there are 536 acres of fallow land within a one-mile radius and only 80 acres are needed for the disposal of 0.30 mgd of effluent. The construction of additional evaporation ponds is a good long-term solution for effluent disposal and will require minimal maintenance.

Even if Alternative 2 is initially selected, it would be possible to add an irrigation component later, as proposed in Alternative 3, or to contract with a landowner to take water, as in Alternative 4. There are advantages to the irrigation alternatives.

First, the Water Board would prefer to see the effluent reused rather than simply allowed to evaporate and would be more receptive to the necessary Report of Waste Discharge, Groundwater Antidegradation Report and Report of Water Reclamation if the quantity of water reaching the groundwater were to be minimized by agronomic uptake. Second, there could be some minor income to the City for sale of the water to a farmer if the receiver is actually an independent landowner and not a contract farmer hired by the City to cultivate City lands. If the latter is the case, there is possibility for income depending upon the agreement negotiated with the contract farmer. In years when no contract farmer is interested or available, the land could be flooded and used for evaporative surface without much financial impact to the City.

While providing the minimum acreages discussed above will allow the City's WWTP to keep up with population growth and will continue to expand on the method of effluent disposal that is currently provided, Alternatives 2, 3 and 4 can all be expanded to include much greater off-site acreages. Doing so could improve effluent disposal and directly impact the quality of water being held in the on-site evaporation ponds. If there is adequate pond area to allow some of the on-site ponds to be completely dried out each year, then the pond bottoms could be occasionally scraped to remove salts and the bottoms plowed and ripped to mix any remaining salts deeper. This practice would improve overall salt levels in the on-site evaporation ponds.

Presently, the WWTP's evaporation pond footprint is undersized and should contain an additional 80 acres of disposal pond area, either within the footprint planned for the WWTP or nearby fallow land, to accommodate the projected 20-year growth pattern.

Such a large evaporation area could be acquired, if necessary, and developed in phases but would ideally be within or contiguous to the WWTP for operating efficiency.

5.7.2 Secondary Options

Treating a sidestream of effluent to tertiary (Title 22) standards to sell to neighboring growers cultivating higher-value crops, as presented in Alternative 5, is a high-risk proposition for the City, especially when compared with Alternative 3. The capital cost and additional operating expense required to achieve Title 22 effluent is substantial, even for a sidestream of 20 percent of the WWTP's flow. As the City grows, the proportion of the sidestream would necessarily grow as well, since the on-site evaporation capacity is already maximized. Having a single customer for high-cost recycled water puts the City in a precarious position should that customer ever cease operations, change ownership, or simply decide to change operations in a way that requires less irrigation water.

The choice between Alternatives 3 or 4 and 5 becomes one of risk tolerance. Either alternative will work reliably; however, Alternative 4 would require additional land. Alternative 5 would require substantially more initial capital investment but brings with it the chance of much greater returns to the City over time. Selection between these alternatives should be based on careful consideration of the financial risks, and on consideration of financial modelling and expertise in the agricultural markets that is beyond the scope of this Master Plan.

In addition to Alternatives 3 and 4, use of treated effluent may become appealing to farmers seeking water credits to comply with the new standards under the Sustainable Groundwater Management Act (SGMA). Although this alternative is not the most feasible at this time due to cost, public perception, and the early stages of SGMA implementation, in the future as water costs rise and SGMA rules tighten, farmers may have a higher incentive to use treated effluent for irrigation and this alternative may become more attractive for surrounding growers.

6 Public Benefit Versus Development Requirements

The improvements discussed in the WWMP can be assigned to one of two categories:

- Improvements necessary for the 20 year planning horizon; and
- Improvements required to serve future development within the General Plan's proposed Sphere of Influence

It is the recommendation of this report for the City to prioritize improving existing infrastructure to mitigate current issues with aging infrastructure in the eastern portion of town first. This would provide City's residents with an immediate benefit. Those projects will benefit existing City residents, though the cost burden for the projects will fall on the City. Project funds will have to come either from the Wastewater Capital fund or from wastewater-related grant funds as those become available. It would not be possible to use Development Impact Fees (DIF) for construction of such rehabilitation projects unless they also benefit developing areas, and then only in proportion to the benefit that the developing area receives. The sewers in eastern Mendota do not benefit any developing areas, and so are not likely to be eligible for any DIF participation.

As the City grows and expands, it is recommended that the collection, conveyance and treatment improvements discussed in Sections 3 through 5 of this report be implemented, either directly by developers or by the City through Development Impact Fee financing, to provide the benefit of sustainable wastewater management to new City residents. The table below identifies the approximate costs associated with the improvements for each Collection Zone, both existing and future.

Establishment of appropriate Development Impact Fees to support financing of these projects is beyond the scope of this report. The City will complete a separate Development Impact Fee study which will recommend fee amounts for wastewater infrastructure and other Development Impact Fees.

Table 6-1. Summary of Cost to Implement Recommended Infrastructure Upgrades

Summary of Cost to Implement Recommended Infrastructure Upgrades		
Description	Estimated Costs	Priority
Existing Infrastructure Improvements		
East Mendota Pipeline Replacement Project	$9,983,600	High
Sub Total	$9,983,600	
Future Collection Zone Improvements		
Collection Zone #1	$2,479,100	As Needed
Collection Zone #2	$2,259,500	As Needed
Collection Zone #3	$3,763,600	As Needed
Sub Total	$8,502,200	
Disposal System Upgrades (One Only)		
Alt 1 - On-Site Evaporation Ponds	$1,203,800	As Needed
Alt 2 - Off-Site Evaporation Ponds	$8,027,200	As Needed
Alt 3 - Send Secondary-Treated Effluent to Contract Farmers	$895,700	As Needed
Alt 4 - Send Secondary-Treated Effluent to Farms on City Lands	$2,940,100	As Needed
Alt 5 - Tertiary Treat 200,000 GPD and Send to Contract Farmers	$2,653,000	As Needed
Alt 6 - Discharge to Fresno Slough	N/A	N/A
Sub Total	$895,000 to $8,027,200	
Total All Improvements	$19,381,500 to $26,513,000	

7 Environmental and Permitting

Development of the City to the boundary identified by the proposed Sphere of Influence in the General Plan Update is covered by the EIR prepared for that document. All wastewater treatment and disposal operations occurring within the City's current WWTP property off Bass Avenue are covered under the EIR prepared for that facility in 2009 and Waste Discharge Requirements Order R5-2016-0054.

As additional facilities are needed that require construction outside of the existing WWTP parcel, new CEQA analysis and reporting will be required. Since these facilities will be in support of development covered in the General Plan Update (GPU) EIR, the CEQA document can be tiered off of that EIR, possibly as Supplemental EIRs or Mitigated Negative Declarations providing additional information about details of improvements that were not known when the GPU EIR was prepared. If additional impacts are identified, a Supplemental EIR would be required and new mitigation measures could be imposed. If no new impacts are identified, a Mitigated Negative Declaration could be sufficient. These decisions will have to be made on a project by project basis.

The current Waste Discharge Requirements for the WWTP are based on a Report of Waste Discharge prepared in 2015 that was able to project development of the on-site WWTP up through an Average Daily Flow of approximately 1.20 mgd. Once that level is reached, additional effluent disposal solutions will be required, and those are not covered in the current ROWD or WDRs. Revised documents will have to be prepared and processed with the Water Board. That work should begin in time to get new WDRs in place before construction has to begin on any improvements outside of the current WWTP site, to avoid permit violation. In the meantime, the Water Board must be kept informed, in writing, of changes in pond configurations and operations on site. These are permitted in the current permit, but it is the City's obligation to work with the Water Board to keep them informed.

Appendix

City of Mendota
Sanitary Sewer Design Criteria

1.1 Introduction

The design criteria in this section are the minimum acceptable criteria for use by designers of sanitary sewer collection facilities to be developed within the City. Designers are cautioned to apply their own expertise and judgment in development of final designs. Certain projects or clients may appropriately require more stringent criteria. However, the City will not reimburse for costs associated with systems designed to criteria higher than listed herein, unless those higher criteria have been mandated by City staff or other governing bodies.

1.2 Sewage Generation Criteria

Standard sewage generation rates shall be used to calculate demands for sewage flow in pipes and pump stations. Generation rates are taken from recent studies for new homes, and from a combination of older references and City experience for existing homes. Commercial and industrial generation rates are based on standard fixture units as expressed in the California Building code. In addition, industrial generation will be increased by waste process water as reported by a proposed industrial user and/or as metered by the City.

All flow rates shall be coordinated with the City of Mendota.

1.2.1 Per-Unit Populations

According to the 2010 census and the City of Mendota General Plan Update, Mendota averages 4.4 residents per single family unit, and 3.3 persons per multi-family using. These values are significantly larger than typical planning numbers, and therefore must be used in order to accommodate reasonably-expected demands.

1.2.2 Residential Areas

When planning sewer collection facilities which fully or partially serve home built before 2013, the design shall allow 85 gallons/person-day.

For homes designed and/or constructed in 2013 or later, facilities shall be designed to allow for 60 gallons/person-day.

Collection facilities serving a mix of residential ages shall be deigned to allow for a sewage generation quantity in proportion to the numbers of newer and older units being served.

1.2.3 Commercial Areas

Commercial sewage generation shall be assumed to be 95% of the indoor water use calculated for the proposed buildings. Calculations are subject to approval by the City Engineer.

1.2.4 Industrial Areas

Industrial wastewater generation will be substantially different for each type and size of facility, and must be calculated by the project engineer, subject to approval of the City Engineer, at the time of project planning.

1.3 Pipe Flow Design

Pipe flow design shall be calculated using Manning's equation, with design parameters appropriate to the materials proposed for use.

Unless specifically allowed by the City for a given project, gravity and pressure sanitary sewer pipelines shall be constructed of PVC solid-wall pipe meeting the requirements of Section Nineteen of the City of Mendota Standard Specifications, as amended.

1.3.1 Minimum Design Criteria

1.3.1.1 Manning's "n" Value

Although PVC pipe is typically given a manufacturer's rating of n=0.009, roughness caused over time by grit in the flow stream means that value cannot be maintained over the life of the system.

Design "n" value shall be 0.011, or another greater value as may be determined by the design engineer or the City, for project-specific reasons.

1.3.2 Pipe Slopes

Pipe slope requirements are defined by the diameter of the pipe and the depth of flow in the pipe, with the objective of reaching a minimum of 2.0 feet/second velocity in the pipe at peak daily flow, to ensure pipe cleansing. The velocity requirement is measured at 50% or 100% full. If the line being designed will never reach 50% flow even at the daily peak, then the slope must be adjusted to achieve a minimum of 2.0 feet/second velocity at the actual depth/diameter ratio that will be achieved.

Minimum Sewer Pipe Slopes			
Pipe Diameter		n = 0.011	n = 0.013
6-inch		0.0034	0.0047
8-inch		0.0025	0.0034
10-inch		0.0018	0.0025
12-inch		0.0014	0.0019
15-inch		0.0010	0.0015
18-inch		0.0008	0.0011
21-inch		0.0007	0.00095
24-inch		0.00055	0.00075

Minimum slopes at d/D = 0.50 or 1.0
Maximum slope shall be at v = 7.5 feet/second

1.3.3 Manholes

Manholes shall be installed at a maximum spacing of 500 feet. Upon receipt of special approval from the City Engineer, slightly longer spacing may be permitted when conditions warrant.

Manholes measuring less than 7.00 feet from rim to lowest invert shall be constructed in accordance with City Standard S-2, 48" Manhole.

Manholes measuring 7.00 feet or more from rim to lowest invert shall be constructed in accordance with City Standard S-2, 48" Manhole, except they shall be equipped with eccentric conic sections, offset to the outside of the street.

Manholes for large pipe shall be constructed in accordance with City of Mendota Standard Drawings S-4, 54" Manhole, and S-5, 60" Manhole, at the discretion of the City Engineer.

In cases where there is a 2.0-foot or more difference between the influent elevations of two pipelines entering a manhole, the Drop Manhole detail shown on City Standard Drawing S-3 shall be implemented with the appropriate diameter manhole barrel and cone shape.

1.4 Pump and Lift Stations

Pump and lift stations shall both be wet well pits equipped with duplex or triplex submersible pumps. The terms "pump station" and "lift station" are not entirely synonymous, but the term "pump station" is used below to include both when the distinction is not important.

All plans and calculations for the pump, controls and pump station site details shall be prepared, sealed and signed by the project engineer.

The details of the pump, wet well and control panel installation shall conform to City Standard Drawings S-11 to S-13. All plans and design calculations must be approved by the City Engineer prior to construction.

1.4.1 Lift Station versus Pump Station

For the purposes of these design requirements, a lift station is an installation that lifts water from a wet well and discharges it at ambient pressure into a gravity sewer pipeline. A pump station is an installation that lifts and pressurizes water from a wet well into a pressurized conveyance line for transport to another location.

A pump station may be used if there are no current or future sewer service connections along the route of the transmission pipeline.

A lift station must be used where there is a chance that additional locations will require sewer service provided by the new gravity sewer line. The gravity sewer shall be designed to the greatest degree practical to provide potential gravity service to all un-sewered parcels along its length.

1.4.2 Wet Well and Pump Design Criteria

Pumps shall be designed and guaranteed for continuous service handling of raw sewage or urban storm drainage runoff. They shall feature a clog-resistant impeller/volute design and shall be suitable for operation in water having a temperature range of 40° F to 80° F. Pumps shall be easily removable for inspection or service, without removal of bolts, nuts or other fasteners, and without the need for personnel to enter the wet well. Sealing of the submersible pumping unit to the discharge elbow shall be accomplished by a simple downward motion of the pump and shall provide a water tight connection.

Pumps, motor, wiring, etc. shall be approved by a nationally approved testing agency (Underwriters Lab or Factory Mutual) for explosion-proof service in the State of California. The system shall be rated for Class 1, Division 1, Group C and D, service as determined by the National Electrical Code, latest edition.

1.4.3 Pump Station Design

Pump stations shall be designed to lift the design peak flow as determined using the above criteria for computing sewage flow. Pump for sanitary sewer stations shall be equipped with two identical pumps, each capable of discharging the peak flow. Pumps must be able to alternate. Pump stations with three or more pumps may be considered where dual pump stations are infeasible, subject to the approval of the City Engineer. All pump stations shall be capable of passing the peak flow with any one pump out of service.

Wet well capacity shall be sized using the following formula:

$V = øQ$ Where V = volume in gallons

4 ø = cycle length (taken as ten minutes for pump station with two pumps)

Q = pumping capacity of single pump

Pumps shall be Flygt or approved equal, unless flow volumes require propeller pump installation.

1.4.4 Pump Components

1.4.4.1 Volute and Impeller

The pump volute and impeller shall be gray cast iron per ASTM A48, Class 25 or better, with smooth surfaces free of blow holes and irregularities. Where watertight sealing is required, O-rings of nitrile rubber or equivalent material shall be used. All exposed nuts and bolts shall be made of 304 stainless steel. The interior of the unit shall be coated in accordance with City Standards.

Vortex non-clog design impellers, such that the pumpage does not pass through the impeller, are acceptable, as are single-vane, non-clog-type impellers. Dual-vane impellers will not be accepted. Impeller shall pass three-inch solids.

Impellers shall be dynamically and hydraulically balanced, and shall be securely fastened to the shaft with keys or appropriate locking devices.

1.4.4.2 Mechanical Seals

Pumps shall be equipped with a double mechanical seal system, mounted in tandem, with an oil chamber between the seals. The lower seal unit, between the pump and oil chamber, shall contain one stationary and one rotating tungsten-carbide ring. The upper seal unit, between the oil sump and motor casing, shall contain one stationary tungsten carbide ring and one rotating carbon ring. Remaining seal components shall be stainless steel and buna-n rubber.

1.4.5 Motor Components

1.4.5.1 Design

Pump motors shall be a squirrel-cage induction, shell-type construction designed to NEMA B Standards. Motor housing shall be watertight and shall be air or dielectric oil-filled.

Motor shall be designed to work on 240v or 480v, 3-phase current. Unless 3-phase motors are not available in the horsepower rating required for the pump station, single-phase motors will not be accepted.

The combined service factor of the motor shall be 1.10 or greater. The motor supplied must be adequate throughout the full range of the published pump curve without overloading and without considering the service factor.

Motors shall be designed for continuous duty and shall be capable of sustaining a minimum of 10 starts per hour. The stator windings and stator leads shall be insulated with moisture-resistant Class F materials, which shall be rated at 310°F.

1.4.5.2 Watertight Seals

Power and sensor cable entries into the motor junction box shall be effectively sealed. The entry seal shall consist of either a close-tolerance system consisting of a single cylindrical elastomer grommet, stainless steel washers, and a ferrule. Alternately, it shall be epoxy-potted with a buna-n grommet or compression-fitted out seal.

Power and sensor leads from the junction chamber into the motor housing must also be sealed watertight. Epoxy-potted systems or terminal board and O-ring systems are acceptable.

All joints in the housing, junction box, seal chamber, and pump shall be carefully machined and equipped with O-ring seals.

1.4.5.3 Shaft

The motor shaft on which the impeller is mounted shall be stainless steel. The impeller shall be slip-fit to the shaft, key driven, and attached with stainless steel fasteners.

1.4.5.4 Bearings

The pump-motor shaft shall rotate within two ball bearing assemblies. Bearings shall be permanently lubricated and shall have an AFBMA computed B-10 life rating of not less than 18,000 hours.

1.4.5.5 Thermal Overload Protection

To protect the motor from overheating, each phase winding shall be equipped with automatic-reset, normally closed thermal switches embedded in the end coils of the stator winding. These shall be used in conjunction with and supplemental to the external motor overload protection, and wired to the panel.

1.4.5.6 Power and Sensor Cables

All power and sensor cables shall be of sufficient length to reach the control panel without requiring a splice. Cables shall be hypalon-jacketed and be watertight to a depth of 65 feet. Wicking fillers shall not be used. Cables shall be restrained and routed so as not to interfere with the raising and lowering of the pumps within the sump.

1.4.6 Disconnect System and Guide Rails

1.4.6.1 General

Pumps shall be installed on slide rails made and supplied by the pump manufacturer. The pump shall be self-seating in the discharge impeller, and shall be supplied with a removable person-operated crane of capacity great enough to lift an entire pump assembly to a height of at least 60 inches above ground surface. The crane shall swivel to allow loading a pump into a service truck.

The design of the disconnect system shall permit the easy removal of the pumping unit for inspection or service. The pump, when lowered into place, shall be automatically connected to the discharge piping. There shall be no need for personnel to enter the confined space of the wet well to inspect or service the pump.

1.4.6.2 Guide Bracket

Pumps shall be securely attached to a sliding guide bracket designed for use with at least two guide rails. Stainless steel pipe rails shall be furnished as part of the pump installation. Guide rail support brackets shall be installed approximately midway between the pump station ceiling and floor. Each sliding guide bracket shall have nonsparking materials at the point of contact with the guide rails to prevent spark ignition of explosive pump station gases during pump installation and removal.

1.4.6.3 Discharge Elbow

A cast iron discharge elbow, located on the floor of the wet well, shall receive the pump discharge when the pump is lowered into place. The receiving edge of the discharge elbow shall be fitted with non-sparking material to prevent spark ignition of explosive pump station gases during pump installation and removal.

1.4.6.4 Base Plate

The lower guide rail brackets for the pump shall be mounted by the pump manufacturer on a steel base plate, in alignment for proper operation of the disconnect system. The base assembly shall provide stable support of the pumping unit during pump operation.

1.4.6.5 Lifting Cables

Each pump shall be supplied with stainless steel lifting cables of sufficient length and mounted in such a way as to allow removal of pump without requiring personnel entry into the wet pit.

1.4.6.6 Access Hatches

Access hatch frame assemblies shall have separate hinged covers for removal of each pump. Duplex pump lift stations require dual access hatches; triplex stations require three hatches. The frame shall have upper guide rail brackets and shall support the level sensor bracket. Covers shall be provided with lifting handles, safety latches to hold covers in the open position, and recessed, locking, hasps. Frame and covers shall be aluminum.

1.4.7 Pump Station Power and Control Panel

Pump controls shall be manufactured and supplied by the pump manufacturer and shall be designed to control a duplex or triplex installation as appropriate. The control panel shall bear the Underwriters Laboratory (UL) label. Controls shall include a hand-off-auto switch. The control computer shall allow the option of both lead-lag sequencing, and of always leading one particular pump. Pump controls shall be integrated into the City's SCADA system as required by the City at the time of project design.

All controls shall be mounted in a NEMA 3R rainproof, metal enclosure. The design shall include a tamper-proof door enclosing all control operators, which shall be mounted on an inner hinged door over the control equipment compartment. All circuit breakers and motor starter overload resets shall have operations mounted on the inner door.

1.4.8 Required Controls

Short circuit protection for each pump circuit shall be provided by an adjustable, instantaneous magnetic trip circuit breaker designed for motor circuit protection.

Each pump circuit shall include a full voltage non-reversing motor starter with ambient compensated, manually reset overload relays with quick trip heaters.

The pump control circuit shall include a door interlock switch to de-energize the control circuit when the enclosure door is open, a control circuit transformer with fused 115-volt secondary, a door-mounted control circuit disconnect switch, and an emergency generator disconnect switch.

Pump operation shall be controlled by a solid state level sensor rod as manufactured by Multitrode, or approved equivalent.. This sensor shall be programmed to provide on, off, and high water alert functionality. High water alarm shall be indicated by an alarm light with a red polycarbonate lens or globe, mounted above the control panel.

Each pump starter shall also be equipped with a non-resettable cyclometer-type running time meter and a running pilot light.

1.4.9 Operational Testing

Pumps shall be tested separately and in combination. Equipment shall be operated under full load conditions. Motors shall be tested for correct rotation. Start up and cycle all systems to demonstrate proper operation. Testing shall be performed in accordance with the manufacturer's recommendations.

1.4.10 Electrical Service

Electrical service for lift stations shall conform to all applicable NEC and PG&E standards. All required conduit from the service drop to the transformer, and from the transformer to the service entry on the pump control panel shall be provided. All work shall be completed to the satisfaction of City's Representative and PG&E's field representative.

1.4.11 Discharge Piping

Discharge piping from the pumps shall be fusion epoxy lined, ductile iron pipe. The pipe shall be coated per City standards. A valve box meeting the requirements of Standard Drawing S-12 shall be installed.

Exhibit C

AGENDA

City of Mendota

Storm Drain Master Plan

Mendota, CA
July 2022

Prepared for:
City of Mendota
Mendota, CA

Prepared by:
Provost & Pritchard Consulting Group
455 W. Fir Avenue, Clovis, CA 93611

AGENDA

City of Mendota

Storm Drain Master Plan

Collection and Storage

Mendota, CA
July 2022

Prepared for:
City of Mendota

Prepared by:
Provost & Pritchard Consulting Group
455 W. Fir Avenue, Clovis, CA 93611

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AGENDA

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Table of Contents

List of Figures

List of Tables

Abbreviations

SDMP ..... Storm Drain Master Plan
HGL ..... Hydraulic Grade Line
SLC ..... San Luis Canal

Executive Summary

This report presents the Storm Drain Master Plan (SDMP) proposed for implementation in the City of Mendota, California, as prepared by Provost & Pritchard Consulting Group (P&P). The SDMP provides guidance both for necessary repairs for the existing storm drain system and for capital improvements to accommodate future development, as outlined in the City's 2025 General Plan (**Figure 1**).

The analyses performed for this SDMP were done in compliance with the City of Mendota's *Hydrologic Design Criteria*. P&P utilized Autodesk's Storm and Sanitary Analysis software to create multiple hydraulic modeling scenarios in order to demonstrate compliance with City's Standards and to identify areas of need.

This SDMP does not address regional flooding concerns. Historically the primary regional concern has been due to heavy storm water flows from the west down Belmont Avenue into the city. This is primarily due to Panoche Creek ending at Belmont Avenue approximately six miles west of Mendota and farmers along Belmont constructing berms along the roadway. In the 1970s, legal action was taken against the farmers along this 6-mile stretch to disallow them from creating berms higher than the roadway crown along their property. The City was granted a permanent injunction against the levee construction, which had been only intermittently enforced until recent years. This renewed effort, increased coordination with Caltrans and Fresno County, as well as increased communication with the property owners has alleviated much of the flooding within the city limits resulting from Belmont Avenue flood flows.

The City's current storm drain collection infrastructure consists of ten (10) existing watersheds. Four (4) of the existing watersheds discharge to retention basins for evaporation to the atmosphere. The other six (6) existing watersheds ultimately drain either into the Bass Avenue Ditch and on to a retention pond at the Mendota WWTP, or into the San Luis Drain where the water is stored until it evaporates or is pumped into the retention pond at the Mendota WWTP.

Figure 2 depicts the existing watersheds for the City of Mendota.

Future drainage infrastructure and necessary upgrades to Mendota's current systems were determined in accordance with calculations based on the City of Mendota's Hydraulic Design Criteria which can be viewed in detail in Appendix A. In this SDMP, an additional fourteen (14) Drainage Zones have been identified to address full development of the City's 2025 General Plan. These Drainage Zones can be viewed in **Figure 3** along with their recommended storm drainage infrastructure elements which are covered in the Chapter 3 of this report.

Figure 1. Projected Land Use Diagram

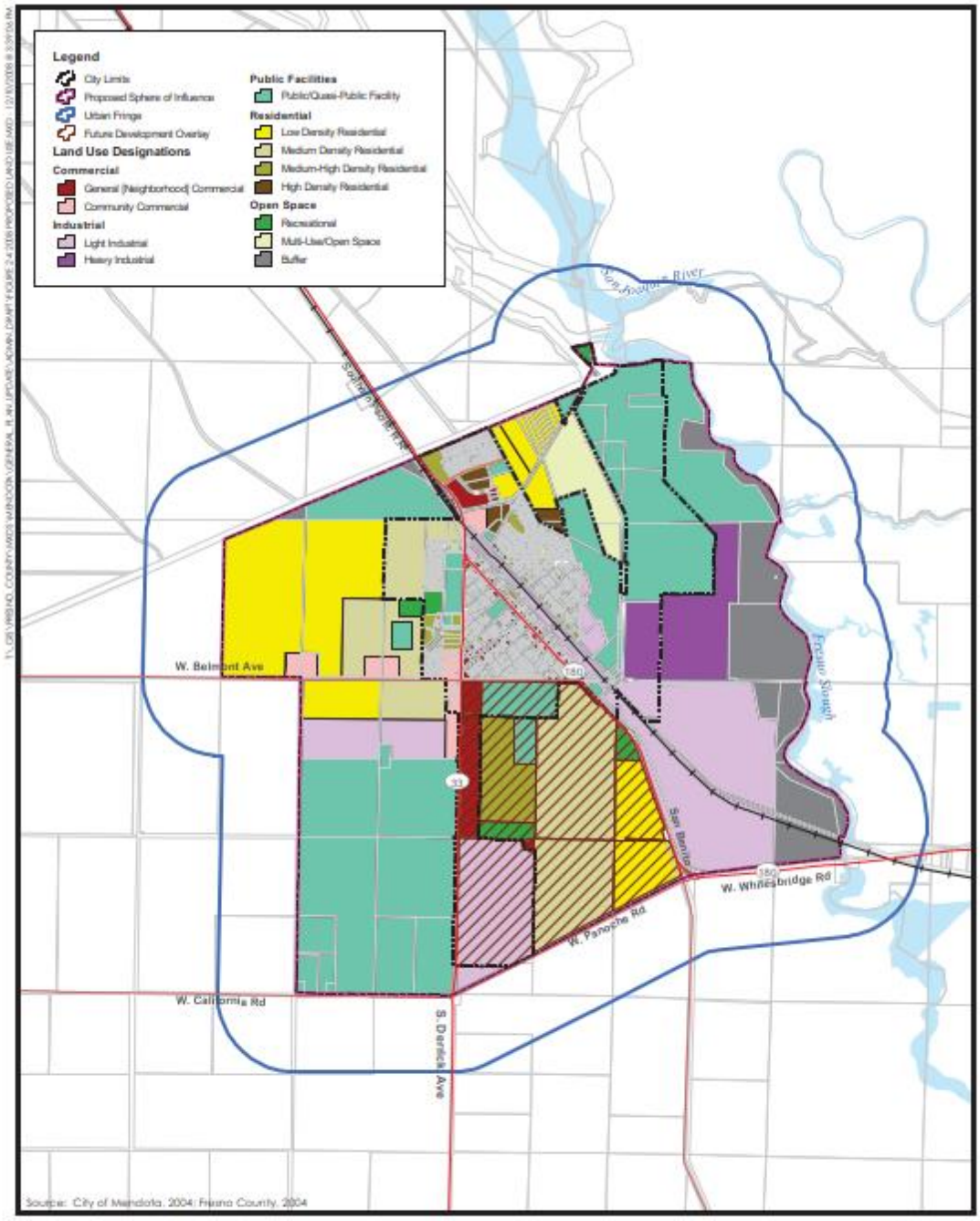


Figure 1
Land Use Diagram (2005-2025 General Plan)
PMC

Figure 2. Existing Watersheds

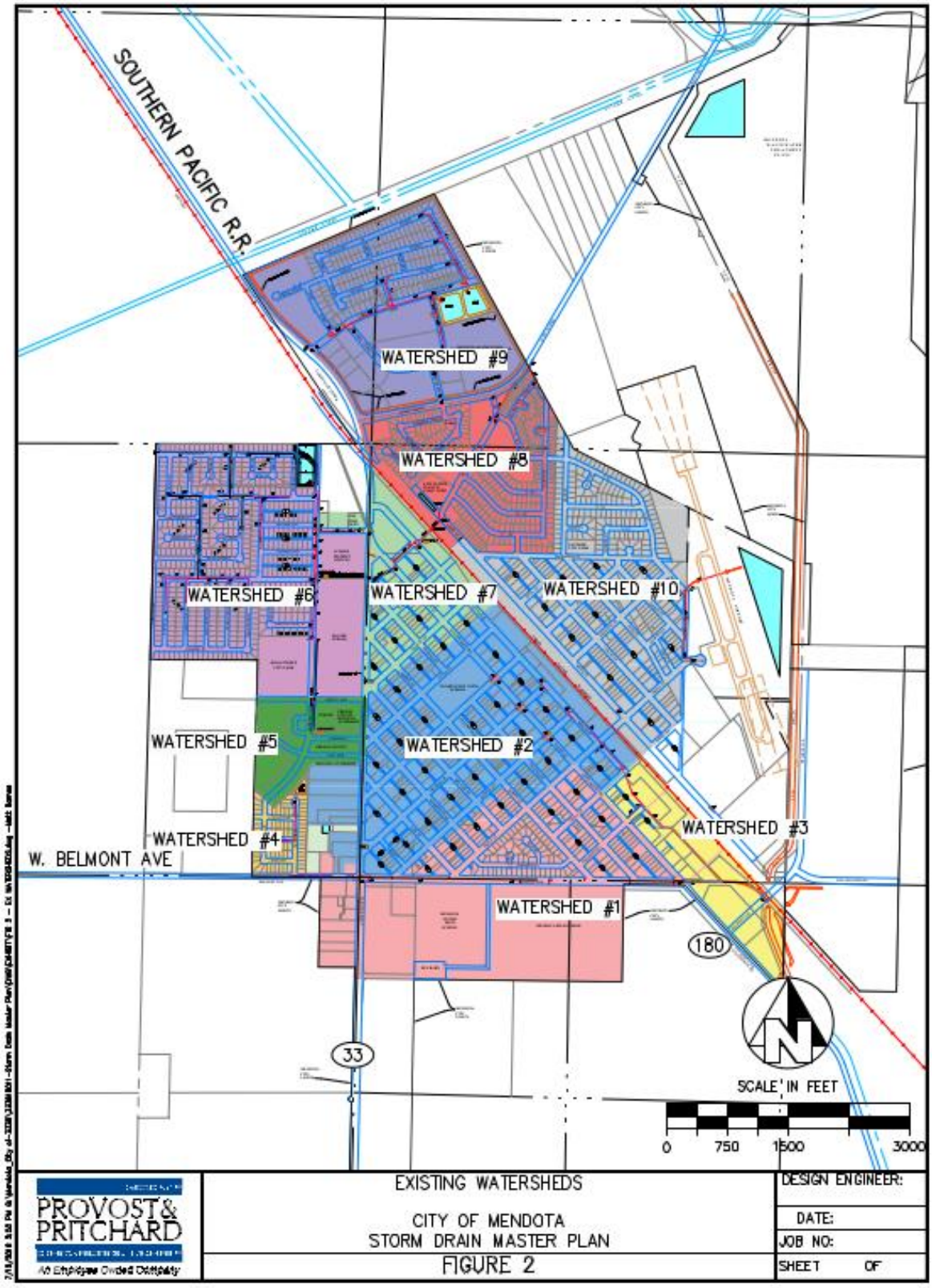
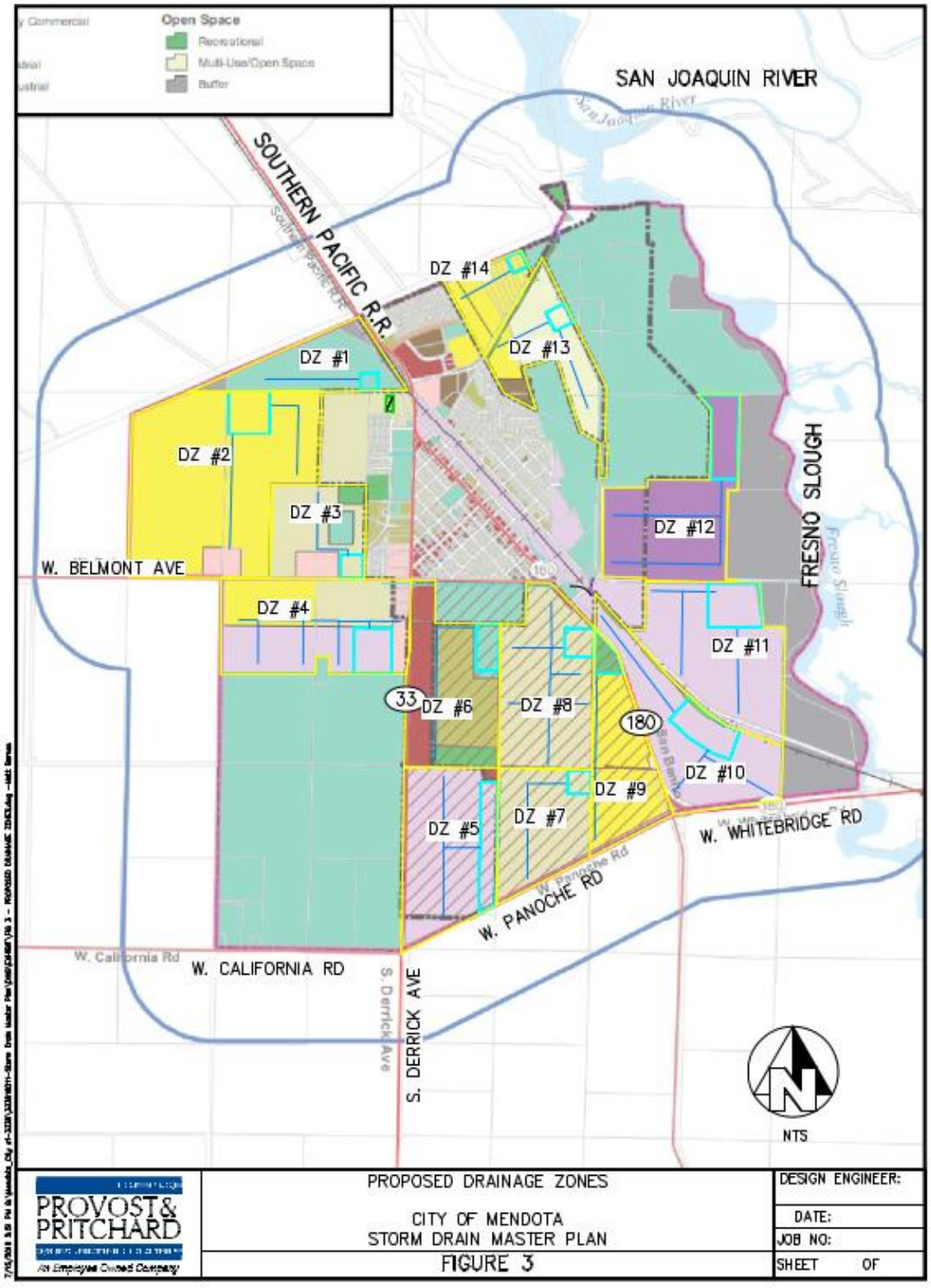


Figure 3. Proposed Drainage Zones/Watersheds and Basins



1 Introduction

There are two main goals in the development of this Storm Drain Master Plan (SDMP). First and foremost, it is important for the City of Mendota (City) to have a better understanding of the existing system's capabilities and what improvements are necessary to effectively mitigate existing flooding. The current storm drainage within the boundaries of the City is provided by several independent networks of inlets, pipes, pumps and basins. Though the system is designed to collect and convey stormwater resulting from small storms effectively, there have been issues during periods of heavier rainfall that have caused flooding throughout the City; with some locations flooding with only moderate rainfall.

The second main goal is to prepare for the development within the City's proposed sphere of influence that is expected in the future. As undeveloped land is added to the Cities' maintenance area, detailed planning is required to adequately prepare for the discharge of stormwater associated with each subsequent development. This SDMP also gives the City an idea of the relative costs that will be associated with each additional watershed improvement.

In the sections following, the SDMP will address:

- Overall System Description
- Challenges Faced
- Summary of Storm Drain Infrastructure Costs

1.1 Purpose and Goals

The City's current storm drain system within the older downtown triangle – bordered by Derrick Avenue, Belmont Avenue and the Union Pacific Railroad – is insufficient to support the current needs of the City, let alone any future development. Newer, primarily residential, developments have adequate storm drain infrastructure. It is imperative that the City plans, and constructs upgrades to the existing system, designed to the adopted standards, which will mitigate existing flooding and discharge concerns.

Currently the City has been pressed for development and has no mechanism for assessing development impact fees, and with the demand for additional housing and businesses has come the demand for supporting utility infrastructure. The recommendations of this SDMP address the future needs and requirements so that as new development is planned out, the appropriate infrastructure and development impact fees can be associated with each proposed development.

By implementing the recommendations provided in this report, the City can mitigate current flooding concerns within the existing system as well as sustainably plan for the future.

1.2 Existing System Overview

Urban runoff from just under 1,000-acres within the City of Mendota in general surface flows across city streets in an east-northeasterly direction. The City of Mendota, as with much of the San Joaquin Valley, is relatively flat. Gutters have imperceptibly shallow slopes. Precise topographic surveys of various locations in the city show lengths of gutter with zero slope, others with more commonly shallow slopes of around 0.2% (0.002 feet of fall per foot.) The ground elevations fall towards the Fresno Slough and San Joaquin River to the northeast of the City, but there is currently no discharge of storm water runoff to these bodies of water.

There are four storm water basins in newer developments around the perimeter of the city and those areas are not prone to flooding. The older downtown "triangle" – bounded by Derrick Ave (State Route 33) on the west, the Union Pacific Railroad to the northeast, and Belmont Avenue on the south – has very limited storm drain infrastructure, see **Figure 2**.

The infrastructure within the downtown triangle is limited to surface flow conveyances such as curbs and gutters. Runoff passes through street intersections via concrete valley gutters or "bubble-ups," which are short systems comprised of an inlet, a short length of buried pipe, and an outlet. In these systems, storm water enters the inlet from a gutter on one side of the street, fills the pipe and outlet structure until the water reaches a depth sufficient to flow out of the outlet structure and down the next gutter. Several feet of water is often left standing for months in these systems as the structures of these old systems have solid walls and the heavy clay native soil does not allow percolation.

Because of the high clay content, the City experiences only minimal percolation of standing water within basins, canals and other drainage structures. Removal of collected storm water runoff is by evaporation only. Groundwater levels under the city are typically 20- to 25-feet below ground surface.

The railroad that runs northwest to southeast through the City is above grade and creates a major impediment to the flow of storm water runoff across the City. Naples Street which parallels the railroad on the southerly side sees extreme flooding centered around its intersections with 2nd Street and 9th Street. Flooding overtops curbs and flood waters have lapped up against the door thresholds of adjacent residential homes. During these events, the street is impassable and there is a threat to public safety due to pedestrian and vehicular mobility risks.

There is a pump station at the intersection of 2nd and Naples that moves water from that intersection under the railroad tracks to a curb outlet structure at the 2nd and Marie Street intersection. The pumps are equipped with variable speed controllers, and when run at full speed their output can exceed the capacity of the 2nd Street gutter flow, but even that is not sufficient to dewater the Naples and 2nd Street intersection during even a moderate storm event. In an effort to mitigate this situation, the City constructed a small detention basin that, by the use of a diversion valve on the force main, can accept some of the water pumped from 2nd & Naples when, during big rain events, they need to run the pumps at maximum speed. During less-intense rains, when a slower pump operating speed is adequate, they bypass this basin and direct all water down the 2nd Street gutter.

The intersection of Naples and 8th Street is a local low spot. There is no pump station there, which means storm water begins to collect in during every storm event regardless of the intensity. This problem is exacerbated because when 2nd and Naples floods, water breaks over at 4th Street, and flows southeast along both sides of Naples, eventually reaching and adding to the flooding between 8th Street and 10th Street. At that intersection, there is a system of curb inlets and buried pipe which runs through a private property to the south to discharge into an open channel which runs through a second private property and then discharges on a third private property outside the southeast city limits. This pipe system does not have the capacity to handle even moderate-intensity rain events. When water floods the 9th Street intersection, the only relief currently available is by temporary pump either at the inlet at 9th Street or at the inlet at 10th Street. From 9th Street, water must be pumped over the adjacent railroad tracks to a curb and gutter, which then flows to the storm water retention pond near the Mendota Airport. From 10th Street, water can be pumped onto the private property mentioned above, where it eventually flows to the open channel.

Flows from the two open channels at the southeast corner of town historically continued in an open channel about a mile southeast of town where it discharged into the Fresno Slough. Earthmoving operations on the agricultural land (orchard trees) blocked this discharge many years ago.

In 2010, the City entered into an agreement with the San Luis & Delta Mendota Water Authority (SLDMWA) to drop water from this open channel into the San Luis Drain (SLD) via a gate valve where the channel crosses the SLD near Belmont Ave, east of State Route 180. This agreement was a good will gesture by the SLDMWA. The agreement has no specific term, and maybe cancelled at any time. The City is currently allowed to store water in a 2-mile stretch of the SLD between the Belmont ditch and Bass Avenue to the north until the stored water reaches a depth of 8-feet. This threshold has been met before. When that happens, city staff must bring a temporary pump to relieve the SLD by pumping water into a stormwater retention pond at the City's Wastewater Treatment Plant. Without the SLD, the City would not have any means to sufficiently manage their storm water, but this arrangement won't work much longer as the City begins utilizing more of the ponds at the Wastewater Treatment Plant to deal with the disposal of additional treated effluent from the growing city.

The current system of storm water management does not include a discharge to the Fresno Slough, Mendota Pool, San Joaquin River or other regulated body of water. It relies on the SLD and vacant wastewater treatment ponds; neither of which are sustainable.

The City's existing storm drain system consists of the ten (10) existing watersheds shown in **Figure 2.** The system is comprised of several different collection systems, some more effective than others. The list below highlights the current system:

- Multiple conveyance systems consisting of:
  - Catch basins and drain inlets/outlets;
  - Storm drain piping;
  - Gutters and open channels; and
  - Storm drain lift stations (3 total)
- Currently six (6) outlet points:
  - Four (4) discharge to retention (evaporation) basins;
  - Three (3) discharge to the Bass Avenue ditch and ultimately to a retention basin at the City's Wastewater Treatment Plant (WWTP); and
  - Three (3) discharge to the San Luis Drain.
- Watersheds #1, #2 and #3's conveyance systems release into separate ditches that merge together and ultimately discharge into the San Luis Drain (SLD), which serves as a linear retention basin. The City has an agreement with the SLDMWA to use the SLD for this purpose. When the SLD reaches a depth of 8 feet as measured on a staff gauge near Bass Avenue, the City must pump excess runoff into the retention basin at the WWTP.
- Watershed #5 gets pumped into Watershed #7 which drains through a system of storm drain pipes to a lift station that pumps the water into gutter in Watershed #8.
- Watershed #8 conveyance system discharges into a drainage ditch along the southeasterly side of Bass Avenue that runs northeast to a retention basin at the WWTP.
- Watershed #6 outlets into a retention basin, however there is an overflow safety feature that would allow a lift station to pump water into Watershed #7's gutters. This feature has not been utilized since it was installed in 2014 according to City Staff.
- Watersheds #4, #6, #9 and #10 all outlet into retention basins and do not have any flooding concerns and so therefore there no recommended improvements for these areas.

1.3 Existing Watershed Concerns

1.3.1 Watershed #1

Watershed #1's primary conveyance system runs east along Belmont Avenue. A major storm water management concern is the occasional flood of silty water that comes down Belmont Avenue when a storm in the Coast Range mountains causes Panoche Creek to flood. Flood waters spill over the creek banks 6.75 miles west of the City and flow eastward on Belmont Avenue. A court injunction dating to the 1970s has mandated that the farmers with land adjacent to Belmont must keep their earthen berms below the crown grade of Belmont Avenue, but this is often ignored. The result is causing silt-laden floodwaters to reach the City at the southwest corner of town. During especially high flows, the flood water over tops the intersection of Derrick Ave (State Route 33) and heads northeasterly along Derrick Avenue, across 7th Street, and then easterly through the heart of downtown. This water can easily cross Oller Street, compounding the flooding at 9th Street and Naples. There is a large (48"-72") diameter storm drain in Belmont Avenue, running east from the west end near Derrick Avenue. This pipe largely provides detention of runoff as it discharges into an open channel at the southeast corner of town thru the Gonzalez tow-yard (private property). The invert at the end of the pipe is lower than the flowline of the receiving open channel; therefore, water ponds up in the pipe (similar to the bubble-up systems that cross Oller Street) before it reaches the flowline elevation of the open channel. This causes both standing water in the pipe and a large build-up of sediment and debris from the Panoche Creek flood waters within the pipe. This is a burden to maintain. Much of the Belmont Avenue storm drain pipe is lined with a clay silt that has settled in the pipes over time.

Recent coordination amongst the City, Caltrans and Fresno County has benefitted the City. For the last couple of years, the County has routed flows in Belmont north up Douglas Avenue (about 5.75 miles west of city limits.) This has resulted in minimal flows in Belmont reaching the City.

Belmont Avenue Pipeline
The invert of the pipeline along Belmont Avenue is approximately three (3) feet lower than the bottom of the channel that it discharges into. In addition, the flows from Panoche Creek that have previously run-down Belmont Avenue to this collection line are much more silt-laden than typical municipal storm drainage. This has caused this portion of the system to fill with silt and debris and reduced the utility of this large pipeline to relieve municipal flooding concerns. Enhancing this capacity by constructing a new pipeline from the east end of the Belmont line to the San Luis Drain discharge point is highly recommended.

1.3.2 Watershed #2

Watershed #2 covers most of the center of downtown and is composed of mostly older residential neighborhoods and most of the City's commercial land uses on Derrick Avenue, 7th Street and Oller Street. There is a grade break on Naples Street between 4th and 5th Streets that serves as the delineation between Watersheds #2 and #7. This watershed's low point is at the intersection of 8th Street and Naples and the section of Naples from north of 8th Street to 10th Street experiences heavy flooding with as little as 0.25" of rainfall, suggesting the infrastructure draining Watershed #2 is insufficient.

As water flows south from the grade break between 4th & 5th Street there is some storm drain infrastructure in place. There are three (3) bubble-up drains (two inlets with an outlet connected by pipes that convey runoff across the intersection at 7th Street and Naples, outletting into the gutters on the railroad side of Naples Street. The storm drain conveyance conduit begins at the low-point of the watershed, at the intersection of 8th Street and Naples, and runs southeast to the end of Naples Street at 10th Street before jogging through privately owned land and eventually releasing into an earthen ditch. The pipes are extremely shallow where the system crosses the private property, with little to no cover. The pipes appear to be severely damaged,

crushed or otherwise filled with debris and there is very little flow capacity available. The City routinely brings in a temporary pump to pull water from the curb inlet at 10th and Naples and pump it across the currently vacant private property, where runoff eventually drains to the earthen ditch. Regardless of the cause, over 158 acres of the developed downtown has been designed to gutter flow to this collection point and the collection and conveyance system is significantly undersized. A larger underground pipeline system is needed. Utilizing Proposition 1 funds from the Waterboard for Technical Assistance, the City has prepared 65% plans for a full reconstruction of the storm drainage system in this watershed and has applied for grant funding through both the Proposition 1 and Prop 68 Urban Flood Protection grant programs.

1.3.3 Watershed #7

Watershed #7 concentrates at a lift station at the intersection of 2nd Street and Naples Street, which pumps the watershed's stormwater under the railroad and into 2nd Street's westerly curb and gutter in Watershed #8 via a curb outlet with a bolted solid lid. The discharge from the lift station is limited by the capacity of the curb and gutter on 2nd Street. The City has built a small offline basin at the City's water treatment plant with a valve on the lift station force main which allows discharge to be captured before it starts flooding 2nd Street.

The intersection of 2nd Street and Naples experiences some of the heaviest flooding in the City. Stormwater builds up in Naples Street and overtops the curbs in heavy rains, see **Figure 4** through **Figure 6** below. The peak flow arriving at 2nd and Naples exceeds the capacity of the lift station, however replacement or upgrade of the lift station would not adequately address the problem. The gutter the lift station discharges into has limited capacity and cannot accept more flow than it receives from the current lift station without significant flooding along 2nd Street northeast of the railroad. A more thorough solution will require detention storage southwest of Naples, to slow the flow of water arriving at Naples and 2nd Street to match the capacity of the lift station. Another, more expensive, option is to install an underground storm drain system to convey this runoff through Watershed #8 to the Bass Avenue ditch just outside of City limits. Currently Watershed #5 is connected to Watershed #7, but there are plans for the lift station to connect the existing pipes in Sorensen and connect to Watershed #6.

Figure 4. Flooding 2nd at Naples

Figure 5. Flooding at 2nd and Naples

Figure 6. Flooding at 2nd and Naples

1.3.4 Other Issues

Watersheds #1, #2, #3, #7 and #8 all outlet into earthen drainage ditches. Some of these ditches are on private properties and all of them are poorly maintained and have large amounts of trash, weeds, and other deposits lining the ditches. The ditches are not as much of the cause for flooding as the lack of adequately sized storm drain infrastructure in these watersheds; however, during peak storm events they can affect the duration that flooding occurs.

Drainage Ditch Maintenance
Many of the ditches that serve as outlets for the storm drain system need to be grubbed and cleared out on a regular basis for the storm drain system to effectively operate. Without a maintenance program, some of the current issues will continue to propagate and worsen.

Future Storm Water Management
One of the primary challenges faced when planning the proposed drainage for future development is the large amount of land that will be required to provide adequate water storage capacity. The City and its surrounding area have a shallow ground water table (as little as eight to 16 feet below ground in some places), and the mostly-clay soil profile provides very little to no percolation relief. Due to this, the City's design standards require that all storm water retention basins must be designed for evaporation as the only means of system relief. Evapotranspiration rates in the vicinity are approximately 45.75 inches per year. The master planned retention basins were designed to hold the full Average Annual Rainfall (8.05 in.) and were designed to a maximum 4-foot water depth. Those design factors lead to retention basins that require large amounts of land, more than typical for the Central Valley.

A promising option for further study is developing regional detention basins that would be able to discharge directly to other ditches or canals that would ultimately drain to the Fresno Slough. There has been discussion of DZ#1 being a regional basin or park site as it is not conducive for development. The property owners have suggested selling the land south of Bass Ave to the City for storm drain management. If this option could be implemented, it would reduce the amount of future development land that would have to be dedicated to basins, as well as providing a level of protection against higher levels of annual rainfall. There are several established drainage and conveyance ditches that run through the southern part of the study area. If these could be used as drainage outlets after storms, then it would be possible that a gravity system or pump station would be able to utilize these and allow the storage points to fall under the classification of the smaller "detention" basins rather than retention basins.

1.4 San Luis Drain

The highly clayey geological makeup around the City of Mendota and the poor water quality of the shallow aquifer prevents the infiltration into the groundwater as an option of storm water disposal. Storm water relief for existing watersheds #1, #2, and #3 is met through a series of drainage ditches across private industrial properties, and outlet to the San Luis Drain (SLD). The SLD crosses under SR 180 and Belmont Ave and runs North-South on the eastside of the airport and then along the west side of the City's Wastewater Treatment Plant. Constructed in the 1970s as part of the U.S. Bureau of Reclamation (USBR) Central Valley Project to provide disposal of agricultural tailwater to south valley farmers, the SLD was never completed as originally envisioned.

The plan had been to extend it to the San Francisco Bay for discharge there, but environmental concerns and lawsuits led the Bureau of Reclamation to construct a discharge point at the Kesterson Wildlife Preserve west of Los Banos, which operated from the late 1970s through the early 1980s. Concerns over selenium buildup in Kesterson soils resulting from SLD waters, which were suspected of leading to malformations in migratory birds nesting at the wildlife refuge, resulted in closure of Kesterson at that time. The SLD was never extended to the Bay, and the portion of the SLD which had been constructed has no permanent purpose. The SLD is still owned by the USBR and is maintained by the San Luis Delta Mendota Water Authority (SLDMWA).

The SLD is a concrete lined ditch with a bottom width of eighteen (18) feet, side slopes of 1:1, and a designed water depth of 11.5 feet. With these dimensions and the approximately two-mile length of the SLD that runs adjacent to the city, there is substantial storage volume to help manage the stormwater from existing watersheds #1, #2 & #3; approximately 353 acres. Silt has accumulated in much of the SLD allowing several sections to have significant vegetation growth.

The City has had a temporary "good will" agreement with the SLDMWA to make use of this portion of the SLD as a stormwater detention facility. The agreement was intended to be temporary and has no term; therefore, a permanent solution needs to be implemented. The two primary options being considered at this time include obtaining permanent rights to discharge to the SLD or construction of two retention basins, one each to accommodate the flows from the northern and southern portions of the existing storm drain infrastructure respectively.

1.5 Proposed Storm Drain Improvements

The existing storm drain infrastructure was discussed in the last section. Moving forward the City will need to both make improvements to the existing infrastructure as mentioned above and plan for future development and the impact it will have on the City's stormwater management. The following is an outline of proposed improvements the City should implement to address their storm water management needs.

- Develop a maintenance program to routinely clean out drainage ditches and inlets throughout the City.
- Develop a permanent stormwater management plan for areas that currently discharge into the San Luis Drain.
- Repair the damaged storm drain infrastructure in Naples Street for Watersheds #2 and #3.
- Add detention storage in Watershed #7 upstream of the 2nd Street and Naples Street lift station
- For undeveloped areas, divide up City's proposed sphere of influence into the fourteen (14) proposed watersheds (Drainage Zones) shown on **Figure 3** and construct the recommended infrastructure for each one as outlined in this report.
    - The infrastructure shown is schematic in nature and will require modification during mapping and design of future development. Basin geometry and location is subject to change to fit within the proposed development. Similarly, the alignments of the storm drain trunk lines are also subject to change based on the layout of future streets.
    - Future development may not encompass a full drainage zone. When a proposed development only covers a portion of Drainage Zone, or potentially spans into multiple Drainage Zones, the overall storm drain design of the development will need to consider future buildout of the remainder of the adjacent Drainage Zone(s). Temporary basins may be required for the specific development until such time that the full master planned trunk line and regional basin are constructed.

2 Design Criteria

The City has adopted storm drainage design criteria for use in new developments that dictate the parameters for each project. The same criteria were used on a broader scale in the preparation of this SDMP. The criteria are summarized in this section. An unabridged version of the City's Hydrologic Design Criteria can be found in Appendix A.

2.1 Hydrology

The City of Mendota has adopted a modified version of the Rational Method for storm drainage design that considers the intensity on the basis of a predetermined factor of land use rather than a function of time vs. selected storm return frequency. The primary equation used to calculate runoff flow from a drainage area is:

$$Q = CiA$$

Where:

Q	=	Runoff Flow, cubic feet per second
C	=	Runoff Coefficient per **Table 2-1.**
i	=	Rainfall Intensity, per **Table 2-2.**
A	=	Tributary Area, acres

Where the Standard Rational Method protects against storms of a given return frequency (typically 2-year, 5-year or 10-year) the City's version protects again storms of a specified rainfall intensity. The City has adopted this modified method for two primary reasons:

First, the Rational Method rainfall intensities, even for a 2-year storm return frequency, are large compared with the City's actual rainfall experience.

- The modified method leads to smaller conveyance lines and pumps, reducing the overall cost of storm drain infrastructure.
- The tradeoff is that in the infrequent event that a storm is as intense as the Rational Method plans for, some runoff would be held in the streets until Mendota's smaller collection system can relieve it.
- Based on experience with actual storm intensities and the comparative quantities of runoff generated, the occurrence of water standing in the street waiting to flow into the underground will be less than once per year.
- The quantity of water detained will not typically overtop the curbs, and any water held in the street will clear itself within two hours or so of the peak rainfall.

The second reason is the required capital investment.

- With very few exceptions, the existing drainage systems within the City are old, undersized as compared with the City's standards, and result in a substantial amount of water being held in City streets at low spots and sags in grade.
- All of these deficiencies should be addressed, but storm drain funds are limited.
- Reducing the cost of facilities by prudently sizing them rather than sizing for a rare worst case will allow the City to stretch its resources to address more problems in fewer years.

2.1.1 Runoff Coefficients

Standard runoff coefficients for each land use type are given in **Table 2-1.**. Coefficients are used within each drainage sub-area on an area-weighted basis. The values in the table are standards and are considered starting places for design of specific developments. If a site plan for a particular development shows a higher percentage of impervious area, a higher coefficient may be used. No such corrections were applied for existing drainage areas in this Plan.

Table 2-1. Standard Runoff Coefficients

Land Use Type	Runoff Coefficient
Industrial	0.80
Commercial	0.70
Multi-Family Residential	0.55
Single Family Residential	0.30
Open Space (Parks & School Yards)	0.20

2.1.2 Rainfall Intensity

Rather than using standard intensity-duration curves, the rainfall intensities shown in **Table 2-2.** were used throughout the proposed sphere of influence. For drainage sub-areas with mixed land uses, a composite intensity was calculated on an area-weighted basis.

Table 2-2. Standard Rainfall Intensities

Land Use Type	Rainfall Intensity (inches/hour)
Commercial and Industrial	0.50
All Residential	0.30

2.1.3 Basin Storage Requirements

Basins are designed as either detention (with relief provided within 96 hours of a storm event) or retention (holding runoff from all storm events). With little to no percolation available due to high clay soils, basins are reliant on evaporation for emptying. For this Plan the basins were designed using the equation V=CiA and the design rainfall quantities shown in **Table 2-3**.

Table 2-3. Standard Basin Storage Requirements

Basin Type	Design Criteria	Design Rainfall (inches)	Design Rainfall (feet)
Detention	Two (2) 10 year, 24-hour events	3.18	0.27
Retention	Average Annual Rainfall	8.05	0.67

Additional basin design requirements are included in Appendix A.

2.1.4 Hydraulic Modeling

A hydraulic model of the City's storm drain infrastructure was created using Autodesk's Storm and Sanitary Analysis (SSA) program to analyze the effects that a design storm would have on both the existing system

conditions as well as a separate scenario that modeled proposed improvements to the existing system and necessary infrastructure for future development.

The SSA model is a fully dynamic volumetric based model that analyzes the system at multiple time steps over the course of the design storm period. The model then calculates the hydraulic grade line (HGL) for each time step and plots the HGL on a profile view of the system. The parameters set forth in the City's design standards were applied to the model, and each proposed improvement was calibrated until the output from the model complied with the City's design standards.

2.1.5 Storm Water Disposal

Due to the City of Mendota's geological makeup of mainly clayey, impervious soils, water infiltration cannot be assumed to be a reliable means of water disposal. Instead, the City's design standards specifically address this issue and require all accumulated storm water to dissipate via evaporation when stored in retention ponds. The annual evaporation rate per the City's design standards is 45.75 inches. Therefore, the City only allows for a four-foot (48-inch) design depth on all retention basins.

The effort to recharge ground water with retained stormwater is also not recommended as the shallow aquifer under the City is of very poor quality and there would be little or no benefit from using storm water to recharge this aquifer. The soil's ability to hold water may, in future development areas, provide for an alternate source of water for landscape irrigation.

3 Study Areas

3.1 Overview

This SDMP has divided the City of Mendota and its 2025 General Plan proposed sphere of influence into 24 separate study areas (10 existing Watersheds, 14 proposed Drainage Zones). Each of the study areas are shown on **Figure 2** and **Figure 3** as well as **Figure 7 thru 27**. In this chapter, improvements necessary for both existing watersheds and proposed Drainage Zones are discussed.

The terms "watersheds" and "Drainage Zones" are typically used interchangeably. However, for clarity in this SDMP, the *existing* areas are referred to as "watersheds" and *future expansion* areas are referred to as "Drainage Zones."

The City's 2025 General Plan designated proposed land uses for all the undeveloped land in the City's proposed sphere of influence (**Figure 1**). Each of the study areas including land uses, existing facilities, deficiencies, project needs, and anticipated capital costs are discussed in the following sections.

In general, the City's natural grade flows from southwest to northeast towards the Fresno Slough and the San Joaquin River; this was considered when planning locations of future basins and layout of the conveyance system.

3.2 Watershed #1

3.2.1 Hydrology

Existing Watershed #1 (**Figure 7**) includes the southern portion of the City's original downtown area and the Mendota Unified School Districts' junior high and high schools. The watershed is generally bounded geographically by Highway 33 on the west, 8th and 9th Streets on the northwest, State Route 180 to the northeast, and the southern edge of the schools and public spaces on Belmont Avenue (approximately ¼-mile south of Belmont Avenue). There are roughly 172 acres in the watershed. It is comprised of mainly Medium to High Density Residential and Public Facilities, as well as a small amount of commercial and industrial land.

There is one (1) storm drain trunk line in Watershed #1 (**Figure 7**) which primarily runs from the west end of Belmont Avenue to the east end and ranges in size from 18-inches at the upstream end to 72-inches at the discharge location; the majority being 48-inches in size. The 72-inch pipe discharges just to the east of SR-180 into an open channel in the private industrial property (currently Gonzalez tow-yard and within the boundary of Watershed #3). The open channel converges with other flows from Watershed #2 and #3 as discussed below and discharges into the San Luis Drain.

As mentioned in Section 1.4 above, the San Luis Drain has been functioning as a temporary retention basin for about a decade. It is of high importance that the City acquire a permanent storm water management solution for this water, whether it be via permanent agreement or ownership of the San Luis Drain or construction of a new retention basin.

The trunk line has experienced flooding in the past; however as previously mentioned in this report, the primary source for that flood water was the overflow from Panoche Creek that flowed into town due to

farmers berming up their land along the Belmont Avenue frontage. Analyzing the hydraulic model for this watershed without the Panoche Creek overflow demonstrates the existing pipeline is adequate for flows in the given collection area.

Although the pipeline infrastructure itself is sized adequately, maintenance is a significant concern, as the trunk line is currently partially plugged with silt (from previous years of Panoche Creek flooding) and debris. These conditions limit the amount of flow the system can accommodate and may hamper the City's ability to drain the watershed without causing flooding.

3.2.2 Necessary Projects

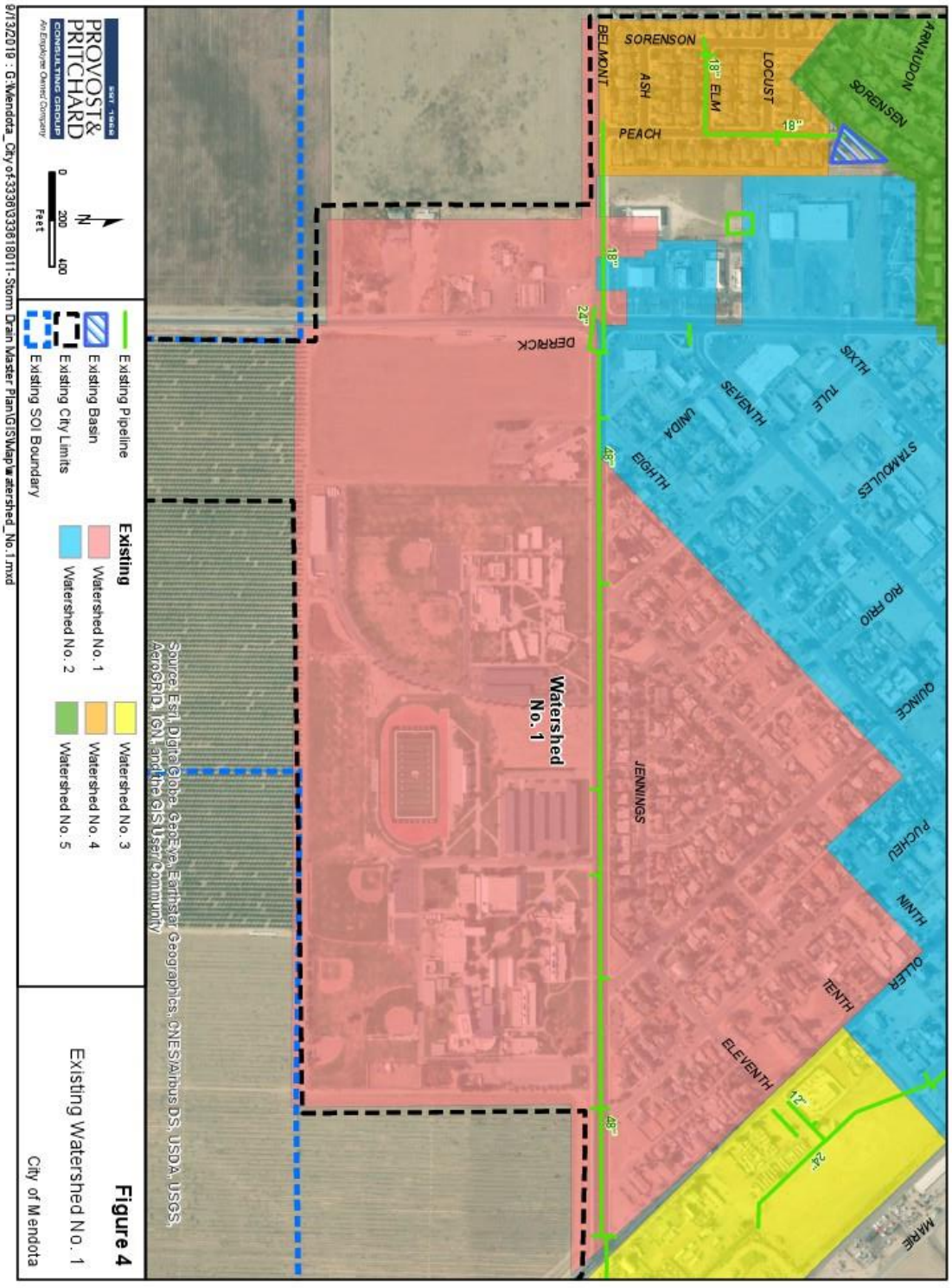
Per the discussion above, the following actions are recommended:

- Implementation of a regular maintenance program to clean out the pipes where backup occurs.
- Construction of a capital project to modify the outlet ditch for this line that conveys the flow from the discharge point to the San Luis Drain. This ditch is within the boundaries of Watershed #3 and as such the corresponding project will be incorporated in the Watershed #3 recommendations below.
- Resolution of a permanent retention basin location, either via permitting of or owning the San Luis Drain or construction of a retention basin near the discharge point of Watershed #3 (discussed below).

3.2.3 Summary of Costs

Since the work proposed above would actually fall within the limits of Watershed #3 those costs are included below as part of the analysis for Watershed #3 and not as part of this section.

Figure 7. Existing Watershed No. 1



3.3 Watershed #2

3.3.1 Hydrology

Watershed #2 (**Figure 8**) includes the majority of the City's original downtown area and is approximately 158 acres in size. The majority of the watershed is bounded geographically by Highway 33 on the west, Fourth Street on the northwest, the Union Pacific Railroad on the northeast and portions of 8th, 9th and 10th Streets on the southeast. Watershed #2 shares its southeastern border with Watersheds #1 and #3. Land use in this watershed is comprised of a mix of Medium to High Density Residential, Public Facilities, Industrial, and Commercial land use designations.

The watershed generally slopes from southwest to northeast and storm water travels mostly by surface gutter flow. At Oller Street there are a series of 18-inch "bubble-ups" that convey the runoff from the west side gutters to the gutters on the east side of the street. All the storm water eventually makes its way to Naples Street, where inlets at 8th Street and 10th Street capture the water into the conveyance system. The conveyance system originates at 8th Street as an 18-inch RCP and flows to the southeast, along Naples Street, and then continues through the private property in Watershed #3 where it discharges into an open earthen ditch that conveys the flow through the private industrial property of Watershed #3 to the San Luis Drain.

Currently this watershed experiences flooding with as little as ¼" of rainfall., This is primarily due to the undersized conveyance system in Naples and the last section, within Watershed #3, being broken.

3.3.2 Necessary Projects

As mentioned in Section 3.2 above, Naples Street experiences heavy flooding during even moderate storm events. Currently there are only two inlet points at 8th and 10th for the entire 158 acres. Those inlets feed into the conveyance line described in Section 3.3.1.

By hydrologic analysis, it was determined that even under ideal conditions with undamaged pipes, the current conveyance system is not capable of conveying all the storm water expected during the design storm. This report recommends that new storm drain infrastructure be installed in Naples Street, including larger conveyance pipes and additional inlet structures.

The City has recently received an award from the Prop 68 Urban Flood Protection Grant Program to fund a project that will mitigate the flooding in this area. In general, the City of Mendota Storm water Improvement Project (Project) will reduce flooding while providing multiple benefits for this Severely Disadvantaged Community. The Project includes Low Impact Development (LID) and conventional storm drainage infrastructure, which will function to mitigate the effects of urbanization and address severe flooding along Naples Street that is a significant risk to public safety and property. The Project construction of approximately 1,030 linear feet of storm drain pipe and inlets along two blocks of Naples Street, between 8th and 10th Streets, that will collect urban runoff from a 164-acre contributing drainage area. Approximately 1-acre of street reconstruction will establish the appropriate grade to route runoff to the new inlets. Flows along Naples St. within the project area will be routed through 21 LID storm water "tree sponges" that will capture storm water for treatment and infiltration. The majority of runoff captured along Naples Street will be routed to a new 2.13-acre extended dry detention basin (basin), which will be constructed on what is currently a private parcel that will be conveyed to the City for the Project. Excess runoff volumes from the basin will be discharged via a lift station to the existing drainage course. The Project also includes utility relocations, new power supply, landscaping planting, and pedestrian facilities ancillary to the drainage improvements. The Project supports local and regional objectives related to flood management, ecosystems, water supply, and DAC participation in regional water resource management.

Figure 8. Existing Watershed No. 2

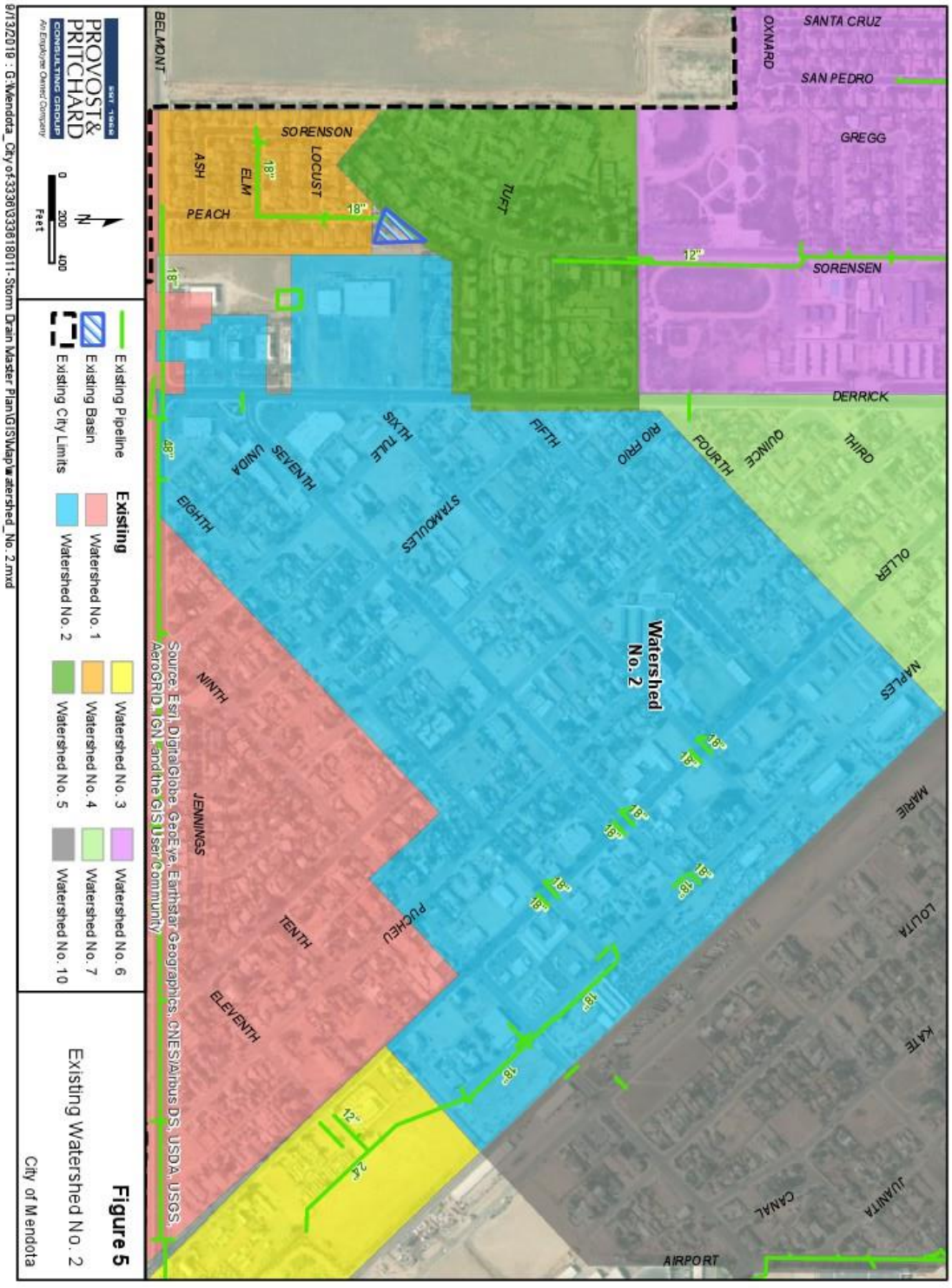
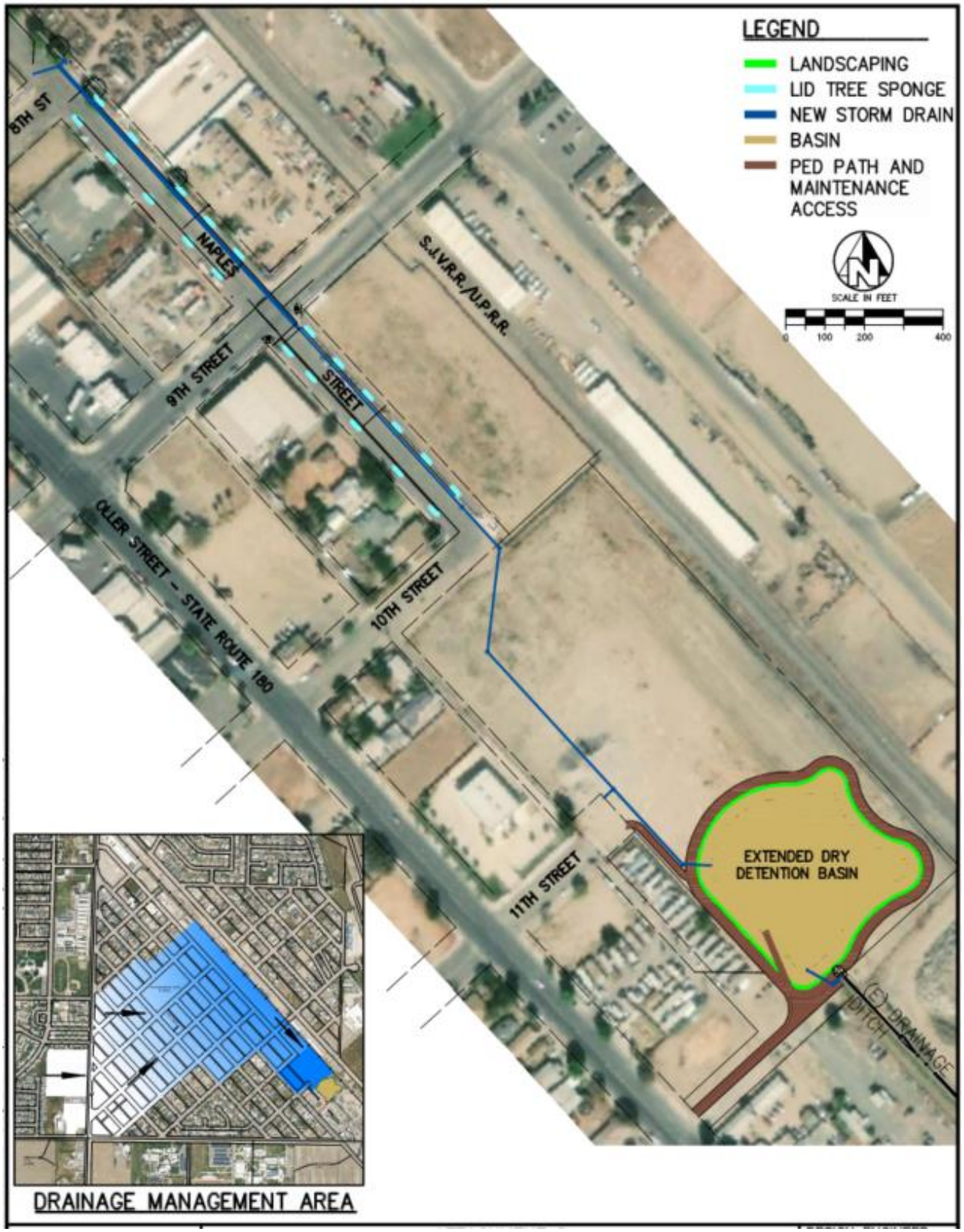


Figure 9. **City of Mendota's grant funded Stormwater** Improvement Project



3.3.3 Summary of Costs

As discussed above, the City has been awarded $4.2 million dollars to fund the project described above. No additional costs for capital projects will be needed in this watershed.

3.4 Watershed #3

3.4.1 Hydrology

Watershed #3 (**Figure 10**) services approximately 45 acres of the City's industrial area. The watershed is bounded geographically by Highway 180 on the southwest, 10th Street on the northwest, the Union Pacific Railroad on the northeast and the San Luis Drain the southeast. Watershed #3 shares its southwestern border with Watershed #1 and its northwestern border with Watershed #2. Land use in this watershed is primarily Industrial with some Commercial and Public Facilities. Part of the grant funded Mendota Stormwater Improvement Project described in the previous section incorporates 7 acres of this watershed, effectively leaving Watershed #3 with 38 acres after the completion of that project.

Two earthen ditches in Watershed #3 collect the flows from the trunk lines for Watersheds #1 and #2. The conveyance pipe from Watershed #1 discharges into an open channel ditch just east of the Belmont and SR 180 intersection. The conveyance pipe within Naples Street from Watershed #2 continues southeast almost 1/4-mile into Watershed #3 across currently vacant private property and collects additional flow of a portion of Oller Street via storm drain inlets on 11th Street before discharging into an open channel ditch that continues southeast through private property. Both of the aforementioned open channel ditches converge into a single ditch approximately 500-feet east of the intersection of Belmont Avenue and SR 180. The ditch then continues east and southeast until it discharges into the San Luis Drain. As mentioned previously, the agreement allowing discharge to the San Luis Drain is not permanent and needs to be addressed either by negotiation of a permanent agreement, the City taking ownership of the facility, or construction of a permanent City-owned retention basin to replace the City's use of the San Luis Drain, or a permitted and functional permanent drainage course to the Fresno Slough.

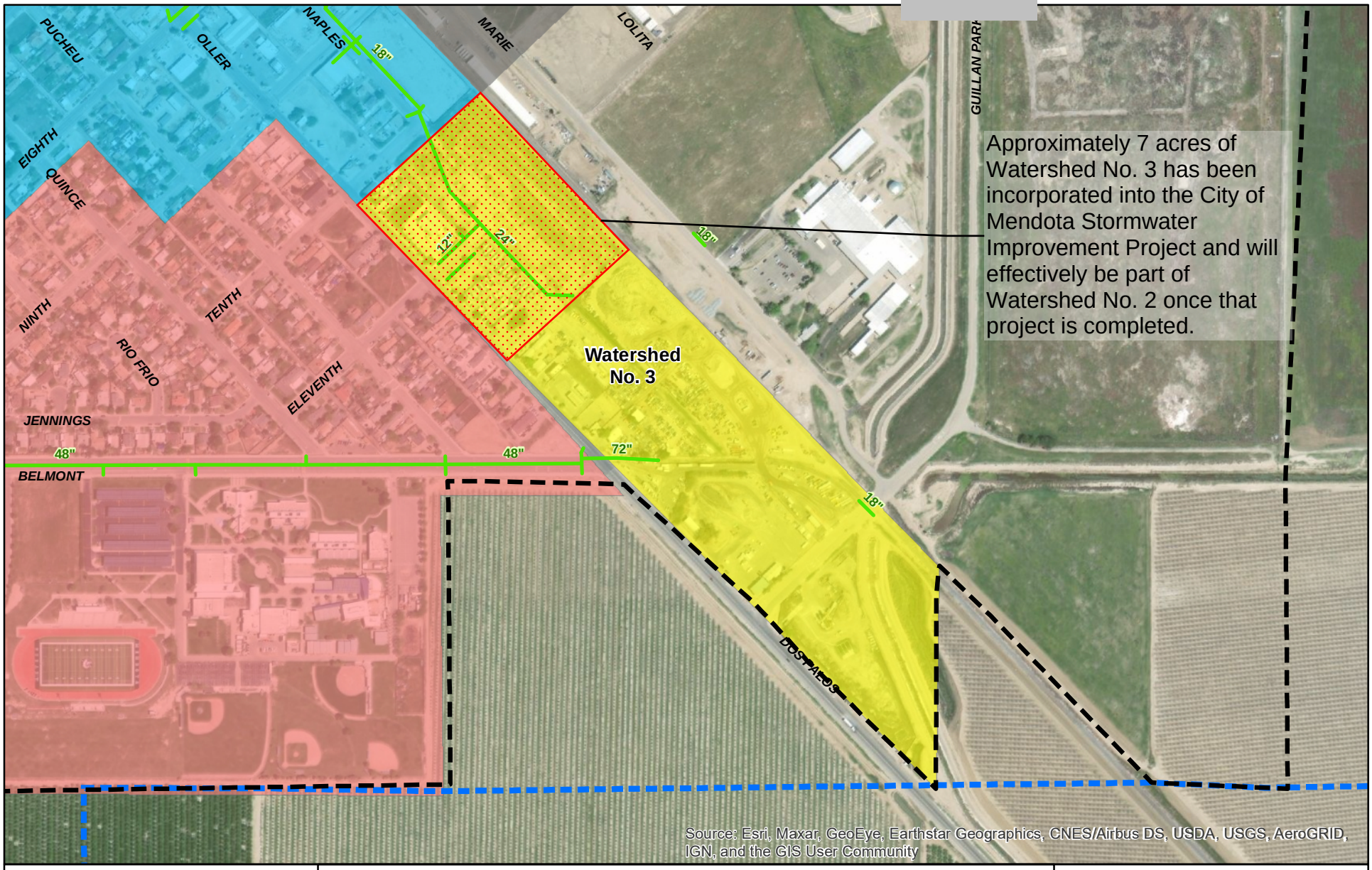
3.4.2 Necessary Projects

The existing extension of the Naples Street pipeline is damaged and in need of repair as it is causing flooding upstream in Watershed #2. Observation of this pipe discovered that it is very shallow, and had been crushed, likely due to historically heavy truck traffic in the area. It is unclear of the extent of crushed pipe, but all of the pipe within Watershed #3 shallow. The previously mentioned Mendota Stormwater Improvement Project will replace all of the 24" diameter piping as part of that overall project

It is also recommended that the two (2) open channel ditches be converted to pipelines to provide necessary flow capacity for Watersheds #1 and #2, as well as increased safety and ease of maintenance.

Additionally, Project #WS3-3 Construct Permanent Retention Basin is included as an optional project to provide a permanent storage location for the runoff from Watersheds 1 – 3 in the event that a permanent agreement for use of the San Luis Drain cannot be fulfilled.

The estimated quantities and costs for these three (3) projects are shown in the table below.



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CONSULTING GROUP
An Employee Owned Company

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0 200 400
Feet

Existing Pipeline
Existing City Limits
Existing SOI Boundary

Existing
Watershed No. 1
Watershed No. 2
Watershed No. 3
Watershed No. 10

Figure 10

Existing Watershed No. 3

City of Mendota

10/5/2021 : G:\Mendota_City of-3336\333618011-Storm Drain Master Plan\GIS\Map\watershed_No. 3.mxd

3.4.3 Summary of Costs

Below is a table of estimated quantities of storm drain infrastructure that would be needed to bring the Watershed up to standard.

Table 3-1. Summary of Storm Drain Infrastructure Costs Watershed #3

Summary of Storm Drain Infrastructure Costs Watershed #3				
Description	Quantity[1]	Units	Unit Cost	Cost
Project #WS3-1 – Repair Naples Street Pipeline Extension				
This project is incorporated into the grant funded City of Mendota Stormwater Improvement Project discussed above. No additional capital costs are required to improve the storm drain system in Naples Street.				
Project #WS3-2 – Replace Existing Open Channel Ditches with RCP Conveyance System				
General Contracting Requirements	1	LS	$195,000.00	$195,000
36" RCP	925	LF	$240.00	$220,000
72" RCP	875	LF	$648.00	$567,000
48" Manholes	3	EA	$6,000.00	$18,000
84" Junction Boxes	2	EA	$35,000.00	$70,000
72" Outlet Structure	1	EA	$20,000.00	$20,000
			Contingency	15%
			Total:	$1,254,000
Project #WS3-3 – Construct Permanent Retention Basin				
General Contracting Requirements	1	LS	$575,000.00	$575,000
Clearing and Grubbing	32	Acres	$1,000.00	$32,000
Land Acquisition	32	Acres	$15,000.00	$480,000
Earthwork Excavation	380,000	CY	$7.50	$2,850,000
Chain Link Fencing with Slats and Gate	4,700	LF	$28.00	$132,000
72" RCP	500	LF	$648.00	$324,000
72" Outlet Structure	1	EA	$20,000.00	$20,000
			Contingency	15%
			Total:	$5,075,000

[1] All RCP quantities are estimates rounded to the nearest 25-foot increment.

3.5 Watershed #4

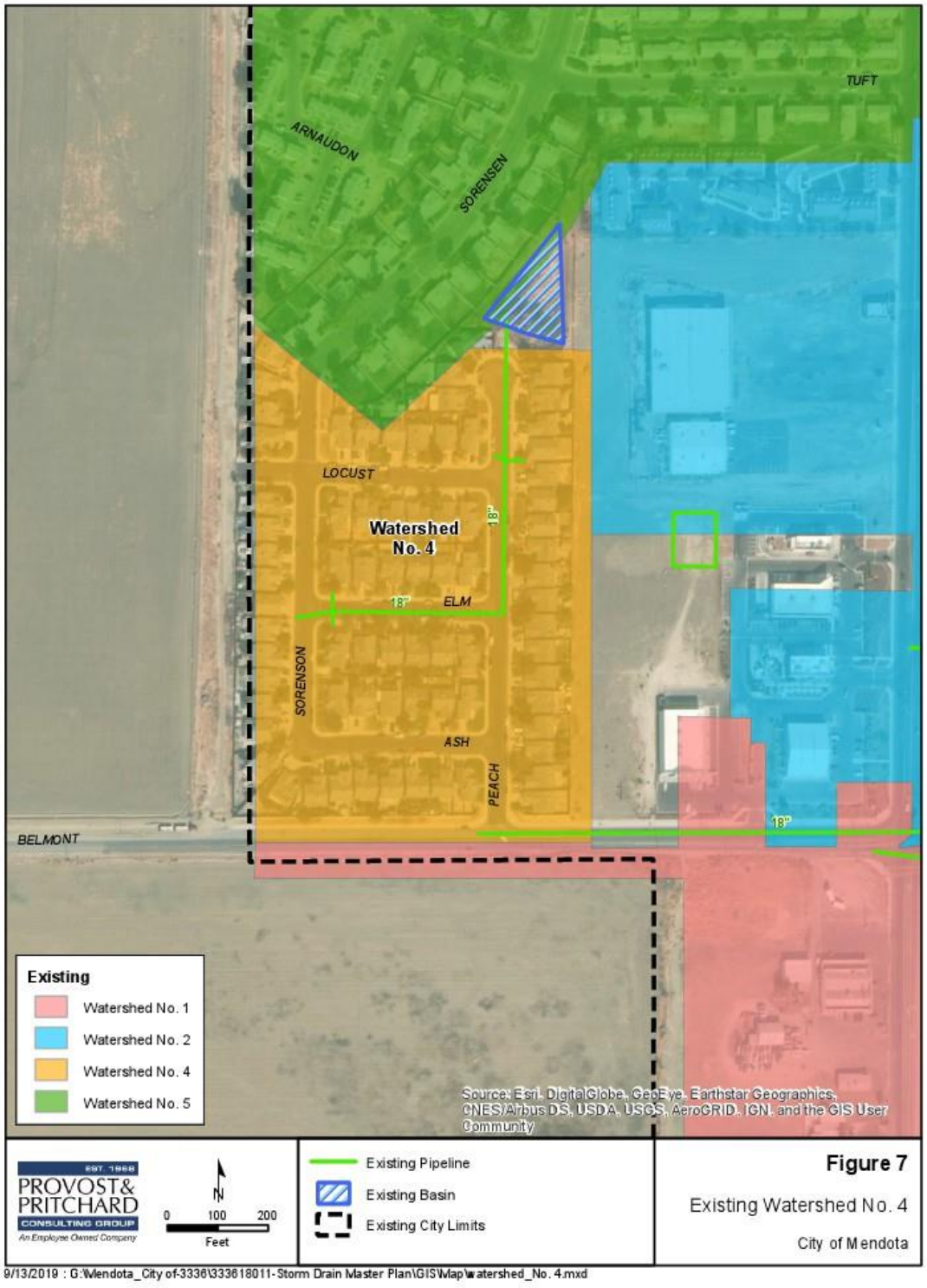
3.5.1 Hydrology

Watershed #4 (**Figure 11**) services approximately 15 acres of newer subdivision in the southwest portion of town. The watershed is bounded by limits of the subdivision and all storm drainage is collected via catch basins and conveyed in storm drain pipes that discharge to an on-site retention basin. In the unlikely event of the on-site basin overtopping, overland flow would most likely discharge into Watershed #2; however, the City has not had any issues with this basin.

3.5.2 Necessary Projects

Due to the Watershed's sufficient on-site storm water collection and retention system, no projects are recommended for this watershed at the time.

Figure 11. Existing Watershed No. 4



3.6 Watershed #5

3.6.1 Hydrology

Watershed #5 (**Figure 12**) services approximately 32 acres of the west side of town, including Fresno County offices, medium-high residential and a small area of Public Facilities.

The watershed is bounded geographically by portions of Highway 33 on the east, residences fronting Tuft Avenue and a portion of Sorenson Avenue on the south and southeast respectively, Smoot Avenue on the north and the City Limits on the west. Watershed #5 shares a portion of its southern border with Watershed #4, the remaining portion of the southern border as well as the eastern border are shared with Watershed #2 and the northern border is shared with Watershed #6 and Watershed #7 at the northeast corner. Land use in this watershed is primarily medium-high density residential.

Storm water in this watershed is collected near the intersection of Sorensen Avenue and Straw Street and pumped via a lift station and force main into the western gutter of Derrick Avenue in Watershed #7. Infrastructure was installed in Sorensen Avenue just north of Smoot so that the force main may be rerouted to the north and discharge into the eastern gutter of Sorensen Avenue, in Watershed #6.

3.6.2 Necessary Projects

The 4" force main is planned to be removed and the flow rerouted north along Sorenson, connecting to existing facilities cleanout located south of Smoot.

3.6.3 Summary of Costs

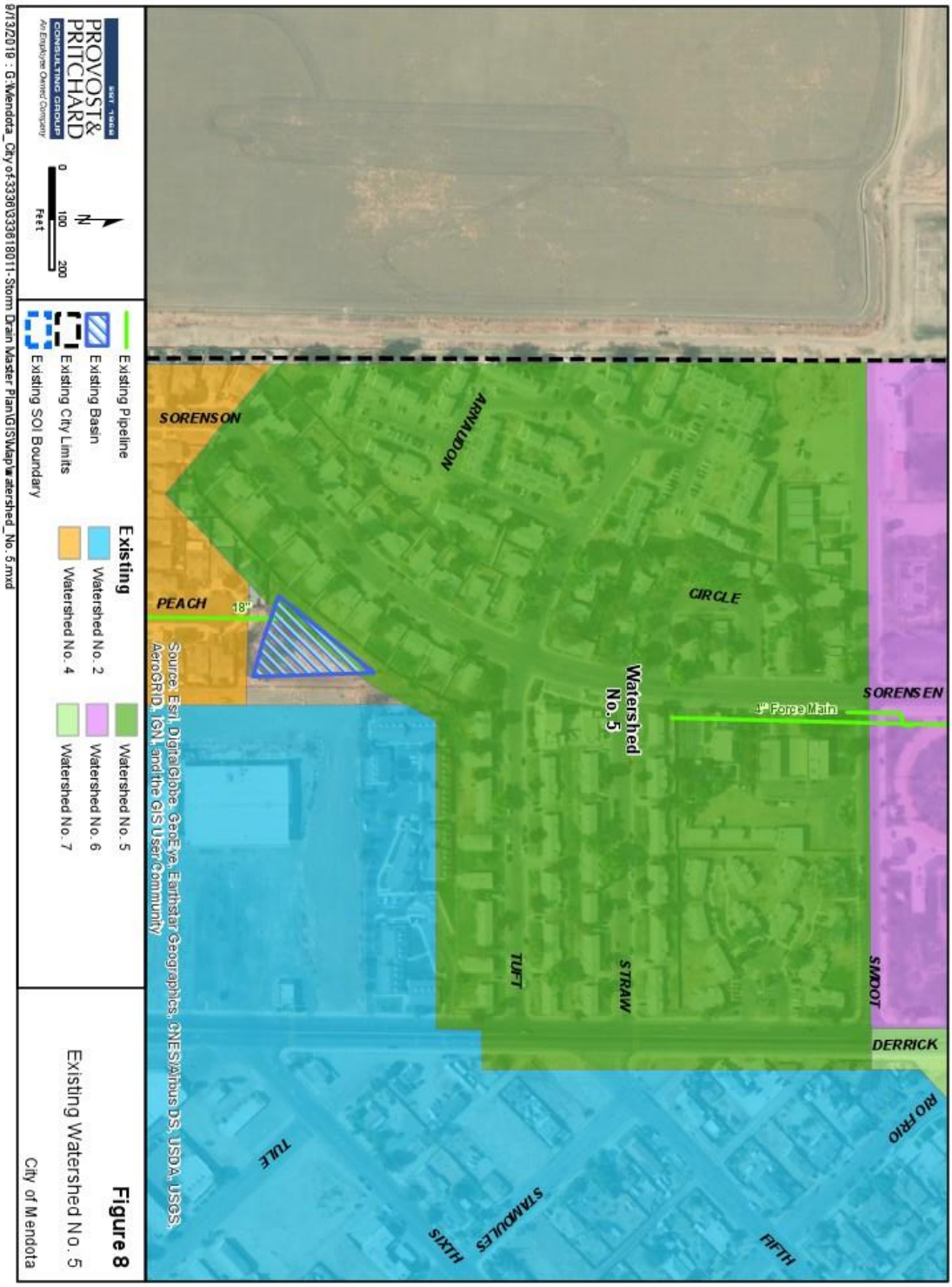
Below is a table of estimated quantities of storm drain infrastructure that would be required to construct the proposed capital improvements.

Table 3-2. Summary of Storm Drain Infrastructure Costs Watershed #5

Summary of Storm Drain Infrastructure Costs Watershed #5				
Description	Quantity[2]	Units	Unit Cost	Cost
General Contracting Requirements	1	LS	$57,500.00	$59,000
4" Force Main	500	LF	$700	$350,000
48" Manholes	4	EA	$6,000.00	$24,000
Connection to existing facilities	2	EA	$5,000	$10,000
			Contingency	15%
			Total:	$510,000

[2] All RCP quantities are estimates rounded to the nearest 25-foot increment.

Figure 12. Existing Watershed No. 5



3.7 Watershed #6

3.7.1 Hydrology

Watershed #6 (**Figure 13**) services approximately 160 acres of northwest Mendota, including Rojas-Pierce Park, McCabe Elementary School, the Mendota Unified School District Offices, and the Las Palmas subdivision. The watershed is bounded geographically by portions of Highway 33 and Sorensen Avenue on the east, the subdivision boundary and City Limits on the north, Amador Avenue (and City Limits) on the west and Smoot Avenue on the south. Watershed #6 shares its southern border with Watershed #5, and its eastern border with Watershed #7. Land use in this watershed is primarily medium density residential, recreational and public facilities.

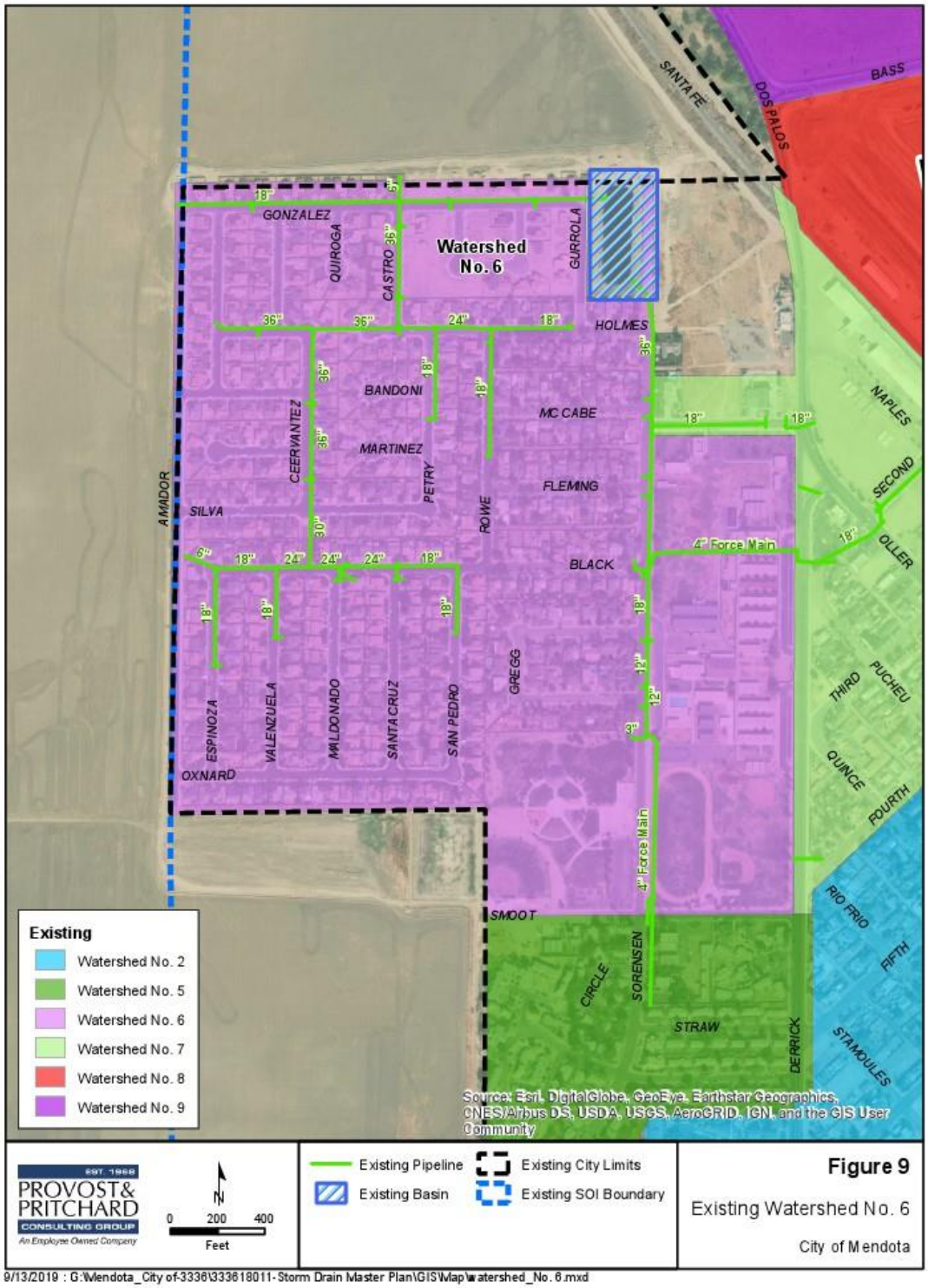
Stormwater from the watershed is collected in a series of catch basins and conveyed to a retention basin located at the northeast corner of the watershed via a network of gravity storm drain piping.

In the event that the retention basin begins exceeding capacity and backups in the piping, there is valve near the discharge into the basin that will prevent further discharge into the basin. Water will then back up in the Sorensen storm drain where it a lift station near Sorensen and Black pumps water through a force main east, under the school property to the western gutter of Derrick Avenue in Watershed #7. To date, the basin has not had capacity issues.

3.7.2 Necessary Projects

The watershed currently does not experience any known flooding issues and therefore no projects are recommended at this time, other than to ensure that the retention basin is adequately expanded with development.

Figure 13. Existing Watershed No. 6



3.8 Watershed #7

3.8.1 Hydrology

Watershed #7 (**Figure 14**) encompasses approximately 60 acres of the northern tip of downtown triangle. The watershed is bounded geographically by Highway 33 on the west, the Union Pacific Railroad on the northeast, and 4th Street on the southeast. Watershed #7 shares its western boundary with Watershed #6, northeastern boundary with Watersheds #8 and 10, as well as its southeastern boundary with Watershed #2. Land use in this watershed comprises a mix of Medium to Medium-High Density Residential, Industrial, Community Commercial and a small area of Public Facilities land use designations.

The majority of the storm water in this watershed makes its way to catch basins and a collection line located in 2nd Street via gutter flow and bubble ups. The collection line flows northeast within 2nd Street to a lift station located at the intersection of 2nd and Naples Streets. The lift station discharges to a force main that continues northeast across the railroad tracks and discharges into the westerly gutter in 2nd Street near its intersection with Marie Street in Watershed #8.

As mentioned in Section 1.3.3, the concentration point of this watershed at 2nd Street and Naples Street is prone to severe flooding.

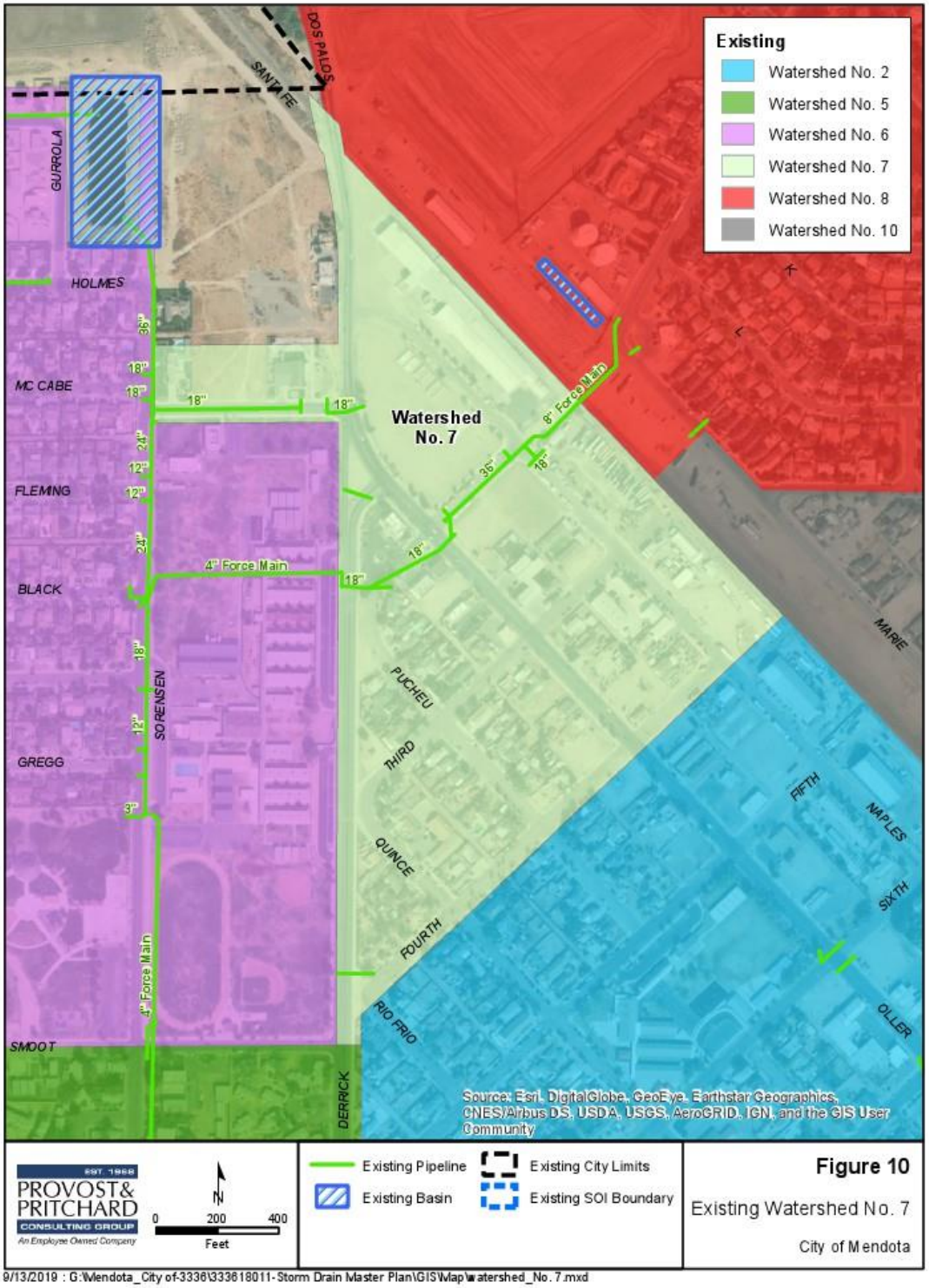
3.8.2 Necessary Projects

Much of the downtown flooding within this watershed occurs because the current lift station configuration is unable to drain storm water quickly enough to keep up with the incoming flow. Due to this imbalance, we are recommending that the City construct a detention basin adjacent to or upstream of the lift station in order to temporarily store the storm runoff so the lift station can drain it without flooding the roadway.

Since stormwater from Watershed #7 discharges into Watershed #8 and then the Bass Avenue Ditch and ultimately the pond at the Wastewater Treatment Plant, a different and permanent storm water retention solution will need to be implemented. As such, a capital project for expansion of the retention basins at the WWTP to address this need has been included below as part of the analysis for Watershed #8.

The City should try to work with Caltrans to incorporate this detention basin into Caltrans' SR33 & SR 180 Roundabout project that is programmed for construction in 2025.

Figure 14. Existing Watershed No. 7



3.8.3 Summary of Costs

Below is a table of estimated quantities of storm drain infrastructure that would be required to construct the proposed capital improvements.

Table 3-3. Summary of Storm Drain Infrastructure Costs Watershed #7

Summary of Storm Drain Infrastructure Costs Watershed #7				
Description	Quantity[3]	Units	Unit Cost	Cost
General Contracting Requirements	1	LS	$57,500.00	$57,500
Plug and Abandon Existing Drain Inlet/Outlet	4	EA	$1,500.00	$6,000
Detention Basin Excavation	4259	CY	$10.00	$42,590
6-Foot Cyclone Fencing	520	LF	$15.00	$7,800
24" Double Swing Gate	2	EA	$1,500.00	$3,000
Storm Drain Outfall Structure	1	EA	$80,000.00	$80,000
72" Storm Drain Standpipe	1	EA	$7,500.00	$7,500
36" Slide Gate	1	EA	$500.00	$500
General Contracting Requirements	1	LS	$235,000.00	$235,000
			Contingency	15%
			Total:	$505,000

3.9 Watershed #8

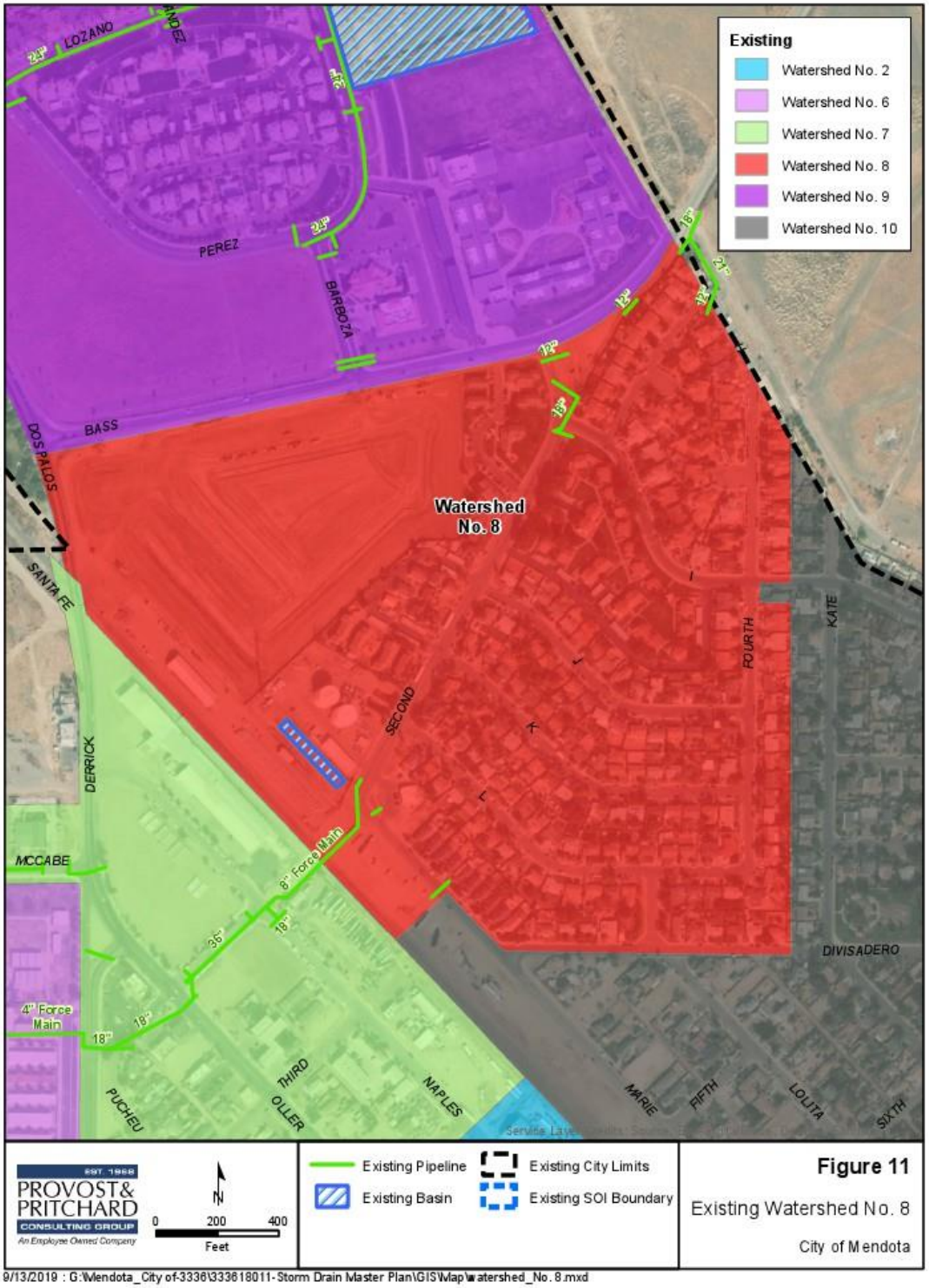
3.9.1 Hydrology

Watershed #8 (**Figure 15**) includes approximately 86 acres of northeast Mendota. The watershed is bounded geographically by portions of Marie Street and the Union Pacific Railroad on the southwest, Bass Avenue on the north, the rear of the lots along 4th Street on the east and Divisadero Street on the south. Watershed #8 shares its western boundary with Watershed #7, its northern boundary with Watershed #9 and its southeastern boundary with Watershed #10. Land use in this watershed comprises a mix of Medium to High Density Residential, Industrial, Community Commercial and Public Facility land use designations.

Most of the stormwater in this watershed flows overland via curbs and gutters to catch basins located near the intersection of I St and 2nd Street. Additionally, the discharge from the lift station located in Watershed #7 is discharged near the intersection of Marie Street and 2nd Street and flows northeast along the westerly gutter of 2nd Street to the aforementioned catch basins at the intersection of I Street. The La Colonia subdivision also has a storm drain system that joins with this system near 2nd Street and I Street. From this intersection runoff gravity flows in a buried pipe to an open channel ditch that runs northeast along the southerly side of Bass Avenue (the "Bass Avenue Ditch") to a retention pond in the northwest corner of the City's Wastewater Treatment Plant. The area north of I Street flows into two curb inlets at the northern tip of this watershed. This inlet is connected to the main pipe along Bass Avenue just before it discharges into the Bass Avenue Ditch.

[3] All RCP quantities are estimates rounded to the nearest 25-foot increment.

Figure 15. Existing Watershed No. 8



3.9.2 Necessary Projects

A storm drain line should be added in 2nd Street from Marie to I street to prevent current flooding. This improvement paired with the improvements recommended in Watershed #7 will illuminate the flooding in the area of 2nd and Naples.

3.9.3 Summary of Costs

Below is a table of estimated quantities of storm drain infrastructure that would be required to construct the proposed capital improvements.

Table 3-4. Summary of Storm Drain Infrastructure Costs Watershed #8

Summary of Storm Drain Infrastructure Costs Watershed #8				
Description	Quantity[4]	Units	Unit Cost	Cost
General Contracting Requirements	1	LS	$30,000	$30,000
18" RCP	1400	LF	$130.00	$182,000
48" Manholes	3	EA	$6,000.00	$18,000
			Contingency	15%
			Total:	$265,000

3.10 Watershed #9

3.10.1 Hydrology

Watershed #9 (**Figure 16**) services approximately 121 acres of northern Mendota. The watershed is bounded geographically by State Route 33 on the west, Bass Avenue on the south, by the rear line of the lots on the east side of Blanco Street (City Limits) on the east, and by the rear line of the lots on the north side of De La Cruz Street and the Firebaugh Canal District Intake Canal (City Limits) on the north. Watershed #9 shares its southern boundary with Watershed #8. Land use in this watershed comprises a mix of Medium to High Density Residential, Commercial and Public Facility land use designations.

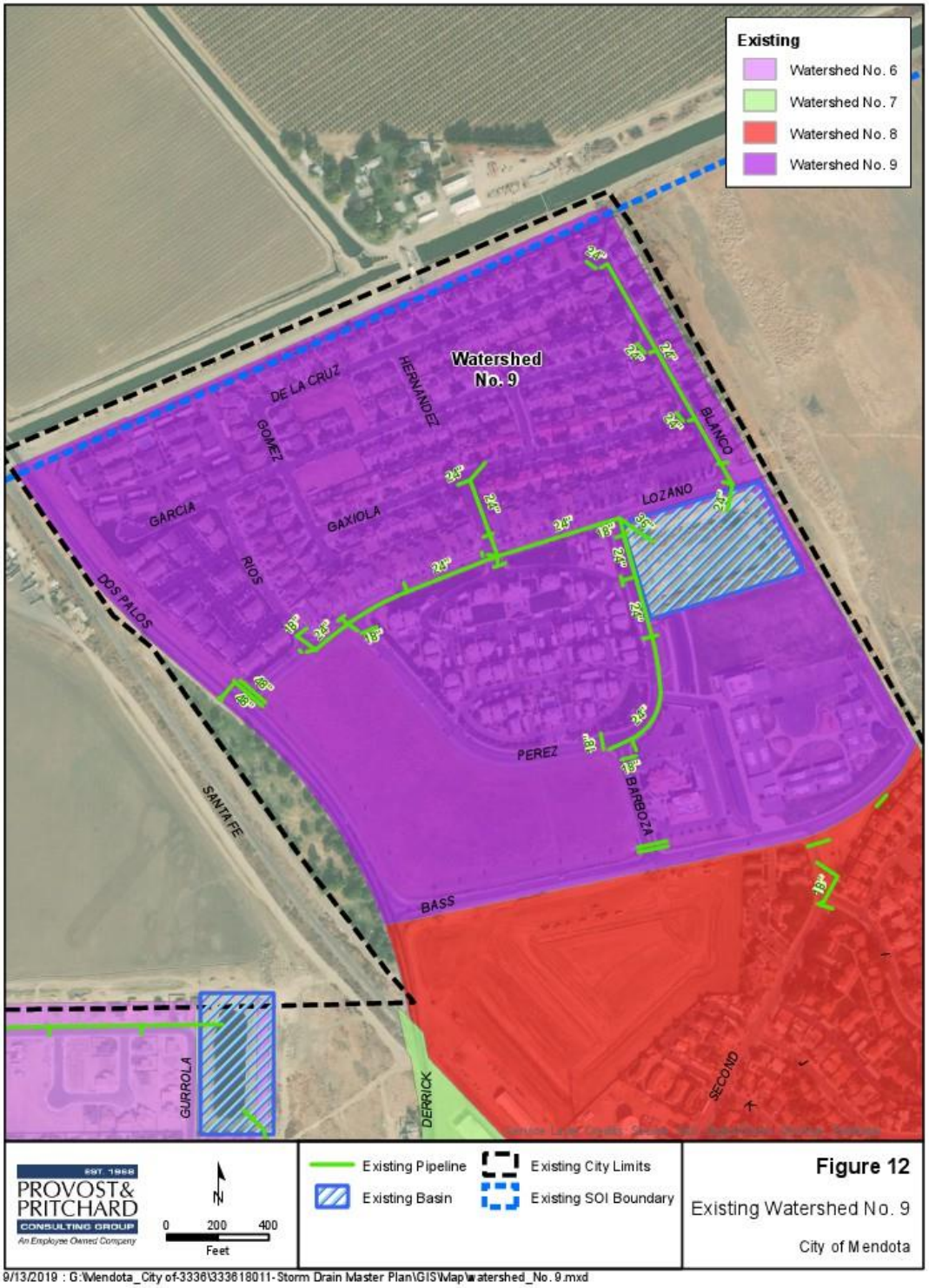
Stormwater in this watershed is collected via a series of catch basins and storm drain conveyance pipes and is routed to a local retention basin near the intersection of Perez Street and Lozano Street, north of the Mendota Elementary School. In very large storm events exceeding the capacity of the retention basin, overflow from the retention basin, or "breakover flow," would discharge into an earthen drainage channel built around the perimeter of the entire watershed, which functions as additional storage. The City has not had any stormwater management issues since this area has been developed.

3.10.2 Necessary Projects

The watershed currently does not experience any known flooding issues and therefore no projects are recommended at this time.

[4] All RCP quantities are estimates rounded to the nearest 25-foot increment.

Figure 16. Existing Watershed No. 9



3.11 Watershed #10

3.11.1 Hydrology

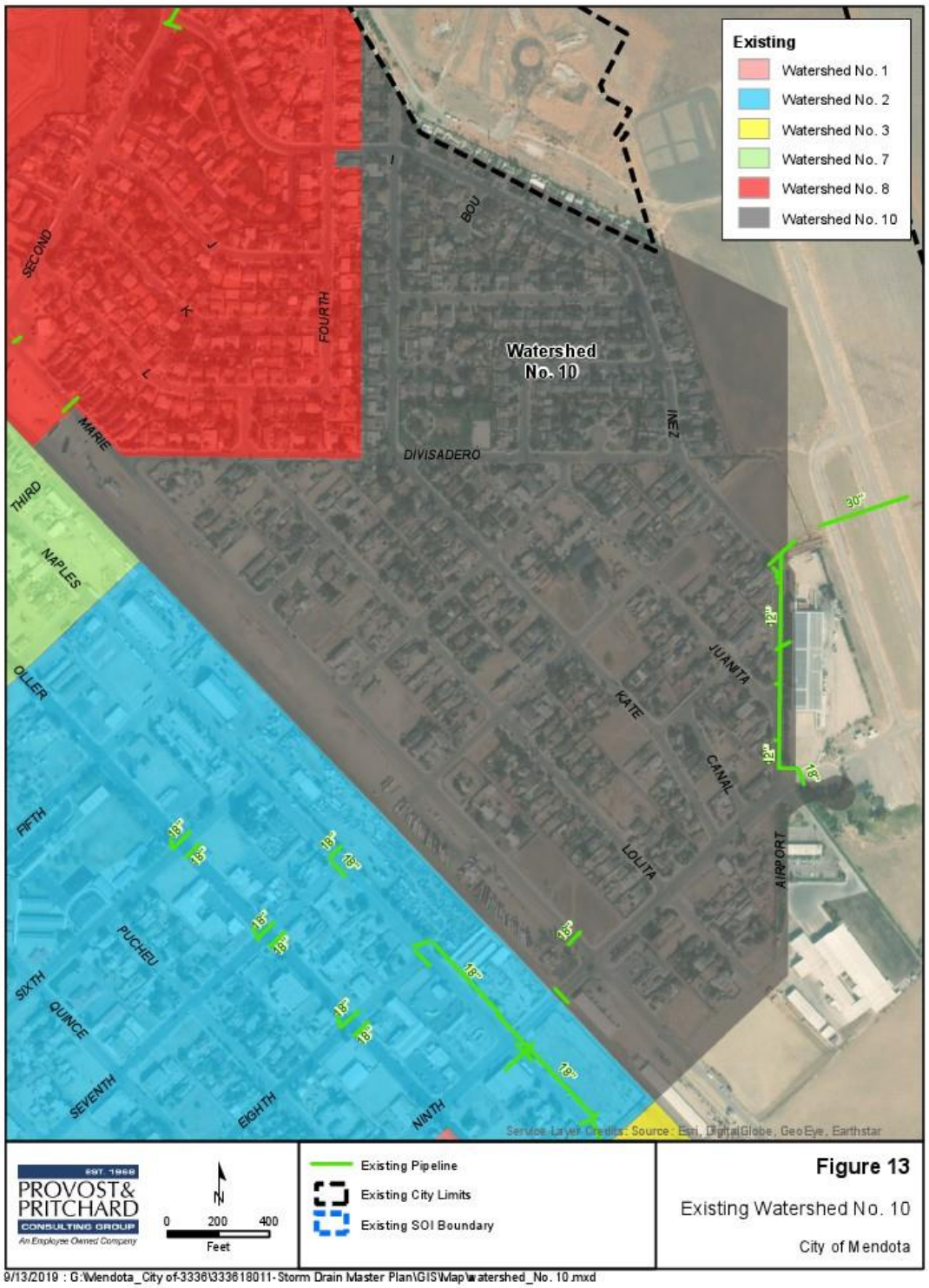
Watershed #10 (**Figure 17**) services approximately 136 acres of the eastern portion of the City. The watershed is bounded geographically by portions of Divisadero Street on the north, back of the lots facing Kate Street on the west, I Street on the northeast, Airport Boulevard on the east, 10th Street on the southeast, and the Southern Pacific Railroad on the west. Watershed #9 shares its southern boundary with Watershed #8. Land use in this watershed is comprised of a mix of Medium to Medium-High Density Residential, Industrial and Public Facilities land use designations.

The entire watershed drains to a series of curb inlets along Airport Boulevard that discharge runoff via a 30" pipe to a basin on the east side of the Mendota Airport runways. While not as severe or impactful as the flooding that occurs in Watersheds #2 or #7, the area near Inez and Airport Boulevard is prone to flooding.

3.11.2 Necessary Projects

The watershed currently does not experience any known flooding issues and therefore no projects are recommended at this time.

Figure 17. Existing Watershed No. 10



3.12 Drainage Zone #1

Drainage Zone #1 **(Figure 18**) is located in the north – northwest portion of the City Limits and is designated solely for Public/Quasi-Public Facility land use. Drainage Zone #1 is bound geographically by the Firebaugh Canal District Intake Canal on the northwest, the Union Pacific Railroad on the northeast and the Las Palmas subdivision on the south. The total area of the Drainage Zone is approximately 150 acres.

Due to the limited access to this land, development of this area into a school or other such Public/Quasi-Public Facility with high traffic circulation needs is not likely, nor is it likely to be become residential or commercial. There have been some discussions about the potential to transform this area into a large recreational space with basins and other features to manage storm water from Drainage Zones #1, #2, and #3. This would allow land in Drainage Zones #2 and #3 to be more fully used for their designated land uses (residential, commercial, future school site). While this option does have merit and should be considered when future development in these Drainage Zones is proposed, this SDMP does not explore this option. Consideration should also be given to the potential to deliver some of the collected runoff into the adjacent Firebaugh Canal District Intake Canal.

3.12.1 Hydrology

Per City Standards the weighted runoff coefficient (C') for this Drainage Zone was determined using the table below. The resulting analysis yielded a weighted runoff coefficient of 0.20, and the total required retention volume for Drainage Zone #1 is 20.1 acre-feet. Likewise, the peak flow rate was determined to be 8.6 cfs, using the values for the Rational method equation required per City Standards.

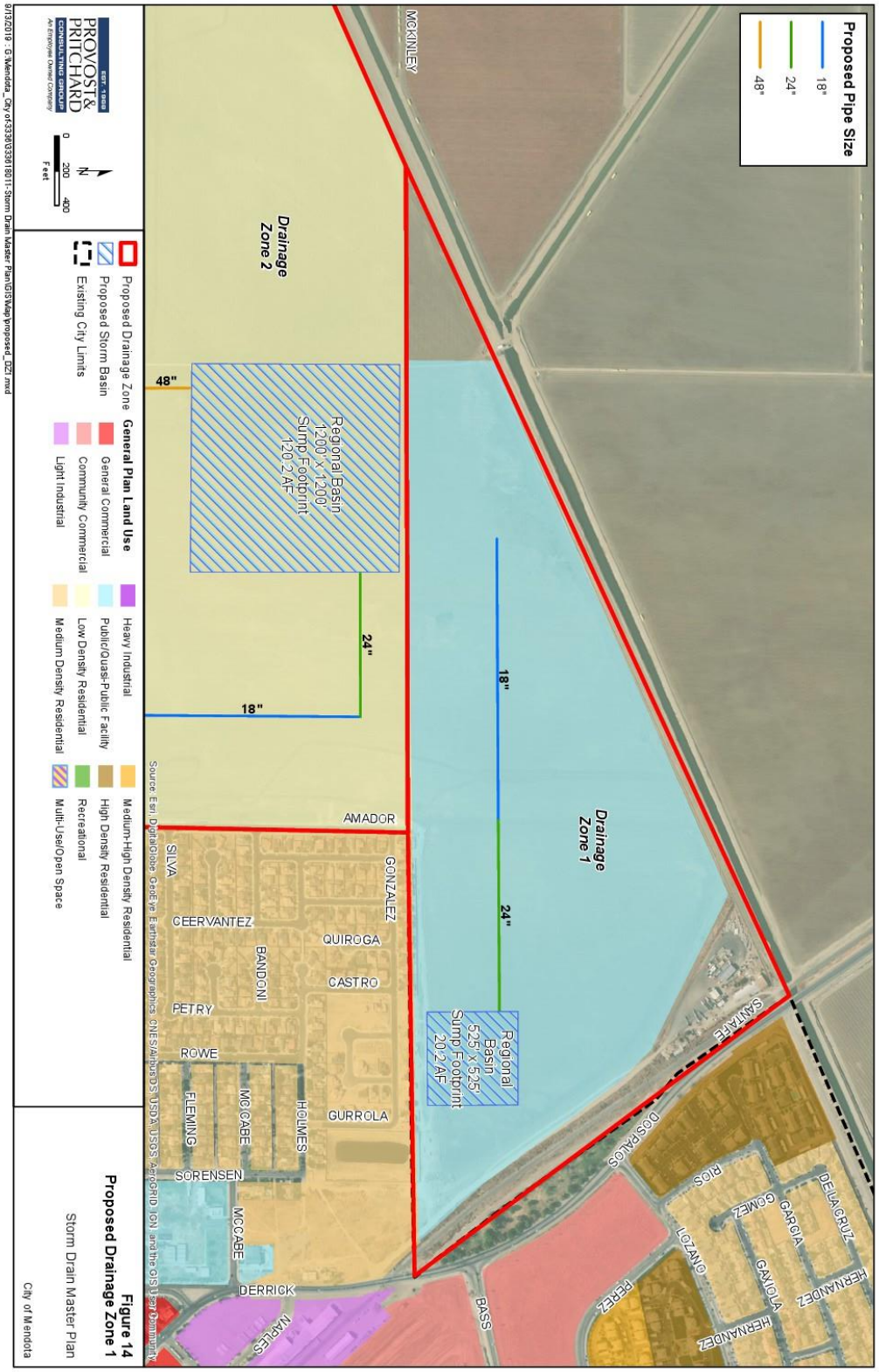
Table 3-5. Hydrology of Storm Drain Infrastructure Drainage Zone #1

Hydrology of Storm Drain Infrastructure Drainage Zone #1				
Land Use Type	Land Use Coefficient, C	Area, A (acres)	C x A (acres)	**Volume=C'iA** (acre-feet)
Single Family Residential	0.30	—		
Commercial	0.70	—		
Industrial	0.80	—		
Multi-Family Residential	0.55	—		
Open Space/Parks	0.20	150	30	
Weighted Runoff Coefficient (C')	0.2			
Totals		150	30	20.1

3.12.2 Collection Facilities

The master planned collection facilities for this Drainage Zone includes 18-inch and 24-inch diameter trunk lines that were sized based on the flow accumulated from assumed upstream sub-areas within the watershed. The main trunks in this Drainage Zone are proposed to flow east to west, parallel to the McKinley Avenue alignment (**Figure 18**) to a proposed retention basin.

Figure 18. Proposed Drainage Zone 1



3.12.3 Retention Storage

Using the Retention Basin Storage Requirements outlined in Section 2.2.3, the Drainage Zone's designated land use and acreage were used to determine the volume of runoff to be retained in the basin as shown in Table 3-5. Regional Basin #1 has a designed footprint of 525 feet by 525 feet, which represents 4.2 percent of the Drainage Zone's total gross area and includes area for side slopes and access roads.

3.12.4 Disposal

Disposal of storm water in this Drainage Zone will be to a retention basin, where it will be dissipated primarily via evaporation. The Intake Canal (northwest of Drainage Zone) was also considered as an option for draining collected water so that the pond could be designed as a detention basin, however it is an unlikely that permission to discharge water into that facility could be obtained to pump water into after storm events and therefore not included in this plan. However, it may be possible to discharge into the Intake Canal during the Spring when flooding is not a concern.

Drainage Zone #1's planned breakover, or overland escape route from the retention basin, (**Figure 18**) would d be to the east towards the Union Pacific Railroad tracks. From the railroad tracks any overland flow would most likely make its way southeast to Existing Watershed #6's retention basin, which is in close proximity.

3.12.5 Necessary Projects

As discussed in the Collection Facilities section, Drainage Zone #1 will have one main trunk conveying storm water from various collection points within the watershed to the proposed retention basin. The proposed conveyance system comprises of 1,625 linear feet (LF) of 18-inch RCP and 1,100 LF of 24-inch RCP. It is estimated that eight (8) manholes will be required for this trunk line, as well as one (1) outlet structure for discharge into the retention basin. Additionally, an estimated 6.3 acres of land will need to be dedicated to the City for the retention basin.

3.12.6 Summary of Costs

Table 3-6. Summary of Storm Drain Infrastructure Costs Drainage Zone #1

Summary of Storm Drain Infrastructure Costs Drainage Zone #1				
Description	Quantity[5]	Units	Unit Cost	Cost
General Contracting Requirements	1	LS	$18,000.00	$118,000
18" RCP	1,625	LF	$130.00	$211,000
24" RCP	1,100	LF	$170.00	$187,000
48" Manholes	8	EA	$6,000.00	$48,000
48" Outlet Structures	1	EA	$15,000.00	$15,000
Land Dedication	6.5	Acres	$15,000.00	$97,500
Clearing and Grubbing	6.5	Acres	$2,000.00	$13,000

[5] All RCP quantities are estimates rounded to the nearest 25-foot increment.

Retention Basin Excavation	70,000	CY	$7.50	$525,000
Chain Link Fencing with Slats and Gate	2,100	LF	$28.00	$59,000
			Contingency	15%
			Total:	$1,535,000

3.12.7 Permitting

It appears that no major roads, canals, or other apparent rights-of-ways that would require easements and/or permits are to be crossed for Drainage Zone #1. However, this topic should be revisited at the time of design and construction.

3.13 Drainage Zone #2

Drainage Zone #2 (**Figure 19**) is located in the western portion of the City Limits and is designated primarily for Low Density Residential, with about five percent (5%) designated for Community Commercial. Drainage Zone #2 is bound geographically by the future Firebaugh Canal District Intake Canal and McKinley Avenue alignment on the north, Existing Watershed #6 and Drainage Zone #3 on the east, West Belmont Avenue on the south and the proposed Sphere of Influence on the west. The total area of the Drainage Zone is approximately 552.6 acres.

3.13.1 Hydrology

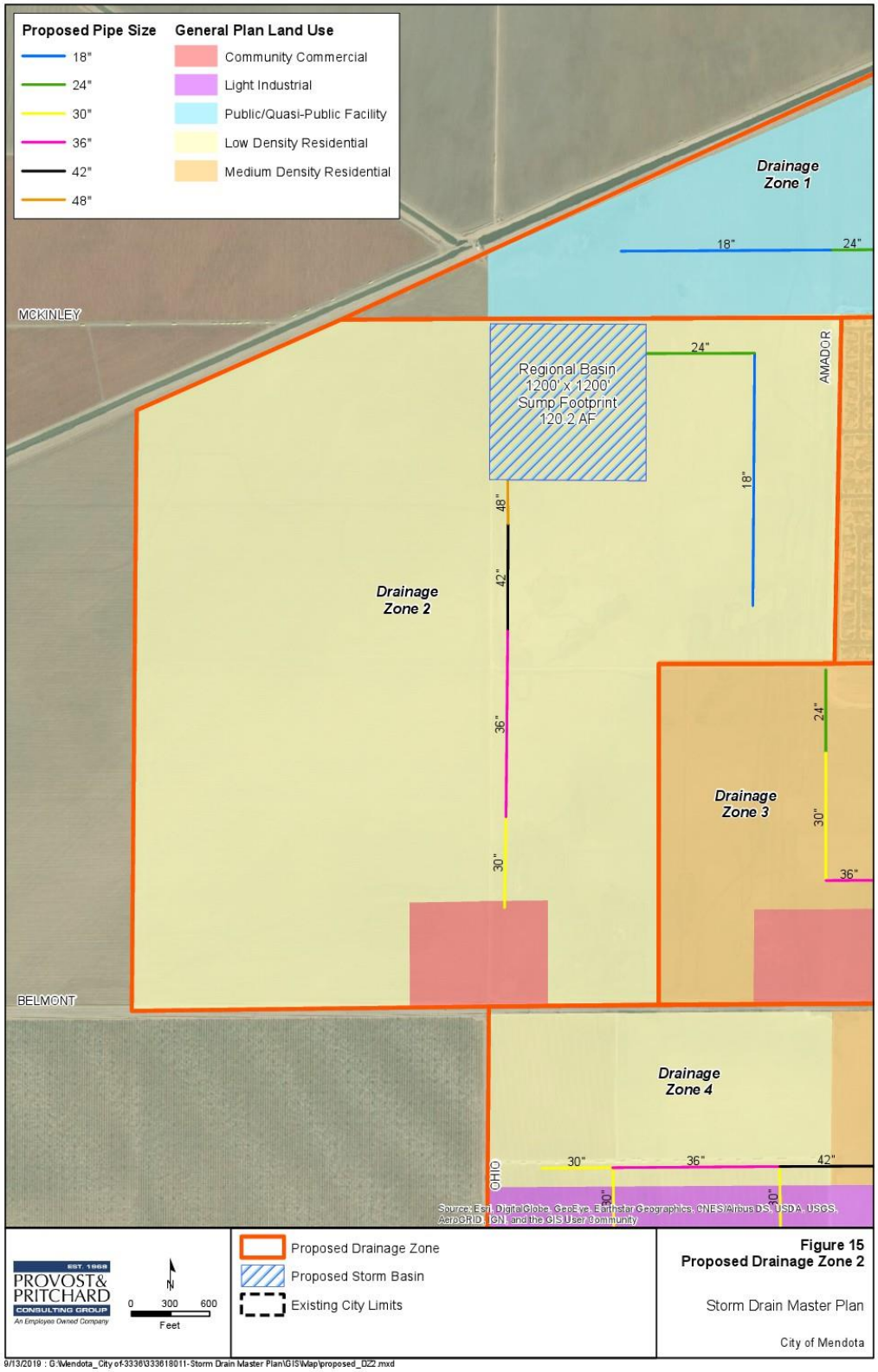
Per City Standards the weighted runoff coefficient (C') for the Drainage Zone was determined using the table below. The resulting analysis yielded a weighted runoff coefficient of 0.31, and the total required retention volume for Drainage Zone #1 is 114.9 acre-feet.

The Drainage Zone was divided into two (2) watersheds which both drain to the proposed retention basin via storm drain trunk lines. The peak flow rate for the primary trunk line was determined to be 41.75 cfs and 8.18 cfs for the secondary trunk line, using the values for the Rational method equation required per City Standards.

Table 3-7. Hydrology of Storm Drain Infrastructure Drainage Zone #2

Hydrology of Storm Drain Infrastructure Drainage Zone #2				
Land Use Type	Land Use Coefficient, C	Area, A (acres)	C x A (acres)	**Volume=C'iA** (acre-feet)
Single Family Residential	0.30	532	159.6	
Commercial	0.70	20.6	14.4	
Industrial	0.80	—		
Multi-Family Residential	0.55	—		
Open Space/Parks	0.20	—		
Weighted Runoff Coefficient (C')	0.31			
Totals		552.6	174.0	114.9

Figure 19. Proposed Drainage Zone 2



3.13.2 Collection Facilities

The Drainage Zone will have two storm water collection trunks that have been sized based on accumulated upstream flow of assumed sub-area drainage regions. The main trunk in this Drainage Zone will run from south to north along the North Ohio Avenue alignment and originates as a 30" pipe and increases to a 48" pipe before discharging into the retention basin.

The second smaller trunk to the east will run south to north before turning west and discharging into the retention basin. The secondary trunk line originates as an 18" and increases to a 30" before discharging into the retention basin.

3.13.3 Retention Storage

Using the Retention Basin Storage Requirements outlined in Section 2.2.3, the Drainage Zone's designated land use and acreage was used to determine basin sizing, as shown in Table 3-7. Regional Basin #2 is located in Drainage Zone #2 and has a designed footprint of 1,200 feet x 1,200 feet, which represents approximately 6% of the Drainage Zone's total area and includes area for side slopes and access roads around the basin.

3.13.4 Disposal

Disposal of storm water from the retention basin in this Drainage Zone will primarily be via evaporation. The Intake Canal which borders a small portion of the northwest part of the Drainage Zone was also considered as a relief option so that the basin could be designed as a detention basin rather than a retention basin, however it is an unlikely to be approved to receive pumped runoff water after storm events and therefore not included as an option in this plan. However, it may be possible to discharge into the Intake Canal during the Spring when there are not concerns of flooding in order to pump the basins dry.

Drainage Zone #2s planned "breakover" overland escape route from the retention basin (**Figure 19**) would be into Drainage Zone #1, to the east along the McKinley Avenue alignment, towards the Union Pacific Railroad tracks. From the railroad tracks any overland flow would most likely make its way southeast to Existing Watershed #6's retention basin, which is in close proximity.

3.13.5 Necessary Projects

As discussed in the Collection Facilities section, Drainage Zone #2 will have two main trunks conveying storm water from various collection points throughout the watershed to the proposed retention basin (**Figure 19**). The primary conveyance trunk is approximately 3,250 linear feet out-letting into the southern end of the proposed retention basin and the secondary trunk is approximately 2,750 linear feet and outlets into the basin's east side.

It is estimated that 16-manholes will be required for these trunk lines, as well as two (2) outlet structures for discharge into the retention basin. Additionally, an estimated 33.1 acres of land will need to be dedicated to the City for the retention basin.

3.13.6 Summary of Costs

Table 3-8. Summary of Storm Drain Infrastructure Costs Drainage Zone #2

Summary of Storm Drain Infrastructure Costs Drainage Zone #2				
Description	Quantity[6]	Units	Unit Cost	Cost
General Contracting Requirements	1	LS	$140,000.00	$742,000
18" RCP	1,250	LF	$130.00	$163,000
24" RCP	1,525	LF	$150.00	$229,000
30" RCP	700	LF	$170.00	$119,000
36" RCP	1,425	LF	$190.00	$271,000
42" RCP	825	LF	$255.00	$210,000
48" RCP	325	LF	$350.00	$114,000
48" Manholes	12	EA	$6,000.00	$72,000
60" Manholes	4	EA	$9,000.00	$36,000
60" Outlet Structures	2	EA	$17,000.00	$34,000
Land Dedication	33.1	Acres	$15,000.00	$496,500
Clearing and Grubbing	33.1	Acres	$2,000.00	$66,200
Retention Basin Excavation	400,000	CY	$7.50	$3,000,000
Chain Link Fencing with Slats and Gate	4,800	LF	$28.00	$134,000
			Contingency	15%
			Total:	$6,540,000

3.13.7 Permitting

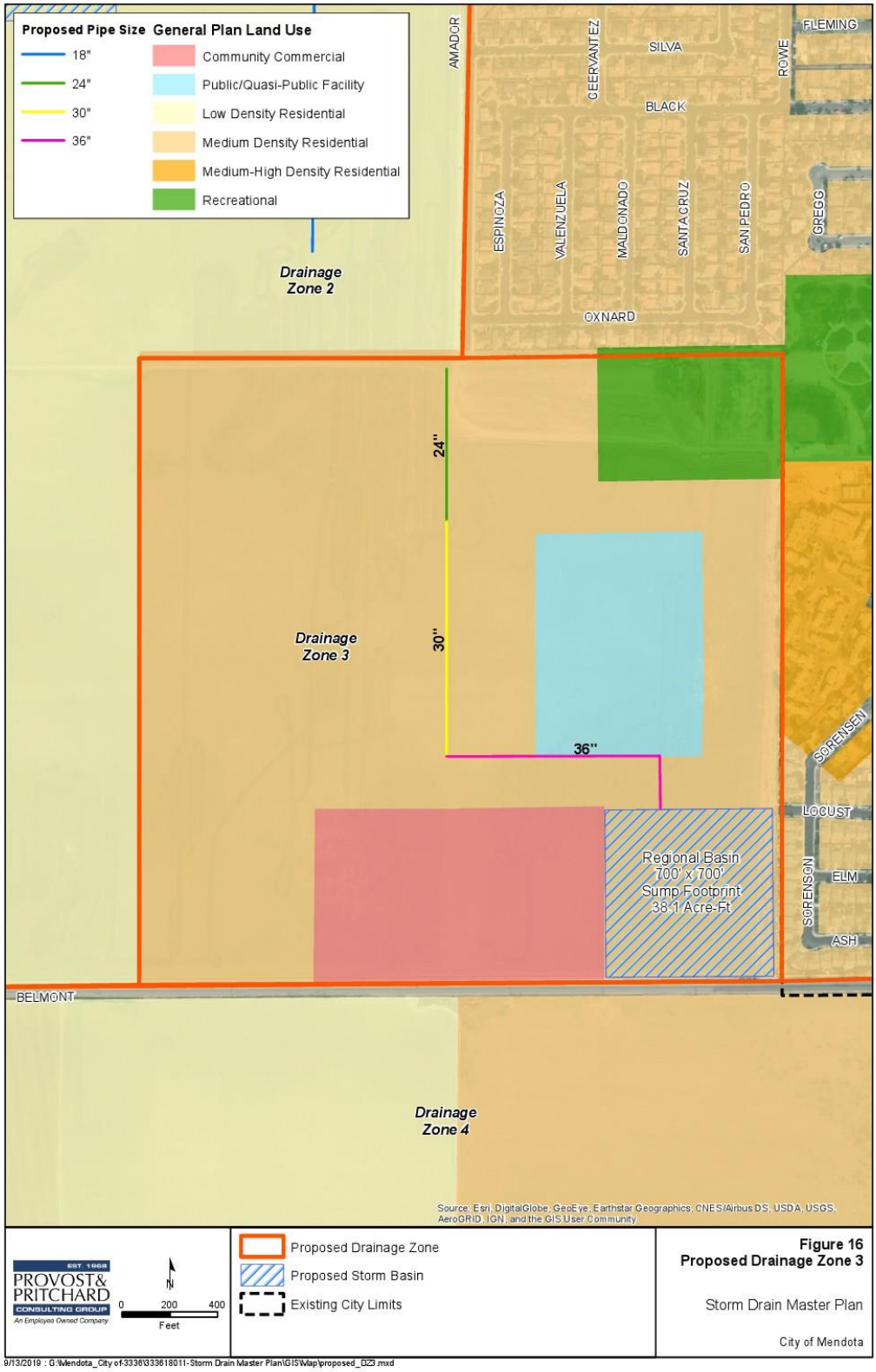
No major roads, canals, or other apparent rights-of-ways that would require easements and/or permits are to be crossed for Drainage Zone #2. However, this topic should be revisited at the time of design and construction.

3.14 Drainage Zone #3

Drainage Zone #3 (**Figure 20**) is located in the western portion of the City Limits and is designated largely for Medium Density Residential, but also contains significant portions of Commercial, Recreational and Public Facility. Drainage Zone #3 is bound geographically by the Las Palmas subdivision on the north, another residential subdivision on the east, West Belmont Avenue on the south and Drainage Zone #2 on the west. The total area of the Drainage Zone is approximately 162.5 acres.

[6] All RCP quantities are estimates rounded to the nearest 25-foot increment.

Figure 20. Proposed Drainage Zone 3



3.14.1 Hydrology

Drainage Zone #3 contains multiple land use designations. While the majority is designated Medium Density Residential, there are also significant portions of Commercial, Recreational, and Public Facility land use designations. Given a total footprint of 162.5 acres and a weighted runoff coefficient of 0.33, the total required retained runoff capacity for Drainage Zone #3 is 36.0 acre-feet. Likewise, the peak flow rate was determined to be 16.5 cfs, using the values for the Rational method equation required per City Standards.

Table 3-9. Hydrology of Storm Drain Infrastructure Drainage Zone #3

Hydrology of Storm Drain Infrastructure Drainage Zone #3				
Land Use Type	Land Use Coefficient, C	Area, A (acres)	C x A (acres)	**Volume=C'iA** (acre-feet)
Single Family Residential	0.30	117.5	35.3	
Commercial	0.70	20.4	14.3	
Industrial	0.80	—		
Multi-Family Residential	0.55	—		
Open Space/Parks	0.20	24.6	4.9	
Weighted **Runoff Coefficient (C')**	0.33			
Totals		162.5	54.5	36.0

3.14.2 Collection Facilities

The master planned collection facilities for this Drainage Zone includes a trunk line that ranges from 24" to 36" that was sized based on the flow accumulated from assumed upstream sub-areas within the watershed. The trunk line in this Drainage Zone is proposed to flow north to south along the future Amador Avenue alignment (**Figure 20**) to the proposed retention basin.

3.14.3 Retention Storage

Using the Retention Basin Storage Requirements outlined in Section 2.2.3, the Drainage Zone's designated land use and acreage were used to determine basin sizing, as shown on Table 3-9. Regional Basin #3 has a designed footprint of 700-feet x 700-feet, which represents 6.9% percent of the Drainage Zone's total gross area and includes area for side slopes and access roads.

3.14.4 Disposal

Disposal of storm water from the retention basin in this Drainage Zone will primarily be via evaporation. There are no canals in close proximity to the retention basin in this Drainage Zone to consider for alternative outlets, and so no possibility of converting the retention basin to a detention basin.

Drainage Zone #3s planned overland escape route from the retention basin (**Figure 20**) would be to the east along the Belmont Avenue and into the existing storm water collection and ultimately into the San Luis Drain or its replacement. Alternatively, the escape route could be designed to the north along Amador Avenue into Drainage Zone 2.

3.14.5 Necessary Projects

As discussed in the Collection Facilities section, Drainage Zone #3 will have one main trunk conveying storm water from various collection points within the watershed to the proposed retention basin. The proposed conveyance system comprises 650 lf of 24-inch RCP; 975 lf of 30-inch RCP and 1,050 lf of 36-inch RCP. It is estimated that three (3) 48" diameter manholes and six (6) 60" diameter manholes will be required for this trunk line, as well as one (1) outlet structure for discharge into the retention basin. Additionally, an estimated 11.5 acres of land will be required for the retention basin.

3.14.6 Summary of Costs

Table 3-10. Summary of Storm Drain Infrastructure Costs Drainage Zone #3

Summary of Storm Drain Infrastructure Costs Drainage Zone #3				
Description	Quantity[7]	Units	Unit Cost	Cost
General Contracting Requirements	1	LS	$270,000.00	$270,000
24" RCP	650	LF	$150.00	$98,000
30" RCP	975	LF	$170.00	$166,000
36" RCP	1,050	LF	$190.00	$200,000
48" Manholes	3	EA	$6,000.00	$18,000
60" Manholes	6	EA	$9,000.00	$54,000
48" Outlet Structures	1	EA	$15,000.00	$15,000
Land Dedication	11.5	Acres	$15,000.00	$172,500
Clearing and Grubbing	11.5	Acres	$2,000.00	$23,000
Retention Basin Excavation	130,000	CY	$7.50	$975,000
Chain Link Fencing with Slats and Gate	2,800	LF	$28.00	$78,000
			Contingency	15%
			Total:	$2,380,000

3.14.7 Permitting

No major roads, canals, or other apparent rights-of-ways that would require easements and/or permits are to be crossed for Drainage Zone #3. However, this topic should be revisited at the time of design and construction.

[7] All RCP quantities are estimates rounded to the nearest 25-foot increment.

3.15 Drainage Zone #4

Drainage Zone #4 (**Figure 21**) is located in the western portion of the proposed Sphere of Influence and is designated primarily for Light Industrial land use, as well as some Low and Medium Density Residential and a small portion of Community Commercial. Drainage Zone #4 is bound geographically by West Belmont Avenue on the north, State Route 33 on the east, and North Ohio Avenue on the west. The southern boundary of the watershed runs parallel to and ½-mile south of West Belmont Avenue. The total area of the Drainage Zone is approximately 325 acres.

3.15.1 Hydrology

Per City Standards the weighted runoff coefficient for the Drainage Zone was determined using the table below. The resulting analysis yielded a weighted runoff coefficient of 0.56, and the total required retention volume for Drainage Zone #4 is 122.2 acre-feet. Likewise, the peak flow rate was determined to be 67.1 cfs, using the values for the Rational method equation required per City Standards.

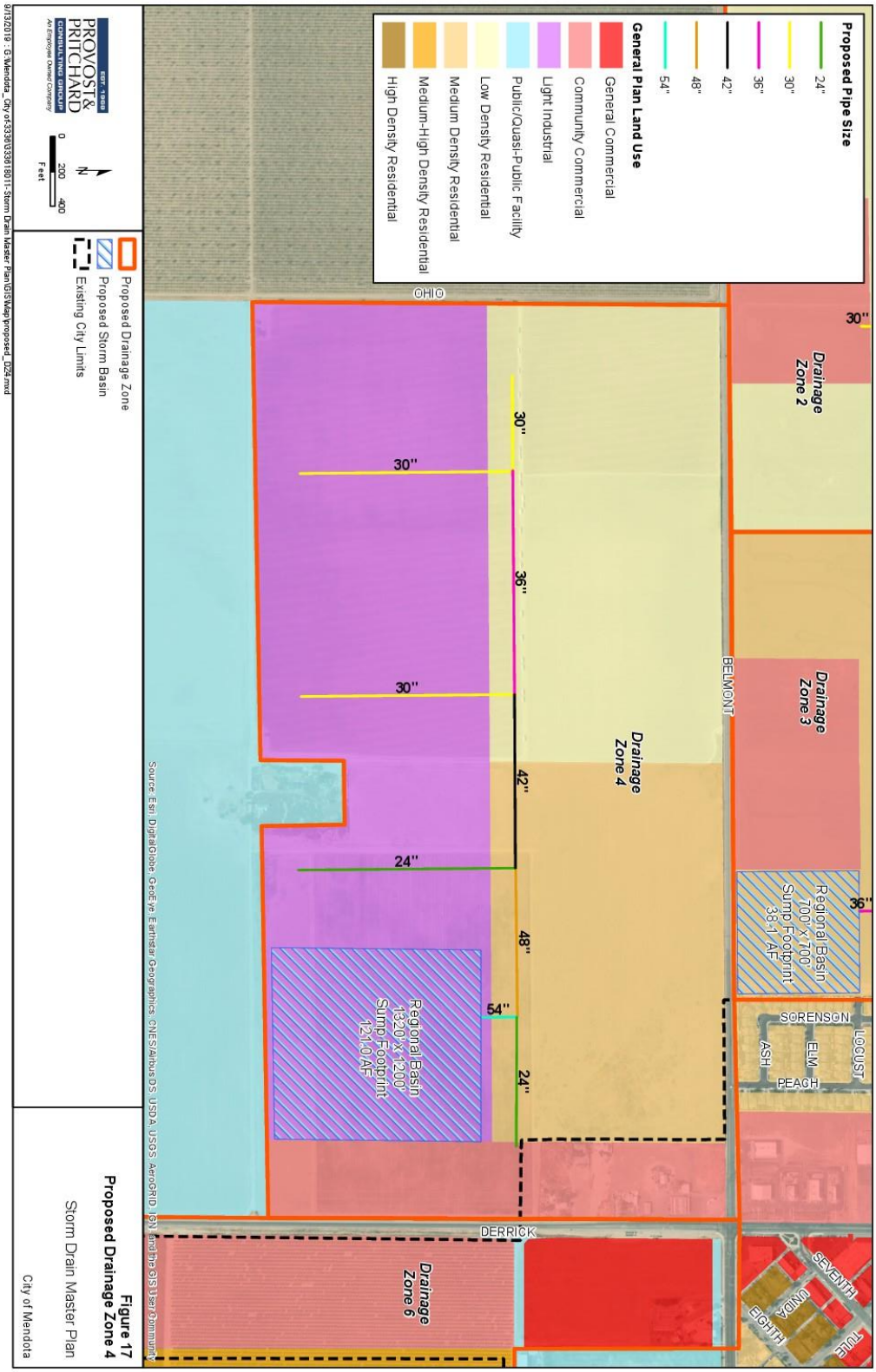
Table 3-11. Hydrology of Storm Drain Infrastructure Drainage Zone #4

Hydrology of Storm Drain Infrastructure Drainage Zone #4				
Land Use Type	Land Use Coefficient, C	Area, A (acres)	C x A (acres)	**Volume=C'iA** (acre-feet)
Single Family Residential	0.30	151.5	45.4	
Commercial	0.70	28.9	20.2	
Industrial	0.80	145.0	116.0	
Multi-Family Residential	0.55	—		
Open Space/Parks	0.20	—		
Weighted Runoff Coefficient (C')	0.56			
Totals		325.4	181.6	122.2

3.15.2 Collection Facilities

The master planned collection facilities for this Drainage Zone includes a trunk line that ranges from 24" to 54" that was sized based on the flow accumulated from assumed upstream sub-areas within the watershed. The trunk line in this Drainage Zone is proposed to primarily flow west to east along an alignment approximately ¼-mile south of West Belmont Avenue (**Figure 21**) to the proposed retention basin. There are three proposed branches that are proposed to flow south to north and discharge into the primary trunk. These would all originate within the industrial land use portion of the Drainage Zone. Additionally, there is a fourth branch that would originate in the commercial zone on the east side of the Drainage Zone and flow west before joining the primary trunk and discharging into the retention basin.

Figure 21. Proposed Drainage Zone 4



3.15.3 Retention Storage

Using the Retention Basin Storage Requirements outlined in Section 2.2.3, the Drainage Zone's designated land use and acreage were used to determine basin sizing, as shown in Table 3-11. Regional Basin #4 is located near the southeast corner of the Drainage Zone and has a designed footprint of 1320-feet by 1200-feet, which represents 11.2% of the Drainage Zone's total gross area and includes area for side slopes and access roads.

3.15.4 Disposal

Disposal of storm water from the retention basin in this Drainage Zone will primarily be via evaporation. There are no canals in close proximity to the retention basin in this Drainage Zone to consider for alternative outlets, and so there is no possibility of converting the retention basin to a detention basin.

Drainage Zone #4's overland escape from the retention basin would be to the Northeast and would flow towards Belmont Avenue and into existing Watershed #1's footprint.

3.15.5 Necessary Projects

As discussed in the Collection Facilities section, Drainage Zone #4 will have one (1) primary trunk and four (4) branches conveying storm water from various collection points within the watershed to the proposed retention basin. The proposed conveyance system is comprised of 1,450 lf of 24-inch RCP; 3,525 lf of 30-inch RCP; 1,300 lf of 36-inch RCP; 1,000 lf of 42-inch RCP; 850 lf of 48-inch RCP and 200 lf of 54-inch RCP. It is estimated that four (4) 48" diameter manholes and 14 - 60" diameter manholes and one (1) 72" manhole will be required for the proposed collection system, as well as one (1) outlet structure for discharge into the retention basin. Additionally, an estimated 36.4 acres of land will need to be dedicated to the City for the retention basin.

3.15.6 Summary of Costs

Table 3-12. Summary of Storm Drain Infrastructure Costs Drainage Zone #4

Summary of Storm Drain Infrastructure Costs Drainage Zone #4				
Description	Quantity[8]	Units	Unit Cost	Cost
General Contracting Requirements	1	LS	$894,000.00	$894,000
24" RCP	1,450	LF	$150.00	$218,000
30" RCP	3,525	LF	$170.00	$600,000
36" RCP	1,300	LF	$190.00	$247,000
42" RCP	1,000	LF	$255.00	$255,000
48" RCP	850	LF	$350.00	$298,000
54" RCP	200	LF	$440.00	$88,000
48" Manholes	4	EA	$6,000.00	$24,000
60" Manholes	14	EA	$9,000.00	$126,000
72" Manholes	1	EA	$21,000.00	$21,000
72" Outlet Structures	1	EA	$20,000.00	$20,000
Land Dedication	36.4	Acres	$15,000.00	$546,000
Clearing and Grubbing	36.4	Acres	$2,000.00	$72,800
Detention Basin Excavation	440,000	CY	$7.50	$3,300,000
Chain Link Fencing with Slats and Gate	5,040	LF	$28.00	$141,000
			Contingency	15%
			Total:	$7,879,000

3.15.7 Permitting

No major roads, canals, or other apparent rights-of-ways that would require easements and/or permits are to be crossed for Drainage Zone #4. However, this topic should be revisited at the time of design and construction.

[8] All RCP quantities are estimates rounded to the nearest 25-foot increment.

3.16 Drainage Zone #5

Drainage Zone #5 (**Figure 22**) is located in the southern portion of the City and is designated primarily for Industrial land use. Drainage Zone #5 is bound geographically by West Panoche Avenue on the south, State Route 33 on the west, and the future West Whitesbridge Avenue alignment (about one mile south of Belmont) on the north. The eastern boundary of the watershed runs parallel to and ½-mile east of State Route 33. Drainage Zone #5 shares its north boundary with Drainage Zone #6 and its east boundary with Drainage Zone #7. The total area of the Drainage Zone is approximately 280 acres.

3.16.1 Hydrology

Per City Standards the weighted runoff coefficient for the Drainage Zone was determined using the table below. The resulting analysis yielded a weighted runoff coefficient of 0.80, and the total required retention volume for Drainage Zone #5 is 150.5 acre-feet. Likewise, the peak flow rate was determined to be approximately 95 cfs, using the values for the Rational method equation required per City Standards.

Table 3-13. Hydrology of Storm Drain Infrastructure Drainage Zone #5

Hydrology of Storm Drain Infrastructure Drainage Zone #5				
Land Use Type	Land Use Coefficient, C	Area, A (acres)	C x A (acres)	**Volume=C'iA** (acre-feet)
Single Family Residential	0.30	—		
Commercial	0.70	3.5	2.4	
Industrial	0.80	277.0	221.6	
Multi-Family Residential	0.55	—		
Open Space/Parks	0.20	—		
Weighted Runoff **Coefficient (C')**	0.80			
Totals		280.5	224.0	150.5

3.16.2 Collection Facilities

The master planned collection facilities for this Drainage Zone includes two (2) south and north flowing trunk lines, 36" and 42", respectively that combine near the center of the Drainage Zone and flow east to the proposed retention basin in a 60" pipe (**Figure 22**). The pipes were sized based on the flow accumulated from assumed upstream sub-areas within the watershed.

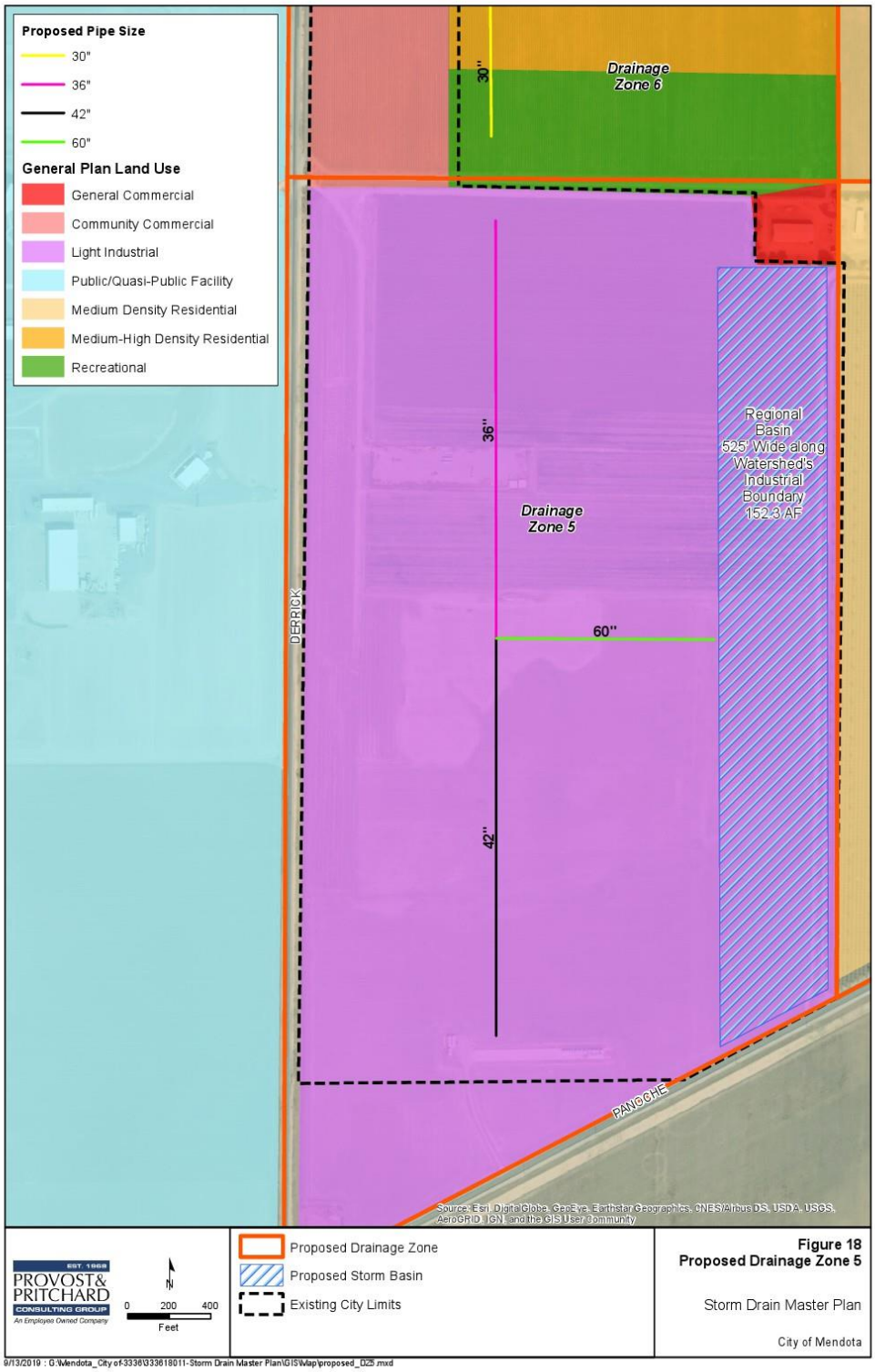
3.16.3 Retention Storage

Using the Retention Basin Storage Requirements outlined in Section 2.2.3, the Drainage Zone's designated land use and acreage were used to determine basin sizing, as shown in Table 3-13. Regional Basin #5 is located on the east side of the Drainage Zone and will require an approximate footprint of 525-feet by 3,500-feet, which represents approximately 15.5% of the Drainage Zone's total gross area and includes area for side slopes and access roads.

3.16.4 Disposal

Disposal of storm water from the retention basin in this Drainage Zone will primarily be via evaporation. There are existing irrigation canals on the north and east sides of the Drainage Zone which could be an alternative means for disposal; however, we are assuming that development of this watershed will eliminate the need for crop irrigation. Therefore, there is very little possibility of converting the retention basin to a detention basin. Drainage Zone #4's overland escape from the retention basin would be to the east and flow towards Drainage Zones #6, #7, or #8 and most likely make its way to Watershed #3 and the San Luis Drain, or its alternative.

Figure 22. Proposed Drainage Zone 5



3.16.5 Necessary Projects

As discussed in the Collection Facilities section, Drainage Zone #5 will have two (2) trunks conveying flow to a common point near the geographic center of the Drainage Zone before combining in a 60" RCP and flowing east to the retention basin. The proposed conveyance system comprises of 1,925 lf of 36" RCP; 2,025 lf of 42" RCP and 1,025 lf of 60" RCP. It is estimated that seven (7) 60" diameter manholes and two (2) 72" manholes will be required for the proposed collection system, as well as one (1) outlet structure for discharge into the retention basin. Additionally, an estimated 43.4 acres of land will need to be dedicated to the City for the retention basin.

3.16.6 Summary of Costs

Table 3-14. Summary of Storm Drain Infrastructure Costs Drainage Zone #5

Summary of Storm Drain Infrastructure Costs Drainage Zone #5				
Description	Quantity[9]	Units	Unit Cost	Cost
General Contracting Requirements	1	LS	$950,000.00	$950,000
36" RCP	1,925	LF	$190.00	$366,000
42" RCP	2,025	LF	$255.00	$516,000
60" RCP	1,025	LF	$540.00	$554,000
60" Manholes	7	EA	$9,000.00	$63,000
72" Manholes	2	EA	$21,000.00	$42,000
72" Outlet Structures	1	EA	$20,000.00	$20,000
Land Dedication	43.4	Acres	$15,000.00	$651,000
Clearing and Grubbing	43.4	Acres	$2,000.00	$86,800
Retention Basin Excavation	510,0000	CY	$7.50	$3,825,000
Chain Link Fencing with Slats and Gate	8,250	LF	$28.00	$231,000
			Contingency	15%
			Total:	$8,400,000

3.16.7 Permitting

No major roads, canals, or other apparent rights-of-ways that would require easements and/or permits are to be crossed for Drainage Zone #5. However, this topic should be revisited at the time of design and construction.

[9] All RCP quantities are estimates rounded to the nearest 25-foot increment.

3.17 Drainage Zone #6

Drainage Zone #6 (**Figure 23**) is located to the south of the Mendota High School and Junior High School Campus and is designated primarily for Medium-High Density Residential; General Commercial; Recreation; and Public/Quasi-Public Facility. Drainage Zone #6 is bound geographically by the Campuses on the north; State Route 33 on the west and the West Whitesbridge Avenue alignment on the south. The eastern boundary of the watershed runs parallel to and one-half mile east of State Route 33. The total area of the Drainage Zone is approximately 266 acres.

3.17.1 Hydrology

Per City Standards the weighted runoff coefficient for the Drainage Zone was determined using the table below. The resulting analysis yielded a weighted runoff coefficient of 0.54, and the total required retention volume for Drainage Zone #6 is 96.2 acre-feet. Likewise, the peak flow rate was determined to be approximately 44.9 cfs, using the values for the Rational method equation required per City Standards.

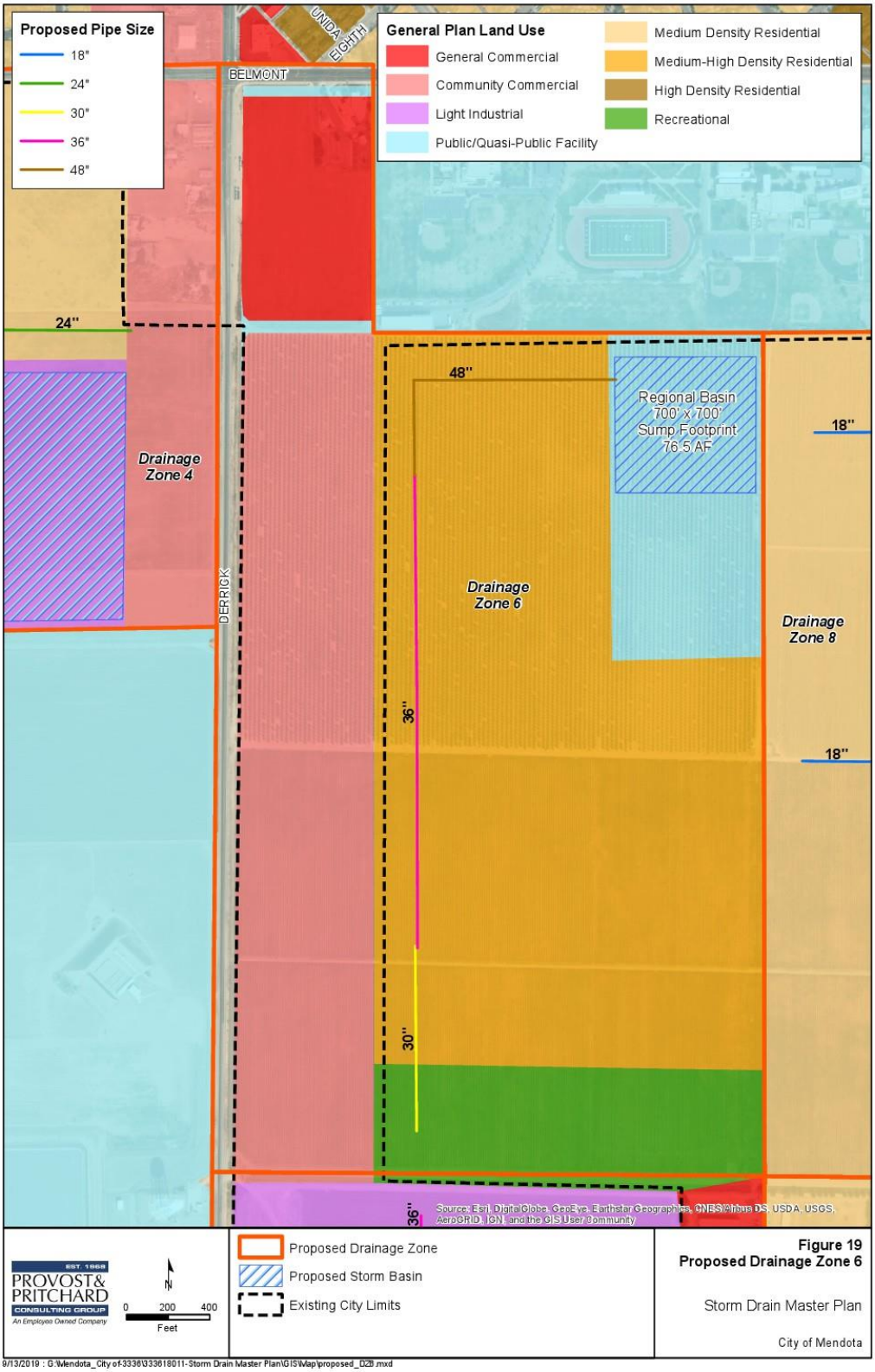
Table 3-15. Hydrology of Storm Drain Infrastructure Drainage Zone #6

Hydrology of Storm Drain Infrastructure Drainage Zone #6				
Land Use Type	Land Use Coefficient, C	Area, A (acres)	C x A (acres)	**Volume=C'iA** (acre-feet)
Single Family Residential	0.30	—		
Commercial	0.70	91.7	64.2	
Industrial	0.80	—		
Multi-Family Residential	0.55	124.8	68.6	
Open Space/Parks	0.20	49.1	9.8	
Weighted Runoff Coefficient (C')	0.54			
Totals		265.6	142.6	96.2

3.17.2 Collection Facilities

The master planned collection facilities for the Drainage Zone include one (1) trunk line that discharges to a retention basin. The trunk line originates near the southern boundary approximately 1/6-mile east of State Route 33 and flows north towards the campuses where it turns east and continues to the proposed retention basin (**Figure 23).** The trunk line ranges in size from 30" to 48" and was sized based on the flow accumulated from assumed upstream sub-areas within the watershed.

Figure 23. Proposed Drainage Zone 6



3.17.3 Retention Storage

Using the Retention Basin Storage Requirements outlined in Section 2.2.3, the Drainage Zone's designated land use and acreage were used to determine basin sizing, as shown in Table 3-15. Regional Basin #6 is located near the northeast corner of the Drainage Zone and will require an approximate footprint of 700-feet by 700-feet, which represents approximately 4.2% of the Drainage Zone's total gross area and includes area for side slopes and access roads.

The retention basin is within land designated as public/quasi-public facility land use. With that land use designation there would be potential in the future for the City to plan a local or regional park or open space as a joint use with the basin.

3.17.4 Disposal

Disposal of storm water from the retention basin in this Drainage Zone will primarily be via evaporation. There are no canals in close proximity to the retention basin in this Drainage Zone to consider for alternative outlets, and so there would be no possibility of converting the retention basin to a detention basin.

Drainage Zone #6's overland escape, or breakover point, from the retention basin should not be towards the school campuses to the north, but rather directed east between Watershed #1 and Drainage Zone #8, until reaching the existing Watershed #3 and the San Luis Drain, or its alternative.

3.17.5 Necessary Projects

As discussed in the Collection Facilities section, Drainage Zone #6 will have one (1) trunk line conveying flow from the southwest to the retention basin located in the northeast. The proposed conveyance system comprises 1,050 lf of 30" RCP; 2,275 lf of 36" RCP and 1,550 lf of 48" RCP. It is estimated that three (3) 48" diameter manholes and seven (7) 60" manholes will be required for the proposed collection system, as well as one (1) outlet structure for discharge into the retention basin. Additionally, an estimated 27.2 acres of land will need to be dedicated to the City for the retention basin.

3.17.6 Summary of Costs

Table 3-16. Summary of Storm Drain Infrastructure Costs Drainage Zone #6

Summary of Storm Drain Infrastructure Costs Drainage Zone #6				
Description	Quantity[10]	Units	Unit Cost	Cost
General Contracting Requirements	1	LS	$642,000.00	$642,000
30" RCP	1,050	LF	$170.00	$179,000
36" RCP	2,275	LF	$190.00	$433,000
48" RCP	1,550	LF	$350.00	$543,000
48" Manholes	3	EA	$6,000.00	$18,000
60" Manholes	7	EA	$9,000.00	$63,000
60" Outlet Structures	1	EA	$17,000.00	$17,000
Land Dedication	27.2	Acres	$15,000.00	$408,000
Clearing and Grubbing	11.2	Acres	$2,000.00	$54,400
Retention Basin Excavation	325,000	CY	$7.50	$2,438,000
Chain Link Fencing with Slats and Gate	4,600	LF	$28.00	$129,000
			Contingency	15%
			Total:	$4,925,000

3.17.7 Permitting

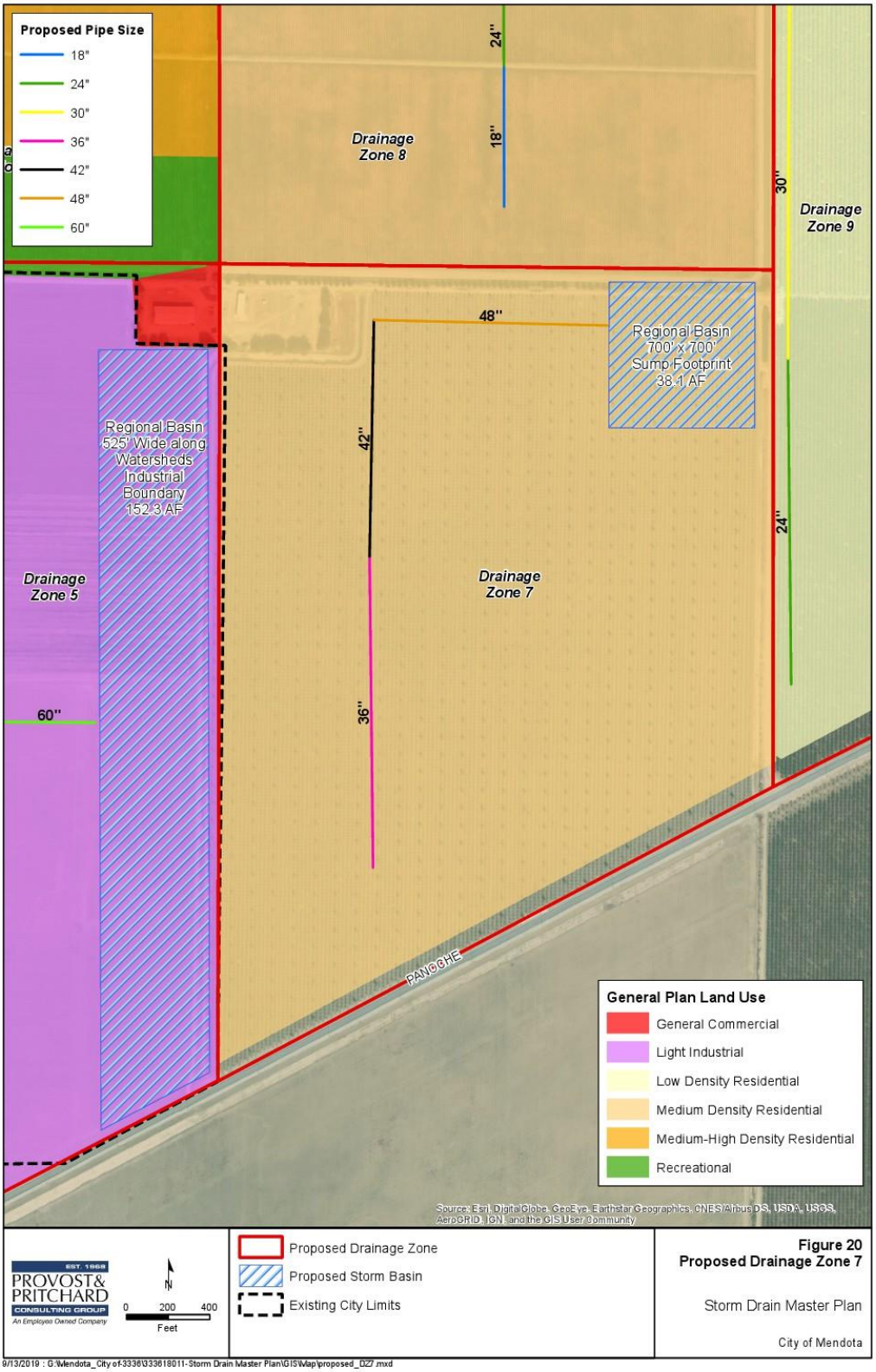
No major roads, canals, or other apparent rights-of-ways that would require easements and/or permits are to be crossed for Drainage Zone #6. However, this topic should be revisited at the time of design and construction.

3.18 Drainage Zone #7

Drainage Zone #7 (**Figure 24**) is located in the southern portion of the proposed sphere of influence and is designated Medium Density Residential. Drainage Zone #7 is bound geographically by West Whitesbridge Avenue alignment on the north; and West Panoche Avenue on the south. The western boundary of the watershed runs parallel to and ½-mile east of State Route 33, while the eastern boundary is 1-mile to the east of State Route 33 and is also parallel. The total area of the Drainage Zone is approximately 190.2 acres.

[10] All RCP quantities are estimates rounded to the nearest 25-foot increment.

Figure 24. Proposed Drainage Zone 7



3.18.1 Hydrology

Per City Standards the weighted runoff coefficient for the Drainage Zone was determined using the table below. The resulting analysis yielded a weighted runoff coefficient of 0.30, and the total required retention volume for Drainage Zone #7 is 38.3 acre-feet. Likewise, the peak flow rate was determined to be approximately 39.4 cfs, using the values for the Rational method equation required per City Standards.

Table 3-17. Hydrology of Storm Drain Infrastructure Drainage Zone #7

Hydrology of Storm Drain Infrastructure Drainage Zone #7				
Land Use Type	Land Use Coefficient, C	Area, A (acres)	C x A (acres)	**Volume=C'iA** (acre-feet)
Single Family Residential	0.30	190.2	57.1	
Commercial	0.70			
Industrial	0.80			
Multi-Family Residential	0.55			
Open Space/Parks	0.20			
Weighted Runoff Coefficient (C')	30			
Totals		190.2	57.1	38.3

3.18.2 Collection Facilities

The master planned collection facilities for the Drainage Zone are primarily made up of one (1) trunk line that discharges to a retention basin. The trunk line originates near the southwestern corner of the Drainage Zone and flows north before turning east and discharging to the proposed retention basin located in the northeast corner of the Drainage Zone (**Figure 24**). The trunk line ranges in size from 36" to 48" and was sized based on the flow accumulated from assumed upstream sub-areas within the watershed.

3.18.3 Retention Storage

Using the Retention Basin Storage Requirements outlined in Section 2.2.3, the Drainage Zone's designated land use and acreage were used to determine basin sizing, as shown in Table 3-17. Regional Basin #7 is located near the northeast corner of the Drainage Zone and will require an approximate footprint of 700-feet by 700-feet, which represents approximately 6.0% of the Drainage Zone's total gross area and includes area for side slopes and access roads.

3.18.4 Disposal

Disposal of storm water from the retention basin in this Drainage Zone will primarily be via evaporation. There are existing irrigation canals on the north, west and east sides of the Drainage Zone which could be an alternative means for disposal; however, we are assuming that development of this watershed will eliminate

the need for crop irrigation. Therefore, there is very little possibility of converting the retention basin to a detention basin.

Drainage Zone #7's overland escape, or breakover point from the retention basin, would be to the northeast, likely through via adjacent Drainage Zones #8 or #9, until ultimately reaching a section of the San Luis Drain on the west side of State Route 180. The City does not have permission to discharge into this section of the San Luis Drain, but that should be explored. Necessary Projects
As discussed in the Collection Facilities section, Drainage Zone #7 will have one (1) trunk line conveying flow from the southwest to the retention basin located in the northeast. The proposed conveyance system comprises 1,525 lf of 36" RCP; 1,150 lf of 42" RCP and 1,150 lf of 48" RCP. It is estimated that three (3) 48" diameter manholes and five (5) 60" manholes will be required for the proposed collection system, as well as one (1) outlet structure for discharge into the retention basin. Additionally, an estimated 11.3 acres of land will be needed for the retention basin.

3.18.5 Summary of Costs

Table 3-18. Summary of Storm Drain Infrastructure Costs Drainage Zone #7

Summary of Storm Drain Infrastructure Costs Drainage Zone #7				
Description	Quantity[11]	Units	Unit Cost	Cost
General Contracting Requirements	1	LS	$347,000.00	$347,000
36" RCP	1,525	LF	$190.00	$290,000
42" RCP	1,150	LF	$255.00	$293,000
48" RCP	1,150	LF	$350.00	$403,000
48" Manholes	3	EA	$6,000.00	$18,000
60" Manholes	5	EA	$9,000.00	$45,000
60" Outlet Structures	1	EA	$17,000.00	$17,000
Land Dedication	11.3	Acres	$15,000.00	$169,500
Clearing and Grubbing	11.3	Acres	$2,000.00	$22,600
Retention Basin Excavation	130,000	CY	$7.50	$975,000
Chain Link Fencing with Slats and Gate	2,800	LF	$28.00	$78,000
			Contingency	15%
			Total:	$3,057,000

3.18.6 Permitting

No major roads, canals, or other apparent rights-of-ways that would require easements and/or permits are to be crossed for Drainage Zone #7. However, this topic should be revisited at the time of design and construction. The potential to utilize or acquire the section of the San Luis Drain between Belmont and Panoche should be explored for stormwater management and flood control purposes.

[11] All RCP quantities are estimates rounded to the nearest 25-foot increment.

3.19 Drainage Zone #8

Drainage Zone #8 (**Figure 25**) is located in the southern portion of the proposed sphere of influence and is designated Medium Density Residential. The northwestern portions of Drainage Zone #8 are bounded geographically by the Mendota High School Campus and Belmont Avenue. State Route 180 functions as the northeastern boundary. The southern boundary is the West Whitebridge Road alignment. The western boundary of the watershed runs parallel to and ½-mile east of State Route 33, while the eastern boundary is one mile to the east of State Route 33 and is also parallel. The total area of the Drainage Zone is approximately 281 acres.

3.19.1 Hydrology

Per City Standards the weighted runoff coefficient for the Drainage Zone was determined using the table below. The resulting analysis yielded a weighted runoff coefficient of 0.30, and the total required retention volume for Drainage Zone #8 is 56.7 acre-feet. Likewise, the peak flow rate was determined to be approximately 24.4 cfs, using the values for the Rational method equation required per City Standards.

Table 3-19. Hydrology of Storm Drain Infrastructure Drainage Zone #8

Hydrology of Storm Drain Infrastructure Drainage Zone #8				
Land Use Type	Land Use Coefficient, C	Area, A (acres)	C x A (acres)	**Volume=C'iA** (acre-feet)
Single Family Residential	0.3	281.5	84.5	
Commercial	0.7	—		
Industrial	0.8	—		
Multi-Family Residential	0.55	—		
Open Space/Parks	0.2	—		
Weighted **Runoff Coefficient (C')**	0.30			
Totals		281.5	84.5	56.7

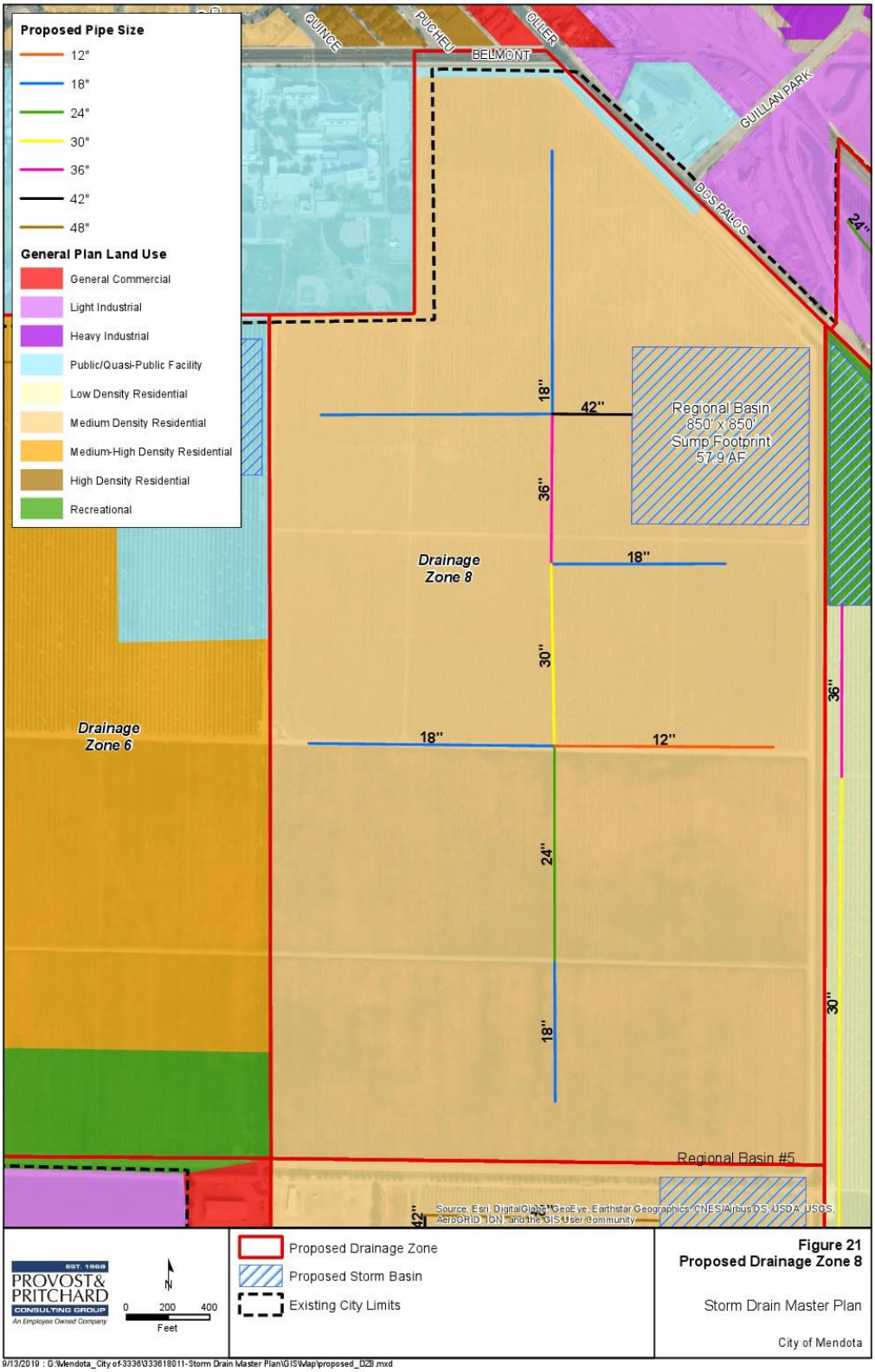
3.19.2 Collection Facilities

The master planned collection facilities for the Drainage Zone are primarily comprised of one (1) primary trunk line and several branches that ultimately discharges to a retention basin. The trunk line originates near the southern boundary of the Drainage Zone and flows north, while collecting flow from the branch lines, before turning east and discharging to the proposed retention basin located in the northeast portion of the Drainage Zone (**Figure 25**). The trunk line and branches range in size from 18" to 42" and was sized based on the flow accumulated from assumed upstream sub-areas within the watershed.

3.19.3 Retention Storage

Using the Retention Basin Storage Requirements outlined in Section 2.2.3, the Drainage Zone's designated land use and acreage were used to determine basin sizing, as shown in Table 3-19. Regional Basin #8 is located near the northeast corner of the Drainage Zone and will require an approximate footprint of 850-feet by 850-feet, which represents approximately 6.0% of the Drainage Zone's total gross area and includes area for side slopes and access roads.

Figure 25. Proposed Drainage Zone 8



3.19.4 Disposal

Disposal of storm water from the retention basin in this Drainage Zone will primarily be via evaporation. There are existing irrigation canals on the south and east sides of the Drainage Zone which could be an alternative means for disposal; however, we are assuming that development of this watershed will eliminate the need for crop irrigation. Therefore, there is very little possibility of converting the retention basin to a detention basin.

Drainage Zone #8's overland escape from the retention basin, or breakover point, would be to the east, through Drainage Zone #9 to State Route 180 where the flow would either run under State Route 180 in a new culvert or continue southeasterly and potentially discharging into a section of the San Luis Drain on the west side of State Route 180.

3.19.5 Necessary Projects

As discussed in the Collection Facilities section, Drainage Zone #8 will have one (1) trunk line and five (5) branches conveying flow from the southern end of the Drainage Zone to the retention basin located in the northeast. The proposed conveyance system comprises 6,100 lf of 18" RCP; 1,025 lf of 24" RCP; 875 lf of 30" RCP; 725 lf of 36" RCP and 400 lf of 42" RCP. It is estimated that 13 - 48" diameter manholes and three (3) 60" manholes will be required for the proposed collection system, as well as one (1) outlet structure for discharge into the retention basin. Additionally, an estimated 16.6 acres of land will be needed for the retention basin. A new culvert across State Route 180 is not included in the costs below due to the obstacles in permitting and the need to discharge into the same section of the San Luis Drain south of Belmont.

3.19.6 Summary of Costs

Table 3-20. Summary of Storm Drain Infrastructure Costs Drainage Zone #8

Summary of Storm Drain Infrastructure Costs Drainage Zone #8				
Description	Quantity[12]	Units	Unit Cost	Cost
General Contracting Requirements	1	LS	$495,000.00	$495,000
18" RCP	6,100	LF	$130.00	$793,000
24" RCP	1,025	LF	$150.00	$154,000
30" RCP	875	LF	$170.00	$149,000
36" RCP	725	LF	$190.00	$138,000
42" RCP	400	LF	$255.00	$102,000
48" Manholes	13	EA	$6,000.00	$78,000
60" Manholes	3	EA	$9,000.00	$27,000
60" Outlet Structures	1	EA	$17,000.00	$17,000
Land Dedication	16.6	Acres	$15,000.00	$249,000
Clearing and Grubbing	16.6	Acres	$2,000.00	$33,200

[12] All RCP quantities are estimates rounded to the nearest 25-foot increment.

Summary of Storm Drain Infrastructure Costs Drainage Zone #8				
Description	Quantity[12]	Units	Unit Cost	Cost
Retention Basin Excavation	195,000	CY	$7.50	$1,463,000
Chain Link Fencing with Slats and Gate	3,400	LF	$28.00	$95,000
			Contingency	15%
			Total:	$4,362,000

3.19.7 Permitting

No major roads, canals, or other apparent rights-of-ways that would require easements and/or permits are to be crossed for Drainage Zone #8. However, this topic should be revisited at the time of design and construction. The potential to utilize or acquire the section of the San Luis Drain between Belmont and Panoche should be explored for stormwater management and flood control purposes.

3.20 Drainage Zone #9

Drainage Zone #9 (**Figure 26**) is located in the south-southeastern portion of the proposed sphere of influence and is designated primarily Low Density Residential but includes a small portion of Recreational land use at the northern end. The Drainage Zone is bounded by State Route 180 on the northeast and West Panoche Road on the southeast. The western portion is made up of an alignment that runs parallel to and is 1-mile east of State Route 33. The total area of the Drainage Zone is approximately 193.7 acres.

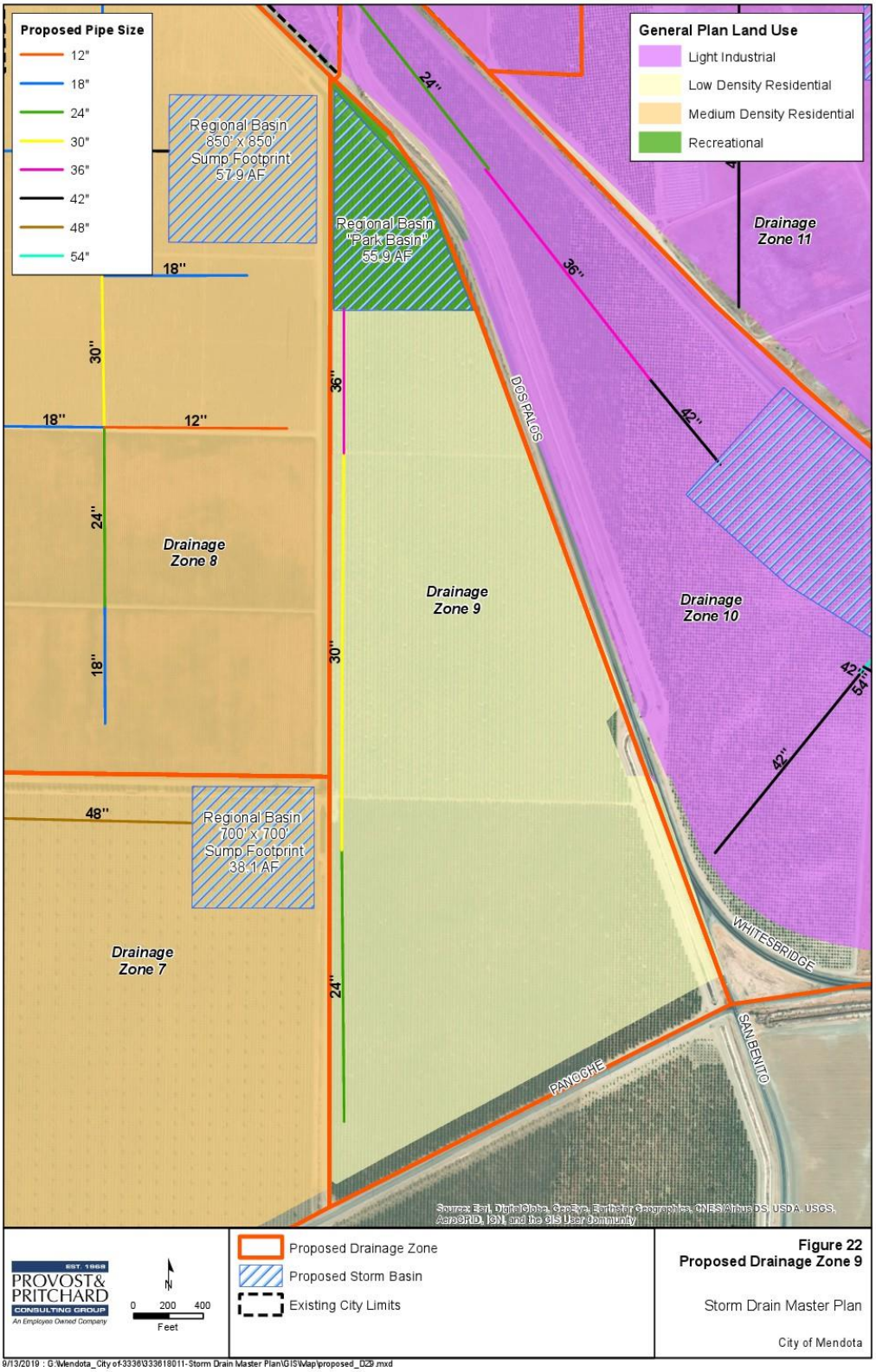
3.20.1 Hydrology

Per City Standards the weighted runoff coefficient for the Drainage Zone was determined using the table below. The resulting analysis yielded a weighted runoff coefficient of 0.29, and the total required retention volume for Drainage Zone #9 is 37.7 acre-feet. Likewise, the peak flow rate was determined to be approximately 16.0 cfs, using the values for the Rational method equation required per City Standards.

Table 3-21. Hydrology of Storm Drain Infrastructure Drainage Zone #9

Hydrology of Storm Drain Infrastructure Drainage Zone #9				
Land Use Type	Land Use Coefficient, C	Area, A (acres)	C x A (acres)	**Volume=C'iA** (acre-feet)
Single Family Residential	0.3	177.4	53.2	
Commercial	0.7	—		
Industrial	0.8	—		
Multi-Family Residential	0.55	—		
Open Space/Parks	0.2	16.3	3.3	
Weighted Runoff Coefficient (C')	0.29			
Totals		193.7	56.5	37.7

Figure 26. Proposed Drainage Zone 9



3.20.2 Collection Facilities

The master planned collection facilities for the Drainage Zone include one (1) primary trunk line that originates in the southwestern portion of the Drainage Zone and discharges to a proposed retention basin at the northern end of the Drainage Zone (**Figure 26**). The trunk line size ranges from 24" to 36" and was sized based on the flow accumulated from assumed upstream sub-areas within the watershed.

3.20.3 Retention Storage

Using the Retention Basin Storage Requirements in Section 2.2.3, the Drainage Zone's designated land use and acreage footprint were to determine basin sizing, as shown in Table 3-21. Regional Basin #9 has a designed footprint of that matches the boundary of the Recreational land designation. This report recommends the City consider making this area a dual-use retention basin and park. With the retention basin design criteria being taken into consideration, the park basin's footprint would provide for nearly 150% of the required runoff volume storage. It would be possible to reduce the basins side slopes to 4:1 or flatter due to the more-than-adequate available land area. The Recreational parcel represents 8.4 % of the Drainage Zone's total area.

3.20.4 Disposal

Disposal of storm water from the retention basin in this Drainage Zone will primarily be via evaporation. There are existing irrigation canals on the south and east sides of the Drainage Zone which could be an alternative means for disposal; however, we are assuming that development of this watershed will eliminate the need for crop irrigation. Therefore, there is very little possibility of converting the retention basin to a detention basin.

Drainage Zone #9's overland escape route from the retention basin, or breakover point, would be to either run under State Route 180 in a new culvert or continue southeasterly and potentially discharging into a section of the San Luis Drain on the west side of State Route 180, near the southeast corner of this Drainage Zone.

3.20.5 Necessary Projects

As discussed in the Collection Facilities section, Drainage Zone #9 will have one (1) trunk line conveying flow from the southern end of the Drainage Zone to the retention basin located in the north. The proposed conveyance system is comprised of 1,575 lf of 24" RCP; 2,300 lf of 30" RCP and 825 lf of 36" RCP. It is estimated that eight (8) - 48" diameter manholes and two (2) 60" manholes will be required for the proposed collection system, as well as one (1) outlet structure for discharge into the retention basin. Additionally, an estimated 16.3 acres of land will need to be dedicated to the City for the retention basin, which as previously mentioned could be also serve as a recreation area. A new culvert across State Route 180 is not included in the costs below due to the obstacles in permitting and the need to discharge into the same section of the San Luis Drain south of Belmont.

3.20.6 Summary of Costs

Table 3-22. Summary of Storm Drain Infrastructure Costs Drainage Zone #9

Summary of Storm Drain Infrastructure Costs Drainage Zone #9				
Description	Quantity[13]	Units	Unit Cost	Cost
General Contracting Requirements	1	LS	$402,000.00	$402,000
24" RCP	1,575	LF	$150.00	$236,000
30" RCP	2,300	LF	$170.00	$391,000
36" RCP	825	LF	$190.00	$157,000
48" Manholes	8	EA	$6,000.00	$48,000
60" Manholes	2	EA	$9,000.00	$18,000
48" Outlet Structures	1	EA	$15,000.00	$15,000
Land Dedication	16.4	Acres	$15,000.00	$246,000
Clearing and Grubbing	16.4	Acres	$2,000.00	$32,800
Detention Basin Excavation	190,000	CY	$7.50	$1,425,000
Chain Link Fencing with Slats and Gate	3,900	LF	$28.00	$109,000
			Contingency	15%
			Total:	$3,542,000

3.20.7 Permitting

No major roads, canals, or other apparent rights-of-ways that would require easements and/or permits are to be crossed for Drainage Zone #9. However, this topic should be revisited at the time of design and construction. The potential to utilize or acquire the section of the San Luis Drain between Belmont and Panoche should be explored for stormwater management and flood control purposes.

3.21 Drainage Zone #10

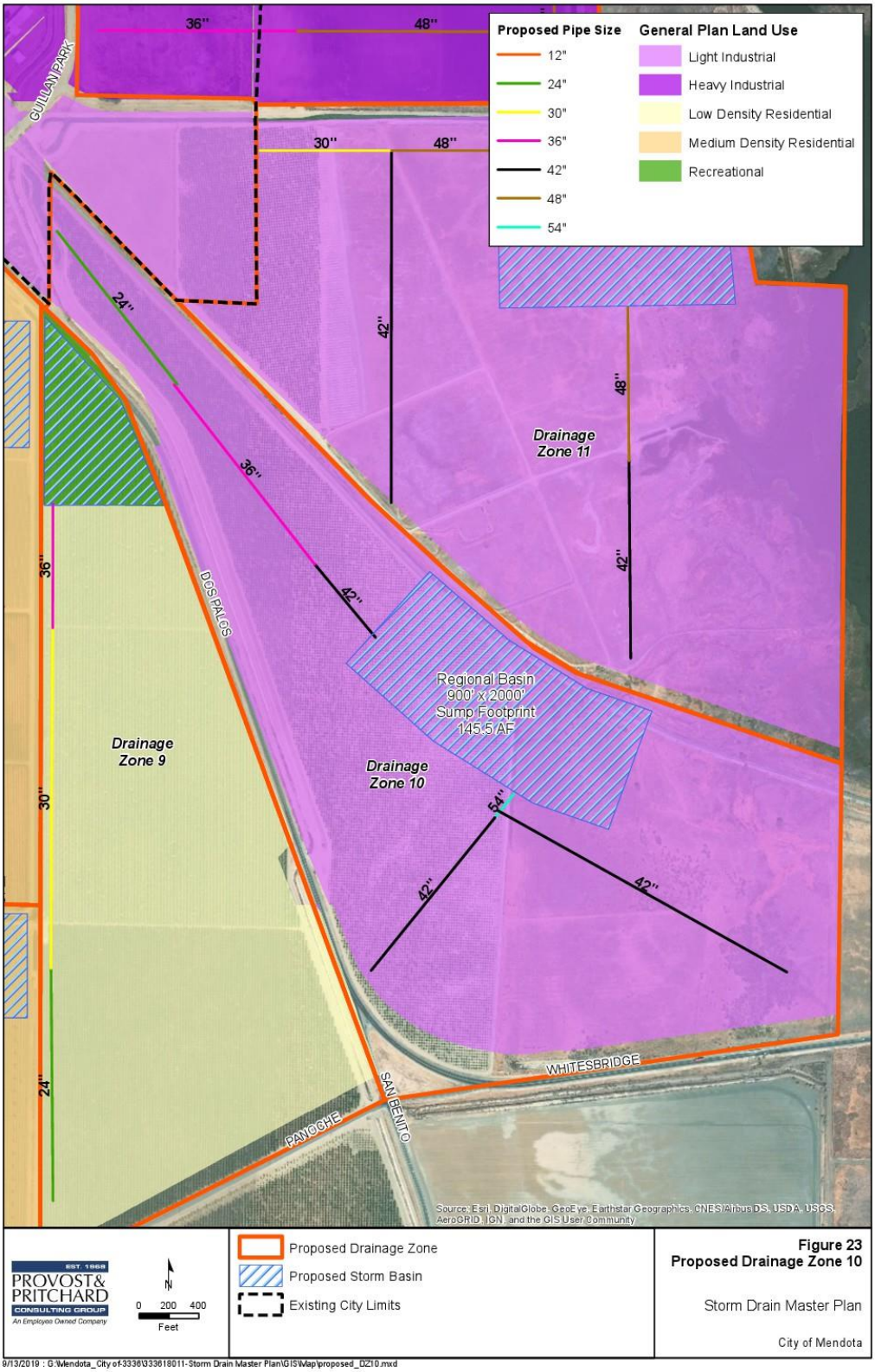
Drainage Zone #10 (**Figure 27**) is located in southeastern portion of the proposed sphere of limits and is designated entirely Light Industrial. The Drainage Zone is bounded by the San Luis Drain and State Route 180 on the west, State Route 180 on the south, and the Union Pacific Railroad on the north. The eastern boundary is about 0.9 mile east of the Kings Slough Overflow Bridge. The total area of the Drainage Zone is approximately 273.3 acres.

Wet years, flood releases from the Kings River or heavy rainfall events may result in runoff from Kings River/Fresno Slough lands south of State Route 180 to cross the eastern portion of this Drainage Zone.

This Drainage Zone is within a FEMA Flood Zone A which may restrict development and needs to be considered with future design and mapping within this Drainage Zone.

[13] All RCP quantities are estimates rounded to the nearest 25-foot increment.

Figure 27. Proposed Drainage Zone 10



3.21.1 Hydrology

Per City Standards the weighted runoff coefficient for the Drainage Zone was determined using the table below. The resulting analysis yielded a weighted runoff coefficient of 0.80, and the total required retention volume for Drainage Zone #9 is 146.7 acre-feet. Likewise, the peak flow rate was determined to be approximately 59.5 cfs, using the values for the Rational method equation required per City Standards.

Table 3-23. Hydrology of Storm Drain Infrastructure Drainage Zone #10

Hydrology of Storm Drain Infrastructure Drainage Zone #10				
Land Use Type	Land Use Coefficient, C	Area, A (acres)	C x A (acres)	**Volume=C'iA** (acre-feet)
Single Family Residential	0.3	—		
Commercial	0.7	—		
Industrial	0.8	273.3	218.6	
Multi-Family Residential	0.55	—		
Open Space/Parks	0.2	—		
Weighted Runoff Coefficient (C')	0.80			
Totals		273.3	218.6	146.7

3.21.2 Collection Facilities

The master planned collection facilities for the Drainage Zone are primarily comprised of three (3) trunk lines that discharge to a proposed retention basin near the middle of the northeastern boundary of the Drainage Zone (**Figure 27**). The trunk line size ranges from 30" to 54" and were sized based on the flow accumulated from assumed upstream sub-areas within the watershed.

3.21.3 Retention Storage

Drainage Zone #10 is proposed to have a detention basin with a pretreatment forebay and restricted release to the two existing drainage ways. The basin will be located near the middle northeast boundary of the Drainage Zone and will require an approximate footprint of 900-feet by 2,000-feet, which represents approximately 14.6% of the Drainage Zone's total gross area and includes area for side slopes and access roads.

3.21.4 Disposal

Disposal of storm water from the detention basin in this Drainage Zone will primarily be via metered released to the existing surface drainage of the Fresno Slough.

Drainage Zone #10's overland escape route from the retention basin, or breakover point, would be to the east, into the Fresno Slough.

3.21.5 Necessary Projects

As discussed in the Collection Facilities section, Drainage Zone #10 will have three (3) trunk lines conveying flow from the northwest, southwest and southeast corners of the Drainage Zone to the detention basin located near the middle of the northeastern boundary. The proposed conveyance system is comprised of 1,300 lf of 30" RCP; 1,225 lf of 36" RCP; 4,175 lf of 42" RCP and 200 lf of 54" RCP. It is estimated that four (4) - 48" diameter manholes, 10 – 60" manholes and two (2) 72" manholes will be required for the proposed collection system, as well as two (2) outlet structures for discharge into the retention basin. An outlet structure to discharge to the Fresno Slough. Additionally, an estimated 39.9 acres of land will need to be dedicated to the City for the retention basin.

3.21.6 Summary of Costs

Table 3-24. Summary of Storm Drain Infrastructure Costs Drainage Zone #10

Summary of Storm Drain Infrastructure Costs Drainage Zone #10				
Description	Quantity[14]	Units	Unit Cost	Cost
General Contracting Requirements	1	LS	$965,000.00	$965,000
30" RCP	1,300	LF	$170.00	$221,000
36" RCP	1,225	LF	$190.00	$233,000
42" RCP	4,175	LF	$255.00	$1,065,000
54" RCP	200	LF	$440.00	$88,000
48" Manholes	4	EA	$6,000.00	$24,000
60" Manholes	10	EA	$9,000.00	$90,000
72" Manholes	2	EA	$21,000.00	$42,000
60" Outlet Structures	1	EA	$17,000.00	$17,000
72" Outlet Structures	1	EA	$20,000.00	$20,000
Discharge Structure	1	EA	$20,000.00	$20,000
Land Dedication	41.4	Acres	$15,000.00	$621,000
Clearing and Grubbing	41.4	Acres	$2,000.00	$82,800
Retention Basin Excavation	500,000	CY	$7.50	$3,750,000
Chain Link Fencing with Slats and Gate	5,800	LF	$28.00	$162,000
			Contingency	15%
			Total:	$8,511,000

[14] All RCP quantities are estimates rounded to the nearest 25-foot increment.

3.21.7 Permitting

No major roads, canals, or other apparent rights-of-ways that would require easements and/or permits are to be crossed for Drainage Zone #10. However, this topic should be revisited at the time of design and construction. If Drainage Zone #10 is designed to as a detention basin and drains to the Fresno Slough a WDR permit will likely be required. Alternatively, if Drainage Zone #10 is designed as a retention basin no additional permit will be required.

3.22 Drainage Zone #11

Drainage Zone #11 (**Figure 28**) is located in the southeastern portion of the proposed sphere of influence and is designated Light Industrial. The Drainage Zone is bounded by Guillen Park Drive on the north, the Fresno Slough on the east and the Southern Pacific Railroad on the southwest. The total area of the Drainage Zone is approximately 310 acres.

This Drainage Zone is within a FEMA Flood Zone A which may restrict development and needs to be considered with future design and mapping within this Drainage Zone.

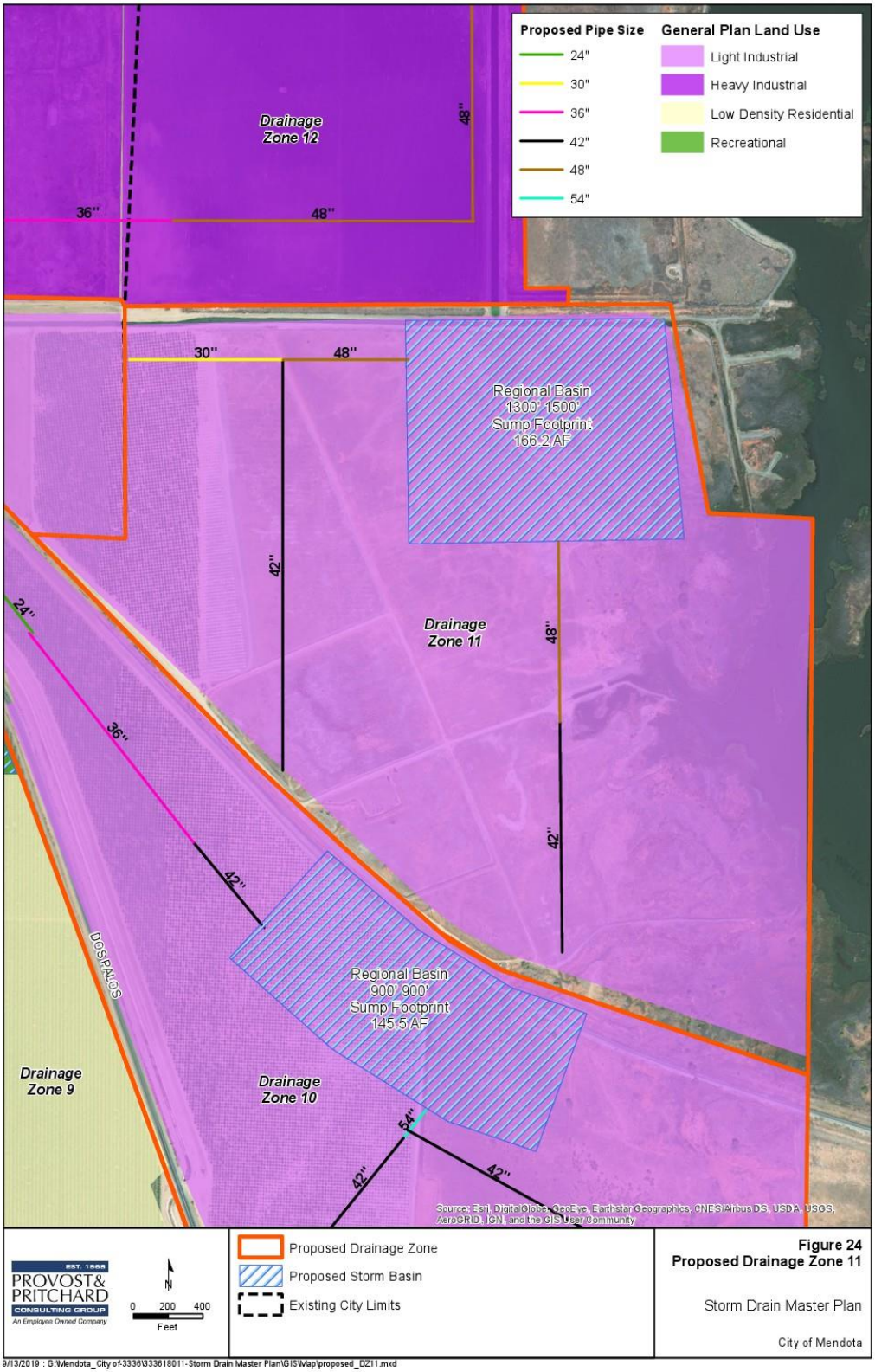
3.22.1 Hydrology

Per City Standards the weighted runoff coefficient for the Drainage Zone was determined using the table below. The resulting analysis yielded a weighted runoff coefficient of 0.80, and the total required retention volume for Drainage Zone #11 is 166.2 acre-feet. Likewise, the peak flow rate was determined to be approximately 51.4 cfs, using the values for the Rational method equation required per City Standards.

Table 3-25. Hydrology of Storm Drain Infrastructure Drainage Zone #11

Hydrology of Storm Drain Infrastructure Drainage Zone #11				
Land Use Type	Land Use Coefficient, C	Area, A (acres)	C x A (acres)	**Volume=C'iA** (acre-feet)
Single Family Residential	0.3	—		
Commercial	0.7	—		
Industrial	0.8	310	248	
Multi-Family Residential	0.55	—		
Open Space/Parks	0.2	—		
Weighted Runoff **Coefficient (C')**	0.80			
Totals		310	248	166.2

Figure 28. Proposed Drainage Zone 11



3.22.2 Collection Facilities

The master planned collection facilities for the Drainage Zone are primarily comprise three (3) trunk lines that discharge to a proposed retention basin near the northeastern boundary of the Drainage Zone (**Figure 28**). The trunk line size ranges from 30" to 48" and were sized based on the flow accumulated from assumed upstream sub-areas within the watershed.

3.22.3 Retention Storage

Using the Retention Basin Storage Requirements outlined in Section 2.2.3, the Drainage Zone's designated land use and acreage were used to determine basin sizing. Regional Basin #11 is located at the northeast boundary of the Drainage Zone and will require an approximate footprint of 1,300-feet by 1,500-feet, which represents approximately 14.5% of the Drainage Zone's total gross area and includes area for side slopes and access roads.

3.22.4 Disposal

Disposal of storm water from the retention basin in this Drainage Zone will primarily be via evaporation. There is a possibility that if storm water could be treated via recognized storm water BMPs, it could be discharged to the Fresno Slough as an alternative to retention and evaporation, which could allow reducing the basin to a detention basin. This option would require further study and analysis to validate its feasibility and would then require securing an NPDES permit from the Regional Water Quality Control Board.

Drainage Zone #11's overland escape from the retention pond, or breakover point, would be to the east and into the Fresno Slough on an emergency basis only. The overland escape route is shown on **Figure 28** as a solid green line.

3.22.5 Necessary Projects

As discussed in the Collection Facilities section, Drainage Zone #11 will have three (3) trunk lines conveying flow from the northwest, southwest and southeast corners of the Drainage Zone to the retention basin located at the northeastern boundary of the Drainage Zone. The proposed conveyance system is comprised of 875 lf of 30" RCP; 3,775 lf of 42" RCP and 1,975 lf of 48" RCP. It is estimated that two (2) - 48" diameter manholes, 10 – 60" manholes and two (2) 72" manholes will be required for the proposed collection system, as well as two (2) outlet structures for discharge into the retention basin. Additionally, an estimated 44.8 acres of land will be needed for the retention basin.

3.22.6 Summary of Costs

Table 3-26. Summary of Storm Drain Infrastructure Costs Drainage Zone #11

Summary of Storm Drain Infrastructure Costs Drainage Zone #11				
Description	Quantity[15]	Units	Unit Cost	Cost
General Contracting Requirements	1	LS	$1,048,000.00	$1,048,000
30" RCP	875	LF	$170.00	$149,000
42" RCP	3,775	LF	$255.00	$963,000
48" RCP	1,975	LF	$350.00	$691,000
48" Manholes	2	EA	$6,000.00	$12,000
60" Manholes	10	EA	$9,000.00	$90,000
72" Manholes	2	EA	$21,000.00	$42,000
60" Outlet Structures	2	EA	$17,000.00	$34,000
Land Dedication	44.8	Acres	$15,000.00	$672,000
Clearing and Grubbing	44.8	Acres	$2,000.00	$89,600
Retention Basin Excavation	545,000	CY	$7.50	$4,088,000
Chain Link Fencing with Slats and Gate	5,600	LF	$28.00	$157,000
			Contingency	15%
			Total:	$9,241,000

3.22.7 Permitting

No major roads, canals, or other apparent rights-of-ways that would require easements and/or permits are to be crossed for Drainage Zone #11. However, this topic should be revisited at the time of design and construction, or if the City desires to discharge storm water to the Fresno Slough.

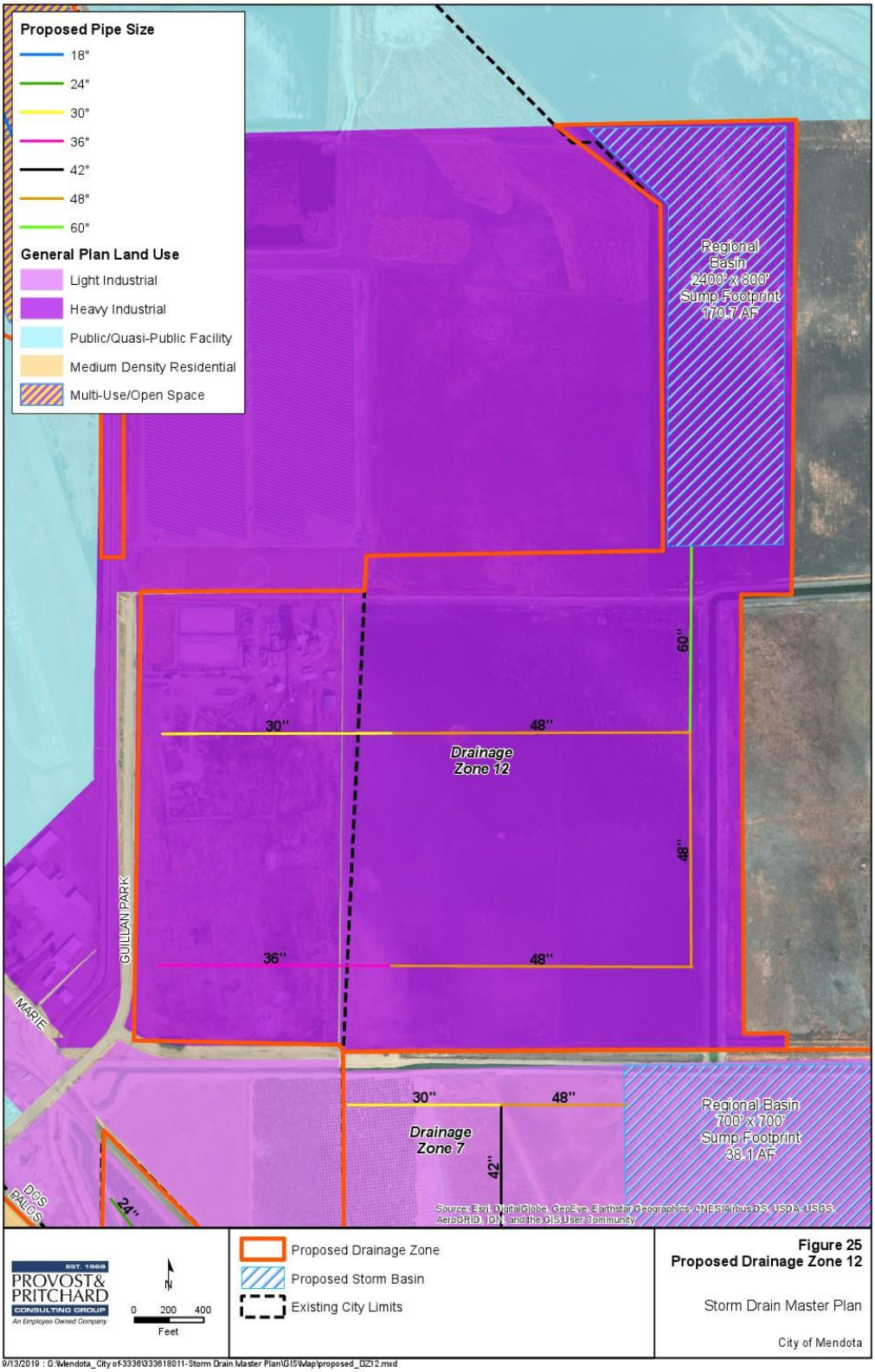
3.23 Drainage Zone #12

Drainage Zone #12 (**Figure 29**) is located in the eastern portion of the proposed sphere of influence and is designated Heavy Industrial. The Drainage Zone is bounded by the Guillen Park Drive alignment on the south; the Fresno Slough on the east, the City's WWTP on the north and on the west by the San Luis Drain. The total area of the Drainage Zone is approximately 271acres.

This Drainage Zone is within a FEMA Flood Zone A which may restrict development and needs to be considered with future design and mapping within this Drainage Zone.

[15] All RCP quantities are estimates rounded to the nearest 25-foot increment.

Figure 29. Proposed Drainage Zone 12



3.23.1 Hydrology

Per City Standards the weighted runoff coefficient for the Drainage Zone was determined using the table below. The resulting analysis yielded a weighted runoff coefficient of 0.80, and the total required retention volume for Drainage Zone #10 is 145.3 acre-feet. Likewise, the peak flow rate was determined to be approximately 89.5 cfs, using the values for the Rational method equation required per City Standards.

Table 3-27. Hydrology of Storm Drain Infrastructure Drainage Zone #12

Hydrology of Storm Drain Infrastructure Drainage Zone #12				
Land Use Type	Land Use Coefficient, C	Area, A (acres)	C x A (acres)	**Volume=C'iA** (acre-feet)
Single Family Residential	0.3	—		
Commercial	0.7	—		
Industrial	0.8	271	216.8	
Multi-Family Residential	0.55	—		
Open Space/Parks	0.2	—		
Weighted Runoff **Coefficient (C')**	0.80			
Totals		271	216.8	145.4

3.23.2 Collection Facilities

The master planned collection facilities for the Drainage Zone are primarily comprised of one (1) trunk line and two (2) branches that discharge to a proposed retention basin near the northeastern boundary of the Drainage Zone (**Figure 29**). The master planned collection piping ranges from 30" to 60" and was sized based on the flow accumulated from assumed upstream sub-areas within the watershed.

3.23.3 Retention Storage

Using the Retention Basin Storage Requirements outlined in Section 2.2.3, the Drainage Zone's designated land use and acreage were used to determine basin sizing. Regional Basin #12 is located at the northeast boundary of the Drainage Zone and will require an approximate footprint of 2,400-feet by 800-feet, which represents approximately 16.3% of the Drainage Zone's total gross area and includes area for side slopes and access roads.

3.23.4 Disposal

Disposal of storm water from the retention basin in this Drainage Zone will primarily be via evaporation. There is a possibility that if storm water could be treated via recognized stormwater BMPs, it could be discharged to the Fresno Slough as an alternative to retention and evaporation, which could allow reducing the basin to a detention basin. This option would require further study and analysis to validate its feasibility and would then require securing an NPDES permit from the Regional Water Quality Control Board.

Drainage Zone #12's overland escape route from the retention basin, or breakover point, would be to the east and into the Fresno Slough on an emergency basis only. The overland escape route is shown on **Figure 29** as a solid green line.

3.23.5 Necessary Projects

As discussed in the Collection Facilities section, Drainage Zone #12 will have one (1) trunk line with two (2) branches conveying flow from the southwest portions of the Drainage Zone to the retention basin located at the northeastern boundary of the Drainage Zone. The proposed conveyance system is comprised of 1,325 lf of 30" RCP; 1,325 lf of 36" RCP; 4,800 lf of 48" RCP; and 1,050 lf of 60" RCP. It is estimated that three (3) - 48" diameter manholes, 10 – 60" manholes and two (2) 72" manholes will be required for the proposed collection system, as well as one (1) outlet structure for discharge into the retention basin. Additionally, an estimated 44.1 acres of land will need to be dedicated to the City for the retention basin.

3.23.6 Summary of Costs

Table 3-28. Summary of Storm Drain Infrastructure Costs Drainage Zone #12

Summary of Storm Drain Infrastructure Costs Drainage Zone #12				
Description	Quantity[16]	Units	Unit Cost	Cost
General Contracting Requirements	1	LS	$1,170,000.00	$1,170,000
30" RCP	1,325	LF	$170.00	$226,000
36" RCP	1,325	LF	$190.00	$252,000
48" RCP	4,800	LF	$350.00	$1,680,000
60" RCP	1,050	LF	$540.00	$567,000
48" Manholes	3	EA	$6,000.00	$18,000
60" Manholes	10	EA	$9,000.00	$90,000
72" Manholes	2	EA	$21,000.00	$42,000
72" Outlet Structures	1	EA	$20,000.00	$20,000
Land Dedication	44.1	Acres	$15,000.00	$661,500
Clearing and Grubbing	44.1	Acres	$2,000.00	$88,200
Retention Basin Excavation	530,000	CY	$7.50	$3,975,000
Chain Link Fencing with Slats and Gate	6,400	LF	$28.00	$179,000
			Contingency	15%
			Total:	$10,314,000

[16] All RCP quantities are estimates rounded to the nearest 25-foot increment.

3.23.7 Permitting

No major roads, canals, or other apparent rights-of-ways that would require easements and/or permits are to be crossed for Drainage Zone #11. However, this topic should be revisited at the time of design and construction, or if the City desires to discharge storm water to the Fresno Slough.

3.24 Drainage Zone #13

Drainage Zone #13 (**Figure 30**) is located in the northeastern portion of the proposed sphere of influence and has portions of its land use designated as Multi-Use/Open Space as well as Medium Density Residential. The Drainage Zone is bounded by Bass Avenue on the northwest; the City's WWTP on the northeast and east; the airport on the south and back yards of the residents along Blanco Street on the southwest. The total area of the Drainage Zone is approximately 182 acres.

This Drainage Zone is within a FEMA Flood Zone A which may restrict development and needs to be considered with future design and mapping within this Drainage Zone.

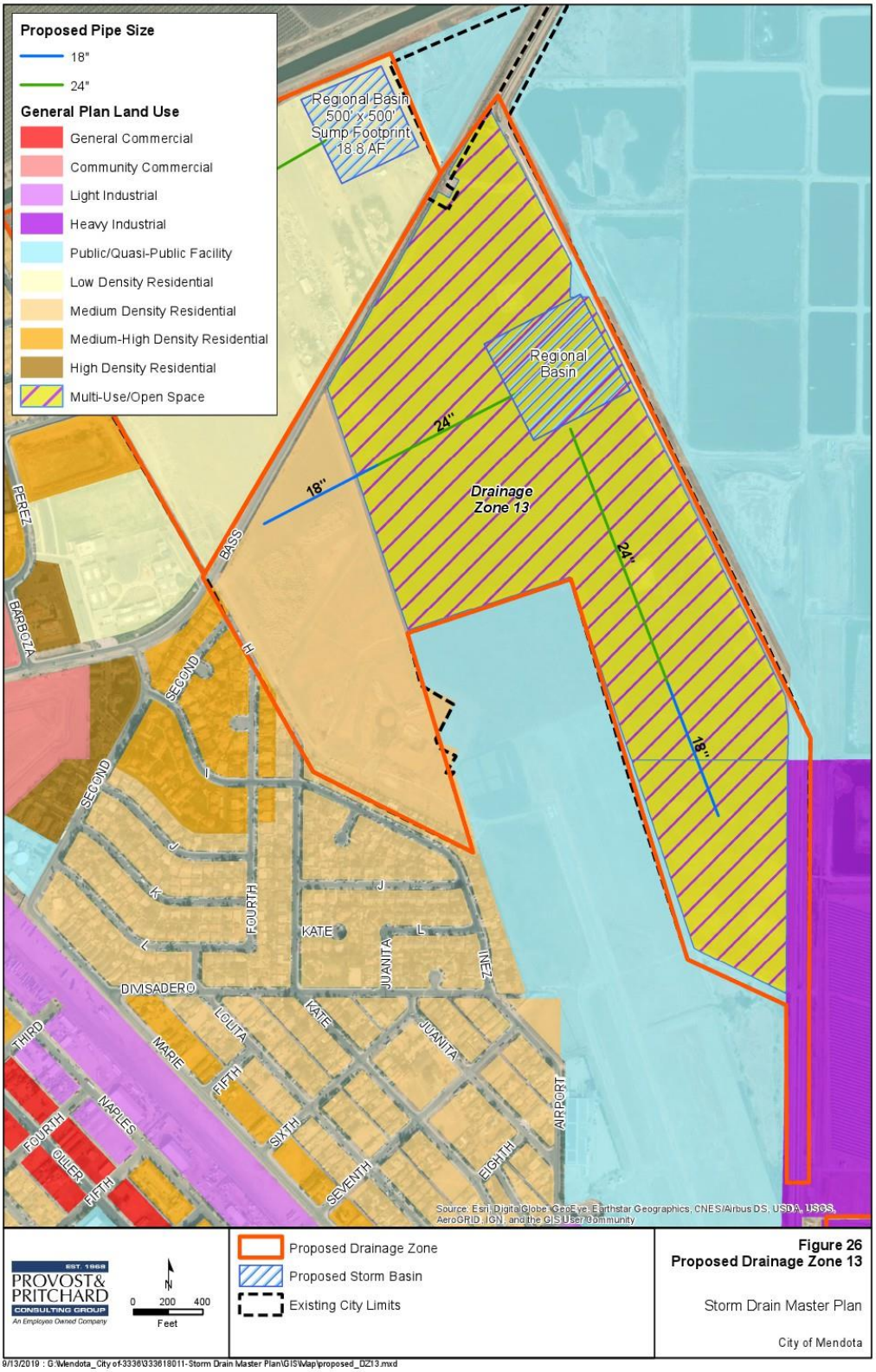
3.24.1 Hydrology

Per City Standards the weighted runoff coefficient for the Drainage Zone was determined using the table below. The resulting analysis yielded a weighted runoff coefficient of 0.24, and the total required retention volume for Drainage Zone #13 is 29.3 acre-feet. Likewise, the peak flow rate was determined to be approximately 7.2 cfs, using the values for the Rational method equation required per City Standards.

Table 3-29. Hydrology of Storm Drain Infrastructure Drainage Zone #13

Hydrology of Storm Drain Infrastructure Drainage Zone #13				
Land Use Type	Land Use Coefficient, C	Area, A (acres)	C x A (acres)	**Volume=C'iA** (acre-feet)
Single Family Residential	0.3	26.3	7.9	
Commercial	0.7			
Industrial	0.8			
Multi-Family Residential	0.55	11.4	6.3	
Open Space/Parks	0.2	144.2	28.8	
Weighted Runoff Coefficient (C')	0.24			
Totals		181.9	43.0	29.3

Figure 30. Proposed Drainage Zone 13



3.24.2 Collection Facilities

The master planned collection facilities for the Drainage Zone are primarily comprised of two (2) trunk lines that discharge to a proposed retention basin near the northeastern boundary of the Drainage Zone (**Figure 30**). The master planned collection piping ranges from 18" to 24" and was sized based on the flow accumulated from assumed upstream sub-areas within the watershed.

3.24.3 Retention Storage

Using the Retention Basin Storage Requirements outlined in Section 2.2.3, the Drainage Zone's designated land use and acreage were used to determine basin sizing, as shown in Table 3-29. Regional Basin #13 is located near the northeast boundary of the Drainage Zone and will require an approximate footprint of 625-feet by 625-feet, which represents approximately 10.8% of the Drainage Zone's total gross area and includes area for side slopes and access roads.

3.24.4 Disposal

Disposal of storm water from the retention basin in this Drainage Zone will primarily be via evaporation, however there is a possibility the retention basin could instead be designed and constructed as a detention basin that would discharge via pumping to Bass Avenue and ultimately the San Luis Canal. This would greatly reduce the required footprint of the basin.

Drainage Zone #13's overland escape route for the retention basin (**Figure 30**) would be to the Northwest and water would flow adjacent to the Bass Avenue Ditch and then ultimately to the basin in the northwest corner of the WWTP.

3.24.5 Necessary Projects

As discussed in the Collection Facilities section, Drainage Zone #13 will have two (2) trunk lines conveying flow from the southwest and southeast portions of the Drainage Zone to the retention basin located at the northeastern boundary of the Drainage Zone. The proposed conveyance system comprises 1,550 lf of 18" RCP; and 2,500 lf of 24" RCP. It is estimated that nine (9) - 48" diameter manholes will be required for the proposed collection system, as well as two (2) outlet structures for discharge into the retention basin. Additionally, an estimated 9.0 acres of land will be needed for the retention basin. Somewhat less would be needed if a detention basin proved to be feasible.

3.24.6 Summary of Costs

Table 3-30. Summary of Storm Drain Infrastructure Costs Drainage Zone #13

Summary of Storm Drain Infrastructure Costs Drainage Zone #13				
Description	Quantity[17]	Units	Unit Cost	Cost
General Contracting Requirements	1	LS	$250,000.00	$250,000
18" RCP	1,550	LF	$130.00	$202,000
24" RCP	2,500	LF	$150.00	$375,000
48" Manholes	9	EA	$6,000.00	$54,000
48" Outlet Structures	2	EA	$15,000.00	$30,000
Land Dedication	9.0	Acres	$15,000.00	$135,000
Clearing and Grubbing	9.0	Acres	$2,000.00	$18,000
Retention Basin Excavation	105,000	CY	$7.50	$788,000
Chain Link Fencing with Slats and Gate	2,500	LF	$28.00	$70,000
			Contingency	15%
			Total:	$2,210,000

3.24.7 Permitting

No major roads, canals, or other apparent rights-of-ways that would require easements and/or permits are to be crossed for Drainage Zone #13. However, this topic should be revisited at the time of design and construction.

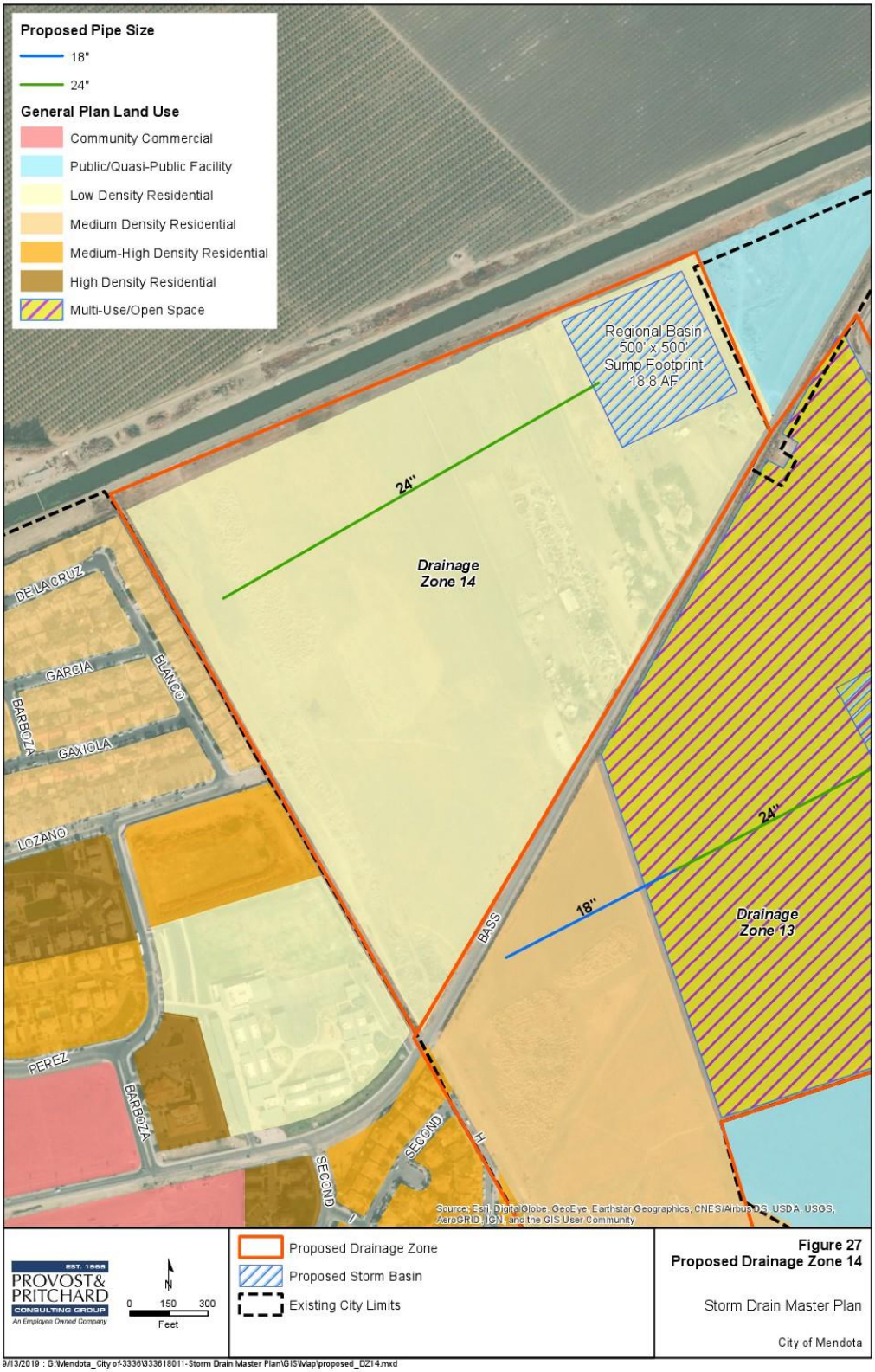
3.25 Drainage Zone #14

Drainage Zone #14 (**Figure 31**) is located in the northern most portion of the proposed sphere of influence and is designated as Low Density Residential. The Drainage Zone is bounded by Bass Avenue on the southeast; Watershed #9 on the southwest and the Firebaugh Canal District Intake Canal on the northwest. The total area of the Drainage Zone is approximately 91.2 acres.

This Drainage Zone is within a FEMA Flood Zone A which may restrict development and needs to be considered with future design and mapping within this Drainage Zone.

[17] All RCP quantities are estimates rounded to the nearest 25-foot increment.

Figure 31. Proposed Drainage Zone 14



3.25.1 Hydrology

Per City Standards the weighted runoff coefficient for the Drainage Zone was determined using the table below. The resulting analysis yielded a weighted runoff coefficient of 0.30, and the total required retention volume for Drainage Zone #13 is 16.8 acre-feet. Likewise, the peak flow rate was determined to be approximately 7.0 cfs, using the values for the Rational method equation required per City Standards.

Table 3-31. Hydrology of Storm Drain Infrastructure Drainage Zone #14

Hydrology of Storm Drain Infrastructure Drainage Zone #14				
Land Use Type	Land Use Coefficient, C	Area, A (acres)	C x A (acres)	**Volume=C'iA** (acre-feet)
Single Family Residential	0.3	83.4	25.0	
Commercial	0.7	—		
Industrial	0.8	—		
Multi-Family Residential	0.55	—		
Open Space/Parks	0.2	—		
Weighted Runoff Coefficient (C')	0.30			
Totals		83.4	25.0	16.8

3.25.2 Collection Facilities

The master planned collection facilities for this Drainage Zone includes 24" trunk line that was sized based on the flow accumulated from the assumed sub-areas within the watershed. The main trunk in this Drainage Zone is proposed to flow east to west, parallel to the FCD Intake Canal (**Figure 31**) to the proposed retention basin.

3.25.3 Retention Storage

Using the Basin Storage Requirements for Retention Basins outlined in Section 2.2.3, Regional Basin #14 has a designed footprint of 500' x 500' which represents 3.5% of the Drainage Zone's total area. This area includes room for side slopes and access roads around the basin.

3.25.4 Disposal

Disposal of storm water from the retention basin in this Drainage Zone will primarily be via evaporation, however there is a possibility the basin could be designed and constructed as a detention basin that would discharge via pumping to the FCD Intake Canal or across Bass Avenue to the San Luis Drain instead. This would greatly reduce the required footprint of the basin. Discharging to the Main Lift Canal northwest of Drainage Zone was also considered, however it is believed to be unlikely that San Luis Canal and Irrigation District would grant permission to pump stormwater into the canal after storm events. However, it may be possible to discharge to the Main Lift Canal during the Spring when flooding is not a concern.

Drainage Zone #14's overland escape route from the retention basin (**Figure 31**) would be to the Northeast and water would flow adjacent to the Intake Canal to the intersection with Bass Avenue.

3.25.5 Necessary Projects

As discussed in the Collection Facilities section, Drainage Zone #14 will have one main trunk conveying storm water from various collection points throughout the water shed to its respective retention (or alternatively detention) basin. The proposed conveyance system is comprised of 1,675 linear feet (LF) of 24" RCP along the main trunk. It is estimated that five (5) – 48" diameter manholes will be required for the proposed collection system as well as one (1) outlet structure for discharge into the retention basin. Additionally, an estimated 14.7 acres of land will be needed for the retention basin. Somewhat less area would be needed for a detention basin should that prove feasible.

3.25.6 Summary of Costs

Table 3-32. Summary of Storm Drain Infrastructure Costs Drainage Zone #14

Summary of Storm Drain Infrastructure Costs Drainage Zone #14				
Description	Quantity[18]	Units	Unit Cost	Cost
General Contracting Requirements	1	LS	$163,000.00	$163,000
24" RCP	1,675	LF	$150.00	$251,000
48" Manholes	5	EA	$6,000.00	$30,000
48" Outlet Structures	1	EA	$15,000.00	$15,000
Land Dedication	14.7	Acres	$15,000.00	$220,500
Clearing and Grubbing	14.7	Acres	$2,000.00	$29,400
Retention Basin Excavation	65,000	CY	$7.50	$488,000
Chain Link Fencing with Slats and Gate	2,000	LF	$28.00	$56,000
			Contingency	15%
			Total:	$1,440,000

3.25.7 Permitting

No major roads, canals, or other apparent rights-of-ways that would require easements and/or permits are to be crossed for Drainage Zone #14. However, this topic should be revisited at the time of design and construction.

[18] All RCP quantities are estimates rounded to the nearest 25-foot increment.

4 Public Benefit versus Development Charges

4.1 Existing Versus Future Users

The improvements discussed in the SDMP can be assigned to one of two categories:

- Improvements necessary within the existing developmental footprint
- Improvements required to serve future development

It is the recommendation of this report for the City to prioritize improving existing infrastructure to mitigate current flooding concerns in the downtown area first. This would provide City's residents with an immediate benefit. Those projects will benefit existing City residents, businesses, and visitors, though the cost burden for the projects will fall on the City. Project funds will have to come either from the City's Enterprise Fund or potentially from storm drain related grant funds as those become available. No Development Impact Fees may be used for construction of projects unless they also benefit developing areas, and then only in proportion to the benefit that the developing area receives.

As the City grows and expands it is recommended that the collection, conveyance and storage improvements discussed in Section 3 of this report be implemented, either directly by Developers or by the City through Development Impact Fee financing, to provide the benefit of sustainable stormwater management to new City residents. The table below identifies the approximate costs associated with the improvements for each drainage area, both existing and proposed.

Establishment of appropriate Development Impact Fees to support financing of these projects is beyond the scope of this report. The City will complete a separate Development Impact Fee study which will recommend fee amounts for storm drain and other development impact fees.

Table 4-1. Summary of Cost to Implement Recommended Infrastructure Upgrades

Summary of Cost to Implement Recommended Infrastructure Upgrades		
Description	Estimated Costs	Priority
Existing Watershed Improvements		
Watershed #2	$--	High
Watershed #3-1	$--	High
Watershed #3-2	$1,254,000	High
Watershed #3-3	$5,075,000	High
Watershed #5	$510,000	High
Watershed #7	$505,000	High
Watershed #8	$265,000	High
Sub Total	$7,609,000	
Proposed Drainage Zone Developments		
Drainage Zone #1	$1,535,000	As Needed
Drainage Zone #2	$6,540,000	As Needed
Drainage Zone #3	$2,380,000	As Needed
Drainage Zone #4	$7,879,000	As Needed
Drainage Zone #5	$8,400,000	As Needed
Drainage Zone #6	$4,925,000	As Needed
Drainage Zone #7	$3,057,000	As Needed
Drainage Zone #8	$4,362,000	As Needed
Drainage Zone #9	$3,542,000	As Needed
Drainage Zone #10	$8,511,000	As Needed
Drainage Zone #11	$9,241,000	As Needed
Drainage Zone #12	$10,314,000	As Needed
Drainage Zone #13	$2,210,000	As Needed
Drainage Zone #14	$1,440,000	As Needed
Sub Total	$74,154,000	
Total:	$81,945,000	

Appendix

Appendix A

City of Mendota
Hydrologic Design Criteria

June 2018

1 General

The design criteria in this section are the minimum acceptable criteria for use by designers of drainage facilities to be developed within the City. Designers are cautioned to apply their own expertise and judgment in development of final designs. Certain projects or clients may appropriately require more stringent criteria. However, the City will not reimburse for costs associated with systems designed to criteria higher than listed herein, unless those higher criteria have been mandated by City staff or governing bodies.

2 Collection Systems

All elements of the storm drainage collection system (streets, gutters, inlets, pipes, and pump stations) shall be designed in accordance with the variation on the Rational method presented below. The method discussed here does not provide for the most intensive, short-duration storms, which are considered by the standard Rational method. The peak flows from such storms are handled through short-term ponding within street areas. Once the brief peak has passed, the inlets, pipes and pump stations designed according to the City's criteria clear the streets.

Calculated flow for a given system (Q) shall be derived from the standard Rational formula, as modified by the definitions given:

$$Q = CiA$$

Where:

Q	=	Runoff Flow (cubic feet per second)
C	=	Runoff Coefficient (Per Table, Section 2.1 or as directed)
i	=	Rainfall Intensity (inches/hour, per table, Section 2.2)
A	=	Tributary Area (acres)

Inlets, pipes and pump stations shall be designed to handle the runoff flow calculated by the equation above.

Runoff coefficients are given in Section 2.1. These shall be used for any future development under consideration. If a specific site plan is available, and higher runoff can be anticipated, City may direct use of higher runoff coefficients. For example, an industrial development covering its entire site with building and impervious surface would require a runoff coefficient of 0.95 rather than the standard 0.80 given in Section 2.1.

2.1 Runoff Coefficients (Inlet, Pipeline and Pump Station Design)

The following Table 2-1 shall be used to determine the runoff coefficients for the runoff calculation. For mixed use developments, coefficients shall be averaged on an area-weighted basis.

Table 2-1
Standard Runoff Coefficients

Land Use Type	Runoff Coefficient
Industrial	0.80
Commercial	0.70
Multi-Family Residential	0.55
Single Family Residential	0.30
Open Space (Parks & School Yards)	0.20

2.2 Rainfall Intensity

Rather than using standard intensity-duration curves, the rainfall intensities shown in Table 2-2 shall be used throughout the City. For areas with mixed land uses, a composite intensity shall be calculated on an area-weighted basis.

Table 2-2
Standard Rainfall Intensities

Land Use Type	Rainfall Intensity (inches/hour)
Commercial and Industrial	0.50
All Residential	0.30

3 Pump Stations

Storm drain pump stations shall be designed in accordance with the requirements of this section, the Standard Drawings, and any applicable Storm Drain Master Plan for the subject area. It shall be the responsibility of the engineer to determine whether the project is affected by a Storm Drain Master Plan, and to coordinate design with the construction of required Master Plan facilities.

Pump stations shall be equipped with duplex non-clog centrifugal pumps and shall be provided with trash racks in accordance with the Standard Drawings. Should site-specific conditions so dictate, alternative designs will be considered if it can be demonstrated that such alternatives are in the interest of the City. Such alternatives could include propeller or other-type pumps, or alternative wet well designs. In any case, the quality and durability of the supplied hardware and facilities shall be of the level shown on the Standard Drawings.

Pumps shall be selected and designed to provide the required flow when running in tandem, and at least 60 percent of the maximum design flow when running singly. The design engineer shall submit pump design calculations for review along with the Improvement Drawings. Calculations shall include pump curves (simplex and duplex operation) and system head curves overlain on the same scale. The operating range shall give consideration to all variable conditions including discharge head and depth of water in the wet well. Typically, pumps shall be selected to run to the right of the point of peak efficiency on the pump curve. Variance from that policy requires approval of the City Engineer.

Pump submittals shall indicate type, make, model, horsepower, selected impeller type and model number, wire to water efficiency, motor voltage, and any other pertinent information. Typically, impellers shall be single-vane non-clog or vortex; however, in larger diameters dual-vane impellers may be considered.

Wet wells shall be designed to provide not more than ten pump starts per hour for the selected pump and the system conditions. Design engineer shall submit calculations demonstrating the range of required pump starts for approval along with the Improvement Drawings.

Wet wells shall be of sufficient depth to allow complete drainage of tributary pipelines, with pump shut-off elevation set at or below the invert elevation of the inlet pipe. Pump stations shall be located within public rights-of-way, or in landscape easements, so that there is ready vehicular access for pump maintenance.

Pump control panels and electric service shall be located near a right-of-way boundary, against a fence or masonry wall as may be the case. A masonry enclosure with chain link or wrought iron gates (as directed by City) shall be constructed in accordance with the Standard Drawings. The control panel shall be located so as to give a direct line of sight to the pump station by a person standing at the control panel.

4 Storm Drainage Basin Classification

Storm drainage basins shall be classified as temporary or permanent and shall be classified as being for detention or retention, as defined herein. The design engineer shall submit appropriate calculations supporting the selected size and design criteria for any basin included in a development along with the Improvement Drawings.

4.1 Temporary Basins

A basin shall be designated as "temporary" if it meets all of the following conditions:

- Provides protection only for a single development or portion thereof.
- Is within an area covered by a Storm Drainage Master Plan.
- Is not included as part of the scope of work given in the Master Plan; and
- In City's sole opinion, is anticipated to have a useful life of five years or less.

4.2 Permanent Basins

Any basin not meeting the conditions given in Section 4.1 shall be designated a "permanent basin."

4.3 Detention Basins

Basins which meet the following criteria shall be designated as "detention basins":

- Designed to receive storm water and concurrently discharge to a pipe, an irrigation ditch, or other facility at a flow rate not to exceed the capacity of the downstream receiving facility, and.
- Downstream facilities are not subject to restrictions on flow discharge or quantity under most operating conditions during the year.

4.4 Retention Basins

Any basin which has no relief outlet, or which has an outlet not meeting the conditions in 4.3, shall be designated a "retention basin."

4.5 Basin Volumes

All detention basins shall be designed to detain two (2) 10-year, 24-hour storm events, with no allowance for percolation or evaporation. See Table 5-1.

If using Method 2 in Section 5.3 for detention basin design, Developer's engineer shall prepare a hydrograph for each detention basin per Section 5.3 and shall submit the design to the City Engineer for approval.

All retention basins shall be designed to store 8.05 inches of rainfall, equal to the total average annual rainfall in Mendota, with no allowance for percolation or evaporation. See Table 5-1. If the proposed basin has an outlet which does not meet the requirements of Section 4.3, the design engineer may apply to the City Engineer for reduction in the required storage quantity which takes the capacity of the relief facility into account.

Design engineer shall prepare calculations showing the areas and runoff coefficients for all area tributary to the proposed basin and shall demonstrate adequate capacity accounting for HGL and

freeboard requirements set forth in Section 5.

5 Basin Design Criteria

5.1 General

Many design criteria are common among the basin classifications. The requirements of this section apply to all basins, whether temporary or permanent, detention or retention. The criteria in this section are minimums acceptable to the City and may be exceeded at the Developer's option.

- Basin volume shall be calculated as the volume below an elevation not higher than 0.50 feet below the collection system HGL at the discharge
- Hydraulic grade lines of storm water collection pipes shall not exceed 0.50 feet below the flow line elevation of any inlets along such pipe.
- Minimum basin freeboard shall be 2.00 feet between the maximum water surface of the basin and the top of the basin embankment.
- Minimum basin bottom elevation shall be determined by the City Engineer upon review of groundwater data submitted by the Developer's engineer but shall in no case be lower than 5.0 feet above the seasonal high ground water level elevation.
- Retention basins shall have a maximum depth of water no deeper than 4.0 feet to allow for evaporation of retained storm runoff.
- Basin bottom shall be sloped at 0.5% minimum toward the basin outlet in detention basins, or toward any single area in retention basins, to minimize puddling at low water levels. Retention basins are encouraged to utilize drywells at low points in basin to reduce ponding of nuisance water.
- Detention basin outlets shall be designed to dewater the basin within a maximum of 96-hours.
- All basins shall have an emergency overland escape (breakover) to a safe drainage course. Building pad elevations in tributary area shall be a minimum of one foot (1.0 foot) above the elevation of overland escape.
- Embankment slopes (horizontal to vertical):
    - Temporary Basin – 2:1
    - Permanent Basin – 3:1
    - Permanent Basin/Sport Field (with turf) – 4:1
- Provide minimum 10-foot access path around perimeter of all basins. Access road shall be topped with minimum 4 inches of Class II aggregate base.
- Provide six-foot chain link fence built in accordance with Section 25, *Chain Link Fence of City Standard Specifications and City Standard Drawings* around the outer perimeter of the pond, unless not required by the City. A minimum of one (1) 12-foot swinging gate with access to public streets shall be provided for maintenance purposes. Such access may be either direct, or through an approved access easement.

Table 5-1 shows the required rainfall accumulations that shall be used to design basins of various types.

Table 5-1
Standard Rainfall Accumulations for Basin Design

Basin Design Criteria	Rainfall (Inches)
Two (2) 10 year, 24-hour events	3.18
Average Annual Rainfall	8.05
100 year return Annual Rainfall*	12.25
Annual Evapotranspiration	45.75
Percolation/Infiltration (of native soils)	0

* To be used when directed by the City

5.2 Basin Calculations (General)

Calculation of required pond volume, maximum permissible water surface elevation, and system hydraulic grade line shall be submitted by the design engineer, along with the Improvement Drawings.

All design calculations shall include the time required to completely drain any proposed detention ponds after the design storm event has ended.

5.3 Detention Basin Calculations

Either of the following methods may be used to size and design proposed detention basins:

Method 1:

Detention basins shall be sized based on the basin criteria in Section 5.1 and the following formula:

$$V = CiA$$

Where:

V = Detained Runoff Volume (acre-feet)

C = Composite Runoff Coefficient (per Table, Section 2.1 or as directed)

i = Rainfall Accumulation/Depth of two (2) 10-year, 24 hour storm events (feet, per Table 5-1)

A = Tributary Area (acres)

Method 2:

Where detention basin criteria call for submission of a hydrographs it shall be prepared by the design engineer in conformance with the provisions of this section using the Modified Rational method, for tributary areas up to 20 acres. The City Engineer shall be consulted for larger areas or areas with multiple in-line (routed) basins.

The time of concentration (T_c) shall be 30 minutes unless approved otherwise by the City Engineer. The design storm for the basin hydrograph shall be a 10 year, 2-day storm event with a rainfall intensity of 0.040 inches/hour. The runoff coefficient shall be prorated to account for the composite land use within the study area set forth in Section 2.1.

The design storm shall be routed through the proposed basin and utilize a weir structure discharging into gravity pipe(s) or a pump station, as necessary. For the purpose of these calculations, the pump's outflow shall be considered to be a single pump's capacity even in a duplex pump station.

5.4 Retention Basin Calculations

Retention basins shall be sized based on the basin criteria in Section 5.1 and the following formula:

$$V = CiA$$

Where:

V	=	Retained Runoff Volume (acre-feet)
C	=	Composite Runoff Coefficient (per Table, Section 2.1 or as directed)
i	=	Average Annual Rainfall, per Table 5-1 (feet)
A	=	Tributary Area (acres)

AGENDA

AGENDA ITEM – STAFF REPORT

TO: HONORABLE MAYOR AND COUNCILMEMBERS

FROM: NANCY BANDA, FINANCE DIRECTOR

VIA: CRISTIAN GONZALEZ, CITY MANAGER

SUBJECT: CLAIMING LOCAL TRANSPORTATION FUNDS FOR FISCAL YEAR 2022-2023

DATE: AUGUST 9, 2022

ISSUE

Should the City Council approve Resolution 22-50, claiming Local Transportation Funds for Fiscal Year 2022-2023?

BACKGROUND

The Fresno Council of Governments ("FCOG") has the authority to review claims and allocate such funds in accordance with the Transportation Development Act ("TDA") of 1971 and Chapter 3 of Title 21 of the California Administrative Code for the purposes allowed under Articles III, IV and VII which provides funding to be allocated to encourage inter-jurisdictional coordination of transportation needs and increased coordination of transportation implementation planning. This funding is allocated by the California Department of Tax and Fee Administration, which takes the amount of sales tax collected and returns the general sales tax revenue to the Council of Fresno County Governments. They in turn, allocate it to each City in the County based on population for the projects that were budgeted for the 2022-2023 fiscal year.

ANALYSIS

The attached resolution and claim forms for each applicable funding program are routine and required by FCOG to receive the funding for the Local Transportation Funds. With the funding provided under the TDA, the City can fund street projects approved during the budget for each fiscal year, rural transit and assist with regional transportation planning.

The total amount allocated for the City of Mendota is $755,839.00. However, the City will be payable $543,154.00 from the total allocation. The remaining $212,685.00 will be distributed among four sections: Regional Transportation Planning, Community Transit Service, Article 4.5, Fresno County Rural Transit Agency LTF and Fresno County Rural Transit Agency STA. The following table displays each sections allocation:

FY 2022/2023

Regional Transportation Planning	$ 17,832.00
Community Transit Service, Article 4.5	$ 30,834.00
Fresno County Rural Transit Agency LTF	$ 46,170.00
Fresno County Rural Transit Agency STA	$ 117,849.00
	$ 212,685.00

Regional Transportation Planning is a long-term design of a region's transportation system. The plan identifies and analyzes transportation needs of the metropolitan region and creates a framework for project priorities.

Community Transit Service, Article 4.5 is a transportation planning agency for community transit services for those disabled, who cannot use conventional transit services. Transportation services which connect intra-community origins and destinations in which needs are not being met in the community.

Fresno County Rural Transit is a transportation service offered in Fresno County to the 13 rural incorporated communities and many unincorporated rural communities with limited services to neighboring counties Kings County (Avenal and Hanford). There is a Demand Responsive or Fixed Route Basis for all passengers. The difference between LTF and STA funding is STA is specific to transit purposes.

FISCAL IMPACT

$543,154.00 to the City of Mendota "LTF" Fund.

RECOMMENDATION

Staff recommends Council to approve Resolution No. 22-50, claiming Local Transportation Funds for Fiscal Year 2022-2023.

Attachment(s):

1. LTF Claim Forms for Fiscal Year 2022-2023
2. Resolution No. 22-50

Enter Date: | Claimant Name: City of Mendota

AGENDA

TRANSPORTATION FUNDING CLAIM FOR FISCAL YEAR: 2022/23

Instructions: Please note that each page of this claim is a separate worksheet, please click through all tabs and complete. Also note that light yellow fields require an entry if applicable, light grey fields contain formulas that will automatically calculate based on corresponding entries. A date and claimant name field is at the top of the first page, and automatically repeats on following pages, (date should be formatted 00/00/0000)

When completed, please print, sign and send signed original via mail to:

Les Beshears, Director of Finance, Fresno Council of Governments, 2035 Tulare Street, Suite 201, Fresno, CA 93721

From: Applicant:	**City of Mendota**
Address:	
City/State/Zip:	
Contact Phone/email:	

This applicant is an eligible claimant pursuant to Section 99203 of the Public Utilities Code and certifies that the following transportation funds are available to be claimed:

Local Transportation Fund

Apportionment:	$ 637,990.00
Unexpended, Held by Claimant:	
Other Agency:	

State Transit Assistance Fund

Estimate:	$ 117,556.00
Unexpended, Held in Trust:	$ 293.00

Other

Other:	

	TOTAL
	$ 755,839.00

spell out total amount in above cell

for the purposes and respective amounts specified in the attached claim be drawn from the Local Transportation Fund and State Transit Assistance Fund.

Please print and sign after completing form

Authorized Signature:	
Name/Title:	
Date:	

Fresno Council of Governments

2035 Tulare St., Ste. 201 tel 559-233-4148
Fresno, California 93721 fax 559-233-9645

www.fresnocog.org

Enter Date: | Claimant Name: City of Mendota | AGENDA

TRANSPORTATION FUNDING CLAIM DETAIL FOR FISCAL YEAR: 2022/23

PURPOSE		AMOUNT	SUBTOTAL
1. Bicycle & Pedestrian Facilities:			
	Article 3:	$ 12,769.00	
	Article 8a:		
	Audit Exceptions (General Fund Payback);		
	Unexpended Funds, Held by Claimant:		
			$ 12,769.00
2. Regional Transportation Planning:		$ 17,832.00	$ 17,832.00
3. Public Transportation	**State Transit Assistance Funds (STA):**	$ -	
	Other:		
			$ -
4. Community Transit Service CTSA, Article 4.5:		$ 30,834.00	$ 30,834.00
5. Streets & Roads:	**Article 8a:**	$ 530,385.00	
	Unexpended Funds, Held by Claimant:		
			$ 530,385.00
6. To Be Claimed By:			
	Fresno County Rural Transit Agency LTF:	$ 46,170.00	
	Fresno County Rural Transit Agency STA:	$ 117,849.00	
	Other	$ -	
			$ 164,019.00
7. Reserve in Fund Pending Further Claiming			$ -
	GRAND TOTAL		$ 755,839.00
	Claim Total Must Agree With Total on First Page		$ 755,839.00
	Minus Non Transit Claims		$ 212,685.00
	GRAND TOTAL PAYABLE TO CLAIMANT		$ 543,154.00

Allocation instructions and payment by the Fresno County Auditor-Controller to the applicant is subject to such monies being available for distribution, and to the provisions that such monies will be used only in accordance with the rules and regulations of the Transportation Development Act.

Enter Date: **Claimant Name:** City of Mendota

AGENDA

BICYCLE AND PEDESTRIAN FACILITIES FOR FISCAL YEAR: 2022/23

Two percent (2%) of the claimant's Local Transportation Fund apportionment must be spent on bicycle and pedestrian facilities (PUC 99233.3 and 99234); such claims are to be filed as Article 3. Claims for projects in excess of 2% may be filed as Article 8a (PUC 99400(a)). If other funding is to be used with Local Transportation Funds to implement projects, such funding should be shown on the claim form.

PROJECT TITLE & BRIEF DESCRIPTION	PROJECT COST
1. Various Bicycle & Pedestrian Facilities throughout the claimant's jurisdiction:	$ 12,769.00
AND/OR:	
Other - describe briefly if applicable:	$ -
Other - describe briefly if applicable:	$ -
Other - describe briefly if applicable:	$ -
TOTAL PROJECT COSTS	$ 12,769.00

STREETS AND ROADS CLAIM FOR FISCAL YEAR: 2022/23

Local Transportation Funds coming to claimants within Fresno County may be used for streets and roads improvements and maintenance pursuant to Article 8 (PUC 99400), but only after Fresno COG makes a finding that public transportation needs within the claimant's jurisdiction are reasonably met by satisfying the service requirements set forth by the Regional Transportation Plan (PUC 99401.5).

PROJECT TITLE & BRIEF DESCRIPTION	PROJECT COST
1. Development, Construction & Maintenance Facilities throughout the claimant's jurisdiction:	$ 530,385.00
AND/OR:	$ -
Other - describe briefly if applicable:	$ -
Other - describe briefly if applicable:	$ -
Other - describe briefly if applicable:	$ -
TOTAL PROJECT COSTS	$ 530,385.00

Enter Date: Claimant Name: City of Mendota

AGENDA

CONTINGENCY PROJECT LISTING FOR FISCAL YEAR: 2022/23

CHECK ALL THAT APPLY (Enter "X" in yellow box)

BICYCLE AND PEDESTRIAN FACILITIES	PUBLIC TRANSPORTATION	STREETS & ROADS
☐ *Article 3*	☐ *Article 4*	☐ *Article 8a*

STANDARD ASSURANCES FOR CLAIMANTS

CLAIMANT ASSURANCES: (initial yellow box all that apply)

☐ **A.** Claimant certifies that it has submitted a satisfactory, independent fiscal audit, with required certification statement, to the RTPA and to the State Controller, pursuant to PUC 99245 and 21 Cal. Code of Regulations Section 6664 for the prior fiscal year (project year minus two). Claimant assures that this audit requirement will be completed for the current fiscal year (project year minus one).

☐ **B.** Claimant certifies that it has submitted a State Controller Report to the RTPA and to the State Controller, pursuant to PUC 99243.

The undersigned hereby certifies that the above statements are true and correct.
Please print and sign after completing form

Authorized Signature:
Name/Title:
Date:

AGENDA

BEFORE THE CITY COUNCIL
OF THE
CITY OF MENDOTA, COUNTY OF FRESNO

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MENDOTA CLAIMING LOCAL TRANSPORTATION FUNDS FOR FISCAL YEAR 2022-2023

RESOLUTION NO. 22-50

WHEREAS, the City of Mendota ("City") hereby submits a Local Transportation Fund Claim from the Local Transportation Fund of Fresno County for Fiscal Year 2022-2023; and

WHEREAS, the Fresno Council of Governments ("FCOG") encourages interjurisdictional coordination of transportation needs and increased coordination of transportation implementation plans; and

WHEREAS, FCOG has the authority to review claims and allocate Local Transportation Funds in accordance with the Transportation Development Act of 1971 and Chapter 3 of Title 21 of the California Administrative Code.

NOW, THEREFORE, BE IT RESOLVED, by the City Council of the City of Mendota that the City hereby requests FCOG allocate $755,839.00 from the Local Transportation Fund to the named applicant for the Fiscal Year 2022-2023 for the purposes allowed under Articles III, IV, and VIII of the Transportation Development Act of 1971, as identified in the attached claim and in accordance with the adopted Regional Transportation Plan,

BE IT FURTHER RESOLVED, that the City Council authorizes the City Manager to execute all associated agreements and documents required to submit the attached claim for the requested Local Transportation Fund allocation.

BE IT FURTHER RESOLVED, that the City of Mendota hereby requests that the City's total Transportation Fund apportionment for Fiscal Year 2022-2023, said amount being $755,839.00, be allocated from the Local Transportation Fund to FCOG for the purpose of conducting Regional Transportation Planning.

_____
Rolando Castro, Mayor

ATTEST:

I, Celeste Cabrera-Garcia, City Clerk of the City of Mendota, do hereby certify that the foregoing resolution was duly adopted and passed by the City Council at a regular meeting of said Council, held at the Mendota City Hall on the 9th day of August, 2022, by the following vote:

AYES:
NOES:
ABSENT:
ABSTAIN:

_____
Celeste Cabrera-Garcia, City Clerk

AGENDA ITEM – STAFF REPORT

TO: HONORABLE MAYOR AND COUNCILMEMBERS

FROM: NANCY BANDA, FINANCE DIRECTOR

VIA: CRISTIAN GONZALEZ, CITY MANAGER

SUBJECT: APPROVING A LEASE AND MAINTENANCE AGREEMENT WITH CALIFORNIA BUSINESS MACHINES FOR COPY MACHINE SERVICES AND AUTHORING SIGNERS

DATE: AUGUST 9, 2022

ISSUE

Shall the City Council adopt Resolution No. 20-51, approving a lease and maintenance agreement with California Business Machines for copy machine services and authoring signers?

BACKGROUND

The City of Mendota ("City") contracts with a third party for copy machine services for City Hall and the Mendota Police Department ("MPD"). The leasing contracts for both the City Hall and MPD have expired. The City issued a request for proposals for copy machine services at City Hall and the MPD. The City received four proposals.

ANALYSIS

The City received four proposals from the following companies, Automated Office Systems, Caltronics Business Systems, California Business Machines and Ray Morgan Company. City staff reviewed the proposals submitted and determined the contract with California Business Machines is the best option for the City and the MPD. Here is the breakdown for each complete proposal:

Automated Office Systems $39,961.28
Caltronics Business Systems $39,928.42
California Business Machines $39,211.23

Staff is recommending moving forward with California Business Machines. The City will be saving an estimated $21,298.00 per year for copy machine services.

FISCAL IMPACT

$7,934.03 estimated per year based on past usage to be expended from the following accounts, General, Water and Sewer.

RECOMMENDATION

Staff recommends that the City Council adopt Resolution No. 22-51, approving a lease and maintenance agreement with California Business Machines for copy machine services and authoring signers.

Attachment(s):

1. Resolution No. 22-51
2. Exhibit “A” - Lease Agreement and Maintenance Agreement

AGENDA

BEFORE THE CITY COUNCIL
OF THE
CITY OF MENDOTA, COUNTY OF FRESNO

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MENDOTA APPROVING A LEASE AND MAINTENANCE AGREEMENT FOR COPY MACHINE SERVICES AND AUTHORIZING SIGNERS

RESOLUTION NO. 22-51

WHEREAS, the City of Mendota ("City") contracts with a third party to provide copy machines and related services for City Hall and the Mendota Police Department ("MPD"); and

WHEREAS, the contracts for the copy machines at City Hall and the MPD have expired; and

WHEREAS, the City advertised a request for proposals for copy machine services at City Hall and the MPD; and

WHEREAS, the City received four proposals with California Business Machines submitting the lowest, responsible proposal.

NOW, THEREFORE, BE IT RESOLVED, by the City Council of the City of Mendota that the lease and maintenance agreement for copy machine services with California Business Machines is approved in substantially the form attached hereto as Exhibit "A,"

BE IT FURTHER RESOLVED, that the City Manager and Finance Director are authorized to execute all documents necessary to effect the lease and maintenance agreement approved herein.

_____
Rolando Castro, Mayor

ATTEST:

I, Celeste Cabrera-Garcia, City Clerk of the City of Mendota, do hereby certify that the foregoing resolution was duly adopted and passed by the City Council at a regular meeting of said Council, held at the Mendota City Hall on the 9th day of August, 2022, by the following vote:

AYES:
NOES:
ABSENT:
ABSTAIN:

_____
Celeste Cabrera-Garcia, City Clerk

Exhibit A

AGENDA

California Business Machines

LEASE AGREEMENT

1720A Crete Street MO 65270
Phone: 800-662-375 0-426-2626

LESSEE LEGAL NAME:	Telephone No:
City Of Mendota	5596553291

Billing Address:	Equipment Location (if other than Billing Address):
643 Quince St, Mendota, CA 93640	643 Quince Street, Mendota, CA 93640

EQUIPMENT DESCRIPTION: (indicate quantity, new or used and include make, model, serial # and all attachments – see below and/or attached Schedule A)

Unit Quantity	Description of Equipment Leased	Make and Type	Model Number	Serial Number
2	Kyocera TASKalfa 5054c 2554c		TASKalfa 5054c 2554c	

BASE TERM IN MONTHS	TOTAL NUMBER OF LEASE PAYMENTS	END OF LEASE PURCHASE OPTION		
63	63 @ $280.60 (plus taxes)	X Fair market value, plus taxes ___ 10% of Equipment cost, plus taxes ___ $1.00, plus taxes (FMV unless another option is selected. You may not exercise a purchase option if you are in default. If you exercise a purchase option we will convey all of our right, title and interest in such Equipment to you on an AS-IS WHERE IS without warranty.)	(a) Advance Payment:	$0.00
			(b) Security Deposit:	$0.00
			(c) Documentation Fee:	$95.00
			Total due a + b + c =:	$95.00

**If more than one lease payment is required as an Advance Payment, the balance will be applied to lease payments in inverse order, starting with the last lease payment.
Your obligation to pay all amounts and perform all other obligations is non-cancellable, absolute, unconditional and not subject to abatement, set-off or defense.

In this agreement ("Lease"), "we," "our," and "us" refers to **LEAF Capital Funding, LLC** as Lessor and "you" and "your" refer to the Lessee. You agree to lease the Equipment upon the following terms and conditions:

1. LEASE PAYMENTS AND TERM: The Lease is enforceable on you upon your execution. The term of the Lease shall commence on the date the Equipment is delivered to you ("Lease Commencement Date"). The first Lease Payment shall be due on the date we specify in the month following the Lease Commencement Date as set forth in our invoice, and the remaining Lease Payments will be due on the same day of each subsequent month (each, a "Payment Date") until paid in full. The Base Term shall commence on the date one month prior to the first Payment Date. We may charge you a portion of one Lease Payment for the period from the Lease Commencement Date until the first day of the Base Term ("Interim Rent"). The Interim Rent shall be due as invoiced. We may adjust the Lease Payments up to 15% if the actual costs are different than the estimate used to calculate the Lease Payments. **On an annual basis, the Monthly Payment may be increased by a maximum of 15% of the amount previously then in effect.**

2. DELIVERY, ACCEPTANCE, USE AND REPAIR: You are responsible for Equipment delivery and installation. You unconditionally accept the Equipment upon the earlier of (a) your oral or written acceptance of the Equipment, or (b) 10 days after delivery of the Equipment. You authorize us to fill in the Lease Commencement Date, serial numbers and other information. **You will not move the Equipment from the above location without our written consent and are responsible for maintaining the Equipment in good repair.** We are not responsible for Equipment or vendor failures.

3. INDEMNIFICATION: You agree to indemnify, defend and hold us harmless from and against any losses, damages, penalties, claims and suits, including attorneys' fees and expenses related to the ordering, manufacture, installation, ownership, condition, use, lease, possession, delivery or return of Equipment.

4. LEASE EXPIRATION, RENEWAL: Unless you notify us at least 90 days prior to the expiration of the Lease of your election to return or purchase the Equipment, this Lease will renew on a month-to-month basis at the same monthly Lease Payment until you either exercise the purchase option or provide us with at least 90 days notice and return the Equipment. If you return the Equipment, (i) it must be to the location we designate and you are responsible for all return costs and we may charge a Restocking Fee equal to one Lease Payment, and (ii) you must securely remove all data from any and all disk drives or magnetic media prior to returning the Equipment (and you are solely responsible for selecting an appropriate removal standard that meets your business needs and complies with applicable laws). You will pay us for any loss in value resulting from failure to maintain the Equipment in accordance with this Lease or for damages incurred in shipping and handling. If you exercise a purchase option we will convey all of our interest in such Equipment to you on an AS-IS WHERE IS basis without representation or warranty.

5. LATE FEES AND CHARGES: If any amount is not paid within three (3) days of when due, you agree to pay us a late charge equal to the lesser of 10% of the amount past due or the maximum legal amount. Amounts which are not paid within 30 days of when due shall accrue interest at 1.5% per month (or if less, the maximum legal rate) until paid. You agree to pay $25 for each pay by phone and $35 for each returned payment.

6. NO WARRANTY: We do not manufacture the Equipment and you have selected the Equipment and the supplier. **WE MAKE NO EXPRESS OR IMPLIED WARRANTIES, INCLUDING THOSE OF MERCHANTABILITY OR FITNESS FOR A PURPOSE AND ARE NOT RESPONSIBLE FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES.**

7. INSURANCE, RISK OF LOSS: You bear all risk of loss or damage to the Equipment from its order until it is returned in the required condition or purchased by you ("Risk Period"). During the Risk Period you will maintain property and liability insurance on the Equipment acceptable to us, naming us loss payee and additional insured. If you do not provide us with proof of such insurance, we may secure insurance on the Equipment to cover our interests (and only our interests). If we obtain such insurance, you will pay us an additional amount for the cost of it and an administrative fee, the cost of which may be more than the cost to obtain your own insurance and on which we may make a profit.

8. OWNERSHIP AND TAXES: We own the Equipment (excluding licensed software). If you are deemed to own it, you grant us a security interest in the Equipment. You authorize us to file UCC financing statements to confirm our interest. You will pay, when due, all taxes, fines and penalties relating to the purchase, use, leasing and/or ownership of the Equipment. If we pay any taxes, (including property tax), fees or penalties on your behalf, you will pay us the amount we paid plus an administrative fee. You agree to pay us the documentation fee specified above or if not so specified, the greater of either $125 or 0.5% of the Equipment cost. If we require an Equipment site inspection, or you request administrative services, you agree to reimburse our costs.

9. DEFAULT: If you or any guarantor do not pay us any amount within ten (10) days of its due date, or breach any terms of this Lease, any guaranty or any license relating to the Equipment, you will be in default. If you default, we may require you to do any combination of the following: (a) immediately pay all amounts then due, plus the present value of the remaining Lease Payments, Interim Rent and residual value of the Equipment, as determined by us, discounted at an annual rate of 3%; (b) return all of the Equipment; (c) allow us to repossess the Equipment; or (d) use any and all remedies available to us under applicable law. If you default, you agree to pay the cost of repossession and our attorney's fees and costs. In addition to all other charges and as reimbursement for expenses incurred and not as a penalty, we may require you to reimburse us for the phone calls, letters, and any additional expense incurred in the collection or servicing of this Lease for you. If we take possession of the Equipment, we may sell or otherwise dispose of it with or without notice, at a public or private sale, and apply the net proceeds (after we have deducted all costs related to the sale or disposition of the Equipment) to the amounts that you owe us. You agree that if notice of sale is required by law, **10** days' notice shall constitute reasonable notice. You remain responsible for any amounts that are due after we have applied such net proceeds. We may apply any security deposits to your obligations and if you do not default, the balance will be refunded without interest.

10. ASSIGNMENT: You have no right to sell or assign the Equipment or Lease. We may sell or assign our rights in the Lease and/or Equipment and the new owner will have all our rights but will not be subject to any claim or defense you have against us.

11. ARTICLE 2A: You agree this Lease is a "finance lease" as defined in Article 2A of the Uniform Commercial Code. **You waive all rights and remedies conferred upon a lessee by Article 2A (508-522) of the UCC.** You have received a copy of the Supply Contract or been informed of the identity of the Supplier and you may have rights under the Supply Contract and may contact the Supplier for a description of those rights.

12. CREDIT INFORMATION: You authorize us or any of our affiliates to obtain credit bureau reports, and make other credit inquiries that we deem necessary.

13. CHOICE OF LAW: THIS LEASE WILL BE GOVERNED BY PENNSYLVANIA LAW. YOU CONSENT TO JURISDICTION IN THE STATE OR FEDERAL COURTS IN PENNSYLVANIA AND WAIVE ANY RIGHT TO A TRIAL BY JURY.

14. MISCELLANEOUS: This Lease is the parties' entire agreement and can be amended only in writing signed by both parties. This Lease may be executed in counterparts (manually or by electronic means) and, when transmitted to us shall be binding upon you for all purposes. This Lease is not binding on us until we sign it. You agree not to raise as a defense to the enforcement of this Lease that it was executed or transmitted to us by electronic means. You will use the Equipment only for business purposes and not for personal, family or household use. The USA PATRIOT Act requires us to obtain, verify, and record information that identifies you thus we ask for your name, address and other information or documents that substantiate your identity.

ACCEPTED BY LESSEE: City Of Mendota

Print Name:_____ Title:_____

X_____
Lessee Authorized Signature

E-Mail Address:_____ Date:_____

Tax ID Number:_____

PERSONAL GUARANTY: Undersigned guarantees that Lessee will make all payments and perform all other obligations under the Lease when due. Undersigned agrees that this is a guaranty of payment and not of collection, and that we can proceed directly against undersigned without first proceeding against Lessee or the Equipment. Undersigned also waives all suretyship defenses and notification if the Lessee is in default and consents to any extensions or modifications granted to Lessee. Undersigned will pay us all expenses (including attorneys' fees) we incur in enforcing our rights against undersigned or Lessee. If more than one person signs this guaranty, each agrees that his/her liability is joint and several. Undersigned authorizes us and our affiliates to obtain credit bureau reports and make inquiries regarding undersigned's personal credit. **You consent to jurisdiction in the State or Federal courts in Pennsylvania and expressly waive any right to a trial by jury.**

SIGNED X_____ Print Name:_____ E-Mail Address:_____

Accepted by:
LEAF Capital Funding, LLC By: **Title:** **Date:**

AGENDA

California Business Machines

SCHEDULE A TO LEASE AGREEMENT
(EQUIPMENT DESCRIPTION)

Lease Application No.: **746286**

QNT	Equipment Description	New/Used	Make	Model	Serial Number
Location: 643 Quince Street, Mendota, CA 93640					
2	Kyocera TASKalfa 5054c 2554c	New		TASKalfa 5054c 2554c	

LESSEE: City Of Mendota

BY: _____

PRINT NAME: _____

TITLE: _____

DATE: _____

LEAF CAPITAL FUNDING, LLC

BY: _____

PRINT NAME: _____

TITLE: _____

DATE: _____

AGENDA

SEND PAYMENTS TO:
4260 N. Fresno Street
Fresno, CA 93726
(559) 225-5570 • Service 225-5773

California Business Machines
Taking Care of Valley Businesses for Six Decades

Visalia B
1230-C E. Mi
Visalia, CA
(559) 625-1521

MAINTENANCE AGREEMENT

CUSTOMER BILL TO		EQUIPMENT LOCATION	
City Of Mendota 643 Quince St Mendota CA 93640-2399		643 Quince St Mendota, CA 93640-2399	
PHONE# (559) 655-3291	FAX#	PHONE# (559) 655-3291	FAX#
CONTRACT#	CUSTOMER#	CONTACTS/KEY OPERATOR Marilu Sandoval email: marilu@cityofmendota.com	

STARTING DATE	Connected: ☐Yes ☐No	STARTING METERS: B/W	COLOR	SCAN

Model	Serial Number
City Hall TASKalfa 5054ci	
Police Depart. TASKalfa 2554ci	

BILLING TERMS:

Billed monthly in advance as follows:

CITY HALL - TA5054ci - $45.00 per month. Includes 5,695 BW copies/prints per month, overages billed monthly in arrears @ $.0079. Color billed for actual usage @ $.055 copy/print

POLICE DEPT – TA2554ci - $45.00 per month. Includes 5,000 BW copies/prints per month, overages billed monthly in arrears @ $.009. Color billed for actual usage @ $.065 copy/print

***** 90 Day Account Review*****

Customer agrees to pay additional $.0025 per scan when scans exceed actual print usage

Sales Tax will be applied to fifty (50%) percent of the MA billing representing the retail value of parts and supplies included. A surcharge will be applied to MA billing to cover cost to ship toner.

TERMS AND CONDITIONS

1. This Agreement shall be for an initial twelve (12) month period unless otherwise noted and automatically renew at the rates in effect at the time of renewal, unless cancelled in writing by either party on thirty days' notice. Invoices are due upon receipt.
2. The listed equipment will receive all necessary preventative maintenance consisting of cleaning, adjusting, lubrication and repairs necessary to obtain maximum operating efficiency. Regular calls will be made as often as recommended by the manufacturer.
3. This Agreement includes all calls requested by the customer, from 8:00 A.M. to 5:00 P.M., Monday through Friday, except holidays. Off hours service is chargeable at prevailing rates. CBM reserves the right to delay service due to circumstances beyond their control including bad weather and/or road conditions.
4. This Agreement does not cover service necessitated by malfunction of parts, attachments, or supplies not authorized by CBM. The Agreement specifically excludes circuit board failures unless an approved surge protector is installed in-line on the equipment. The purchaser of this agreement agrees to supply a grounded, dedicated electrical power outlet and working phone lines where applicable as required by the manufacturer's specifications. Service problems due to hardware or software not listed on this agreement are not covered.
5. This Agreement includes all parts and supplies necessary to maintain the equipment, excluding paper and staples.
6. Toner is provided according to estimated yield and copy volume within 20% of industry standard 5% density coverage. Toner may be chargeable if in excess of this range. Toner will be shipped UPS or available for pickup. Shipping of toner is not included in this agreement.
7. This Agreement shall not apply to repairs required because of accident, misuse, abuse, neglect, theft, vandalism, electrical power source, fire, water, earthquake, or other casualty or damage resulting from re-manufactured or unauthorized supplies and/or moving by personnel other than CBM.
8. This Agreement is non transferable, non-refundable, and becomes void upon the sale of the equipment. If the equipment is moved from the location set forth above, then at CBM's option this Agreement may be subject to additional charge or may be terminated. CBM is not obligated to move equipment. The purchaser also agrees to locate the machine in an easy-access area.
9. This Agreement excludes computer networking service. A separate agreement is required to include service connectivity to the computer or service is chargeable at a rate of $150.00 per hour during normal business hours. See "Connected Equipment Addendum" on reverse side.
10. CBM may withhold service or terminate this Agreement in the event in the event that the customer fails to comply with any of the terms and conditions of this Agreement, or acquires a past due balance for services rendered and/or products sold, of more than 30 days. Reinstatement of Agreement may be subject to administrative fees. A 30 day written notice is required by either party to cancel.
11. In the event of any action to enforce terms of this agreement or any collateral agreement hereto, the prevailing party in such is entitled to all costs hereof including reasonable attorney's fees. In such event, Customer agrees to appear in Fresno Co., CA Judicial District.
12. This supersedes and rescinds all previous terms and conditions.

ACCEPTANCE OF MAINTENANCE AGREEMENT

The above specifications, conditions and terms are satisfactory, and are hereby accepted. You are authorized to perform the maintenance as specified. Payment will be made as agreed: This Agreement is not valid unless payment is received and is subject to CBM final approval.

Customer Signature: _____ Date: _____

CBM MGT. Approval: _____ Date: _____

AGENDA

SEND PAYMENTS TO:
4260 N. Fresno Street
Fresno, CA 93726
(559) 225-5570 • Service 225-5773

California Business Machines
Taking Care of Valley Businesses for Six Decades

Visalia Br
1230-C E. Min
Visalia, CA
(559) 625-1521

CONNECTED EQUIPMENT ADDENDUM TO SALES ORDER

CUSTOMER	CUSTOMER#	STARTING DATE	METER
City Of Mendota CITY HALL			
ADDRESS 643 Quince St	PHONE# (559) 655-3291		
CITY, STATE, ZIP Mendota, CA 93640-2399	Make Model Serial Number TASKalfa 5054ci		

INSTALL PRINT SYSTEM?	INSTALL SCAN SYSTEM?	INSTALL FAX SYSTEM?
OPERATING SYSTEM?	**NUMBER OF WORKSTATIONS?**	**SPECIAL APPLICATIONS?**

Notes: _____

WARRANTY

California Business Machines (CBM) will connect configure and test the copier/printer/scan/fax/email device to the network as consists at time of installation. This connection will be covered under the Connected Warranty for 90 days from the date of software install. Any service needed after the Connected Warranty has expired, will be chargeable at prevailing rates. Network problems versus Hardware problems are determined by the ability of Print/Scan/Email/Fax applications to function properly from a single workstation or laptop.

TERMS AND CONDITIONS

1. For maintaining Connected Equipment, CBM will agree to provide the following:
   - All parts and labor tor repairs and maintenance necessitated by normal usage of the controller, memory, printing systems, hard drives, network harnesses or cards that are directly attached to and purchased as part of the basic system.
   - Support of Drivers and software obtained from CBM or downloaded from the equipment manufacturer.
2. This agreement does not cover:
   - Cabling, external wiring, switches, routers etc.
   - External Print Controllers
   - Service or software reinstallation required after adding equipment or workstations, software updates or new operating systems
3. CBM will provide technical assistance al standard rate of $150 per hour for any labor required for repair, reinstallation or service on any items other than those stated. Discounts can be offered tor blocks of time. Phone support is offered at prorated rates.
4. Customer agrees to pay additional $.0025 per scan when scans exceed actual print usage.
5. Customer specifically agrees that NO OTHER representation, constitutions or warranties other than these set forth specifically in writing herein have been made or have been intended in the making of this agreement.

INSTALLATION PARTICULARS

Network topology for all installations shall be CAT5 utilizing either TCP/IP, NetBEUI, Ether talk or IPX/SPX protocols. Some features and functions are dependent upon certain network conditions. Some Kyocera products require two active network connections if scanning is to be utilized. A live phone line will be needed to utilize network faxing and must be within 10 feet of the machine location. Installations must be within 14 feet of live data ports unless wireless. The installation must be completed within 60 days from the time of delivery. Additional hardware needed to complete installation at time of scheduled appointment will be billed at normal rates.

Network Installations included with sale generally include the following not to exceed two (2) hours without incurring additional charges:

- Installation of purchased systems and associated software on one server.
- Installation of purchased systems and associated software on up to three workstations.
- Training for your Network Administrator related to the installation of drivers and utilities and their usage.
- Training for up to three users related to purchased system and associated software.

The undersigned agrees to the stipulations of the installation warranty.

Customer Signature: _____ Date: _____

CBM MGT. Approval: _____ Date: _____

AGENDA

SEND PAYMENTS TO:
4260 N. Fresno Street
Fresno, CA 93726
(559) 225-5570 • Service 225-5773

California Business Machines
Taking Care of Valley Businesses for Six Decades

Visalia Br
1230-C E. Min
Visalia, CA
(559) 625-1521

CONNECTED EQUIPMENT ADDENDUM TO SALES ORDER

CUSTOMER	CUSTOMER#	STARTING DATE	METER
City Of Mendota POLICE DEPARTMENT			
ADDRESS 643 Quince St	PHONE# (559) 655-3291		
CITY, STATE, ZIP Mendota, CA 93640-2399	Make Model Serial Number TASKalfa 2554ci		

INSTALL PRINT SYSTEM?	INSTALL SCAN SYSTEM?	INSTALL FAX SYSTEM?
OPERATING SYSTEM?	**NUMBER OF WORKSTATIONS?**	**SPECIAL APPLICATIONS?**

Notes: _____

WARRANTY

California Business Machines (CBM) will connect configure and test the copier/printer/scan/fax/email device to the network as consists at time of installation. This connection will be covered under the Connected Warranty for 90 days from the date of software install. Any service needed after the Connected Warranty has expired, will be chargeable at prevailing rates. Network problems versus Hardware problems are determined by the ability of Print/Scan/Email/Fax applications to function properly from a single workstation or laptop.

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   - All parts and labor for repairs and maintenance necessitated by normal usage of the controller, memory, printing systems, hard drives, network harnesses or cards that are directly attached to and purchased as part of the basic system.
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- Installation of purchased systems and associated software on up to three workstations.
- Training for your Network Administrator related to the installation of drivers and utilities and their usage.
- Training for up to three users related to purchased system and associated software.

The undersigned agrees to the stipulations of the installation warranty.

Customer Signature: _____ Date: _____

CBM MGT. Approval: _____ Date: _____

AGENDA

AGENDA ITEM – STAFF REPORT

TO: HONORABLE MAYOR AND COUNCILMEMBERS

FROM: NANCY BANDA, FINANCE DIRECTOR

VIA: CRISTIAN GONZALEZ, CITY MANAGER

SUBJECT: APPROVING PROFESSIONAL AUDITING SERVICES AND AUTHORIZING SIGNER(S)

DATE: AUGUST 9, 2022

ISSUE

Shall the City Council adopt Resolution No. 22-52, approving professional auditing services and authorizing signers

BACKGROUND

The City of Mendota ("City") contracts with an accounting firm to perform an annual audit for the City's finances from July 1st through June 30th. Price Paige & Company is the accounting firm that has been performing auditing services since 2009.

ANALYSIS

The City issued a request for proposals on June 15, 2022 for certified public accountants to audit its financial statements ending June 30, 2022. The City received two proposals from Mann, Urrutia, Nelson CPAs & Associates LLP and Price Paige & Company. After review of the proposals, Price Paige & Company submitted a responsible proposal. This procurement process was initiated in efforts to reduce the City's cost on auditing services. However, after receiving two proposals we were unable to reduce the cost. Staff will be reaching out to agencies interested in submitting a proposal but did not to get an understanding of the timing to issue an advertisement for auditing services.

The City has financial obligations to issue financial statements in a timely manner. Staff recommends approving services with Price Paige & Company.

FISCAL IMPACT

$51,950.00 for Fiscal Year ending June 30, 2022 to be expended from the following funds: General, Water, Sewer, Refuse, and Streets.

RECOMMENDATION

Staff recommends that the City Council adopt Resolution No. 22-52, approving professional auditing services and authorizing signer(s).

Attachment(s):

1. Resolution No. 22-52

AGENDA

BEFORE THE CITY COUNCIL
OF THE
CITY OF MENDOTA, COUNTY OF FRESNO

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MENDOTA APPROVING THE PROPOSAL SUBMITTED BY PRICE PAIGE & COMPANY FOR PROFESSIONAL AUDITING SERVICES AND AUTHORIZING SIGNERS

RESOLUTION NO. 22-52

WHEREAS, the City of Mendota ("City") contracts with an accounting firm to perform an annual audit for the City's finances from July 1st through June 30th; and

WHEREAS, in efforts to reduce the City's cost on auditing services, the City issued a request for proposals on June 15, 2022, for certified public accountants to audit its financial statements ending June 30, 2022; and

WHEREAS, on July 8, 2022, the City received two responsive proposals for auditing services; and

WHEREAS, Price Paige & Company submitted the lowest, responsible proposal.

NOW, THEREFORE, BE IT RESOLVED, by the City Council of the City of Mendota that the professional auditing services proposal submitted by Price Paige & Company is hereby approved.

BE IT FURTHER RESOLVED, that the City Manager and Finance Director are authorized to execute all documents necessary to effect the retention of Price Paige & Company for the audit process.

_____
Rolando Castro, Mayor

ATTEST:

I, Celeste Cabrera-Garcia, City Clerk of the City of Mendota, do hereby certify that the foregoing resolution was duly adopted and passed by the City Council at a regular meeting of said Council, held at the Mendota City Hall on the 9th day of August, 2022, by the following vote:

AYES:
NOES:
ABSENT:
ABSTAIN:

_____
Celeste Cabrera-Garcia, City Clerk

AGENDA ITEM – STAFF REPORT

TO: HONORABLE MAYOR AND COUNCILMEMBERS

FROM: JERONIMO ANGEL, CHIEF PLANT OPERATOR

VIA: CRISTIAN GONZALEZ, CITY MANAGER

SUBJECT: AUUTHORIZING LIGHTHOUSE ELECTRICAL, INC. TO INSTALL UNGRADES TO WELL NUMBER 5

DATE: AUGUST 9, 2022

ISSUE

Shall the City Council adopt Resolution No. 22-53, approving the scope of services provided by Lighthouse Electrical, Inc. to install upgrades to well number 5 to serve as a water source to irrigate Pool Park?

BACKGROUND

The City is responsible to maintain both sides of the Pool Park which is located outside of City limits. This park was heavily used in 90's as a place for families to gather for recreation and fishing activities, with a proximity to the Fresno Slough that runs on the east side of the park. The park is currently still open to the public, but restrooms have been demolished due to structural issues, the grass is currently not irrigated due to a faulty irrigation system and lights have been vandalized. For many years there have been talks about reviving the park and this year, Council approved funds in the 2022-2023 fiscal year budget to upgrade the irrigation system as it is key to having a functional park.

ANALYSIS

Staff reached out to several vendors and received three estimates needed to provide upgrades to the well #5 making in automated with our SCADA system, and ready to provide the water and pressure necessary to irrigate both sides of the pool park. Well #5 is a standby well that can provide drinking water to the city if wells 7, 8 and 9 go down so these upgrades will improve the drinking water system. All estimates address our needs and are as follows.

FISCAL IMPACT

Three quotes were received:

1. Lighthouse Electric $78,300.00
2. STS Automation $80,986.33
3. Telstar Instruments $82,520.00

A total of $78,300.00 from the Water account will be expended for the project. These funds were approved in the 2022-2023 fiscal year budget.

RECOMMENDATION

Staff recommends that the City Council adopt Resolution No. 22-53, approving the scope of services provided by Lighthouse Electrical, Inc. to install upgrades to well number 5 to serve as a water source to irrigate Pool Park.

Attachment(s):

1. Quotes from all companies
2. Resolution No. 22-53

AGENDA

3585 E. Date Avenue
Fresno, CA 93725
Office (559) 498-3017
Fax (559) 498-0292
www.lighthouseelec.com
Lic# 871256
PWC# 1000024650

Scope #L7740B
8/4/2022

City of Mendota
643 Quince Street
Mendota, CA 93640
ATTN: Jerry Angel

At this time, Lighthouse Electrical Inc (LEI) is pleased to submit for your review and approval its scope to provide electrical installation, controls, and integration services for the Well 5 VFD/CP project.

I. Referenced Information

A. Notes and pictures from the site meeting on 05/04/2022.

II. Scope of Proposal

A. Demo hardware that is no longer needed.
   - Existing Pump Panel.
   - Existing Telemetry Panel.

B. Furnish and install (1) ICAD - Control Panel.
C. Furnish and install conduit and conductors for (3) valves.
D. Furnish and install conduit and conductors for (1) Pressure Transmitter.
E. Replace broken hub on top of existing Meter Panel.
F. Furnish and install (1) Yagi Antenna on existing power pole.

III. Materials Provided for Controls

A. Control Panel 1 (CP1).
   1. Mild steel NEMA 3R enclosure.
   2. Mild steel NEMA 3R AC unit.
   3. Fused Disconnect.
   4. CompactLogix PLC w/ I/O as required.
   5. Ethernet switch.
   6. 24VDC Power Supply.
   7. MDS Wireless Radio.
   8. 60HP VFD with Ethernet.
   9. (3) HOA Switches.
   10. Emergency Stop.
   11. Customer Supplied Power Requirements: 480VAC, 3ph.
   12. Control power transformer not included.
   13. Breakers, relays, and terminal blocks as required.
   14. UL 508A certification.

B. Field Devices:

1. Yagi Antenna.

IV. Integration Services Provided

A. Control System Engineering consists of:
   1. ICAD Standard Preliminary Engineering Package consisting of:
      - Control panel external & internal layouts with BOM.
      - Control panel wiring schematics.
   2. As-built engineering package consisting of:
      - Updated preliminary engineering package. (1 Hardcopy)

B. PLC Programming consists of:
   1. Any specific customer programming requirements must be listed in writing within this scope. Otherwise, ICAD will provide programming in accordance with its best practices.

C. SCADA Programming consists of:
   1. Set up the radio communication to Water Plant.
   2. Modify existing Wonderware application to include (3) valves and (1) Pressure Transmitter.

D. Panel Assembly consisting of:
   1. Assemble the control panel as defined in Section III. “Materials Provided for Controls.”
   2. Control panel will be built in accordance with the National Electrical Code (NEC) standard and sound engineering principles.

E. Factory Acceptance Testing:
   1. The completed panel will undergo the FAT process at ICAD’s shop with the customer or authorized representative to ensure that it complies with the engineering and design specification defined in this quote.
   2. Not all field conditions, inputs, or outputs can be duplicated during the factory acceptance test, but all efforts will be made to create a reasonable simulation.
   3. Customer approval and sign-off are required upon successful completion of factory acceptance testing.

F. Onsite Startup Services:
   1. The cost allowance for an onsite startup, debugging, and training of the programming provided by ICAD has been budgeted into this proposal at 10 man-hours. This does not include any overtime or off-schedule hours. Any additional time beyond the budgeted man-hours will be charged at $195 per hour, port-to-port, plus travel expenses at a 15% margin.
   2. The cost for any delays in startup due to equipment malfunctions, installation delays, project scheduling, delays in production, instrumentation by others, etc., will be in addition to this quotation.

V. Assumptions & Qualifications

A. LEI standard insurance will apply; the cost for additional insurance requirements will be in addition to this quote.
B. Controls and integration services provided by ICAD Automation.
C. It is assumed that there is an existing and functional wireless radio located at the Water Plant.

D. Valves and pressure transmitter provided by the customer.
E. Project includes trenching and backfill services for conduit and conductor installation. A non-union operator will complete these services.
F. This project quote is based on a regular schedule prevailing wage labor charge and does not include overtime.
G. LEI will be provided with schedules of any onsite work being performed by others to ensure adequate time to schedule its crew and work.
H. Any changes to the reference information after the acceptance of this quote will be considered a change order.
I. Necessary welding on equipment or structures will be the responsibility of others.
J. Modifications to any underground utilities or obstructions will be the responsibility of others.
K. Variable frequency drives and soft-starts are solid-state equipment with operational characteristics differing from those of electromechanical equipment. It will be the responsibility of the user for applying solid-state equipment for its intended application. Continuous heavy shock currents and overloads (110% over the continuous current rating of the device) will cause nuisance tripping and may severely damage solid-state equipment.
L. It is the customer's responsibility to perform a risk assessment on any machinery controlled by this system. The controls provided as part of this package are not certified to any specific safety level or category.
M. All engineering and programming submitted to the customer for approval will be limited to the initial revision. Additional revisions will be considered a change order.
N. Voltage verification will be completed for all LEI-provided connections.
O. If overtime is required due to customers or other trades' delays, the customer will be responsible for the overtime charges.

VI. Job Specifications

A. Material specifications are as follows:
    1. Above Ground – GRC and appropriate fittings, NEMA 3R mild steel enclosures.
    2. Below Ground – PVC conduit with insulated GRC transitions wherein contact with concrete.

VII. Not Provided

A. Any additional services or materials.
B. Software.
C. Any standby time due to equipment malfunction, project scheduling, equipment, or materials provided by others, etc., will be in addition to this quotation.
D. Mounting, installation, or commissioning of any sensors or instruments unless otherwise noted above. LEI's responsibility is limited to single point termination and electrical validation for these devices.
E. Mechanical installations.
F. Temporary Power.
G. Any work which is not normally provided by a C-10 License holder.
H. Connection to any other equipment or networks.
I. The cost associated with expediting material deliveries.

J. Bonding, Permits, and Fees.
K. Air pollution permits.
L. Drawings for installations beyond manufacturer-provided or unless mentioned explicitly in this scope.
M. Hard Copies of submittals. Only digital copies will be provided.
N. O&M Manuals.
O. Seismic or architectural calculations or drawings.
P. Professional Stamped Engineering requested for permits.
Q. Requested overtime.

We appreciate your interest in our organization and its abilities and look forward to working with you on this project. If you should have any questions or require any additional information, please do not hesitate to call.

Regards,

Stephen Redman

AGENDA

3585
Fresno, CA 93725
Office (559) 498-3017
Fax (559) 498-0292
www.lighthouseelec.com
Lic# 871256
PWC# 1000024650

FIXED PRICE QUOTATION

FIXED PRICE QUOTATION # L7740B
8/4/2022

Bill:	City of Mendota 643 Quince Street Mendota, CA 93640 ATTN: Jerry Angel	**Ship:**	City of Mendota 643 Quince Street Mendota, CA 93640 ATTN: Jerry Angel

Qty	Description	Unit Cost	Amount
1	Provide materials and services in accordance with Lighthouse Electrical Scope L7740B.		$78,300

Payment Terms:	Lump-sum Total
25% at acceptance (Net 30) 25% at submittal of preliminary engineering 30% at mobilization (Net 30) 20% at completion of scope items (Net 30)	$78,300

Conditions:

- This is a lump-sum fixed price quotation that includes any applicable sales tax.
- This quote is based on the current costs of equipment and materials. After acceptance of this quote, any cost increase due to excessive inflation rates, taxes/tariffs, and/or increased costs for shipping would be the responsibility of the customer.
- This quote expires 30 calendar days after the proposal date.
- Submittals will be given to the customer 3-4 weeks after receipt of the order and approval of credit terms. The items will be ready for delivery/installation 10-14+ weeks from the approval of submittals. Due to current supply shortages, this is only an estimate and can be impacted by backlogs and product availability.
- Any standby time due to equipment malfunction, project scheduling, equipment, or materials provided by others, etc., will be in addition to this quotation.
- All work will be performed M-F, 7 am – 3:30 pm.
- Any buyer requested overtime will be an additional cost.
- The existing system is expected to be correct and operable. Troubleshooting of the existing system will be in addition to this proposal.
- Any additional hardware or services will be in addition to this proposal. This includes but is not limited to control or communication to any other devices not listed here.
- If a formal contract is required, its conditions must not deviate from this proposal without LEI's written permission.

This quotation constitutes an offer to sell which expressly limits acceptance to the Standard Terms and Conditions which are by reference incorporated into this agreement as though fully set forth herein. Subject to approval of Buyer's credit worthiness and return of this Agreement with Buyer's signature and Purchase Order number.

Buyer: City of Mendota 643 Quince Street Mendota, CA 93640 ATTN: Jerry Angel	By: _____ Date: _____ PO#: _____	**Seller:** Lighthouse Electrical Inc. 3585 E. Date Ave. Fresno, CA 93725	By: Vicki Rabb Date: 8/4/2022

Standard Terms and Conditions:

AGENDA

All sales of services or materials by Lighthouse Electrical Inc. (Seller) are subject to the following terms and conditions. Seller objects to any additional or different terms contained in any documentation (including, but not limited to purchase orders or acceptance letters) submitted by Buyer. No waiver or modification of these terms and conditions shall be binding on Seller unless authorized in writing by Seller.

SCOPE. Seller agrees to perform for the Buyer the services described in this document. Buyer acknowledges that Seller shall perform the services based upon information furnished to Seller by the Buyer, and Seller shall be entitled to rely upon such information as being accurate and complete. Seller will not be obligated to provide any services which are (a) outside of the scope defined in the applicable documentation; (b) outside its area of expertise; or (c) in violation of any applicable laws, codes, or regulations.

CHANGE ORDERS. If Buyer requests a change in the scope to be provided, Seller reserves the right to revise delivery schedules and make an equitable adjustment to the price. Any changes within the scope of services must be in writing and approved by both Seller and Buyer before implementation.

PAYMENT TERMS. Unless otherwise noted in this document, this offer is based upon standard industry terms of net 30. Net 45 & 60 terms are available at an increased cost.

INSURANCE. Unless otherwise stated in this Agreement, Seller's standard insurances will apply. If greater insurances are required, it will be at additional cost to the Buyer.

SCHEDULING. Any estimate of the time required to perform work listed in this Agreement is based upon a start date only after (a) approval of Buyer's creditworthiness and (b) return of Agreement with Buyer's signature and Purchase Order number. The buyer accepts that any timeline estimate given by Seller is only an estimate and is subject to change at any time without penalty to Seller.

PAST DUE ACCOUNTS. For the performance of the services, the Buyer shall pay Seller in the manner and at the times herein specified in this Agreement. If Buyer's account becomes past due on any project that Buyer has with Seller, Seller reserves the right to stop work immediately on all projects for Buyer until all past due invoices are paid. Seller shall not be liable for any liquidated damages or other costs incurred by the Buyer as a result of Seller's stoppage of work due to non-payment. There will be a 1-1/2% per month finance charge for all invoices which are past due.

CONTRACT TERMINATION. Should the Buyer fail to comply with this Agreement as set forth herein, then Seller shall have the right, after giving five days written notice to the Buyer, to terminate this Agreement. Should the Buyer wish to cancel this agreement as set forth herein, the Buyer shall provide Seller 5 days written notice. Upon termination of the Agreement by either party, the Buyer shall be obligated to pay Seller for all work executed and for any proven loss, cost, or expense in connection with the work, plus any accrued finance charges resulting from late payment of invoices, through the date of termination. Additionally, upon the termination of the Agreement by Buyer, Seller shall be entitled to a 5% cancellation fee based upon the initial contract price and added to any other charges presented to Buyer. Upon receipt of such payment in full, Seller shall release to the Buyer all materials, programming, and documentation completed to the date of termination of this Agreement.

WARRANTY. Seller's liability under this agreement shall be limited to re-performing only those deficient engineering or programming services which a) result from Seller's negligence or willful misconduct, and b) are reported in writing to Seller within one (1) year from date of completion of the services hereunder. Under no circumstances shall Seller be liable to Buyer for any consequential or incidental damages, including, but not limited to loss of use or loss of profit. Any change to Seller's design or programming by the Buyer will void and nullify all warranty. Buyer agrees to pay Seller's standard overtime rates for any warranty work performed outside the normal business hours of M-F, 8-5. Seller shall not be required to perform any warranty work if the Buyer's account with Seller becomes past due.

EQUIPMENT WARRANTIES. Seller will use its best effort to obtain applicable warranties from all equipment manufacturers for equipment provided by Seller to the Buyer and will transfer all such warranties directly to Buyer. The Buyer's only recourse shall be under such manufacturers' warranties. Buyer acknowledges that Seller is supplying such equipment without warranty, either implied or expressed.

NO SOLICITATION OR HIRING. Buyer shall not solicit for employment any person employed by Seller, for a period of one year after completion of this work. Should Buyer hire a Seller employee within one year of completion of this work, Buyer agrees to pay Seller an amount equal to one times the employee's annualized salary.

INTELLECTUAL PROPERTY. All documents (including, but not limited to, proposals, price sheets, drawings, and specifications), software and other information or inventions prepared or disclosed by Seller shall remain the sole intellectual property of the Seller. Following acceptance and final payment, Seller shall grant Buyer a non-transferable, non-exclusive license to use such materials for the Buyer's internal purposes only.

ATTORNEY'S FEES. If there is any action or legal proceeding of any kind to enforce or interpret any provision of this Agreement, the unsuccessful party to such proceeding or action shall pay the prevailing party all costs and expenses including reasonable attorney's fees and costs incurred by such prevailing party, whether or not such action or legal proceeding proceeds to a judgment.

INDEMNITY. Buyer will defend, indemnify, and hold Seller harmless from all claims, damages, losses, and expenses (including reasonable attorneys' fees) arising out of the provision of the services and materials by Seller under this Agreement, including claims related to Seller's use of Buyer supplied drawings, measurements, data, or any other information provided by Buyer that is used in supplying materials or services. However, in no event shall Buyer be liable under this provision for claims arising out of the sole negligence or willful misconduct of Seller. In no event shall the total cumulative aggregate liability of Seller resulting from, arising out of or in connection with this Agreement or the provision of the services and materials by Seller under this Agreement exceed the coverage available under any standard insurance policy Seller has in place which applies to this Agreement, or, in the event no insurance coverage is available, the value of the particular services and materials upon which the claim or damage is based, regardless of the legal or equitable theory upon which the claim or damage is based.

THIRD-PARTY BENEFICIARIES. Nothing contained in this agreement shall create a contractual relationship with or a cause of action in favor of a third party against Seller. Seller's services and materials are being supplied solely for Buyer's benefit, and no party or entity shall have any claim against Seller because of this Agreement, or the performance or nonperformance of the services and materials supplied under this Agreement.

INDEPENDENT CONTRACTORS. Each party will be and act as an independent contractor and not as an agent or partner of, or joint venture with, the other party for any purpose related to this Agreement or the transactions contemplated by this Agreement, and neither party by virtue of this Agreement will have any right, power, or authority to act or create any obligation, expressed or implied, on behalf of the other party.

ENTIRE AGREEMENT. This Agreement represents the entire and integrated contract between Buyer and Seller and supersedes all prior negotiations, representations, or agreements either written or oral. This Agreement may be amended only by a written instrument signed by both Buyer and Seller.

CHOICE OF LAW/VENUE. California law shall govern the terms of this Agreement. In any dispute over this Agreement, the venue will be Fresno County, California.

Contractors are required by law to be licensed and regulated by the Contractors' State License Board which has authority to investigate complaints against contractors if a complaint regarding a patent act or omission is filed within four years of the date of the alleged violation. A complaint regarding a latent act or omission pertaining to structural defects must be filed within 10 years of the date of the alleged violation. Any questions concerning a contractor may be referred to the Registrar, Contractors' State License Board, P.O. Box 26000, Sacramento, CA 95826.

AGENDA

TELSTAR INSTRUMENTS

Contractor License #422364
Contractor DIR #1000000899

CONTROL SYSTEM INTEGRATION • INSTRUMENTATION SERVICES
SCADA/AUTOMATION • PLC/HMI • ELECTRICAL • CALIBRATION • MAINTENANCE

July 25, 2022

City of Mendota
643 Quince Street
Mendota, CA 93640
Sent via Email: jeronimo@cityofmendota.com

Attn: Jerry Angel
Subject: Well 5
Reference: SR TBD

Drawings: N/A
Specifications: N/A

Jerry,

Telstar Instruments ("Telstar") is pleased to provide a quote for the referenced project to the above identified purchaser ("Customer"). Well 5

By accepting this proposal from Telstar you agree to treat this as confidential information.

SCOPE OF SUPPLY / SERVICES

1. Telstar will coordinate with the utility company to provide a site shutdown. A shutdown is required due to the lack of a main breaker in the utility metering panel.
2. Demo existing pump panel and controls
3. Provide and install one (1) new control panel. The control panel will be installed using existing supports and will included the following:
    a. Allen Bradley PLC
        i. Required I/O cards
    b. (1) 60HP VFD
    c. (1) AC unit
    d. (1) MDS Oribit Radio
    e. Breakers, relays, switches, terminal blocks, power supply
    f. Telstar is a UL 508A panel shop.

TELSTAR INSTRUMENTS

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CONTROL SYSTEM INTEGRATION • INSTRUMENTATION SERVICES
SCADA/AUTOMATION • PLC/HMI • ELECTRICAL • CALIBRATION • MAINTENANCE

4. Telstar will provide and install conduits/wiring for 3 valves and one PIT, all located withing the gated site.
5. Provide and install one (1) antenna pole and yagi antenna. Antenna pole will be 20' tall. No radio survey was performed and any additional height or communication issues will be charged at T&M.
6. PLC and SCADA Programming to match existing sites.
7. Start-up and testing include. (Not to Exceed 20 hours)

Lump Sum Price for this Scope.....$82,520.00
Shipping and Handling for Telstar Supplied Materials IS INCLUDED
Sales Tax IS INCLUDED

This quotation is based on Customer's representation that this IS a prevailing wage project.
CLARIFICATIONS, EXCEPTIONS, AND EXCLUSIONS

a. Material price is valid for seven (7) days from date referenced on this quote (Refer to COVID clause RE: MATERIAL PRICING AND DELIVERY under Terms and Conditions)
b. This quotation is based on the inclusion of Telstar's standard Terms and Conditions as part of any purchase order, contract or other agreement.
c. Telstar's quotation includes only those items listed above. Requests for additions/deletions from our scope will require a change in the quoted price.
d. Telstar assumes no responsibility for performance, applicability, compatibility, start-up, testing, or acceptance of any equipment not furnished by Telstar under this proposal.
e. Telstar is supplying only equipment specified and noted above.
f. Please reference the above stated quote number in all correspondence and purchase orders.

TERMS AND CONDITIONS

Base Terms: Quotation is valid for 30 days from the date of Telstar's quotation. Payment is due and payable 30 days from date of invoice. If payment is not received by the 30th day, a .05% daily service charge (18-3/4% per annum) will be charged on all accounts past due. In the event of a dispute concerning payment, attorney's fees, court costs and costs of collection will be paid to the prevailing party. The cost for permits and bonding are excluded unless expressly referenced in Telstar's quotation. Our standard insurance applies unless agreed to in writing by Telstar. Telstar's standard one year parts only warranty applies to this quotation. All other warranties, express or implied, or referenced elsewhere in contract documents are excluded, including but not limited to implied warranties of merchantability or fitness for purpose. Unless expressly stated in Telstar's estimate, this quote is based on standard straight time hours and does not include any prevailing wage rates. The price quoted herein is for the labor and materials specifically listed within the body of this quote. Service calls are charged at a 4-hour minimum per person, excluding travel time. Unless expressly stated in the quotation, training, operation and maintenance manuals, and preparation of as built drawings are excluded from Telstar's scope of work.
Limitation of Liability: (a) In no event shall Telstar, its suppliers or subcontractors be liable for special, indirect, incidental or consequential damages, whether in contract, warranty, tort, negligence, strict liability or otherwise, including, but not limited to, loss of profits or revenue, loss of use of the Equipment or any associated equipment,

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cost of capital, cost of substitute equipment, facilities or services, downtime costs, delays, and claims of customers of Customer, its officers, directors, members employees or any third parties for any damages. Telstar's liability for any claim whether in contract, warranty, tort, negligence, strict liability, or otherwise for any loss or damage arising out of, connected with, or resulting from this Agreement or the performance or breach thereof, or from the design, manufacture, sale, delivery, resale, repair, replacement, installation, technical direction of installation, inspection, operation or use of any equipment covered by or furnished under this Agreement, or from any services rendered in connection therewith, shall in no case exceed twenty-five percent (25%) of the purchase price allocable to the Equipment, part or Services that is the subject of the claim. (b) All causes of action against Telstar Instruments arising out of or relating to this Agreement or the performance or breach hereof shall are deemed barred unless brought within one year from the date of discovery or other accrual. (c) In no event, regardless of cause, shall Telstar Instruments be liable for liquidated damages, offsets or penalties of any kind or to indemnify, defend or hold harmless Customer, its officers, directors, members, employees or any third party, arising from or related to the Equipment and/or Services provided by Telstar.

Force Majeure: Telstar shall neither be liable for loss, damage, detention or delay nor be deemed to be in default for failure to perform when prevented from doing so by causes beyond its reasonable control including but not limited to acts of war (declared or undeclared), Acts of God, fire, strike, labor difficulties, acts or omissions of any governmental authority or of Customer, compliance with government regulations, insurrection or riot, embargo, delays or shortages in transportation or inability to obtain necessary labor, materials, or manufacturing facilities from usual sources or from defects or delays in the performance of its suppliers or subcontractors due to any of the foregoing enumerated causes. In the event of delay due to any such cause, the date of delivery will be extended by period equal to the delay plus a reasonable time to resume production, and the price will be adjusted to compensate Telstar Instruments for such delay.

Cancellation: In the event of cancellation by Customer, Customer agrees to fully reimburse and compensate Telstar for all costs associated with this Quotation or subsequent order, including but not limited to engineering, labor, materials, quote and estimating time, and product return fees, plus a ten percent (10%) markup to compensate for disruption in scheduling, planned production, indirect costs and profit. Payment for cancellation shall be due within ten (10) days from the date of submission of charges by Telstar.

Entire Agreement: This Quotation constitutes the entire agreement between Telstar and Customer. There are no agreements, understandings, restrictions, warranties, or representations between Telstar and Customer other than those set forth herein or herein provided. This Quotation may only be amended, changed or revised by a written amendment signed by an authorized representative of Telstar. No oral or implied agreements shall be of any force or affect.

Precedence: In the event Telstar is issued an authorization for work, Purchase Order, Contract or similar Agreement with conflicting Terms and Conditions than those set forth herein, these Terms and Conditions will take precedence and will supersede any and all other conflicting Terms and Conditions.

Submittals: In the event Telstar receives a Notice to Proceed or a written statement to proceed with submittals, Telstar will be entitled to compensation based on percent of completion of submittal cost to Customer. Telstar will prepare only one set of submittals, and any resubmittals shall be subject to an additional charge for engineering time and other costs in preparing re-submittals.

Prevailing Wages: Telstar relies upon Customer's representations as to whether this Project requires payment of prevailing wages. Customer agrees to defend, indemnify and hold Telstar harmless from and against any and all claims, actions and demands, including but not limited to payment of legal fees, fines, back pay, and any penalties or interest, associated with Customer's inaccurate representation of whether prevailing wages are required to be paid.

TELSTAR'S COVID AND INDUSTRY CLAUSE RE: MATERIAL PRICING AND DELIVERY: Telstar is unable to hold prices on materials for more than 7 days. Prices for plastic, copper, steel, and other commodities fluctuate daily. Our vendors and manufacturers are experiencing unprecedented delays due to COVID-19 staffing, a shortage of containers, port congestion, and raw material shortages that have extended lead times significantly. Telstar reserves the right to amend the delivery date and the price of materials set forth in this quotation. Telstar considers any of

TELSTAR INSTRUMENTS

Contractor License #422364
Contractor DIR #1000000899

CONTROL SYSTEM INTEGRATION • INSTRUMENTATION SERVICES
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the above related changes imposed by our vendors and manufacturers as outside its reasonable control and subject to Force Majeure provisions.

We look forward to working with you on this project. If you have any questions, please contact me at the phone number below.

Sincerely,

Konor Meeks
Telstar Instruments
(559) 584-7116

AGENDA

STS AUTOMATION
INC.

69 Lincoln Blvd. STE A #299
Lincoln, CA 95648
(916) 409-5556

♦♦♦ *SCADA Design* ● *SCADA Integration* ● SCADA *Service & Support* ♦♦♦

July 25, 2022

City of Mendota
Attn: Jerry Angel

STS Automation, Inc. is pleased to offer the following proposal for services described.

Item 1

Provide New PLC Control Panel

New Control Panel Major components to include;

1. Design and fabricate custom control Panel
   - a. Panel fabrication Drawings are included.
     - i. Pre-fabrication drawings will be provided for review. One round of review and comments are included any additional reviews are subject to additional costs.
   - b. Owner Supplied Incoming Power is 480V, 3phase
   - c. QTY 1 – Ice Qube A/C unit is included
   - d. QTY1 – Allen Bradley CompactLogix PLC is included.
     - i. with Digital and Analog IO requitred + 10% spare for expansion
     - ii. 10" Panelview Plus or equivalent HMI Screen (depending on availability)
     - ili. Spares will not be wired to terminal blocks.
   - f. Enclosure to be 36" x 24" x 12" D, NEMA 3R, wall mounted, lockable, color gray
     - i. Includes dead front swing out interior panel
     - ii. Includes heat shields top and back
     - iii. Enclosure heater
     - iv. Thermostat
     - v. Intrusion switch
   - g. Power Distribution for pumps, blower & valves included.
     - i. Includes breakers, contactor, and overloads

STS AUTOMATION
INC.

69 Lincoln Blvd. STE A #299
Lincoln, CA 95648
(916) 409-5556

h. 3 position switches for VFD & valves included. i. QTY 1 – APC SMT 1500 UPS included.

Item 3:
New VFD
1a. <u>Provide (1) New C-H DG1-34061FN-C21C (40Hp)</u>

Item 4:
New Rosemount Pressure Transducer
1a. <u>Provide (1) New Rosemount 3051 Pressure Transducer</u>

Item 5
Electrical Installation
<u>Electrical Installation to include;</u> 1. Demo Existing Equipment o a. Existing Pump Panel o b. Existing Telemetry Panel 2. New Installations o a. Install New PLC Control Panel o b. Install New VFD Control Panel o c. Furnish and Install (Est 20 Feet) Conduits and Conductors for 3 new Valves o d. Furnish and Install (Est 290 Feet) Conduits and Conductors for 1 new Pressure Transducer o e. Furnish and Install 1 New Yagi antenna on Existing Power Pole (Pole will be owner provided)

Item 3
PLC and SCADA Programming
<u>PLC and SCADA Programming – Major components to Include;</u> 3. Integration of existing equipment a Current Wonderware Wet SCADA System. o a. PLC Programming to include control of new equipment

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♦♦♦ *SCADA Design* ● *SCADA Integration* ● SCADA *Service & Support* ♦♦♦

- b. Creation of Station Screens, Setpoint Screens, Control Pop-Ups, Alarm Pop-Ups and Trend Screens

6a. (1) – Development & Screen Review Meetings

Start-Up – Not to Exceed 20 Hours

Items 1 -3 Total	**$80,986.33**

Terms and conditions.

Items Specifically NOT Included in This Proposal
Additional Instruments (i.e. Pressure Transducers/Transmitters, Flow Meters, Chemical Feed Equipment, etc.)
Material price is valid for seven (7) days from date referenced on this quote (Refer to COVID clause RE: MATERIAL PRICING AND DELIVERY under Terms and Conditions)
This quotation is based on the inclusion of STS's standard Terms and Conditions as part of any purchase order, contract or other agreement.
Estimate is based on Job Walk
Submittals of any kind are excluded.
Electrical calculations and/or electrical studies are excluded.
508A UL labeling is included.
Structural calculations of any kind are excluded.
Installation other that specifically listed in proposal is excluded.
Receiving and Storage of Equipment on the Job Site
Installation Materials, Brackets, Wire, Clamps, Piping, Junction Boxes, etc., not specifically described in material list.
Installation of any Instruments
Field Terminations
Mounting of Control Panels/Hardware
Mounting Stands, Brackets, Channel Strut or Field Assemblies of any Kind
Permits or Bonding
Fiber Optic Cable, Connectors, Termination and/or Testing
Electrical Installation / Testing
Alarm Software Package/ Hard auto dialer
New Pole for Yagi Antenna
Wonderware Tag availability is the responsibility of the owner.

STS'S COVID AND INDUSTRY CLAUSE RE: MATERIAL PRICING AND DELIVERY: STS is unable to hold prices on materials for more than 7 days. Prices for plastic, copper, steel, and other commodities fluctuate daily. Our vendors and manufacturers are experiencing unprecedented delays due to COVID-19 staffing, a shortage of containers, port congestion, and raw material shortages that have extended lead times significantly. STS reserves the right to amend the delivery date and the price of materials set forth in this quotation. STS considers any of the above related changes imposed by our vendors and manufacturers as outside its reasonable control and subject to Force Majeure provisions.

Please note that installation will be provided by a non-union certified electrician and is included in this proposal.

This quote is valid for 15 days. Payment terms are net 15 days unless agreed otherwise.

STS AUTOMATION
INC.

69 Lincoln Blvd. STE A #299
Lincoln, CA 95648
(916) 409-5556

♦♦♦ *SCADA Design* ● *SCADA Integration* ● SCADA *Service & Support* ♦♦♦

If you have any questions on this proposal or require further information, please give me a call at 916-409-5556. Thank you for considering STS Automation for your control system requirements.

Sincerely,

Sharlene F. Sherwood

Sharlene F. Sherwood
STS Automation Inc.
E: sharlene.sherwood@stsautomation.com
P: (916) 769-5679

AGENDA

BEFORE THE CITY COUNCIL
OF THE
CITY OF MENDOTA, COUNTY OF FRESNO

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF MENDOTA APPROVING THE SCOPE OF SERVICES PROVIDED BY LIGHTHOUSE ELECTRICAL, INC., TO INSTALL UPGRADES TO WELL NUMBER 5 TO SERVE AS A WATER SOURCE TO IRRIGATE POOL PARK

RESOLUTION NO. 22-53

WHEREAS, the City of Mendota ("City") is responsible for maintaining both sides of Mendota Pool Park (the "Park"); and

WHEREAS, one of the City Council's stated goals is improving the Park to benefit the community; and

WHEREAS, the Park's existing irrigation system is inadequate and upgrades to the system's water source, City well number 5, are needed to allow the irrigation system to properly irrigate the Park; and

WHEREAS, the City Council allocated and approved funds for this project in the Fiscal Year 2022-2023 budget.

NOW, THEREFORE, BE IT RESOLVED, that the City Council of the City of Mendota hereby approves the scope of services to be provided by Lighthouse Electrical, Inc., installing upgrades to well number 5 so it may serve as a water source to irrigate the Park.

BE IT FURTHER RESOLVED, that the City Manager, or his designee, is authorized to execute such additional documents as may be necessary to effect the work required for the installation of upgrades to well number 5.

_____
Rolando Castro, Mayor

ATTEST:

I, Celeste Cabrera-Garcia, City Clerk of the City of Mendota, do hereby certify that the foregoing resolution was duly adopted and passed by the City Council at a regular meeting of said Council, held at the Mendota City Hall on the 26th day of July, 2022, by the following vote:

AYES: **4 – Mayor Castro, Mayor Pro Tem Mendoza, Councilors Alonso and Riofrio**
NOES: **0**
ABSENT: **1 – Councilor Rosales**
ABSTAIN: **0**

_____
Celeste Cabrera-Garcia, City Clerk

AGENDA ITEM – STAFF REPORT

TO: HONORABLE MAYOR AND COUNCILMEMBERS

FROM: CRISTIAN GONZALEZ, CITY MANAGER; HUNTER CASTRO, ASSISTANT CITY ATTORNEY

SUBJECT: CHAPTER 12.20 OF THE MENDOTA MUNICIPAL CODE REGARDING CITY PARKS AND RECREATION FACILITIES

DATE: AUGUST 9, 2022

ISSUE

What is the current state of the City of Mendota's ("City") regulations regarding access to and preservation of the City's parks and recreation facilities?

BACKGROUND

Over the past three months, the City Council, City staff, and the public have engaged in regular discussions regarding the scope of the City's existing regulations regarding access to City parks and recreation facilities. The provisions at issue here are located in Mendota Municipal Code ("MMC") Chapter 12.20, titled Park and Recreation Areas.

At its July 26, 2022, regular meeting, the City Council declined to adopt Ordinance No. 22-02's proposed revisions to MMC Chapter 12.20, and directed City staff to place a discussion item regarding access to the City's parks and recreation facilities on the agenda for its next meeting.

ANALYSIS

I. Hours of Operation

"All public facilities and recreation facilities shall be closed between the hours of eleven p.m. and seven a.m. unless their use during such time is authorized by a special permit issued by the city council." (MMC, § 12.20.130.)

II. Exclusive Use Permits

Among other things, Chapter 12.20 requires all pre-advertised gatherings and groups of more than twenty-five persons obtain an exclusive use permit and insurance for the City park or recreation facility they wish to use. (See MMC, §§ 12.20.040, 12.20.050, 12.20.060, 12.20.110, 12.20.120.) MMC section 12.20.040 provides:

> A. No park area or facility may be used for **any pre-advertised assembly or by groups of twenty-five (25) or more persons without a permit** issued under Section 12.20.120. All applications for permits must be signed by an adult who shall agree to be responsible for the requested use of the park. The execution of a

permit application and acceptance of the permit shall constitute the applicant's consent and acceptance of all permit conditions and all restrictions and requirements set forth in this chapter.

B. **All park events and activities shall be conducted in strict compliance with the requirements and restrictions contained in this chapter and all permit conditions**, which shall include the statements and information set forth in the permit application and all provisions set forth in the promoter's agreement. **Any park event or activity conducted in violation of any permit condition** and all provisions set forth in the promoter's agreement, any of the provisions of this chapter or the provisions of the promoter's [agreement] **may be summarily terminated** and the permit shall be deemed revoked.

(MMC, § 12.20.040, emphasis added.)

To obtain an exclusive use permit, an event organizer must provide, among other things:

- Their name or the name of the organization sponsoring the event;
- The number of persons expected to attend the event or activity;
- A description of the proposed activities, including equipment and vehicles to be brought into the park;
- Whether alcoholic beverages will be sold or served;
- Whether the proposed event or activity will be promoted for a fee;
- The specific park area requested for exclusive use; and
- A statement of the benefits this event or activity will have for the community.

(MMC, § 12.20.060.)

All persons to whom an exclusive use permit is granted must provide the City with certificates of insurance "evidencing liability and property damage limits with a combined single limit of not less than one million dollars ($1,000,000.00), with a deductible of no more than five hundred dollars ($500.00), and which shall specify the city and the applicant as named insureds." (MMC, § 12.20.110.) This insurance certificate is required to submit a complete application for an exclusive use permit. (*Ibid.*) Failure to provide the insurance certificate results in an "automatic rejection of the permit application." (*Ibid.*)

III. Prohibited Activities

Among other things, Chapter 12.20 restricts or prohibits the following activities in City-owned parks and recreation facilities:

- Interference with a permit holder's exclusive use of the reserved park or recreation facility (MMC, § 12.20.140);
- Shooting any firearm, air gun, slingshot, or bow and arrow except in places designated and posted for that purpose (MMC, § 12.20.150);

- Parking or operating a motor vehicle except upon areas designated for such use (MMC, § 12.20.170);
- Selling, in any manner or for any purpose, goods, wares, or merchandise except as expressly authorized by permit (MMC, § 12.20.180);
- Marking, injuring, or disturbing the park or recreation facility (MMC, § 12.20.190)
- Lighting or maintaining any fire except in a fire circle or place designated for that purpose (MMC, § 12.20.200);
- Littering (MMC, § 12.20.210);
- Possessing any glass beverage container (MMC, § 12.20.220);
- Using amplified sound systems unless expressly authorized by permit (MMC, § 12.20.240);
- Golf in any area not designated for that purpose (MMC, § 12.20.250);
- Operating motor-drive airplanes in any area not designated for that purpose (MMC, § 12.20.260); and
- Riding bicycles or animals in any area not designated for that purpose (MMC, § 12.20.270).

IV. Enforcement

"Violation of a city ordinance is a misdemeanor unless by ordinance it is made an infraction. The violation of a city ordinance may be prosecuted by city authorities in the name of the people of the State of California, or redressed by civil action." (Gov. Code, § 36900, subd. (a). See MMC, Chapter 2.54 [Administrative Fines and Appeals Program].)

"It is unlawful for any person to enter or remain in any park, recreation area, facility or building of the city unless he/she complies with all of the regulations set forth in this chapter applicable to such park, recreation area, facility or building." (MMC, § 12.20.030.) "Any violation of the restrictions in this chapter, conditions upon a permit, provisions of a promoter's agreement, or established park rule, shall be subject to a fine set by resolution of the city council." (MMC, § 12.20.100.)

FISCAL IMPACT

To be determined.

RECOMMENDATION

City staff recommends the City Council discuss its goals for controlling park access and preservation via revisions to Chapter 12.20 of the MMC and provide direction to staff regarding how to proceed.

AGENDA ITEM – STAFF REPORT

TO: HONORABLE MAYOR AND COUNCILMEMBERS

FROM: NANCY BANDA, FINANCE DIRECTOR & CELESTE CABRERA-GARCIA, CITY CLERK

VIA: CRISTIAN GONZALEZ, CITY MANAGER

SUBJECT: HOLDING THE PUBLIC HEARING AND CONSIDERING ADOPTION OF ORDINANCE NO. 22-03

DATE: AUGUST 9, 2022

ISSUE

Shall the City Council hold the public hearing and consider adopting Ordinance No. 22-03?

BACKGROUND

At its regularly scheduled meeting of June 14, 2022, the City Council discussed seeking additional revenue, in the form of a tax measure, for the purpose of providing and improving essential City services and infrastructure. The proposed tax measure would impose a general transactions and use tax of 1.25% (which is the maximum percentage allowed under Revenue and Taxation Code section 7251.1 in light of existing Fresno County transactions and use taxes), if approved by a majority of the voters of the City of Mendota ("City"). At the same meeting, the Council directed City staff to prepare the necessary materials to place the proposed ballot measure on the ballot for the November 2022 General Election.

On June 14, 2022, the City Council approved the proposed tax rate of 1.25% to be placed on all documents to be submitted for the November 2022 ballot for a proposed ordinance to levy or increase in sales and use tax. The revenue from this proposed tax will be placed in the City's General Fund to be used for any lawful purpose, including, but not limited to, streets and parks expenditures. The California Department of Tax and Fee Administration ("CDTFA") has estimated revenues to be $493,499.

At its July 26, 2022 regular meeting, the City Council held the first reading of Ordinance No. 22-03 and scheduled the public hearing for August 9, 2022.

ANALYSIS

The proposed Mendota General Transactions and Use Tax (the "Tax") would generate approximately $493,499 in revenue and said revenue will be placed in the City's General Fund to be used for any lawful purpose, including, but not limited to, expenditures related to streets and parks. If approved by the voters, the Tax would remain in place until repealed by the voters with a future ballot measure.

Ordinance No. 22-03 amends the Mendota Municipal Code to add Chapter 3.14 to Title 3. Chapter 3.14 would formally impose the Tax and request that CDTFA administer the Tax. To take effect, the ordinance needs to be approved by two-thirds of the City Council and must be

approved by a majority vote of the qualified voters of the City. (See Revenue and Taxation Code, § 7285.9; Government Code, §§ 53723, 53724; Elections Code, § 9222.)

Upon consideration and approval of these documents, staff will submit them to Fresno County and CDTFA in order to move forward with placing the measure on the November ballot.

FISCAL IMPACT

An estimated $493,499.00 of revenue will be generated for the General Fund if the measure imposing the Tax is approved by a majority of qualified voters in the City.

RECOMMENDATION

Staff recommends that the City Council hold the public hearing and consider Ordinance No. 22-03 for adoption.

Attachment(s):

1. Ordinance No. 22-03

BEFORE THE CITY COUNCIL
OF THE
CITY OF MENDOTA, COUNTY OF FRESNO

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF MENDOTA ADDING CHAPTER 3.14 TO TITLE 3 OF THE MENDOTA MUNICIPAL CODE TO ENACT A MENDOTA GENERAL TRANSACTIONS AND USE TAX TO BE ADMINISTERED BY THE CALIFORNIA DEPARTMENT OF TAX AND FEE ADMINISTRATION

ORDINANCE NO. 22-03

WHEREAS, pursuant to California Revenue and Taxation Code section 7285.9 the City of Mendota ("City") is authorized to levy a local Transactions and Use Tax for general purposes, subject to majority voter approval; and

WHEREAS, Article XIII C, Section 2, of the California Constitution requires general purpose taxes be submitted for voter approval at a general election unless an emergency is declared as the term "emergency" is used in Article XIII C, Section 2, Subdivision (b), of the California Constitution; and

WHEREAS, the City Council of the City of Mendota ("City") called a Special Municipal Election and, on July 26, 2022, approved a ballot measure establishing a Mendota General Transactions and Use Tax for general purposes at a rate of one and one-quarter cent per dollar (1.25%) (the "Measure"), to be submitted to the voters of the City at the November 8, 2022, Statewide General Election; and

WHEREAS, if the Measure is approved by the voters by a majority vote, this Ordinance would establish a general Transactions and Use Tax to be deposited in the City's General Fund for any lawful public purpose and the measures to implement and administer such tax; and

WHEREAS, the City Council wishes to adopt this Ordinance to establish the Mendota General Transactions and Use Tax as Chapter 3.14 of Title 3 of the Mendota Municipal Code, contingent upon Mendota's voters approving the Measure.

NOW, THEREFORE, the City Council of the City of Mendota does hereby ordain as follows:

SECTION 1. Incorporation of Recitals. The Recitals set forth above are incorporated herein and by this reference made an operative part hereof.

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SECTION 2. Chapter 3.14, Mendota General Transactions and Use Tax, shall be added to Title 3 of the Mendota Municipal Code, and shall read as follows:

3.14.010 – Title.

This Chapter shall be known as the Mendota General Transactions and Use Tax Ordinance. The City of Mendota hereinafter shall be called "City." This Chapter shall be applicable in the incorporated territory of the City.

3.14.020 – Operative Date.

"Operative Date" means the first day of the first calendar quarter commencing more than 110 days after the adoption of this Chapter, the date of such adoption being as set forth below.

3.14.030 – Purpose.

This Chapter is adopted to achieve the following, among other purposes, and directs that the provisions hereof be interpreted in order to accomplish those purposes:

A. To impose a retail transactions and use tax in accordance with the provisions of Part 1.6 (commencing with Section 7251) of Division 2 of the Revenue and Taxation Code and Section 7285.9 of Part 1.7 of Division 2 which authorizes the City to adopt this tax ordinance which shall be operative if a majority of the electors voting on the measure vote to approve the imposition of the tax at an election called for that purpose.

B. To adopt a retail transactions and use tax ordinance that incorporates provisions identical to those of the Sales and Use Tax Law of the State of California insofar as those provisions are not inconsistent with the requirements and limitations contained in Part 1.6 of Division 2 of the Revenue and Taxation Code.

C. To adopt a retail transactions and use tax ordinance that imposes a tax and provides a measure therefore that can be administered and collected by the California Department of Tax and Fee Administration in a manner that adapts itself as fully as practicable to, and requires the least possible deviation from, the existing statutory and administrative procedures followed by the California Department of Tax and Fee Administration in administering and collecting the California State Sales and Use Taxes.

D. To adopt a retail transactions and use tax ordinance that can be administered in a manner that will be, to the greatest degree possible, consistent with the provisions of Part 1.6 of Division 2 of the Revenue

and Taxation Code, minimize the cost of collecting the transactions and use taxes, and at the same time, minimize the burden of record keeping upon persons subject to taxation under the provisions of this Chapter.

3.14.040 – Contract with State.

Prior to the operative date, the City shall contract with the California Department of Tax and Fee Administration to perform all functions incident to the administration and operation of this transactions and use tax ordinance; provided, that if the City shall not have contracted with the California Department of Tax and Fee Administration prior to the operative date, it shall nevertheless so contract and in such a case the operative date shall be the first day of the first calendar quarter following the execution of such a contract.

3.14.050 – Transactions Tax Rate.

For the privilege of selling tangible personal property at retail, a tax is hereby imposed upon all retailers in the incorporated territory of the City at the rate of 1.25% of the gross receipts of any retailer from the sale of all tangible personal property sold at retail in said territory on and after the operative date of this Chapter.

3.14.060 – Place of Sale.

For the purposes of this Chapter, all retail sales are consummated at the place of business of the retailer unless the tangible personal property sold is delivered by the retailer or his agent to an out-of-state destination or to a common carrier for delivery to an out-of-state destination. The gross receipts from such sales shall include delivery charges, when such charges are subject to the state sales and use tax, regardless of the place to which delivery is made. In the event a retailer has no permanent place of business in the State or has more than one place of business, the place or places at which the retail sales are consummated shall be determined under rules and regulations to be prescribed and adopted by the California Department of Tax and Fee Administration.

3.14.070 – Use Tax Rate.

An excise tax is hereby imposed on the storage, use or other consumption in the City of tangible personal property purchased from any retailer on and after the operative date of this Chapter for storage, use or other consumption in said territory at the rate of 1.25% of the sales price of the property. The sales price shall include delivery charges when such charges are subject to state sales or use tax regardless of the place to which delivery is made.

3.14.080 – Adoption of Provisions of State Law.

Except as otherwise provided in this Chapter and except insofar as they are inconsistent with the provisions of Part 1.6 of Division 2 of the Revenue and Taxation Code, all of the provisions of Part 1 (commencing with Section 6001) of Division 2 of the Revenue and Taxation Code are hereby adopted and made a part of this Chapter as though fully set forth herein.

3.14.090 – Limitations on Adoption of State Law and Collection of Use Taxes.

In adopting the provisions of Part 1 of Division 2 of the Revenue and Taxation Code:

A. Wherever the State of California is named or referred to as the taxing agency, the name of this City shall be substituted therefor. However, the substitution shall not be made when:

1. The word "State" is used as a part of the title of the State Controller, State Treasurer, State Treasury, or the Constitution of the State of California;

2. The result of that substitution would require action to be taken by or against this City or any agency, officer, or employee thereof rather than by or against the California Department of Tax and Fee Administration, in performing the functions incident to the administration or operation of this Chapter.

3. In those sections, including, but not necessarily limited to sections referring to the exterior boundaries of the State of California, where the result of the substitution would be to:

i. Provide an exemption from this tax with respect to certain sales, storage, use or other consumption of tangible personal property which would not otherwise be exempt from this tax while such sales, storage, use or other consumption remain subject to tax by the State under the provisions of Part 1 of Division 2 of the Revenue and Taxation Code, or;

ii. Impose this tax with respect to certain sales, storage, use or other consumption of tangible personal property which would not be subject to tax by the state under the said provision of that code.

4. In Sections 6701, 6702 (except in the last sentence thereof), 6711, 6715, 6737, 6797 or 6828 of the Revenue and Taxation Code.

B. The word "City" shall be substituted for the word "State" in the phrase "retailer engaged in business in this State" in Section 6203 and in the definition of that phrase in Section 6203.

1. “A retailer engaged in business in the District” shall also include any retailer that, in the preceding calendar year or the current calendar year, has total combined sales of tangible personal property in this state or for delivery in the State by the retailer and all persons related to the retailer that exceeds five hundred thousand dollars ($500,000). For purposes of this section, a person is related to another person if both persons are related to each other pursuant to Section 267(b) of Title 26 of the United States Code and the regulations thereunder.

3.14.100 – Permit Not Required.

If a seller's permit has been issued to a retailer under Section 6067 of the Revenue and Taxation Code, an additional transactor's permit shall not be required by this Chapter.

3.14.110 – Exemptions and Exclusions.

A. There shall be excluded from the measure of the transactions tax and the use tax the amount of any sales tax or use tax imposed by the State of California or by any city, city and county, or county pursuant to the Bradley-Burns Uniform Local Sales and Use Tax Law or the amount of any state-administered transactions or use tax.

B. There are exempted from the computation of the amount of transactions tax the gross receipts from:

1. Sales of tangible personal property, other than fuel or petroleum products, to operators of aircraft to be used or consumed principally outside the county in which the sale is made and directly and exclusively in the use of such aircraft as common carriers of persons or property under the authority of the laws of this State, the United States, or any foreign government.

2. Sales of property to be used outside the City which is shipped to a point outside the City, pursuant to the contract of sale, by delivery to such point by the retailer or his agent, or by delivery by the retailer to a carrier for shipment to a consignee at such point. For the purposes of this paragraph, delivery to a point outside the City shall be satisfied:

i. With respect to vehicles (other than commercial vehicles) subject to registration pursuant to Chapter 1

(commencing with Section 4000) of Division 3 of the Vehicle Code, aircraft licensed in compliance with Section 21411 of the Public Utilities Code, and undocumented vessels registered under Division 3.5 (commencing with Section 9840) of the Vehicle Code by registration to an out-of-City address and by a declaration under penalty of perjury, signed by the buyer, stating that such address is, in fact, his or her principal place of residence; and

ii. With respect to commercial vehicles, by registration to a place of business out-of-City and declaration under penalty of perjury, signed by the buyer, that the vehicle will be operated from that address.

3. The sale of tangible personal property if the seller is obligated to furnish the property for a fixed price pursuant to a contract entered into prior to the operative date of this Chapter.

4. A lease of tangible personal property which is a continuing sale of such property, for any period of time for which the lessor is obligated to lease the property for an amount fixed by the lease prior to the operative date of this Chapter.

5. For the purposes of subparagraphs (3) and (4) of this section, the sale or lease of tangible personal property shall be deemed not to be obligated pursuant to a contract or lease for any period of time for which any party to the contract or lease has the unconditional right to terminate the contract or lease upon notice, whether or not such right is exercised.

C. There are exempted from the use tax imposed by this Chapter, the storage, use or other consumption in this City of tangible personal property:

1. The gross receipts from the sale of which have been subject to a transactions tax under any state-administered transactions and use tax ordinance.

2. Other than fuel or petroleum products purchased by operators of aircraft and used or consumed by such operators directly and exclusively in the use of such aircraft as common carriers of persons or property for hire or compensation under a certificate of public convenience and necessity issued pursuant to the laws of this State, the United States, or any foreign government. This exemption is in addition to the exemptions provided in Sections

6366 and 6366.1 of the Revenue and Taxation Code of the State of California.

3. If the purchaser is obligated to purchase the property for a fixed price pursuant to a contract entered into prior to the operative date of this Chapter.

4. If the possession of, or the exercise of any right or power over, the tangible personal property arises under a lease which is a continuing purchase of such property for any period of time for which the lessee is obligated to lease the property for an amount fixed by a lease prior to the operative date of this Chapter.

5. For the purposes of subparagraphs (3) and (4) of this section, storage, use, or other consumption, or possession of, or exercise of any right or power over, tangible personal property shall be deemed not to be obligated pursuant to a contract or lease for any period of time for which any party to the contract or lease has the unconditional right to terminate the contract or lease upon notice, whether or not such right is exercised.

6. Except as provided in subparagraph (7), a retailer engaged in business in the City shall not be required to collect use tax from the purchaser of tangible personal property, unless the retailer ships or delivers the property into the City or participates within the City in making the sale of the property, including, but not limited to, soliciting or receiving the order, either directly or indirectly, at a place of business of the retailer in the City or through any representative, agent, canvasser, solicitor, subsidiary, or person in the City under the authority of the retailer.

7. "A retailer engaged in business in the City" shall also include any retailer of any of the following: vehicles subject to registration pursuant to Chapter 1 (commencing with Section 4000) of Division 3 of the Vehicle Code, aircraft licensed in compliance with Section 21411 of the Public Utilities Code, or undocumented vessels registered under Division 3.5 (commencing with Section 9840) of the Vehicle Code. That retailer shall be required to collect use tax from any purchaser who registers or licenses the vehicle, vessel, or aircraft at an address in the City.

D. Any person subject to use tax under this Chapter may credit against that tax any transactions tax or reimbursement for transactions tax paid to a district imposing, or retailer liable for a transactions tax pursuant to Part 1.6 of Division 2 of the Revenue and Taxation Code

with respect to the sale to the person of the property the storage, use or other consumption of which is subject to the use tax.

3.14.120 – Amendments.

All amendments subsequent to the effective date of this Chapter to Part 1 of Division 2 of the Revenue and Taxation Code relating to sales and use taxes and which are not inconsistent with Part 1.6 and Part 1.7 of Division 2 of the Revenue and Taxation Code, and all amendments to Part 1.6 and Part 1.7 of Division 2 of the Revenue and Taxation Code, shall automatically become a part of this Chapter, provided however, that no such amendment shall operate so as to affect the rate of tax imposed by this Chapter.

3.14.130 – Enjoining Collection Forbidden.

No injunction or writ of mandate or other legal or equitable process shall issue in any suit, action or proceeding in any court against the State or the City, or against any officer of the State or the City, to prevent or enjoin the collection under this Chapter, or Part 1.6 of Division 2 of the Revenue and Taxation Code, of any tax or any amount of tax required to be collected.

3.14.140 – Severability.

If any provision of this Chapter or the application thereof to any person or circumstance is held invalid, the remainder of the Chapter and the application of such provision to other persons or circumstances shall not be affected thereby.

3.14.150 – Duration of Tax.

The authority to levy the tax imposed by this ordinance shall continue until this Chapter is repealed.

Section 3. Severability. If any part of this Ordinance is held to be invalid for any reason, such decision shall not affect the validity of the remaining portions of this Ordinance, and the City Council and People of the City of Mendota declare they would have passed the remainder of this Ordinance as if such invalid portion thereof had been deleted.

Section 4. CEQA. The adoption of this Ordinance is not subject to environmental review under the California Environmental Quality Act (Public Resources Code section 21000 et seq.; "CEQA") and CEQA regulations (14 California Code of Regulations section 15000 et seq.) because it establishes rules and procedures to implement government funding mechanisms; does not involve any commitment to a specific project which could result in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment; and constitutes an organizational or administrative activity that will not result in direct or indirect physical changes in the environment. Accordingly, this Ordinance does not constitute a "project" that requires environmental

review. (Pub. Res. Code, § 21065; 14 Cal. Code Regs., §§ 15378, subds. (a), (b)(4), and (b)(5), 15064, subd. (d)(3).)

SECTION 5. Approval by the Voters; Effective Date. Pursuant to Elections Code section 9217, this Ordinance shall be deemed adopted and take effect only if approved by a majority of the eligible voters of the City of Mendota voting at the Statewide General Election on November 8, 2022. This Ordinance shall be deemed adopted when the City Council has certified the results of that election by resolution and shall take effect ten (10) days thereafter.

* * * * * * * * * * *

The foregoing ordinance was introduced on the 26th day of July 2022 and duly passed and adopted by the City Council of the City of Mendota at a regular meeting thereof held on the 9th day of August 2022, by the following vote:

AYES:
NOES:
ABSENT:
ABSTAIN:

_____
Rolando Castro, Mayor

ATTEST:

_____
Celeste Cabrera-Garcia, City Clerk

APPROVED AS TO FORM:

_____
John Kinsey, City Attorney

AGENDA

AGENDA ITEM – STAFF REPORT

TO: HONORABLE MAYOR AND COUNCILMEMBERS

FROM: NANCY BANDA, FINANCE DIRECTOR

VIA: CRISTIAN GONZALEZ, CITY MANAGER

SUBJECT: GRANTS UPDATE

DATE: AUGUST 9, 2022

GRANTS UPDATE

- **FEMA-4482-DR-CA California Covid-19 Pandemic** – Staff is in the process of submitting for reimbursement.
- **Adelante Mendota –** *Movies in the Park* finished for the summer. Staff has discussed showing a movie during October or November. The next event will be on Saturday, August 20, 2022 for the Adelante Mendota Car Show from 9am-5pm.
- **Safe Streets and Roads for All (SS4A) Grant Program –** Staff is researching if the City will be able to move forward with implementation grant or a planning grant.

In – Progress Grants:

- **Rojas-Pierce Park Expansion Project –** County of Fresno, Urban Community Development Block Grant (CDBG) Program
- **Rojas-Pierce Park Expansion Project –** Per Capita Program
- **Rojas-Pierce Park Expansion Project –** CDBG-CV
- **COPS Hiring Program –** Department of Justice
- **Proposition 64 –** Board of State and Community Corrections
- **Urban Flood Protection Grant –** California Natural Resources Agency
- **Automatic Meter Read Project –** State Water Board
- **Tire-Derived Product –** Cal Recycle
- **SB 1383 –** Cal Recycle

Attachment(s):

1. Grants Spreadsheet

AGENDA

MENDOTA, CITY OF
Grant Report
Aug-22

Grant Name	Application Due Date	Award Date	Agency: Federal/State/County/ Private	Pass-thru	Matching	Award Amount	Purpose of Grant	Notes
T-Mobile	6/30/2022	6/30/2022	Private	N	N	$ 46,141.92	(32) Christmas Ornaments for Oller Street	
CA WA & WWA Arrearages Payment	4/1/2022	TBD	State	N	N	$ 30,065.39	Financial assistance for customers' accounts 60 days+ for wastewater only	
County of Fresno Subrecipient Grant	3/9/2022	6/21/2022	County	Y	N	$ 2,906,593.00	Water Storage Tank and Booster Pump Station	
Senator Anna Caballero Budget Request	2/25/2022	6/30/2022	State	Y	N	$ 1,500,000.00	Police Department and City Council Chambers	
CalRecycle SB 1383 Grant	2/1/2022	TBD	State	N	N	$ 20,000.00	Implemenation program for SB 1383. Staff will conduct educational presentations, site visits, and enforcement activities.	
Clean California Local Grant Program	2/1/2022	3/1/2022	State	N	N	$ 5,000,000.00	(4) Projects: 1-Pocket Park at Bass Avenue and 2nd Street; 2-Art Sculpture at Bass Avenue Roundabout; 3-Trail to Pool Park; 4-Trails in Pool Park	DENIED
Outdoor Equity Grant Program	10/8/2021	3/1/2022	State	N	N	$ 154,861.00	Outdoor activities in the community and traveling inside of California	DENIED
Office of Traffic Safety Grants	1/31/2021	3/1/2022	State	N	N	$ 550,000.00	DUI Checkpoints with partnering cities in the Westside	Mendota will be the lead agency
CA WA & WWA Arrearages Payment	12/6/2021	3/15/2022	State	N	N	$ 70,743.47	Financial assistance for customers' accounts 60 days+ for water only	
Wonderful Community Grants	8/31/2021	9/30/2021	Private	N	N	$ 50,000.00	(30) Rental Assistance (Continuing) (135) Utility Assistance (100) Dental Care	DENIED
Tire-Derived Product Grant	6/1/2021	8/31/2021	State	N	N	$ 149,995.02	Install rubber mulch at (7) project sites citywide for landscape purposes.	
New Alternative Fuel Vehicle Purchase	TBD	TBD	Local	N	N	Up to $20,000 per vehicle	Purchase (2) electric "Zero" motorcylces for the Police Department and (3) vehicles for Public Works & Public Utiliities	
Statewide Park Development and Community Revitalization Program (SPP)	3/12/2021	August/September	State	N	N	Maximum $8,500,000	1) Community Center - Rojas-Pierce Park; 2) Fitness Court - Veterans Park; 3) Renovation - Pool Park	DENIED
Proposition 64 Public Health and Safety Grant Program	1/29/2021	5/1/2021	State	N	N	$452,509.75	(2) Community Resource Officers, (2) Administrative Assistants, (1) K-9, (1) vehicle	Partnership with City of Fresno (Lead Applicant), Fresno EOC, The Boys & Girls Clubs of Fresno County
Good Neighbor Citizenship Company Grants	10/31/2020	4/30/2021	Private	N	N	$ 198,825.00	Pocket Park at Bass Avenue and I Street	DENIED
CARES County of Fresno	10/1/2020	12/31/2020	County	N	N	$ 229,732.87	COVID-19 relief funds; Non-profit organizations; Message Trailers; Overtime	
Coronavirus Relief Funds (CRF)	10/1/2020	7/1/2020	State	N	N	$ 154,512.00	Expenditures incurred for COVID-19 - Use funds for Police Department MDT's	
FEMA-4482-DR-CA	TBD	TBD	State	N	Y	TBD	Expenditures incurred for COVID-19	25% match
CDGB -Coronavirus and Other	TBD	7/1/2020	County	N	N	$ 104,796.00	Fire Department Equipment & Broadband Assistance for Mendota Residents	
Wonderful Community Grants	8/31/2020	9/15/2020	Private	N	N	$ 50,000.00	COVID-19 relief funds	Mendota Community Corporation Administering
Tobacco Grant Program	8/7/2020	TBD	State	N	N	TBD	Add new tobacco language to our municipal code for enforcement; overtime for educational awareness to local vendors.	DENIED
California Aid to Airports Program	7/9/2020	3/31/2021	State	N	N	$ 10,000.00	Annual credit grant to fund operational costs at the airport	
Community Facilities Grant	7/1/2020	8/1/2020	Federal	N	Y	$ 50,000.00	Purchase (2) Police Ford Explorers, upfit and equipment. This grant is in conjunction with the New Alternative Fuel Vehicle Purchase Grant.	USDA
New Alternative Fuel Vehicle Purchase	6/22/2020	10/31/2020	Local	N	N	Up to $20,000 per vehicle	Purchase (1) Police Ford Explorer and (1) Ford F-250 Truck	
CARES Act Airport Grant	6/18/2020	TBD	Federal	N	N	$ 1,000.00	Reimburse operational and maintenance expenses or debt service payments for the William Robert Johnston Municipal Airport	
Urban Flood Protection Grant Program	6/15/2020	TBD	State	N	N	$ 4,500,000.00	Removal and replacement of undersized and critically damaged storm drain from 8th Street southeasterly past 10th Street to an existing ditch.	
COPS Hiring Program	3/11/2020	10/1/2020	Federal	N	Y	$ 125,000.00	Hire (1) Full-time Police Officer for 3 years.	25% match
Office of Traffic Safety Grants	1/30/2020	10/1/2020	State	N	N	$ 81,527.00	DUI Saturations, Traffic Enforcements, Car Seat Installation/Giveaway Event, Emergency Medical Services for the Fire Department	We received 2/3 grants applied. Car Seat Installation was not approved.
Fresno COG 2019-2020 CMAQ	1/1/2020	5/1/2020	Federal	Y	Y	$ 458,304.00	Alley Paving Project for 7U & 7U1 (near Unida/Belmont/Derrick) and about 1/3 of the alleys on the eastside.	11.47% match
SB 2 Planning Grant Program	12/20/2019	6/1/2020	State	N	N	up to $160,000	Update planning documents and processes of housing approvals/production	
New Alternative Fuel Vehicle Purchase	12/20/2019	6/1/2020	Local	N	N	Up to $20,000 per vehicle	Purchase (1) Public Works/Utilities Trades Vehicle & (2) Police Explorers Interceptors Vehicles	(2) Police Explorers Vehicles to be paid with funding from USDA
Beverage Container Recycling City/County Payment Program	12/17/2019	2/28/2020	State	N	N	$ 5,000.00	Billboard Advertisement and Radio Advertisement to promote beverage container recycling.	If you don't expend the full $5,000.00, you must repay CalRecycle.
Automatic Meter Read Construction		10/21/2019	State	N	Y	$ 3,074,561.00	Install City-wide Automatic Meter Reading Meters	Grant Component $2,724,912.00
Access to Historical Records: Archival Projects	10/3/2019	7/1/2020	Federal	N	Y	$ 95,907.00	Digitize public records and make freely available online	DENIED
National Fitness Campaign 2020	8/1/2019	10/1/2020	Private	N	Y	$ 30,000.00	Outdoor Fitness Court	If the City wishes to pursue this grant, we would need to match $100,000.00.
Urban Community Development Block	7/31/2019	7/1/2020	County	N	N	$ 575,222.00	Phase II Rojas-Pierce Park Expansion Project	For Fiscal Years 2019/2020; 2020/2021 & 2021/2022
California Aid to Airports Program	7/31/2019	10/31/2019	State	N	N	$ 10,000.00	Annual credit grant to fund operational costs at the airport	
Urban County Per Capita Grant Program	6/3/2019	2020	State	N	N	$ 6,969.92	Rojas-Pierce Park Expansion	One-time basis
Per Capita Grant Program	6/3/2019	2020	State	N	N	$ 177,952.00	Rojas-Pierce Park Expansion	One-time basis

Key: Applied for Grants
In process
Approved
Denied
Closed

AGENDA

EST. 1968
PROVOST& PRITCHARD
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Memorandum

To:	City Council via Cristian Gonzalez, City Manager
From:	Michael Osborn, City Engineer Jeff O'Neal, City Planner
Subject:	City Engineer's Report to City Council
Date:	August 3, 2022

Engineering Projects:

1. Rojas Pierce Park:
    - Phase 2 expansion project in progress with construction of lighting in Fall 2022
2. Well 10 and Water Main Relocation
    - Restarted now that USBR Reach 2B project is at 30% design level; coordination with USBR and BB Limited
3. Mendota Meter Reading Project
    - Construction is in progress with Waterboard funding
    - It looks like they will be complete by the end of August 2022
4. Citywide RRXG Improvements:
    - Coordinating crossing improvements at SR 33 with Railroad, Caltrans & private business owner
5. MJHS Safe Routes to School Project
    - ATP funded: Construction contract awarded, work starting in Winter 2022
6. 2022 Local Street Reconstruction Project
    - SB1 funded: Design in progress; Construction in late Summer 2022
7. Backwash Reclaim Project
    - Design is underway; looking for funding opportunities for construction
8. Mendota Stormwater Improvement Project
    - Prop 68 UFPGP funded: Final design in progress; Construction in Spring/Summer 2023
9. Derrick & Oller Roundabout
    - Design & CEQA preparation in progress; Construction in Fall 2023

Planning/Development Projects

1. Rojas Pierce Park Annexation
    - Continuing discussions with USBR about whether and how the WWD land retirement program affects the project.
2. Regional Housing Needs Allocation
    - Participating in Fresno COG meetings for 6th Cycle multijurisdictional Housing Element
3. New City Hall & Police Station
    - Continuing work on CEQA document
4. Safe Routes to School Master Plan
    - ATP funded: Workshops and School Sites Audit in progress

5. Parcel Maps
    - Industrial lot split to special Planning Commission meeting on 8/4
6. Reviewing proposed mixed-use development at Bass and 33
7. Reviewing proposal to use property at 865 Naples for events

Grant Applications:

1. 5th Street & Quince Street Reconstruction:
    - $706,251 in STBG funding AWARDED; Construction authorization in FFY 23/24
2. Amador & Smoot Extension:
    - $874,000 in STBG & CMAQ TPP funds; Construction authorization in FFY 23/24

On-going (this month):

1. Representation of the City at FCOG TTC
2. Discussion of road projects with Caltrans
3. Assistance to Finance Director for grant opportunities

Overall P&P Staff engaged (month of July):

- Engineers: 8
- Planners: 5
- Surveyors: 1
- Environmental Specialist: 3
- GIS/CAD Specialists: 1
- Construction Manager: 0
- Project Administrator: 2

Abbreviations:

EOPCC – Engineer's Opinion of Probable Construction Cost
NTP – Notice to Proceed
CUCCAC – California Uniform Construction Cost Accounting Commission
STBG – Surface Transportation Block Grant
CMAQ – Congestion Mitigation and Air Quality (grant)
ATP – Active Transportation Plan (grant)
RFP – Request for Proposal
RFA- Request for Authorization (for grant funding)
FCOG – Fresno Council of Governments
ADA – Americans with Disabilities Act
DBE – Disadvantaged Business Enterprise
TTC – Technical Transportation Committee (through FCOG)
RTP/SCS – Regional Transportation Plan, Sustainable Communities Strategies