

7. Infrastructure

7.1 INFRASTRUCTURE OVERVIEW

This chapter describes the existing conditions in the Southwest Fresno Specific Plan Area related to water, wastewater, storm drainage, natural gas, and electrical infrastructure, and evaluates the potential impacts to those facilities.

7.2 WATER RESOURCES

7.2.1 REGULATORY FRAMEWORK

There are a number of federal, State, and local regulations that apply to domestic water, recycled water, and irrigation, and are relevant to the Specific Plan Area. They are listed as follows:

FEDERAL GOVERNMENT

Domestic Water

- Safe Drinking Water Act 42 USC Section 300f et seq.
- 40 CFR Part 141: National Primary Drinking Water Regulations
- 40 CFR Part 142: National Primary Drinking Water Implementation Regulations
- 40 CFR Part 143: National Secondary Drinking Water Regulations

Recycled Water

- EPA Guidelines for Water Reuse, EPA/625/R-92/004

Irrigation

- Set by State and Local jurisdictions

STATE OF CALIFORNIA

Domestic Water

- Water Code, Divisions 1, 2, and 4
- Water Code, Division 6, Parts, 1, 2, 2.2, 2.6, 2.76, 3, 4, 6, and 7
- Water Code, Division 7, Chapters 1-4, 6, and 6.5

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- Water Code, Division 7, Chapter 7, Articles 1, 2, 3, 4, 5, 6, and 7
- Water Code, Division 7, Chapter 10
- Water Code, Division 20.5
- Water Code, Divisions 24 and 26
- Water Code Division 26.5, Chapters 1, 3, 4, 5, 6, 8, 10.5
- Water Code, Division 33
- Government Code, Title 5, Division 1, Part 1, Chapter 5.5
- Government Code, Title 7, Division 1, Part 1, Chapter 3, Article 10.8
- Health and Safety Code, Division 13, Part 2.5, Chapter 6
- Health and Safety Code, Division 20, Part 2.5, Chapter 6
- Health and Safety Code, Division 13, Chapters 6.5, 6.7, and 6.75
- Health and Safety Code, Division 104, Part 1, Chapter 4, Article 3
- Health and Safety Code, Division 104, Part 12, Chapter 4, Articles 1-12
- Health and Safety Code, Division 104, Part 12, Chapter 4.5, Articles 2-8
- Health and Safety Code, Division 104, Part 12, Chapter 5, Articles 1-4
- Health and Safety Code, Division 104, Part 12, Chapter 7, Articles 1
- Public Resources Code, Division 43, Chapters 1, 2, 4, 5, and 8-13
- Title 17 of California Code of Regulations, Division 1, Chapter 5, Subchapter 1, Group 4
- Title 22 of California Code of Regulations, Division 4, Chapters 1, 2, 4, 12, 13, 14, 15, 15.5, 16, 17, and 17.5
- Title 22.5 of the California Code of Regulations
- Title 23, Division 2, Chapter 2.7 of the California Code of Regulations

Recycled Water

- Health and Safety Code, Division 104, Part 12, Chapter 4, Article 7
- Health and Safety Code, Division 104, Part 12, Chapter 5, Article 2
- Water Code, Division 7, Chapter 2, Sections 13050, 13051, 13169, 13274
- Water Code, Division 7, Chapter 6, Articles 1, 2, 2.5, and 3
- Water Code, Division 7, Chapter 7, Articles 1, 2, 3, 4, 5, 6, and 7
- Water Code, Division 7, Chapters 7.5 and 22
- Title 17 of California Code of Regulations, Division 1, Chapter 5, Group 4
- Title 22 of California Code of Regulations, Division 4, Chapters 1, 2, and 3
- State Water Resources Control Board Resolution No. 2009-0011

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- State Water Resources Control Board Resolution No. 2009-0011
- State Water Resources Control Board Resolution No. 77-1
- State Water Resources Control Board Recycled Water Policy and Amendments
- State Water Resources Control Board Recycled Statewide General Permit for Landscape Irrigation Uses of Recycled Water
- State Water Resources Control Board 1966 Memorandum of Agreement between CA Department of Public Health and SWRCB

Irrigation

- California Water Code, Division 2
- State Water Resources Control Board Irrigated Lands Regulatory Program

CITY OF FRESNO

Domestic Water

- City of Fresno Standard Specifications
- City of Fresno Standard Drawings
- City of Fresno Fee Ordinance
- City of Fresno 2035 General Plan Update Goals and Objectives, Goals 3, 12
- City of Fresno 2035 General Plan Update Goals and Objectives, Objective PU-5, PU-8, RC-6, RC-7

Recycled Water

- City of Fresno Standard Specifications
- City of Fresno Standard Drawings
- City of Fresno Fee Ordinance
- City of Fresno 2035 General Plan Update Goals and Objectives, Goals 3, 12
- City of Fresno 2035 General Plan Update Goals and Objectives, Objective PU-5
- City of Fresno 2035 General Plan Update Goals and Objectives, Objective PU-7
- Irrigation District Fee Requirements

7.2.2 SOURCES

- Sources for water available to the City of Fresno are:
 - Groundwater
 - Surface water from the Kings River and San Joaquin River
 - Recycled water from the Regional WWTP

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- Existing total water demand is 180 million gallons per day (MGD) approximately 135 GPD
- City of Fresno is mandated to reduce water use by 28 percent

GROUNDWATER

- Citywide groundwater varies annually from 88 to 81 percent of the water supply:
 - Average annual pumping equals 146 MGD
- Southwest Fresno groundwater is 100 percent of the water supply
- Citywide Groundwater depletion is occurring:
 - Groundwater level has dropped at a historic rate of 1.6 feet per year
 - Goal is to reduce groundwater to 40 percent of the water supply
- Active groundwater recharge program using surface water at a historical rate of 50,000 acre-feet per year, but has increased to 90,700 acre-feet per year since 2010 and City plans to increase that to 100,600 acre-feet by 2030
 - City of Fresno Facilities:
 - Leaky Acres
 - None in Plan Area
 - Proposed Super Groundwater Recharge site at Kearney Boulevard and Polk Avenue
 - Fresno Metropolitan Flood Control District stormwater basins:
 - Plan Area Recharge basins include Basins RR3, II1, and OO recharge approximately 750 acre-feet per year
 - Citywide groundwater currently meets the primary and secondary drinking water standards for municipal use:
 - Known contaminants include dibromo-3-chloropropane (DBCP), ethylene dibromide (EDB), trichloropropane (TCP), volatile organic compounds (VOCs) such as trichloroethylene (TCE) and tetrachloroethylene (PCE), nitrate, manganese, radon, chloride, and iron
 - Wellhead treatment has been installed at wells that require treatment to meet the drinking water standards
 - DBCP is not a considered a contaminant in wells within the Plan Area
 - TCP is not a considered to be a contaminant in wells within the Plan Area
 - Nitrate is considered to be a contaminant in wells within the Plan Area, ranging from 20 to 40 milligrams per liter (mg/L) concentrations. Concentrations greater than 10 mg/L exceed US Environmental Protection Agency (EPA) Drinking Water Standards.
 - Sources of nitrate are:
 - Residences that use septic systems
 - Agricultural application of fertilizers
 - Legacy nitrate from the Regional Waste Water Treatment Plant
 - There is approximately 215 acres of land that are listed as un-sewered by the City of Fresno. Only approximately 80 acres of the listed areas are not adjacent to an existing sewer main that they could connect to using the City of Fresno's

INFRASTRUCTURE

loan program that allows residences to comply with the mandatory connection requirement

- While these residences are a source of nitrate contamination, it is doubtful that they are a significant contributor
- Agricultural application of fertilizers, both present and in the past, are probably the largest contributors of nitrate in the area as the mapped nitrate plumes tend to be in the more rural areas of the Plan Area

SURFACE WATER

- Proposed treatment capacity in the Plan Area is 0 MGD

RECYCLED WATER

- Citywide, less than 1 percent of the water supply, which is 5 MGD for urban use
 - Secondary treated, undisinfected effluent is currently used for agricultural purposes:
 - 7 MGD direct use
 - 30 MGD through pumping percolate
- Use is currently limited by treatment and distribution infrastructure:
 - Existing treatment capacity is 5 MGD
 - No recycled water is currently delivered to the Plan Area
- The Recycled Water Master Plan is proposing
 - Approximately 40 MGD of wastewater is available at the Regional WWTP for tertiary-disinfection treatment and delivery to:
 - The city including the Plan Area via a proposed pipeline distribution system
 - Groundwater recharge facilities

EXISTING INFRASTRUCTURE

DOMESTIC WATER

Domestic water is provided to the Specific Plan Area by the City of Fresno. The water source for the Plan Area is groundwater, which is pumped into the distribution pipeline system using water wells located both within the Plan Area and around its north and east periphery (see Figure 7.1).

- Water mains within the Specific Plan Area consist of:
 - 250,000 lineal feet of existing water mains
 - Pipe diameters vary in size from 4 inches in diameter to 14 inches in diameter
 - Pipe materials vary:
 - Ductile Iron
 - Cast Iron

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- Poly Vinyl Chloride
 - Asbestos Cement
 - Welded Steel Pipe
- Age of pipelines vary from 80 years old to 9 years old
- Water wells that serve the Specific Plan Area consist of:
 - Two existing domestic water wells are located within the Plan Area
 - Estimated six wells outside of the Plan Area provide some domestic water for the area
- Domestic water storage provides buffering for the water sources, fire suppression water, and limited source water when wells cannot function. There is no existing domestic water storage within the Plan Area

RECYCLED WATER

Recycled water will eventually be provided from the Regional Wastewater Treatment Plant, which is located to the southwest of the Plan Area. However, at this time, there are no existing recycled water facilities within the Plan Area.

IRRIGATION

- Six major Fresno Irrigation District facilities are located within the Plan Area. They consist of:
 - Fresno Colony No. 24
 - Canal and pipeline segments
 - Conveys 40 cubic feet per second (cfs)
 - Braly No. 14
 - Pipeline segments
 - Conveys 10 cfs
 - California Avenue No. 241
 - Pipeline segments
 - Conveys 10 cfs (40 cfs in some reaches)
 - Fanning No. 76
 - Canal and pipeline segments
 - Conveys 10 cfs (40 cfs in some reaches)
 - Lower Dry Creek No. 77
 - Canal and pipeline segments
 - Conveys 120 cfs
 - Teilman No. 79
 - Pipeline segments
 - Unknown discharge rate

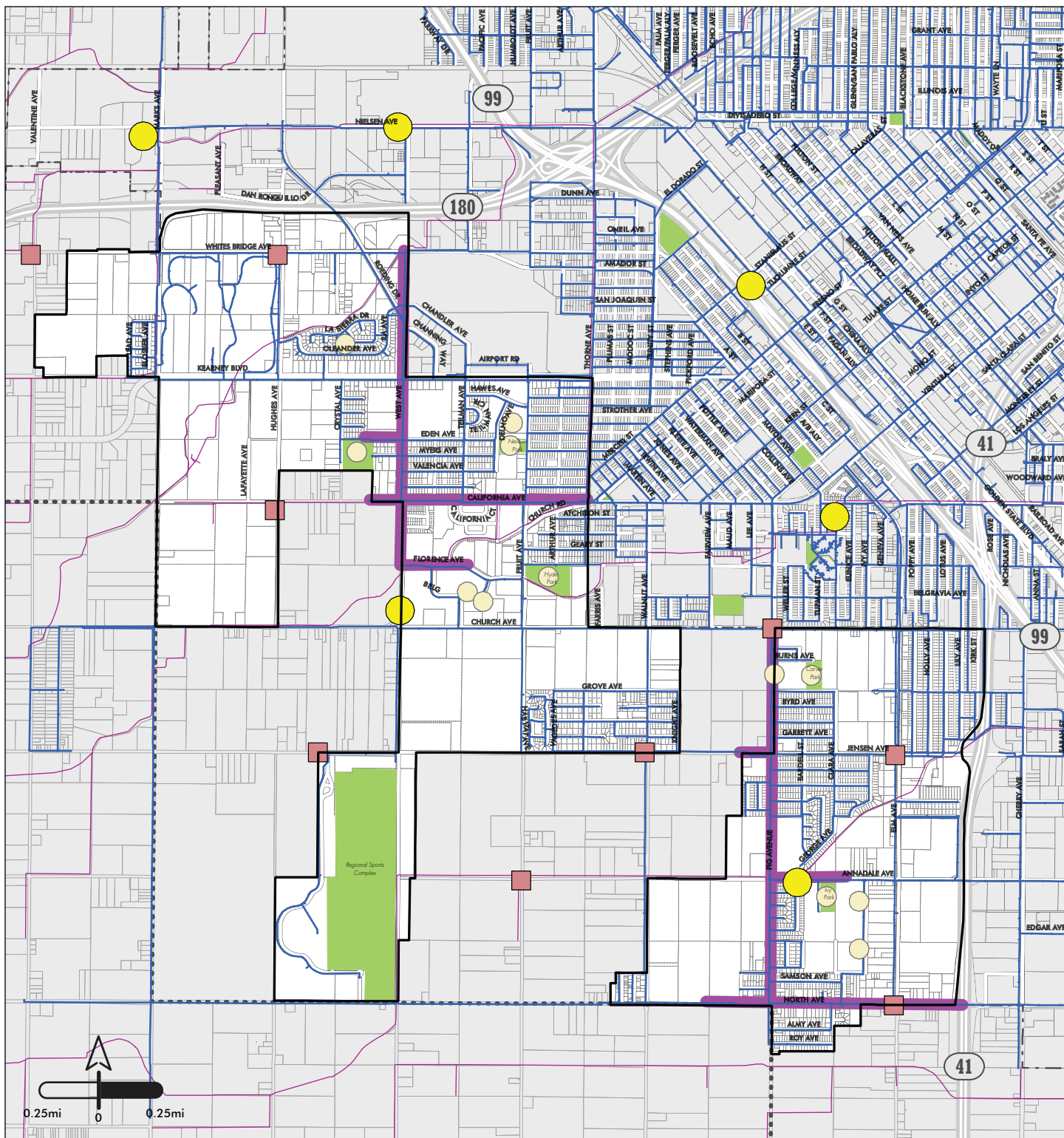


Figure 7.1 Existing Water Infrastructure Map

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|---------------------------|---|------------------------------------|
| ----- City Limit | — Existing Water Main | ● Existing Wells |
| Sphere of Influence | — Proposed Recycled Water Main | ■ Proposed Wells |
| — Plan Area | — Fresno Irrigation District Canals and Pipelines | ● Proposed Recycled Water Use Node |
| ■ Park/Open Space | | |

INFRASTRUCTURE

- Kearney Boulevard Basin No. 189
 - 16.2 acres basin used for regulation and recharge
 - Existing capacity of the basin is 130 acre-feet
 - Planned capacity is 214 acre-feet

7.2.3 EXISTING WATER DEMANDS

DOMESTIC WATER

- The present water demand in the Plan Area is estimated to be equal to the citywide average of 275 gallons per capita per day
- This is equivalent to an estimated total water demand for the Plan Area of 2 MGD
- Based on proration of the Plan Area and total city area and 2010 water demand for the City of Fresno.
- Governor Jerry Brown has mandated that all urban areas within the state reduce their water demand by various amounts. The City of Fresno is required to reduce water demand by 26 percent. Assuming that the users in the Plan Area will comply with this requirement, the total daily demand should reduce to 1.48 MGD or just a little over 200 gallons per capita per day.

RECYCLED WATER

Currently there is no existing recycled water demand in the Plan Area.

IRRIGATION

Irrigation water demand is being met by Fresno Irrigation District deliveries.

7.2.4 PROJECTED DOMESTIC WATER DEMANDS

DOMESTIC WATER

- Projected water demand is 200 gallons per capita per day, depending on water conservation measures and their effectiveness:
 - Assumes that mandatory 26 percent reduction in water consumption will occur
- Projected demand for the Plan Area at full build out is 4.2 MGD, which is based on proration of the Plan Area and total city area and 2010 water demand for the City of Fresno and an estimated conservation effort of 26 percent from existing water demand

RECYCLED WATER

- Projected demand for the Plan Area is 1.11 MGD based on an estimated demand from identified users
- Use of recycled water to meet landscape irrigation demand for residential users is unknown at this time, but could vary from has the potential demand of 0.1 MGD to 2.2 MGD

IRRIGATION

Irrigation water demand will reduce in the Plan Area as existing agricultural land is converted to urban uses.

7.2.5 INFRASTRUCTURE NEEDS TO MEET DEMANDS

DOMESTIC WATER

- Standard city water main grid will be implemented. This standard is as follows:
 - 16-inch diameter in 1 mile streets
 - 14-inch diameter in ½-mile streets
 - 12- and 8-inch diameter in interior ½-mile grids depending fire flow demand
- Water wells will be constructed to meet the domestic and fire demand for the Plan Area and will consist of:
 - Seven proposed domestic water wells within the Plan Area
 - Estimated five wells outside of the Plan Area that will provide some domestic water for the area
- Domestic water storage to meet fire demand and domestic water when wells are off line is not planned at this time
- There are four proposed transmission mains planned to traverse through the Plan Area. They consist of:
 - Proposed 16-inch diameter transmission mains:
 - North Avenue – Marks Avenue to Highway 41
 - Marks Avenue – North Avenue to Whitesbridge Avenue
 - California Avenue – Marks Avenue to Walnut Avenue
 - Walnut Avenue – North Avenue to Annadale Avenue

RECYCLED WATER

Recycled water mains are proposed to be located within the Plan Area and consists of 2,900 lineal feet with diameters ranging in size from 48 inches to 8 inches.

IRRIGATION

Existing open canals will be converted to pipelines within urbanizing areas in accordance with Fresno Irrigation District policy.

INFRASTRUCTURE

7.3 WASTEWATER

7.3.1 REGULATORY FRAMEWORK

There are a number of federal, state, and local wastewater regulations that are relevant to the Specific Plan Area. They are listed as follows:

FEDERAL GOVERNMENT

- Public Law 95-217 - Clean Water Act of 1977
- 40 CFR Chapter 1: Subchapter N – Effluent Guidelines and Standards
- 40 CFR Part 401: General Effluent Guidelines
- 40 CFR Part 403: General Pretreatment Regulations for Existing and New Sources of Pollution
- 40 CFR Parts 123 through 125: National Pollution Discharge Elimination Permit System
- 40 CFR Parts 129 through 136: National Pollution Discharge Elimination Permit System
- 40 CFR Parts 257, 300-399: National Pollution Discharge Elimination Permit System
- 40 CFR Parts 400 – 471: Effluent Guidelines and Standards
- 40 CFR Part 501: State Sludge Permitting
- 40 CFR Part 503: Sewage Sludge Disposal

STATE OF CALIFORNIA

- Water Code Sections 13160 – 13193.9
- Water Code Sections 13200 – 13286.9
- Waste Discharge Requirements Order 5-01-254
- State Resources Control Board Order No. 2006-0003-DWQ

CITY OF FRESNO

- Fresno Municipal Code: Chapter 6, Article 3 – Sewage and Water Disposal
- City of Fresno Standard Specifications
- City of Fresno Standard Drawings
- City of Fresno Fee Ordinance
- City of Fresno General Plan Policy ED-3-e
- City of Fresno General Plan Policy LU-8-d
- City of Fresno General Plan Policy PU-4-a, b, c, d, e
- City of Fresno General Plan Policy PU-5 a, b, c
- City of Fresno General Plan Policy PU-6 a, b

- City of Fresno General Plan Policy PU-7 a, b, c, d, e, f

7.3.2 SOURCES

WASTEWATER SOURCES

- Residential
- Commercial
- Industrial

7.3.3 EXISTING INFRASTRUCTURE

COLLECTION

- Wastewater collection is provided by the City of Fresno. The existing sanitary sewer collection system (see Figure 7.2) consists of:
 - 280,000 lineal feet of sewer mains
 - Diameter varies from 6 inches to 60 inches in diameter
 - Age varies from 100 years old to 8 years old
 - Materials:
 - Asbestos cement pipe
 - Cast Iron Pipe
 - Poly Vinyl Chloride Pipe
 - Reinforced Concrete Pipe
 - Poly Vinyl Chloride Lined Reinforced Concrete Pipe
 - Non-Reinforced Concrete Pipe
 - Vitrified Clay Pipe
 - Fiberglass Pipe
 - Closed Profile Poly Vinyl Chloride Pipe
 - Vitrified Clay Pipe
- There are four existing wastewater lift stations located in the Plan Area

TREATMENT

Wastewater from the Plan Area is treated at the City of Fresno's Regional Wastewater Treatment Plant located west of the area at Jensen Avenue between Cornelia Avenue and Chateau Fresno Avenue. The Regional WWTP has sufficient existing and planned capacity to service the Plan Area.

DISPOSAL

- Three disposal methods, which are all located at the Regional Wastewater Treatment Plant. They consist of:

INFRASTRUCTURE

- Surface ponding and evaporation
- Direct discharge to crops
- Discharge of percolate to FID canals

7.3.4 EXISTING WASTEWATER DEMANDS

Estimated wastewater demand from the Plan Area is 1.1 MGD, which is based on a proration of existing average daily wastewater flow as a ratio of existing developed area within the Plan Area to the area of the City of Fresno.

7.3.5 PROJECTED WASTEWATER DEMANDS (2035 GENERAL PLAN BUILDOUT)

Estimated wastewater demand from the Plan Area is 2.6 MGD, which is based on a proration of projected average daily wastewater flow by ratio of existing developed area within the Plan Area to the area of the City of Fresno.

7.3.6 INFRASTRUCTURE NEEDS TO MEET DEMANDS

COLLECTION

- There are planned Sewer Capacity Enhancement Projects within the Plan Area. These facilities are located in the Plan Area, but are not necessarily required to provide service to the area. They consist of:
 - Marks Avenue – ¼ mile north of Highway 180 to ¼-mile south of Highway 180.
 - North Avenue – Highway 41 to Hughes Avenue
- Development driven construction of collection facilities

TREATMENT

Wastewater treatment for the Plan Area will be provided by the Regional Wastewater Treatment Facility either through existing or planned treatment capacity.

DISPOSAL

The Regional Wastewater Treatment Plant provides four disposal methods, which consist of:

- Surface ponding and evaporation
- Direct discharge to crops
- Discharge of percolate to FID canals
- Recycling of tertiary disinfected effluent for landscape irrigation uses

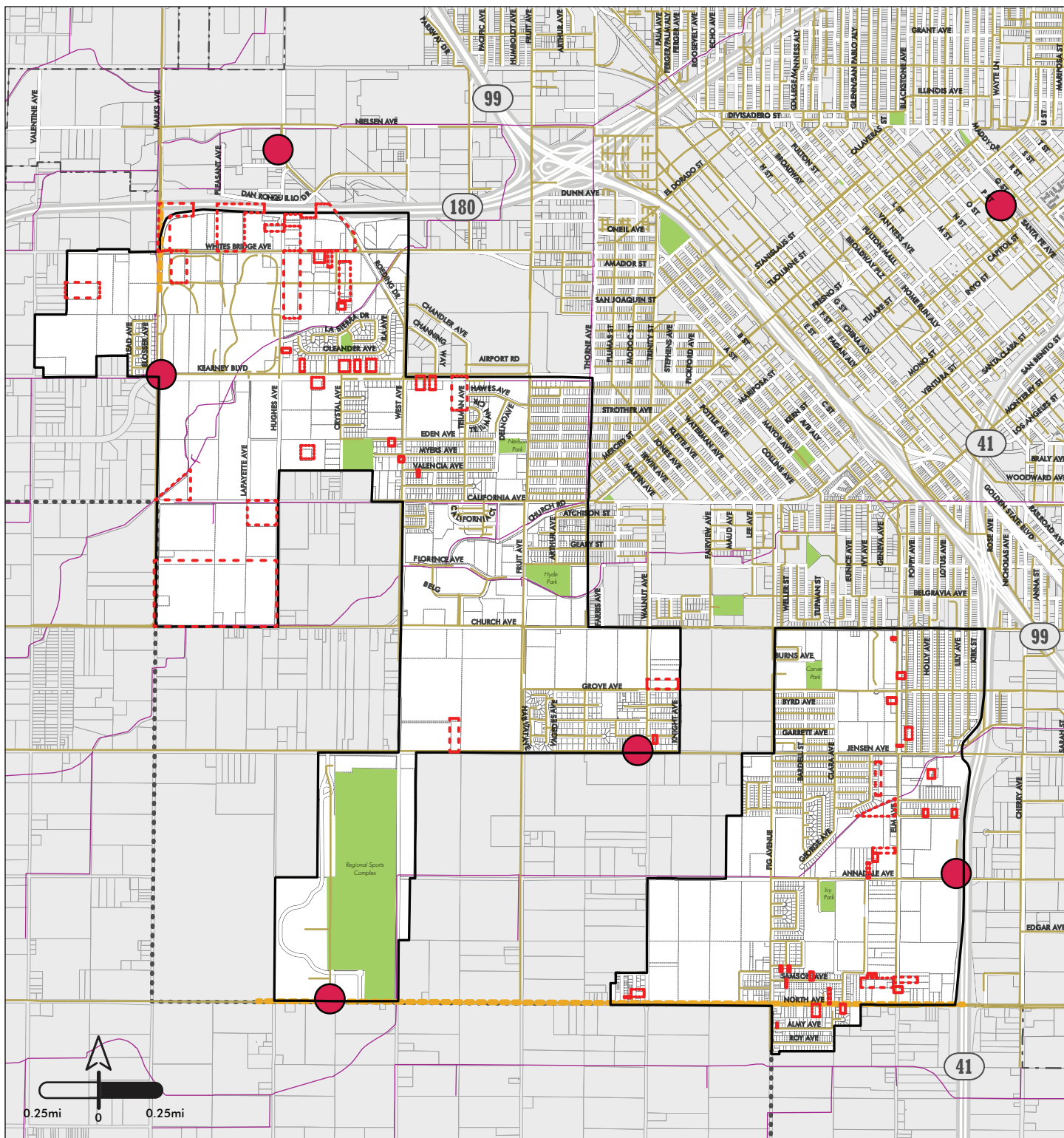
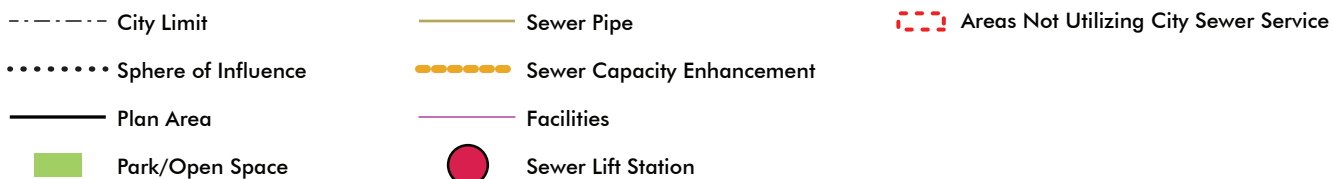


Figure 7.2 Existing Wastewater Infrastructure Map



INFRASTRUCTURE

7.4 STORMWATER

7.4.1 REGULATORY FRAMEWORK

There are a number of federal, State, and local stormwater regulations that are relevant to the Specific Plan Area. They are listed as follows:

FEDERAL GOVERNMENT

- Public Law 95-217 - Clean Water Act of 1977

STATE OF CALIFORNIA

- Water Code Sections

CITY OF FRESNO

- Fresno Municipal Code: Chapter 6, Article 3 – Sewage and Water Disposal
- City of Fresno Standard Specifications
- City of Fresno Standard Drawings
- City of Fresno Drainage Fee Ordinance
- Fresno Metropolitan Flood Control District Standard Plans and Specifications
- Fresno Metropolitan Flood Control District Standard Design Guidelines
- City of Fresno General Plan Policy ED-3-e
- City of Fresno General Plan Policy LU-8-d
- City of Fresno General Plan Policy PU-4-a, b, c, d, e
- City of Fresno General Plan Policy PU-5 a, b, c
- City of Fresno General Plan Policy PU-6 a, b
- City of Fresno General Plan Policy PU-7 a, b, c, d, e, f

7.4.2 SOURCES

STORMWATER SOURCES

- Residential
- Commercial
- Industrial

7.4.3 EXISTING INFRASTRUCTURE

COLLECTION

The existing stormwater pipeline collection system (see Figure 7.3) provided by the Fresno Metropolitan Flood Control District (FMFCD) consists of:

- 87,000 lineal feet of storm drain mains
- Diameter varies from 15 inches to 96 inches in diameter
- Age varies from 53 years old to 5 years old
- Materials:
 - Reinforced Concrete Pipe
 - Cast in Place Concrete Pipe
 - Non-reinforced Concrete Pipe
- The FMFCD maintains emergency relief stormwater pump stations at the following retention basins:
 - Basins OO, FF, II1, TT2, and KK

TREATMENT

Stormwater treatment is provided by long residence times in the stormwater retention basins.

DISPOSAL

Stormwater disposal is provided by retention basins and emergency relief pumping to irrigation canals:

- FMFCD Existing Basins RR3, ZZ, FF, OO, TT1, TT2, II1, and KK are located within the Plan Area and provide disposal service to portions of the Plan Area and areas outside of the specific plan boundaries
- FMFCD Existing Basins AS, CQ, SS, and AV are located outside of the Plan Area, but provide drainage service to portions of the area

7.4.4 EXISTING RUNOFF RATES, VOLUMES, QUALITY

- Runoff rates vary with drainage area size and land use complex:
 - FMFCD master plan pipelines are designed to provide protection to the General Plan or Specific Plan land uses for rainfall intensities up to and including the two-year return frequency intensity
- Runoff volumes vary with drainage area size and land use complex:
 - Average annual runoff volume for the entire Plan Area for the existing land uses is estimated to be approximately 600 acre-feet per year
- Runoff quality resembles typical urban runoff:
 - COD, BOD, heavy metals, oils, greases, nitrogen, and organophosphates are expected constituents

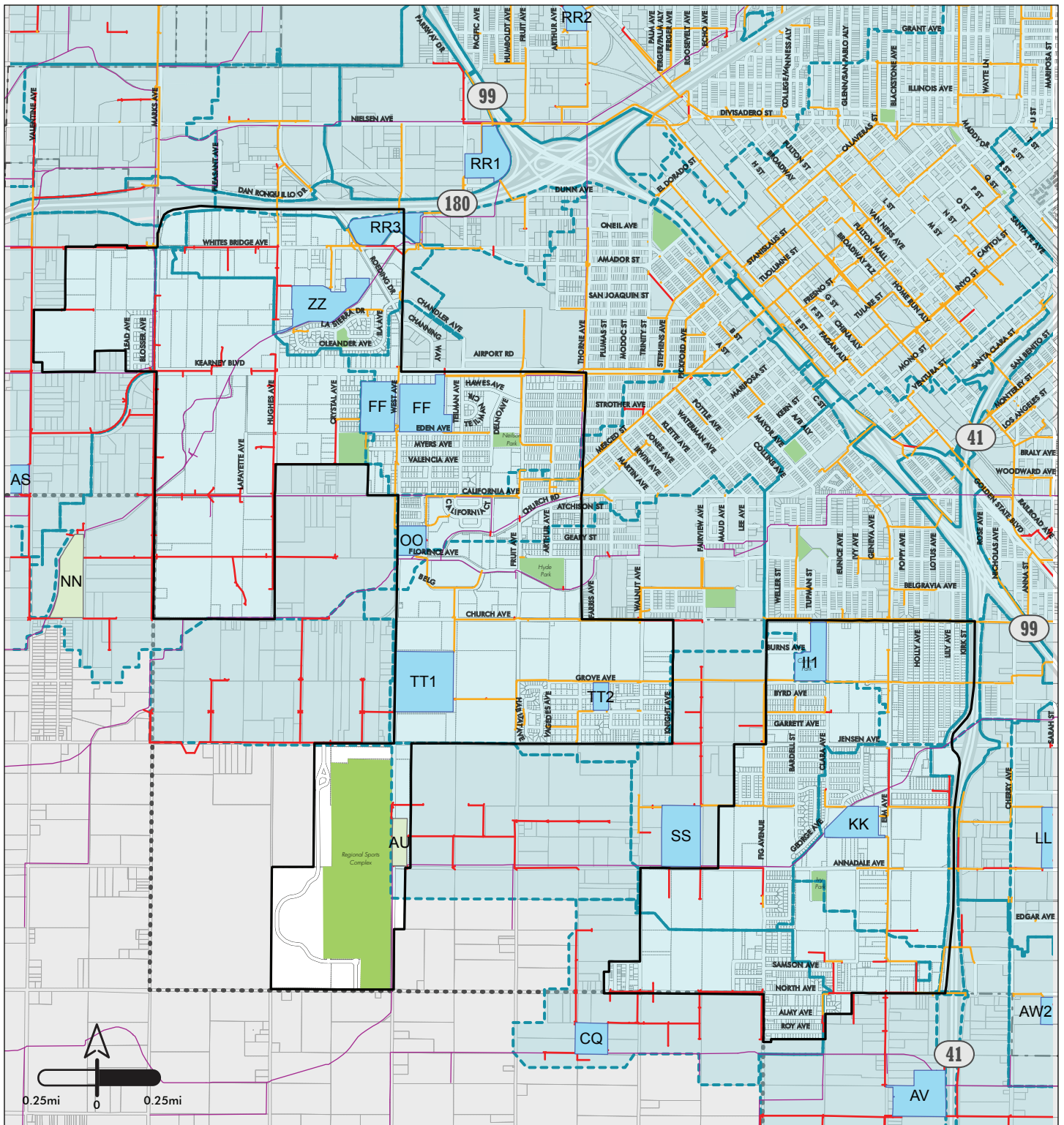
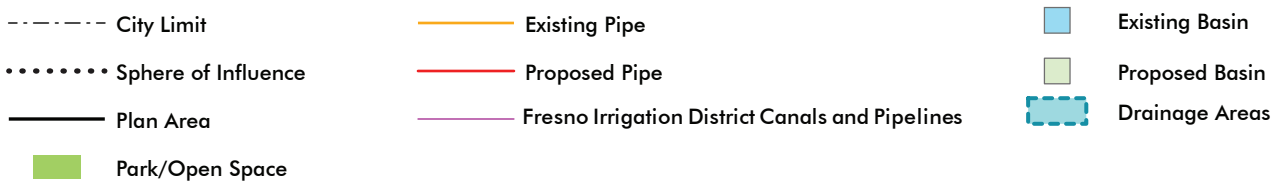


Figure 7.3 Existing Stormwater Infrastructure Map



7.4.5 PROJECTED RUNOFF RATES, VOLUMES, QUALITY

- Runoff rates vary with drainage area size and land use complex:
 - FMFCD master plan pipelines are designed to provide protection to the General Plan or Specific Plan land uses for rainfall intensities up to and including the two-year return frequency intensity
- Runoff volumes vary with drainage area size and land use complex:
 - Average annual runoff volume for the entire Plan Area for the existing land uses is estimated to be approximately 900 acre-feet per year
- Runoff quality is not expected to improve and will continue to resemble typical urban runoff:
 - COD, BOD, heavy metals, oils, greases, nitrogen, and organophosphates are expected constituents

7.4.6 FLOODING

- The Dry Creek Canal, within the channel, is shown as a 1 percent exceedance probability floodplain (100-Year recurrence interval) (see Figure 7.4).
- The City of Fresno floodplain ordinance has specific requirements for development within a 1 percent chance floodplain.
- Other areas are shown within the 0.2 percent exceedance probability floodplain (500-Year recurrence interval):
 - The City's floodplain ordinance does not have any specific requirements for development within the 0.2 percent exceedance probability floodplain

7.4.7 INFRASTRUCTURE NEEDS TO MEET DEMANDS

COLLECTION

- Drainage facilities to meet future development will consist of pipeline collection systems, retention basins, and emergency stormwater pump stations:
 - Construction of collection systems and retention basins will be funded through drainage fees and will be development and Public Works project driven
 - There is an estimated 70,000 lineal feet of master planned storm drain pipeline collection system planned for the Plan Area
 - The diameters of the planned pipelines will vary from 18 inches to 66 inches in diameter
 - Storm drainage appurtenant facilities will include inlets and manholes
- Streets improvements direct surface runoff to pipeline collection facilities using curb and gutters
- Emergency relief stormwater pump stations are provided or are planned at retention basins NN and AU
- Approximately 280 acres of the Plan Area is not within a storm drain master plan area:

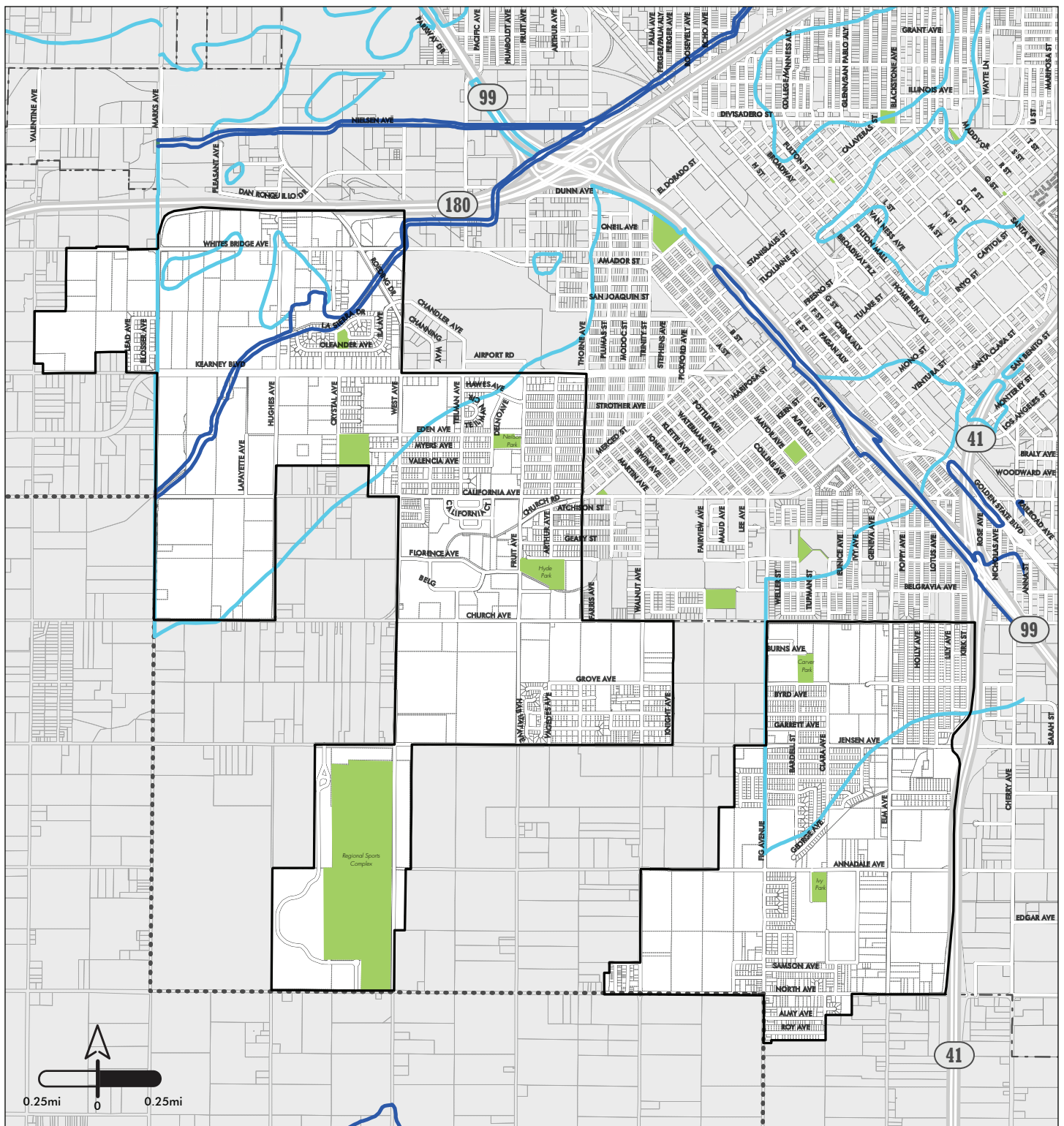


Figure 7.4 Existing Floodplain Boundaries Map

- City Limit
- Sphere of Influence
- Plan Area
- Park/Open Space
- 1% Annual Chance Flood Hazard Boundary (100-Year Floodplain)
- 0.2% Annual Chance Flood Hazard Boundary (500-Year Floodplain)

INFRASTRUCTURE

- A master planned collection system will have to be designed prior to development of the 280 acres that is not within an existing storm drain master plan area

TREATMENT

Stormwater treatment is provided by long residence times in the stormwater retention basins.

DISPOSAL

Stormwater disposal is provided by retention basins and emergency relief pumping to irrigation canals and consists of the following facilities:

- FMFCD Proposed Basin NN is located outside of the Plan Area, but is planned to provide drainage service to a portion of the area.
- FMFCD Proposed Basin AU is located inside of the Plan Area.
- A master planned basin or basins will have to be designed to provide disposal service prior to development of the 280 acres that is not within an existing storm drain master plan area.

7.5 NATURAL GAS

7.5.1 PURVEYORS

- Pacific Gas & Electric Company, a State of California regulated utility

7.5.2 EXISTING INFRASTRUCTURE

DISTRIBUTION SYSTEM

There is existing natural gas distribution in the developed areas of the Plan Area.

7.5.3 INFRASTRUCTURE NEEDS TO MEET DEMANDS TO PLAN AREA BUILDOUT

Future natural gas distribution system will be provided as development occurs and supports the development of the distribution system expansion and improvements.

INFRASTRUCTURE

7.6 ELECTRICITY

7.6.1 PURVEYORS

- Pacific Gas & Electric Company, a State of California regulated utility

7.6.2 EXISTING INFRASTRUCTURE

DISTRIBUTION SYSTEM

There is electrical distribution, overhead and underground, in the developed and undeveloped areas of the Plan Area.

7.6.3 INFRASTRUCTURE NEEDS TO MEET PLAN AREA BUILDOUT

Future electrical distribution system will be provided as development occurs and supports the development of the distribution system expansion and improvements. New electrical distribution systems will be underground in accordance with City of Fresno development standards.

7.7 CABLE TELEVISION

7.7.1 PURVEYORS

- Comcast (also known as XFINITY), Inc., a State of California regulated utility

7.7.2 EXISTING INFRASTRUCTURE

DISTRIBUTION SYSTEM

There is cable television, overhead and underground, in the developed and undeveloped areas of the Plan Area.

7.7.3 INFRASTRUCTURE NEEDS TO MEET DEMAND TO PLAN AREA BUILDOUT

Future cable TV system will be provided as development occurs and supports the development of the distribution system expansion and improvements. New cable TV distribution systems will be underground in accordance with City of Fresno development standards.

7.8 SUMMARY OF KEY FINDINGS

7.8.1 ISSUES

- **Infrastructure in the Southwest Specific Plan Area.** Adequate master planning to support major infrastructure, including water, wastewater, and stormwater, within the Plan Area has been developed except as noted below. Implementation of that master planning will be vitally important to the development and growth of the area.
 - Water master planning is funded through the Department of Public Utilities (DPU) Water Division budget
 - Wastewater master planning is funded through the DPU Wastewater Division budget
 - Stormwater master planning is funded by Fresno Metropolitan Flood Control District (FMFCD) through their general fund
- **Stormwater Master Planning.** Additional stormwater master planning is needed for the 280-acre area in the southwest portion of the Plan Area in the area bounded by North Avenue, Hughes Avenue, Jensen Avenue, and West Avenue.
- **Infrastructure will be Development Driven:** Sufficient infrastructure is in place for the existing developed area within the Plan Area. New development will require expansion of the existing infrastructure and construction of new transmission water mains, water wells, and new wastewater collection systems, treatment capacity at the Regional Wastewater Treatment Plant, and construction of new stormwater collection systems and retention basins.
- **Water Conservation.** Water conservation will be a major issue in all developing areas within the City, including the Plan Area.
- **Nitrate Contamination.** Nitrate contamination in the groundwater, which is the source of domestic water supply in the Plan Area is a concern. Wellhead treatment is currently being implemented by the City of Fresno to meet drinking water standards. The treatment is successful. The use of high-quality recharge water and reduction of agricultural use of fertilizers may reduce the level of contamination in the future.
- **Existing Water Infrastructure.** There are existing water distribution mains within the Plan Area that are 80 years old and may be approaching their useful life. These water mains may need replacement in the next 20 years. Pumps at existing water well stations may need replacement within the next 20 years.
- **Existing Sewer Collection Infrastructure.** There are sanitary sewer mains within the Plan Area that are 100 years old. These sanitary sewer mains may need replacement or structural lining within the next 20 years. Existing sanitary lift stations will have to be monitored and may need replacement of pumps within the next 20 years.
- **Existing Stormwater Collection Infrastructure.** The existing stormwater collection systems are relatively new and are not predicted to need replacement or lining within the next 20 years.

INFRASTRUCTURE

7.8.2 OPPORTUNITIES

- **Groundwater Recharge.** Development and use of FMFCD retention basins for groundwater recharge within in the Plan Area will be vitally important to maintain groundwater supplies for the domestic water wells that supply water for the Plan Area.
- **Water Conservation.** Water conservation opportunities in new development as well as assistance to existing residences in further water conservation measures.
- **Use of Recycled Water.** New development and proximity to the Regional Wastewater Treatment Plant provides opportunity for installation of recycled water infrastructure and use of the recycled water.
- **Development around Dry Creek Canal.** The Dry Creek Canal, which runs diagonally northeast-southwest and is located within the 1 percent annual chance flood hazard boundary, can be seen as an amenity for the area. Other opportunities could include adding paseos or walking paths along the canal.



The existing Dry Creek Canal can provide opportunities for other public amenities.