This section describes the regulatory setting, regional hydrology and water quality impacts that are likely to result from Specific Plan implementation, and measures to reduce potential impacts to water quality. This section is based in part on the following documents, reports and studies:

- *Fresno General Plan* (City of Fresno, 2014);
- *Draft Master Environmental Impact Report General Plan and Development Code Update, City of Fresno, Fresno County, California* (City of Fresno, 2014);
- *California's Groundwater Update 2020* (Department of Water Resources [DWR], 2020);
- *Web Soil Survey* (NRCS, 2019);
- *Specific Plan of the West Area Water Supply Assessment* (West Yost Associates, 2022, see **Appendix F** of this EIR);
- *City of Fresno Specific Plan for the West Area Utility Background Summary* (West Yost Associates, 2022, see **Appendix D** of this EIR).

Comments were received during the public review period or scoping meeting for the Notice of Preparation regarding this topic from the following: Fresno Metropolitan Flood Control District (FMFCD) (August 1, 2019), Cathy Caples (August 1, 2019), and California Department of Water Resources (July 19, 2019). Each of the comments related to this topic are addressed within this section. Full comments received are included in **Appendix A**.

3.9.1 ENVIRONMENTAL SETTING

REGIONAL HYDROLOGY

Fresno County is located in the San Joaquin River watershed. The San Joaquin River is about 300 miles long. It begins in the Sierra Nevada mountain range on California's eastern border. The river runs down the western slope of the Sierra and flows roughly northwest through the Central Valley, to where it meets the Sacramento River at the Sacramento-San Joaquin Delta, a 1,000-square-mile maze of channels and islands that drains more than 40 percent of the state's lands (SJRGA 2013).

Because the Central Valley receives relatively little rainfall (12 to 17 inches a year, falling mostly October through March), snowmelt runoff from the mountains is the main source of fresh water in the San Joaquin River. Over its 300-mile length, the San Joaquin River is fed by many other streams and rivers, most notably the Stanislaus, Tuolumne and Merced rivers.

Most of the surface water in the upper San Joaquin River is stored and diverted at Millerton Lakes' Friant Dam, near Fresno. From Friant Dam, water gravity flows north through the Madera Canal and south through the Friant-Kern canal to irrigation districts and other water retailers, which then deliver the water directly to the end users in the southern portion of the watershed.

In the central and northern portions of the watershed, many agricultural and municipal users receive water from irrigation districts, such as the Modesto, Merced, Oakdale, South San Joaquin and Turlock Irrigation Districts. That water is provided through diversions from rivers that are tributary to the San Joaquin, such as the Mokelumne, Stanislaus, Tuolumne and Merced rivers.

Climate

The summer climate is hot and sub-humid with warm, dry summers, and cool, moist winters. In the entire San Joaquin Valley Air Basin (SJVAB), daily summer high temperatures average 95 degrees. Over the last 30 years, temperatures in the SJVAB averaged 90 degrees or higher for 106 days a year, and 100 degrees or higher for 40 days a year.

The daily summer temperature variation can be as high as 30 degrees. In winter, the Pacific high-pressure cell weakens and shifts southward, resulting in wind flow offshore, the absence of upwelling, and the occurrence of storms. Average high temperatures in the winter are in the 50s, but lows in the 30s and 40s can occur on days with persistent fog and low cloudiness. The average daily low winter temperature is 45 degrees.

Precipitation in Fresno occurs mostly as rain during the months of November through April. According to the City's General Plan EIR, annual rainfall between 1948 and 2012 averaged 10.89 inches, but is variable. Recorded annual rainfall has ranged from a low of 3.01 inches to a high of 21.61 inches.

Watersheds

A watershed is a region that is bound by a divide that drains to a common watercourse or body of water. Watersheds serve an important biological function, oftentimes supporting an abundance of aquatic and terrestrial wildlife including special-status species and anadromous and native local fisheries. Watersheds provide conditions necessary for riparian habitat.

The State of California uses a hierarchical naming and numbering convention to define watershed areas for management purposes. This means that boundaries are defined according to size and topography, with multiple sub-watersheds within larger watersheds. Table 3.9-1 shows the primary watershed classification levels used by the State of California. The second column indicates the approximate size that a watershed area may be within a particular classification level, although variation in size is common.

TABLE 3.9-1: STATE OF CALIFORNIA WATERSHED HIERARCHY NAMING CONVENTION

WATERSHED LEVEL	*APPROXIMATE SQUARE MILES (ACRES)*	*DESCRIPTION*
Hydrologic Region (HR)	12,735 (8,150,000)	Defined by large-scale topographic and geologic considerations. The State of California is divided into ten HRs.
Hydrologic Unit (HU)	672 (430,000)	Defined by surface drainage; may include a major river watershed, groundwater basin, or closed drainage, among others.
Hydrologic Area (HA)	244 (156,000)	Major subdivisions of hydrologic units, such as by major tributaries, groundwater attributes, or stream components.
Hydrologic Sub-Area (HSA)	195 (125,000)	A major segment of an HA with significant geographical characteristics or hydrological homogeneity.

SOURCE: CALIFORNIA DEPARTMENT OF WATER RESOURCES, 2012.

Additionally, the United States Geological Survey (USGS) maintains a national database of watersheds in the United States. The USGS maintains a hierarchical system of hydrologic units, with

each unit assigned a Hydrologic Unit Code (HUC). There are currently six levels in the hierarchy, represented by HUC codes from 2 to 12 digits long, called regions, subregions, subbasins, watersheds, and subwatersheds. Each level in the hierarchy is nested within the previous level. Table 3.9-2 shows the system's hydrologic unit levels and their characteristics.

TABLE 3.9-2: USGS WATERSHED HIERARCHY NAMING CONVENTION

HYDROLOGIC UNIT	*LEVEL*	*DIGIT*	*NUMBER OF HUCS*	*NAME*
Region	1	2	22	Two-Digit Hydrologic Unit
Subregion	2	4	219	Four-Digit Hydrologic Unit
Basin	3	6	378	Six-Digit Hydrologic Unit
Subbasin	4	8	2,283	Eight-Digit Hydrologic Unit
Watershed	5	10	17,828	Ten-Digit Hydrologic Unit
Subwatershed	6	12	97,442	Twelve-Digit Hydrologic Unit

SOURCE: UNITED STATES GEOLOGICAL SURVEY, WATERSHED BOUNDARY DATASET, 2016.

The southern and eastern portion of the Plan Area is located in the Gates Lake subwatershed, a swath of the northern portion of the Plan Area is located in the Town of Rolinda-James Bypass subwatershed, and the northern point of the Plan Area is located in the Kennedy Owens Canal-James Bypass subwatershed. The "subwatershed" (i.e. twelve-digit hydrologic unit) represents the most fine-grained level of data available for watersheds from the USGS. Figure 3.9-1 provides a map of these subwatersheds within the Plan Area.

Hydrologic Region

Fresno County is located in the Tulare Lake Hydrologic Region. The Tulare Lake Hydrologic Region covers approximately 10.9 million acres (17,000 square miles) and includes all of Kings and Tulare counties and most of Fresno and Kern counties. Significant geographic features include the southern half of the San Joaquin Valley, the Temblor Range to the west, the Tehachapi Mountains to the south, and the southern Sierra Nevada to the east. The region has 12 distinct groundwater basins and seven subbasins of the San Joaquin Valley Groundwater Basin. Groundwater has historically been important to both urban and agricultural uses, accounting for 41 percent of the region's total annual supply and 35 percent of all groundwater use in the State. Groundwater use in the region represents about 10 percent of the State's overall supply for agricultural and urban uses. In general, groundwater quality throughout the Tulare Lake Hydrologic Region is suitable for most urban and agricultural uses with only local impairments. The primary constituents of concern are high total dissolved solids, nitrate, arsenic, and organic compounds.

Groundwater

The City of Fresno is located in the northern part of the Kings Subbasin of the San Joaquin Valley Groundwater Basin Area. The San Joaquin Valley Groundwater Basin is un-adjudicated and currently in overdraft. A basin management plan has been developed and the Department of Water Resources (DWR) has listed the basin as a high priority.

The following section describes the Kings Subbasin, including its water-bearing formations, water levels, and water quality. Much of the following information has been incorporated from the City's 2015 Urban Water Management Plan (UWMP). Except where noted, the description of the sub-basin

is based largely on information provided in the 2016 DWR Bulletin 118 Interim Update, in which the groundwater basin description was last updated in December 2016.

The Kings Subbasin is not adjudicated and there are no legal restrictions to groundwater pumping. The Kings Subbasin is generally bounded on the north by the San Joaquin River; on the west by the Fresno Slough; on the south by the Kings River and Cottonwood Creek; and on the east by the Sierra foothills. The upper several hundred feet within the Kings Subbasin generally consists of highly permeable, coarse-grained deposits, which are termed older alluvium. Coarse-grained stream channel deposits, associated with deposits by the ancestral San Joaquin and Kings Rivers, underlie much of the northwest portions of the City. Below the older alluvium to depths ranging from about 600 to 1,200 feet below ground surface, the finer-grained sediments of the Tertiary-Quaternary continental deposits are typically encountered. Substantial groundwater has been produced and utilized from these depths by the City; however, deeper deposits located in the southeastern and northern portions of the City have produced less groundwater. There are also reduced deposits in the northern and eastern portions of the City, at depths generally below 700 or 800 feet, which are associated with high concentrations of iron, manganese, arsenic, hydrogen sulfide, and methane gas. Groundwater at these depths does not generally provide a significant source for municipal supply wells. The City's average groundwater depth in 2015 is approximately 130 below the ground surface.

Groundwater quality is a concern because the groundwater basin has several major contaminant plumes involving organic compounds, inorganic compounds, solvents, pesticides, and other contaminants. A number of the City's wells are currently being treated or blended to address various contaminants. The total well capacity, when the City's Water Master Plan was written, was approximately 460 million gallons per day (mgd).

According to the Utility Background Summary completed for the Specific Plan, groundwater within the Kings Subbasin generally meets primary and secondary drinking water standards[1] for municipal water use. However, groundwater contamination has caused the City to close over 30 wells and to construct well-head treatment facilities to other wells. Wellhead treatment for 1,2- Dibromo-3-chloropropane; ethylene dibromide; 1-2-3 trichloropropane; volatile organic compounds (including trichlorethylene, tetrachloroethylene), nitrate, manganese, radon, chloride, and iron are required in some areas of the City. Nitrates are a significant cause of groundwater contamination in the City.

[1] EPA has established National Primary Drinking Water Regulations (NPDWRs) that set mandatory water quality standards for drinking water contaminants. These are enforceable standards called "maximum contaminant levels (MCLs) which are established to protect the public against consumption of drinking water contaminants that present a risk to human health. An MCL is the maximum allowable amount of a contaminant in drinking water which is delivered to the consumer.

In addition, EPA has established National Secondary Drinking Water Regulations (NSDWRs) that set non-mandatory water quality standards for 15 contaminants. EPA does not enforce these "secondary maximum contaminant levels" (SMCLs). They are established as guidelines to assist public water systems in managing their drinking water for aesthetic considerations, such as taste, color, and odor. These contaminants are not considered to present a risk to human health at the SMCL. (EPA website, https://www.epa.gov/sdwa/secondary-drinking-water-standards-guidance-nuisance-chemicals)

Nitrates come primarily from on-site wastewater treatment systems (septic tanks and leach fields) and fertilizer. Water contaminated with nitrate is difficult to treat. A transmission grid main (TGM) system on a half-mile grid decreases water quality variation between wells. While most wells discharge directly to the TGM system, there are some that are treated or blended first to address specific water quality issues. Twelve well sites City-wide have de-aeration facilities where groundwater is pumped to a tank to allow for de-aeration before entering the TGM (West Yost, 2014). With wellhead treatment and/or blending, the water supplied by the City meets all the primary and secondary drinking water standards for municipal water use and is safe and healthy to consume.

As part of a partnership of local municipal water purveyors, irrigation districts, a flood control district, and the overlying county, the Fresno Area Regional Groundwater Management Plan (FARGMP) was prepared in conformance with AB 3030 and SB 1938. The objectives of the FARGMP have been developed to monitor, protect, and sustain groundwater within the region. The City of Fresno and the other participating agencies subsequently adopted the groundwater management plan in 2006. The City of Fresno falls within the North Kings Groundwater Sustainability Agency (NKGSA). As a high priority basin, the Kings Subbasin must be managed under a Groundwater Sustainability Plan (GSP) by January 31, 2020. The NKGSA completed the GSP on January 28, 2020.

LOCAL SETTING

The Plan Area is relatively flat with natural gentle slope near State Route 99. The Plan Area topography ranges in elevation from approximately 283 to 315 feet above mean sea level. A large amount of land in the Plan Area is farmland or rural residential lots with large, uneven, and underutilized parcels.

Groundwater

The Plan Area is underlain by the Kings subbasin, which, along with six other sub-basins, comprises the San Joaquin Valley Groundwater Basin. According to the Utility Background Summary completed for the Specific Plan, until 2004, groundwater was the sole source of potable water supply for the City. As of 2018, there were approximately 260 operational groundwater wells with a total production of 25,000 million gallons per year.

GROUNDWATER WELLS IN THE PLAN AREA

The Plan Area is served by eight active wells, as summarized in Table 3.9-3. As shown, the total well pumping capacity of the wells in the Plan Area is 13,510 gallons per minute (gpm).

TABLE 3.9-3: PLAN AREA WELL CAPACITY

WELL NUMBER	*PUMP HORSEPOWER*	*RATED CAPACITY (GPM)[1]*
Well 104	125	1,500
Well 138	125	1,800
Well 169	200	2,400
Well 171-1	60	600
Well 171-2	150	1,750
Well 192	150	2,000
Well 358 (has backup power)	200	2,100
Well 364	100	1,000
Total Well Pumping Capacity (GPM)		**13,150**

NOTE: [1] PUMP CAPACITY AND BACKUP POWER INFORMATION PROVIDED BY CITY STAFF (GPM = GALLONS PER MINUTE).
SOURCE: UTILITY BACKGROUND REPORT, WEST YOST ASSOCIATES, 2022.

GROUNDWATER QUALITY

According to the Utility Background Summary completed for the Specific Plan, the Plan Area tends to have better ground water quality than the City as a whole, with only a small portion of the Plan Area (near State Route 99) having nitrates in excess of the allowable limit of 45 mg/L as NO_3 or 10 mg/L as NO_3N. Well 171-2 is the only well that requires treatment within the West Area, and uses granular activated carbon (GAC).

Drainage

The Fresno Metropolitan Flood Control District (FMFCD) has primary responsibility for managing the local stormwater flows for the City, as well as a large area beyond the City's boundaries. The City's stormwater drains to urban stormwater basins, where it is retained for groundwater recharge or pumped to local irrigation canals owned by Fresno Irrigation District (FID) and then conveyed away from the municipal area.

The City of Fresno is located in the alluvial fans of numerous foothill streams and creeks that drain the western slope of the Sierra Nevada foothills. These streams include Big Dry Creek, Alluvial Drain, Pup Creek, Dog Creek, Redbank Creek, Mud Creek, and Fancher Creek. The City has hot dry summers and cool mild winters, with temperatures of mid-90°F in the summer and 60°F in the winter. The precipitation averages 11 inches per year and occurs almost entirely in the fall, winter, and spring.

Regionally, the City is protected by the U.S. Army Corps of Engineers' (Corps) Redbank-Fancher Creeks Flood Control Project. This project includes dams, detention basins, and levees designed to control upstream flood flows to approximately the 200-year storm event. Major facilities of this project include levee systems, the Big Dry Creek, Fancher Creek, and Redbank Creek dams and reservoirs, and the Alluvial Drain, Redbank Creek, Pup Creek, Fancher Creek, Big Dry Creek, Pup Creek Enterprise, and Dry Creek Extension detention basins.

Locally, the FMFCD drainage system consists of approximately 680 miles of pipeline and more than 150 stormwater retention basins. The storm drainage pipeline system is designed to accept the peak flow rate of runoff from a two-year intensity storm event (a storm that has a 50 percent probability of occurring in any given year). When storm events occur that exceed the two-year intensity,

ponding begins to occur in the streets until the pipeline system can remove the water. In the event of larger storms, "major storm breakover", the FMFCD has planned for streets or other conveyance to move the excess runoff to the basins. The FMFCD facilities in the Plan Area are shown in Figure 3.9-2.

The drainage system discharges to a system of irrigation canals, creeks, and the San Joaquin River, but is designed to retain and infiltrate as much runoff as possible into the underlying groundwater aquifer. The local drainage service area is subdivided into over 160 drainage areas, most of which drain to a retention basin. Drainage channels within the Plan Area include:

- East Branch Victoria Canal
- Epstein Canal
- Herndon Canal
- Minor Thornton Ditch
- Silvia Ditch
- Teague School Canal
- Tracy Ditch
- West Branch Victoria Canal
- Wheaton Ditch
- Austin Ditch

The Plan Area is drained by 15 drainage watersheds, six of which are fully within the Plan Area, and nine of which drain to areas immediately south or west of the Plan Area. There are seven existing retention basins within the Plan Area and an additional five that serve the Plan Area. An additional basin is planned to serve the drainage shed in the far southwestern corner of the Plan Area. The Plan Area's storm drain system is shown on Figure 3.15-2 in Section 3.15, Utilities.

Flooding

Flooding events can result in damage to structures, injury or loss of human and animal life, exposure of waterborne diseases, and damage to infrastructure. In addition, standing floodwater can destroy agricultural crops, undermine infrastructure and structural foundations, and contaminate groundwater.

Predicted flood conditions in the vicinity of the Plan Area are shown on Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) but are largely based on hydraulic modeling performed in 1981 (FEMA, 2016). The entire Plan Area is designated unshaded Zone X - minimal flood hazard, and would not be expected to have a flood hazard up to the level of the 0.2-percent annual chance flood. Lands designated as unshaded Zone X are outside of the Special Flood Hazard Areas. Changes to land surfaces in these areas do not trigger map revisions and no flood insurance requirements are imposed on structures in these areas. Figure 3.9-3 shows the flood boundaries, as delineated by the FEMA FIRM and USACE.

Although the Plan Area's northern boundary is very near the San Joaquin River, the area is not within a Special Flood Hazard Area. Local flooding can occur for events larger than a two-year event, but runoff is generally contained in the streets or other breakover easements. Such flooding is not reflected on FEMA's maps. Improvements to storm drainage facilities are accomplished either as a part of privately funded on-site developments or as a part of the master plan, funded by drainage fees. FMFCD maintains an on-going update to the system hydraulic model for flood control and prepares a capital improvement plan update every five years.

Dam Failure

A small portion of the Plan Area located in the northernmost point is located within the dam failure inundation area for the Friant Dam. Potential inundation from the Friant Dam is shown in Figure 3.9-4. Dam failure is generally a result of structural instability caused by improper design or construction, instability resulting from seismic shaking, or overtopping and erosion of the dam. Larger dams that are higher than 25 feet or with storage capacities over 50 acre-feet of water are regulated by the California Dam Safety Act, which is implemented by the California Department of Water Resources, Division of Safety of Dams (DSD). The DSD is responsible for inspecting and monitoring these dams. The Act also requires that dam owners submit to the California Office of Emergency Services inundation maps for dams that would cause significant loss of life or personal injury as a result of dam failure. The Fresno County Multi-Hazard Mitigation Plan outlines the mitigation strategy for reducing potential losses identified in Chapter 4, Risk Assessment, of the Plan.

Stormwater Quality

Potential hazards to surface water quality include the following nonpoint pollution problems: high turbidity from sediment resulting from erosion of improperly graded construction projects, concentration of nitrates and dissolved solids from agriculture or surfacing septic tank failures, contaminated street and lawn run-off from urban areas, and warm water drainage discharges into cold water streams.

The most critical period for surface water quality is following a rainstorm which can produce significant amounts of drainage runoff into streams at low flow, resulting in poor dilution of contaminates in the low flowing stream. Such conditions are most frequent during the fall at the beginning of the rainy season when stream flows are near their lowest annual levels. Besides the greases, oils, pesticides, litter, and organic matter associated with such runoff, heavy metals such as copper, zinc, and cadmium can cause considerable harm to aquatic organisms when introduced to streams in low flow conditions.

Urban stormwater runoff was managed as a non-point discharge (a source not readily identifiable) under the Federal Water Pollution Control Amendments of 1972 (PL 92-500, Section 208) until the mid-1980's. However, since then, the Federal Environmental Protection Agency has continued to develop implementing rules which categorize urban runoff as a point source (an identifiable source) subject to National Pollution Discharge Elimination System (NPDES) permits. Rules now affect medium and large urban areas, and further rulemaking is expected as programs are developed to meet requirements of federal water pollution control laws.

Surface water pollution is also caused by erosion. Excessive and improperly managed grading, vegetation removal, quarrying, logging, and agricultural practices all lead to increased erosion of exposed earth and sedimentation of watercourses during rainy periods. In slower moving water bodies these same factors often cause a buildup of siltation, which ultimately reduces the capacity of the water system to percolate and recharge groundwater basins, as well as adversely affecting both aquatic resources and flood control efforts.

The current drainage system in the Plan Area discharges to a system of irrigation canals, creeks, and the San Joaquin River, but is designed to retain and infiltrate as much runoff as possible into the underlying groundwater aquifer.

303(D) IMPAIRED WATER BODIES

Section 303(d) of the federal Clean Water Act requires States to identify waters that do not meet water quality standards or objectives and thus, are considered "impaired." Once listed, Section 303(d) mandates prioritization and development of a Total Maximum Daily Load (TMDL). The TMDL is a tool that establishes the allowable loadings or other quantifiable parameters for a waterbody and thereby the basis for the States to establish water quality-based controls. The purpose of TMDLs is to ensure that beneficial uses are restored and that water quality objectives are achieved.

The primary surface water features within the vicinity of the Plan Area are the San Joaquin River and Millerton Lake. Both water features are considered Section 303(d) impaired waterbodies. The portion of the San Joaquin River nearest the Plan Area appears on the State Water Resources Control Board's (SWRCB's) Impaired Water Bodies/303(d) List for invasive species (non-native fish species). Millerton Lake is included on the Impaired Water Bodies/303(d) List for mercury.

3.9.2 REGULATORY SETTING

There are a number of regulatory agencies whose responsibility includes the oversight of the water resources of the State and nation (including Fresno County), including the Federal Emergency Management Agency, the US Environmental Protection Agency, the State Water Resources Control Board, and the nine Regional Water Quality Control Boards, including the Central Valley Regional Water Quality Control Board. The following is an overview of the federal, State and local regulations that are applicable to the proposed Specific Plan.

FEDERAL

Clean Water Act

The Clean Water Act (CWA), initially passed in 1972, regulates the discharge of pollutants into watersheds throughout the nation. Section 402(p) of the act establishes a framework for regulating municipal and industrial stormwater discharges under the NPDES Program. Section 402(p) requires that stormwater discharges associated with an industrial activity, a discharge from a municipal separate storm sewer system serving a population of 250,000 or more, or a discharge associated with a municipal separate storm sewer system serving a population of 100,000 or more but less than 250,000, that discharges either directly to surface waters or indirectly through municipal separate storm sewers must be regulated by an NPDES permit.

Federal Emergency Management Agency

The City of Fresno is a participant in the National Flood Insurance Program (NFIP), a Federal program administered by FEMA. Participants in the NFIP must satisfy certain mandated floodplain management criteria. The National Flood Insurance Act of 1968 has adopted as a desired level of

protection, an expectation that developments should be protected from floodwater damage of the Intermediate Regional Flood (IRF). The IRF is defined as a flood that has an average frequency of occurrence on the order of once in 100 years, although such a flood may occur in any given year. Communities are occasionally audited by the DWR and FEMA to insure the proper implementation of FEMA floodplain management regulations.

National Pollutant Discharge Elimination System

National Pollutant Discharge Elimination System (NPDES) permits are required for discharges of pollutants to navigable waters of the United States, which includes any discharge to surface waters, including lakes, rivers, streams, bays, the ocean, dry stream beds, wetlands, and storm sewers that are tributary to any surface water body. NPDES permits are issued under the Federal Clean Water Act, Title IV, Permits and Licenses, Section 402 (33 USC 466 et seq.).

The RWQCB issues these permits in lieu of direct issuance by the Environmental Protection Agency, subject to review and approval by the Environmental Protection Agency Regional Administrator. The terms of these NPDES permits implement pertinent provisions of the Federal Clean Water Act and its implementing regulations, including pre-treatment, sludge management, effluent limitations for specific industries, and anti-degradation. In general, the discharge of pollutants is to be eliminated or reduced as much as practicable so as to achieve the Clean Water Act goal of "fishable and swimmable" navigable (surface) waters. Technically, all NPDES permits issued by the RWQCB are also Waste Discharge Requirements issued under the authority of the CWA.

NPDES permits regulate discharges from publicly owned treatment works, industrial discharges, stormwater runoff, dewatering operations, and groundwater cleanup discharges. NPDES permits are issued for five years, and are therefore to be updated regularly. The SWRCB has adopted several general NPDES permits, each of which regulates numerous discharges of similar types of wastes. The SWRCB has issued general permits for stormwater runoff from industrial and construction sites statewide. Stormwater discharges from industrial and construction activities in the Central Valley Region can be covered under these general permits, which are administered jointly by the SWRCB and RWQCB.

The City of Fresno is a co-permittee with the FMFCD, the County of Fresno, the City of Clovis, and California State University Fresno in the Phase 1 NPDES Permit for Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s). This Phase 1 MS4 Permit requires that the City and its co-permittees implement water quality and watershed protection measures for all development projects. The waste discharge requirements contained in the NPDES Permit have been designed to be consistent with the water quality standards and goals established in the Central Valley RWQCB's Basin Plan. The Phase 1 MS4 Permit prohibits discharges from violating applicable water quality standards or creating a nuisance or water quality impairment in receiving waters.

STATE

California Water Code

The Federal Clean Water Act places the primary responsibility for the control of surface water pollution and for planning the development and use of water resources with the States, although this does establish certain guidelines for the States to follow in developing their programs and allows the Environmental Protection Agency to withdraw control from States with inadequate implementation mechanisms.

California's primary statute governing water quality and water pollution issues with respect to both surface waters and groundwater is the Porter-Cologne Water Quality Control Act of 1970 (Division 7 of the California Water Code) (Porter-Cologne Act). The Porter-Cologne Act grants the SWRCB and each of the RWQCBs power to protect water quality, and is the primary vehicle for implementation of California's responsibilities under the Federal Clean Water Act. The Porter-Cologne Act grants the SWRCB and the RWQCBs authority and responsibility to adopt plans and policies, to regulate discharges to surface and groundwater, to regulate waste disposal sites and to require cleanup of discharges of hazardous materials and other pollutants. The Porter-Cologne Act also establishes reporting requirements for unintended discharges of any hazardous substance, sewage, or oil or petroleum product.

Each RWQCB must formulate and adopt a water quality control plan (Basin Plan) for its region the regional plans are to conform to the policies set forth in the Porter-Cologne Act and established by the SWRCB in its State water policy. The Porter-Cologne Act also provides that a RWQCB may include within its regional plan water discharge prohibitions applicable to particular conditions, areas, or types of waste.

The Water Code Section 13260 requires all dischargers of waste that may affect water quality in waters of the state to prepare and provide a water quality discharge report to the RWQCB. Section 13260a-c is as follows:

> (a) Each of the following persons shall file with the appropriate regional board a report of the discharge, containing the information that may be required by the regional board:
>
> > (1) A person discharging waste, or proposing to discharge waste, within any region that could affect the quality of the waters of the state, other than into a community sewer system.
> >
> > (2) A person who is a citizen, domiciliary, or political agency or entity of this state discharging waste, or proposing to discharge waste, outside the boundaries of the state in a manner that could affect the quality of the waters of the state within any region.
> >
> > (3) A person operating, or proposing to construct, an injection well.
>
> (b) No report of waste discharge need be filed pursuant to subdivision (a) if the requirement is waived pursuant to Section 13269.

(c) Each person subject to subdivision (a) shall file with the appropriate regional board a report of waste discharge relative to any material change or proposed change in the character, location, or volume of the discharge.

State Water Resources Control Board

The SWRCB is responsible for implementing the Clean Water Act and does so through issuing NPDES permits to cities and counties through regional water quality control boards. Federal regulations allow two permitting options for stormwater discharges (individual permits and general permits). The SWRCB elected to adopt a statewide general permit (Water Quality Order No. 2013-001-DWQ-DWQ) for small municipal separate storm sewer systems.

LOCAL

Fresno General Plan

The Fresno General Plan establishes the following policies relative to hydrology and water quality:

NOISE AND SAFETY ELEMENT

Objective NS-3: Minimize the risks to property, life, and the environment due to flooding and stormwater runoff hazards.

Policy NS-3-a: Stormwater Drainage and Flood Control Master Plan. Support the full implementation of the FMFCD Storm Drainage and Flood Control Master Plan, the completion of planned flood control and drainage system facilities, and the continued maintenance of stormwater and flood water retention and conveyance facilities and capacities. Work with the FMFCD to make sure that its Storm Drainage and Flood Control Master Plan is consistent with the General Plan.

Policy NS-3-b: Curb and Gutter Installation. Coordinate with Fresno Metropolitan Flood Control District (FMFCD) to install curbing, gutters, and other drainage facilities with priority to existing neighborhoods with the greatest deficiencies and consistent with the Storm Drainage and Flood Control Master Plan.

Policy NS-3-c: Dual Use Facilities. Support multiple uses of flood control and drainage facilities as follows:

- Use, wherever practical, FMFCD facilities for groundwater management and recharge; and
- Promote recreational development of ponding basin facilities located within or near residential areas, compatible with the stormwater and groundwater recharge functions.

Policy NS-3-d: Landscaped Buffer. City will support the development of FMFCD ponding basins including the landscaping and irrigation for the top one third of the side sloped areas consistent with the FMFCD Basin Design Criteria.

Policy NS-3-e: Pollutants. Work with FMFCD to prevent and reduce the existence of urban stormwater pollutants pursuant to the requirements of the National Pollution Discharge Elimination Systems Act.

Policy NS-3-f: **Flooding Emergency Response Plans.** Work with responsible agencies to update emergency dam failure inundation plans, evacuation plans and other emergency response plans for designated flood-prone areas, including the San Joaquin riverbottom.

Policy NS-3-g: Essential Facilities Siting Outside of Floodplains. Avoid siting emergency response and essential public facilities, such as fire and police stations, within a 100-year floodplain, unless it can be demonstrated that the facility can be safely operated and accessed during flood events.

Policy NS-3-h: Runoff Controls. Implement grading regulations and related development policies that protect area residents from flooding caused by urban runoff produced from events that exceed the capacity of the Storm Drainage and Flood Control Master Plan system of facilities. Place all structures and/or flood-proofing in a manner that does not cause floodwaters to be diverted onto adjacent property, increase flood hazards to other property, or otherwise adversely affect other property.

Policy NS-3-i: New Development Must Mitigate Impact. Require new development to not significantly impact the existing storm drainage and flood control system by imposing conditions of approval as project mitigation, as authorized by law. As part of this process, closely coordinate and consult with the FMFCD to identify appropriate conditions that will result in mitigation acceptable and preferred by FMFCD for each project.

Policy NS-3-j: National Flood Insurance Program. Continue to participate in the National Flood Insurance Program (NFIP) by ensuring compliance with applicable requirements. Review NFIP maps periodically to determine if areas subject to flooding have been added or removed and make adjustments to the Land Use Diagram Figure LU-1.

Policy NS-3-k: 100-Year Floodplain Policy. Require developers of residential subdivisions to preserve those portions of development sites as open space that may be subject to 100-year flood events, unless the flood hazard can be substantially mitigated by development project design.

Policy NS-3-l: 200-Year Floodplain Protection. Promote flood control measures that maintain natural conditions within the 200-year floodplain of rivers and streams and, to the extent possible, combine flood control, recreation, water quality, and open space functions. Discourage construction of permanent improvements that would be adversely affected by periodic floods within the 200-year floodplain, particularly in the San Joaquin river bottom.

Policy NS-3-m: Flood Risk Public Awareness. Continue public awareness programs to inform the general public and potentially affected property owners of flood hazards and potential dam failure inundation. Remind households and businesses located in flood-prone areas of opportunities to purchase flood insurance.

Policy NS-3-n: Precipitation Changes. Work with FMFCD to evaluate the planned and existing stormwater conveyance system in light of possible changes to precipitation patterns in the future.

PUBLIC UTILITIES AND SERVICES ELEMENT

Objective PU-5: Preserve groundwater quality and ensure that the health and safety of the entire Fresno community is not impaired by use of private, on-site disposal systems.

Objective PU-8: Manage and develop the City's water facilities on a strategic timeline basis that recognizes the long life cycle of the assets and the duration of the resources, to ensure a safe, economical, and reliable water supply for existing customers and planned urban development and economic diversification.

Policy PU-8-f: Water Quality. Continue to evaluate and implement measures determined to be appropriate and consistent with water system policies, including prioritizing the use of groundwater, installing wellhead treatment facilities, constructing above-ground storage and surface water treatment facilities, and enhancing transmission grid mains to promote adequate water quality and quantity.

RESOURCE CONSERVATION AND RESILIENCE ELEMENT

Objective RC-6: Ensure that Fresno has a reliable, long-range source of drinkable water.

Policy RC-6-g: Protect Recharge Areas. Continue to protect areas of beneficial natural groundwater recharge by preventing uses that can contaminate soil or groundwater.

Policy RC-6-i: Natural Recharge. Support removal of concrete from existing canals and change the practice of lining new and existing canals with concrete to allow for natural recharge.

PARKS, OPEN SPACE, AND SCHOOLS ELEMENT

Objective POSS-6: Maintain and restore, where feasible, the ecological values of the San Joaquin River corridor.

Policy POSS-6-b: Effects of Stormwater Discharge. Support efforts to identify and mitigate cumulative adverse effects on aquatic life from stormwater discharge to the San Joaquin River.

- Avoid discharge of runoff from urban uses to the San Joaquin River or other riparian corridors.
- Approve development on sites having drainage (directly or indirectly) to the San Joaquin River or other riparian areas only upon a finding that adequate measures for preventing pollution of natural bodies of water from their runoff will be implemented.

- Periodically monitor water quality and sediments near drainage outfalls to riparian areas. Institute remedial measures promptly if unacceptable levels of contaminant(s) occur.

Fresno Municipal Code

Chapter 6, Municipal Services and Utilities, Article 7, Urban Storm Water Quality Management and Discharge Control, of the Fresno Municipal Code establishes provisions regarding stormwater discharges. The purpose and intent of Article 7 is to ensure the health, safety, and general welfare of residents, and to protect the water quality of surface water and groundwater resources in a manner pursuant to and consistent with the Federal CWA by reducing pollutants in urban stormwater, discharges to the maximum extent practicable, and by effectively prohibiting non-stormwater discharges to the storm drain system.

Chapter 12, Impact Fees, Historic Resources, and Other Miscellaneous Topics, Section 12-2304, Development Application, Infrastructure Improvement Plans, and Building Permit Review and Processing Timelines, outlines the City's grading plan check process. The grading plan check process is a review process that requires anyone who develops property:

1. Properly grade their property in accordance with the California Building Code (CBC).
2. Submit a grading plan showing the proposed grading of the development.
3. Obtain approval of the FMFCD indicating conformance of the grading plan with the Storm Drainage Master Plan.
4. Obtain coverage under the NPDES Construction General Permit and comply with the requirements of the permit, including developing an erosion control site plan.

FMFCD Storm Drainage Master Plan

The Storm Drainage Master Plan contains proposed elevations for tops of curbs in undeveloped areas, delineation of storm drain inlet watershed areas, collection system pipeline alignments and sizes, and retention basin or urban detention (water quality) basin locations and geometry. The development of land in conformance with the Storm Drainage Master Plan ensures that development is graded to drain to storm drainage facilities that are designed to collect and dispose of stormwater from the planned development.

North Kings Groundwater Sustainability Agency Groundwater Sustainability Plan

The NKGSA finalized the Groundwater Sustainability Plan and submitted it to the DWR on January 28, 2020. The sustainability goal of the Kings Subbasin and the NKGSA is to ensure that by 2040 the basin is being managed to maintain a reliable water supply for current and future beneficial uses without experiencing undesirable results.

Water Quality Control Plan for the Sacramento-San Joaquin River Basin

The Water Quality Control Plan for the Sacramento-San Joaquin River Basins (Basin Plan) includes a summary of beneficial water uses, water quality objectives needed to protect the identified

beneficial uses, and implementation measures. The Basin Plan establishes water quality standards for all the ground and surface waters of the region. The term "water quality standards," as used in the Federal Clean Water Act, includes both the beneficial uses of specific water bodies and the levels of quality that must be met and maintained to protect those uses. The Basin Plan includes an implementation plan describing the actions by the RWQCB and others that are necessary to achieve and maintain the water quality standards.

The RWQCB regulates waste discharges to minimize and control their effects on the quality of the region's ground and surface water. Permits are issued under a number of programs and authorities. The terms and conditions of these discharge permits are enforced through a variety of technical, administrative, and legal means. Water quality problems in the region are listed in the Basin Plan, along with the causes, where they are known. For water bodies with quality below the levels necessary to allow all the beneficial uses of the water to be met, plans for improving water quality are included. The Basin Plan reflects, incorporates, and implements applicable portions of a number of national and statewide water quality plans and policies, including the California Water Code and the Clean Water Act.

3.9.3 IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, the proposed Specific Plan will have a significant impact on the environment associated with hydrology and water quality if it will:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
    - Result in substantial erosion or siltation on- or off-site;
    - Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;
    - Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation;
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

IMPACTS AND MITIGATION

Impact 3.9-1: The Specific Plan would not violate water quality standards or waste discharge requirements during construction. (Less than Significant)

According to the United States Environmental Protection Agency, polluted stormwater runoff is a leading cause of impairment to the nearly 40 percent of surveyed U.S. water bodies which do not meet water quality standards. Over land or via storm sewer systems, polluted runoff is discharged, often untreated, directly into local water bodies. Soil erosion is one of the most common sources of polluted stormwater runoff during construction activities. When left uncontrolled, storm water runoff can erode soil and cause sedimentation in waterways, which collectively result in the destruction of fish, wildlife, and aquatic life habitats; a loss in aesthetic value; and threats to public health due to contaminated food, drinking water supplies, and recreational waterways.

Mandated by Congress under the Clean Water Act, the NPDES Stormwater Program is a comprehensive two-phased national program for addressing the non-agricultural sources of stormwater discharges which adversely affect the quality of our nation's waters. The program uses the NPDES permitting mechanism to require the implementation of controls designed to prevent harmful pollutants, including soil erosion, from being washed by stormwater runoff into local water bodies. Future construction activities for the proposed Specific Plan would be governed by the General Permit 2009-0009-DWQ (amended by 2010-0014-DWQ & 2012-0006-DWQ), which states:

> *"…Particular attention must be paid to large, mass graded sites where the potential for soil exposure to the erosive effects of rainfall and wind is great and where there is potential for significant sediment discharge from the site to surface waters. Until permanent vegetation is established, soil cover is the most cost-effective and expeditious method to protect soil particles from detachment and transport by rainfall. Temporary soil stabilization can be the single most important factor in reducing erosion at construction sites. The discharger is required to consider measures such as: covering disturbed areas with mulch, temporary seeding, soil stabilizers, binders, fiber rolls or blankets, temporary vegetation, and permanent seeding. These erosion control measures are only examples of what should be considered and should not preclude new or innovative approaches currently available or being developed. Erosion control BMPs should be the primary means of preventing storm water contamination, and sediment control techniques should be used to capture any soil that becomes eroded…"*

General Permit 2009-0009-DWQ (amended by 2010-0014-DWQ & 2012-0006-DWQ) further states that:

> *"Sediment control BMPs should be the secondary means of preventing storm water contamination. When erosion control techniques are ineffective, sediment control techniques should be used to capture any soil that becomes eroded. The discharger is required to consider perimeter control measures such as: installing silt fences or placing straw wattles below slopes. These sediment control measures are only examples of what*

should be considered and should not preclude new or innovative approaches currently available or being developed…Inappropriate management of run-on and runoff can result in excessive physical impacts to receiving waters from sediment and increased flows. The discharger is required to manage all run-on and runoff from a Specific Plan Area. Examples include: installing berms and other temporary run-on and runoff diversions…All measures must be periodically inspected, maintained and repaired to ensure that receiving water quality is protected. Frequent inspections coupled with thorough documentation and timely repair is necessary to ensure that all measures are functioning as intended…"

Grading, excavation, removal of vegetation cover, and loading activities associated with construction activities could temporarily increase runoff, erosion, and sedimentation. Construction activities also could result in soil compaction and wind erosion effects that could adversely affect soils and reduce the revegetation potential at construction sites and staging areas. To ensure that construction activities are covered under General Permit 2009-0009-DWQ (amended by 2010-0014-DWQ & 2012-0006-DWQ), projects in California must prepare a Stormwater Pollution Prevention Plan (SWPPP) containing Best Management Practices (BMPs) to reduce erosion and sediments to meet water quality standards. Such BMPs may include: temporary erosion control measures such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover. The BMPs and overall SWPPP is reviewed by the Regional Water Quality Control Board and the City of Fresno as part of the permitting process. The SWPPP, once approved, is kept on site and implemented during construction activities and must be made available upon request to representatives of the RWQCB and/or the City of Fresno.

In accordance with the NPDES Stormwater Program, future development projects disturbing one or more acre within the Plan Area would be required to comply with existing regulatory requirements to prepare a SWPPP designed to control erosion and the loss of topsoil to the extent practicable using BMPs that the RWQCB has deemed effective in controlling erosion, sedimentation, runoff during construction activities. The RWQCB has stated that these erosion control measures are only examples of what should be considered and should not preclude new or innovative approaches currently available or being developed. The specific controls are subject to the review and approval by the RWQCB and are an existing regulatory requirement.

CONCLUSION

Future development in accordance with the proposed Specific Plan would not violate water quality standards or waste discharge requirements during construction. Pursuant to the SWPPP that would be required for future projects that disturb one or more acres, the use of BMPs during construction activities would be required in order to reduce erosion, control sediment, and manage runoff from the Plan Area. The BMPs may include: covering disturbed areas with mulch, temporary seeding, soil stabilizers, binders, fiber rolls or blankets, temporary vegetation, and permanent seeding. The use of these measures would prevent polluted, non-treated runoff from entering the nearby storm drains and waterways. The various RWQCBs have evaluated the effectiveness of the types of BMPs required by a SWPPP and have determined that BMPs are known to be effective in protecting

receiving waters[2]. Through compliance with future site-specific SWPPPs, the proposed Specific Plan would have a ***less than significant*** impact relative to this topic.

Impact 3.9-2: The Specific Plan would not violate water quality standards or waste discharge requirements during operation. (Less than Significant)

Section 303(d) of the federal Clean Water Act (CWA) requires States to identify waters that do not meet water quality standards or objectives and thus, are considered "impaired." Once listed, Section 303(d) mandates prioritization and development of a Total Maximum Daily Load (TMDL). The TMDL is a tool that establishes the allowable loadings or other quantifiable parameters for a waterbody and thereby the basis for the States to establish water quality-based controls. The purpose of TMDLs is to ensure that beneficial uses are restored and that water quality objectives are achieved.

Waters that are listed under Section 303(d) of the CWA are known as “impaired.” The primary surface water features within the vicinity of the Plan Area are the San Joaquin River and Millerton Lake. Both water features are considered Section 303(d) impaired waterbodies. The portion of the San Joaquin River nearest the Plan Area appears on the SWRCB’s Impaired Water Bodies/303(d) List for invasive species (non-native fish species). Millerton Lake is included on the Impaired Water Bodies/303(d) List for mercury. Additionally, although outside of the Plan Area, surface water from the Kings River is delivered to the area for intentional groundwater recharge. Two portions of the lower reaches of the Kings River are considered impaired waterbodies: from Island Weir to Stinson and Empire Weirs and from Pine Flat Reservoir to Island Weir. The Island Weir to Stinson and Empire Weirs segment of the Kings River appears on the SWRCB’s Impaired Water Bodies/303(d) List for conductivity (salinity/total dissolved solids/chlorides/sulfates), molybdenum metals (other than mercury), and toxaphene (pesticide). The Pine Flat Reservoir to Island Weir segment of the Kings River appears on the SWRCB’s Impaired Water Bodies/303(d) List for alkalinity/carbonate as $CaCO_3$ (pH/Acidity/Caustic Conditions) and toxicity (total toxics).

The long-term operations of future development projects in the Plan Area could result in long-term impacts to surface water quality from urban stormwater runoff. The proposed Specific Plan would result in new impervious areas associated with roadways, driveways, parking lots, buildings, and landscape areas. Normal activities in developed areas include the use of various automotive petroleum products (i.e. oil, grease, and fuel), common household hazardous materials, heavy metals, pesticides, herbicides, fertilizers, and sediment. Within urban areas, these pollutants are generally called nonpoint source pollutants. The pollutant levels vary based on factors such as time between storm events, volume of storm event, type of uses, and density of people.

The majority of development allowed under the Specific Plan would be within areas currently developed with urban uses, and the amount and type of runoff generated by various future development and infrastructure projects would be similar to existing conditions. However, new development and infrastructure projects on lands that are used for agricultural operations, or are

[2] Refer to “Review of Stormwater Best Management Practices at Large Construction Sites” by the Los Angeles RWQCB; Available online:
http://www.waterboards.ca.gov/rwqcb4/water_issues/programs/stormwater/bmp/largeconstreport-august-06.pdf

vacant and undeveloped, have the potential to result in increases in the amount of impervious surfaces throughout the Plan Area. The undeveloped and underdeveloped lands which do not contain impervious surfaces are scattered throughout the Plan Area, but are mainly located along the western and southern fringes. Future increases in impervious surfaces would result in increased urban runoff, pollutants, and first flush roadway contaminants, as well as an increase in nutrients and other chemicals from landscaped areas. These constituents could result in water quality impacts to onsite and offsite drainage flows to area waterways.

Storm water runoff may play a role in the water quality impairments described above. Runoff that occurs as overland flow across yards, driveways, and public streets is intercepted by the storm water drainage system and conveyed to local drainages before eventually being routed to the Pacific. This storm water can carry pollutants that can enter the local waterways and result in the types of water quality impairments described above. Common sources of storm water pollution in the City include litter, trash, pet waste, paint residue, organic material (yard waste), fertilizers, pesticides, sediments, construction debris, metals from automobile brake pad dust, air pollutants that settle on the ground or attach to rainwater, cooking grease, illegally dumped motor oil, and other harmful fluids.

In accordance with the NPDES Stormwater Program, an approved SWPPP would be required for future development projects in the Plan Area and designed to control erosion and the loss of topsoil to the extent practicable using BMPs that the RWQCB has deemed effective in controlling erosion, sedimentation, runoff during construction activities. Such BMPs shall include: temporary erosion control measures such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover or other equally or more effective measures. The BMPs and overall SWPPP are submitted to the RWQCB and the City of Fresno as part of the permitting process. The SWPPP is kept on site and implemented during construction activities and must be made available upon request to representatives of the RWQCB and/or the City of Fresno. The RWQCB has stated that these erosion control measures are only examples of what should be considered and should not preclude equally or more effective new or innovative approaches currently available or being developed. The specific controls are subject to the review and approval by the RWQCB.

Due to future development and implementation of new infrastructure anticipated by the Specific Plan, the overall volume of runoff in Fresno could be increased compared to existing conditions. If the FMFCD drainage system is not adequately designed, Specific Plan buildout could result in localized higher peak flow rates. Localized increases in flow would be significant if increases exceeded system capacity or contribute to bank erosion. Each future development and infrastructure project is required to prepare a detailed project specific drainage plan and a SWPPP that will control storm water runoff and erosion, both during and after construction. If the project involves the discharge into surface waters, the project proponent will need to acquire a Dewatering permit, NPDES permit, and Waste Discharge permit from the CVRWQCB.

As described above, under the Regulatory Setting, the City is required to implement a range of measures and procedures when reviewing new development and infrastructure projects. Implementation of the City's General Plan policies and actions, as well as the City's adopted Municipal Code requirements, would ensure that water quality is preserved.

Chapter 6, Municipal Services and Utilities, Article 7, Urban Storm Water Quality Management and Discharge Control, of the Fresno Municipal Code establishes provisions regarding stormwater discharges. The purpose and intent of Article 7 is to ensure the health, safety, and general welfare of residents, and to protect the water quality of surface water and groundwater resources in a manner pursuant to and consistent with the Federal CWA by reducing pollutants in urban stormwater, discharges to the maximum extent practicable, and by effectively prohibiting non-stormwater discharges to the storm drain system. Chapter 12, Impact Fees, Historic Resources, and Other Miscellaneous Topics, Section 12-2304, Development Application, Infrastructure Improvement Plans, and Building Permit Review and Processing Timelines, outlines the City's grading plan check process. The grading plan check process is a review process that requires anyone who develops property:

1. Properly grade their property in accordance with the CBC.
2. Submit a grading plan showing the proposed grading of the development.
3. Obtain approval of the FMFCD indicating conformance of the grading plan with the Storm Drainage Master Plan.
4. Obtain coverage under the NPDES Construction General Permit and comply with the requirements of the permit, including developing an erosion control site plan.

While the primary regulatory mechanisms for ensuring that future development and infrastructure projects do not result in adverse water quality impacts are contained in the Fresno Municipal Code, the City of Fresno has developed the Specific Plan to include additional policies that, when implemented, will further reduce water pollution from construction, new development, and new infrastructure projects, and protect and enhance natural storm drainage and water quality features. The policies identified below include numerous requirements that would reduce the potential for Specific Plan implementation to result in increased water quality impacts.

CONCLUSION

The entire Plan Area is in areas served by FMFCD retention basins. Operation of projects developed under the proposed Specific Plan could generate the same categories of pollutants that construction could. Water quality treatment for post-construction discharges to stormwater in the FMFCD urban flood control system area is provided by retention basins. Land development in the FMFCD Master Plan Area is exempt from further water quality requirements provided that the FMFCD's Storm Water Quality Management Plan is implemented.

Storm drainage improvements are funded by local drainage fees paid by developments and are built by the FMFCD, by developers, or both. Basins are highly effective at reducing average concentrations of a broad range of contaminants, including several polyaromatic hydrocarbons, total suspended solids, and most metals. Pollutants are removed by filtration through soil, and thus don't reach the groundwater aquifer. Basins are built to design criteria exceeding Statewide Standard Urban Stormwater Mitigation Plan standards. The urban flood control system provides treatment for all types of development.

Additionally, compliance with the Specific Plan policies shown below would further ensure that water quality standards or waste discharge requirements are not violated during operation of future projects in the Plan Area. For example, adequate stormwater and flooding infrastructure would be required for new development. Through compliance with the FMFCD's Storm Water Quality Management Plan, City General Plan policies, City Municipal Code requirements, and proposed Specific Plan policies, the proposed Specific Plan would have a ***less than significant*** impact relative to this topic.

SPECIFIC PLAN POLICIES

IPR 3.2: *Continue to evaluate Capital Improvement Programs and update them to add missing infrastructure and to meet the demand for new development.*

IPR 3.3: *Continue to set appropriate conditions of approval for each new development proposal to ensure that water resource facilities are in place prior to construction and building occupancy.*

IPR 3.4: *Continue to plan for, install, and operate recycled water systems to benefit the West Area and to support local resource conservation goals.*

Impact 3.9-3: The Specific Plan would not decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin. (Less than Significant)

The quantity of ground water in the San Joaquin Valley has been declining for decades, as evidenced by the substantial lowering of water levels in the aquifers. Impacts on groundwater in the Fresno area are an important consideration in any development plan. See Impact 3.15-6 in Section 3.15, Utilities, for further discussions regarding groundwater demand, groundwater supplies, groundwater recharge, and groundwater quality. Impacts related to groundwater supplies and interference with groundwater recharge are considered in two ways: (1) conversion of pervious surfaces (which allow for groundwater recharge), and (2) use of groundwater as a water supply (which reduces the amount of local groundwater supply).

GROUNDWATER RECHARGE

Future development projects in the Plan Area would result in new impervious surfaces and could reduce rainwater infiltration and groundwater recharge in those areas. Infiltration rates vary depending on the overlying soil types. In general, sandy soils have higher infiltration rates and can contribute to significant amounts of ground water recharge; clay soils tend to have lower percolation potential; and impervious surfaces such as pavement significantly reduce infiltration capacity and increase surface water runoff.

As noted previously, the FMFCD drainage system consists of approximately 680 miles of pipeline and more than 150 stormwater retention basins. The storm drainage pipeline system is designed to accept the peak flow rate of runoff from a two-year intensity storm event (a storm that has a 50

percent probability of occurring in any given year). The FMFCD storm drain and flood control system is designed to retain and infiltrate as much stormwater and urban runoff as possible.

The current drainage system in the Plan Area discharges to a system of irrigation canals, creeks, and the San Joaquin River, but is designed to retain and infiltrate as much runoff as possible into the underlying groundwater aquifer. Future development would include water quality BMPs, detention basins, and retention basins designed to minimize or eliminate increases in runoff from these new impervious surfaces entering existing surface water courses and existing storm drains. Peak runoff and total volume of runoff will be minimized by future development of storm drainage design which retains water to the maximum extent possible. Consequently, infiltration into the groundwater aquifers will be maximized to the extent possible through the storm drainage design.

Additionally, future development projects in the Plan Area may result in new rainwater infiltration and groundwater recharge with the development of new pervious surfaces and maintenance of existing pervious surfaces. The Specific Plan incorporates best practices to support sustainable development including bioswale/run-off collection and large permeable green surfaces (i.e., park and open space areas) that would reduce new impervious surfaces, rainwater infiltration, and support groundwater recharge. Future development would include storm water quality BMPs designed to minimize runoff from impervious surfaces entering existing storm drains and surface water courses. Peak runoff and total volume of runoff will be minimized by future development of storm drainage design which retains water to the maximum extent possible.

Further, the City's Recharge Fresno Program is intended to improve the pipelines and water system facilities that will capture, treat, and deliver water to Fresno homes and businesses, including surface water from the Sierra Nevada Mountains. This program has the following objectives: ensure a reliable and sustainable water supply for Fresno's present and future prosperity by increasing the available water supply; bring new, treated surface water from the Sierra Nevada Mountains to our community; improve natural and intentional groundwater recharge; maintain focus on conservation and its role in ensuring a sustainable water supply for Fresno; and ensure a safe and reliable water supply.

Future development of the Plan Area under the proposed land use plan will modify the movement of water across the land surface and the infiltration of rain water into the groundwater system. The aquifers underlying the Plan Area are impacted by several major contaminant plumes involving organic compounds, inorganic compounds, solvents, pesticides, and other contaminants. Future development projects in the Plan Area, if no means were provided to preserve infiltration of rainwater, would likely reduce net infiltration of rain water and runoff into the groundwater system and reduce the diluting effect of this fresh water supply. The net impact would be a further build-up of contaminants in the groundwater in the Kings Subbasin. However, the proposed Specific Plan would also likely decrease the amount of pesticides and other agricultural contaminants entering the groundwater from the Plan Area, due to elimination of agricultural activity in the Plan Area, including fertilizer application. Surface water quality detention basins and BMPs would also have the potential to add to groundwater contamination levels if they are not properly designed and sited. It is also noted that the City is in the process of planning and constructing a comprehensive Recycled Water System, which will include parts of the Plan Area. Many of the segments of the

overall System are either under construction or already completed, and a Water Reuse Master Plan is underway to evaluate all options and plan for the future use of recycled water throughout the city.

The FMFCDs Storm Water Quality Management Plan, City General Plan policies, City Municipal Code requirements, the Recharge Fresno program, and proposed Specific Plan policies include BMPs aimed at preserving water quality and groundwater recharge areas. The BMPs required as part of future development of the Plan Area are designed to infiltrate as much storm water runoff as practicable into the ground. A portion of the retained runoff will infiltrate into the ground, helping to replenish the aquifers. The required BMPs are designed to trap contaminants and to beneficially make use of nutrients in the vegetated swales and planted areas. In addition, application rates of fertilizers on urbanized areas is less than that typically used in intensive agriculture. The aggregate effect of the proposed Specific Plan will, therefore, be to decrease the loading of nutrients (in particular, nitrates) into the groundwater.

GROUNDWATER SUPPLIES

The proposed Specific Plan would be served from the City's existing and future water supplies. As discussed in Section 3.15, Utilities, the City currently receives water from four water supply sources: surface water from the FID Agreement for Kings River water, surface water from the U.S. Bureau of Reclamation (USBR) Central Valley Project (CVP) Friant Division Contract for San Joaquin River water, groundwater that is pumped from wells in the City, and recycled water (planned to be used for non-potable uses).

The City of Fresno forecasts that it will have sufficient water supplies for demands in its service area over the 2020 to 2040 period in normal, single-dry-year, and multiple-dry-year conditions. Additionally, the Specific Plan water demand is not expected to exceed the City's supplies in any normal, single dry, or multiple dry year between 2020 and 2040.

SUSTAINABLE GROUNDWATER MANAGEMENT ACT

The Sustainable Groundwater Management Act (SGMA) directs DWR to identify groundwater basins and subbasins that are in conditions of critical overdraft. This designation is determined based upon the presence of "undesirable impacts" such as seawater intrusion, land subsidence, groundwater depletion, and chronic lowering of groundwater levels. Per DWR's current list of critically overdrafted basins, finalized in February 2019, the Kings Subbasin is designated as a critically overdrafted basin.

As part of the California Statewide Groundwater Elevation Monitoring (CASGEM) Program, DWR is required to prioritize California groundwater basins to help identify, evaluate, and determine the need for additional groundwater level monitoring. Per the current CASGEM draft prioritization, completed in April 2019, the Kings Subbasin is a high priority subbasin.

The City has long made efforts toward offsetting the decline of groundwater levels and minimizing overdraft conditions through an active intentional recharge program that started in 1971. Through cooperative agreements with FMFCD and FID, the City has access to not only City-owned basins, but

also those of these two agencies. The City has averaged over 60,000 AFY the previous five years and plans to gradually increase recharge by about 540 AFY each year. However, during wet years the City will recharge more water when it is available to allow to the City to draw on additional groundwater during dry years when surface water is not available.

In short, SGMA is landmark legislation that, for the first time in the history of California, requires comprehensive groundwater management, with the mandatory goal of bringing all currently overdrafted basins into sustainable conditions by no later than 2040 or 2042, with five-year increments of progress starting in 2025 and 2027.

As noted previously, the FARGMP was prepared in conformance with AB 3030 and SB 1938. The objectives of the FARGMP have been developed to monitor, protect, and sustain groundwater within the region. The City of Fresno and the other participating agencies subsequently adopted the groundwater management plan in 2006. The City of Fresno falls within the NKGSA. As a high priority basin, the Kings Subbasin must be managed under a GSP by January 31, 2020. The NKGSA finalized the GSP and submitted it to the California DWR on January 28, 2020, ahead of the January 31, 2020 mandate. The FARGMP is discussed below.

GROUNDWATER MANAGEMENT PLAN

As noted previously, the FARGMP was prepared in conformance with AB 3030 and SB 1938. The objectives of the FARGMP have been developed to monitor, protect, and sustain groundwater within the region. The City of Fresno and the other participating agencies subsequently adopted the groundwater management plan in 2006. The City of Fresno falls within the NKGSA. As a high priority basin, the Kings Subbasin must be managed under a GSP by January 31, 2020. The NKGSA completed the GSP on January 28, 2020.

As discussed above, the Specific Plan would not decrease groundwater supplies or interfere substantially with groundwater recharge such that the Plan may impede sustainable groundwater management of the basin. The Specific Plan includes park, open space, and ponding basin areas which would allow for infiltration of groundwater on-site. Existing City and FMFCD regulations require development in the Plan Area to address water quality and changes to the drainage pattern through BMPs and low impact development (LID) measures. LID measures and strategies can be used to meet the FMFCD's development standards and include use of bioretention/infiltration landscape areas, disconnected hydrologic flow paths, reduced impervious areas, functional landscaping, and grading to maintain natural hydrologic functions that existed prior to development, such as interception, shallow surface storage, infiltration, evapotranspiration, and groundwater recharge. Further, Recharge Fresno, a City program to improve the pipelines and water system facilities that will capture, treat and deliver water to Fresno homes and businesses, including surface water from the Sierra Nevada Mountains. Groundwater-related objectives of Recharge Fresno include: improve natural and intentional groundwater recharge, maintain focus on conservation and its role in ensuring a sustainable water supply for Fresno, and ensure a safe and reliable water supply.. These guiding documents and requirements would ensure that stormwater quality treatment measures are implemented and maintained throughout the life of the Specific Plan.

CONCLUSION

The required stormwater BMPs and retention basins would be designed to reduce runoff below that which occurs currently during storm events and ensure groundwater recharge from the Plan Area to the extent possible. Additionally, the Specific Plan water demand is not expected to exceed the City's supplies in any normal, single dry, or multiple dry year between 2020 and 2040, and the Plan would not conflict with the FARGMP. Further, the Specific Plan includes two policies, listed below, which would encourage nonporous surfaces for groundwater recharge and other design strategies to maximize recharge. Therefore, impacts related to groundwater recharge would be ***less than significant***.

SPECIFIC PLAN POLICIES

IPR 2.9: *Plant locally appropriate, drought-tolerant landscaping and, where possible, incorporate designs that can contribute to groundwater recharge, flood protection, and reduced urban heat island effects.*

IPR 3.1: *Encourage the incorporation of water conservation methods in new development, such as greywater systems, drought-resilient landscaping, and reduction of nonporous surfaces.*

Impact 3.9-4: The Specific Plan would not alter the existing drainage pattern in a manner which would result in substantial erosion or siltation on- or off-site, substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite, or create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. (Less than Significant)

Future development would include water quality BMPs, detention basins, and retention basins designed to minimize or eliminate increases in runoff entering existing surface water courses and storm drains. Peak runoff and total volume of runoff will be minimized by the storm drainage design which retains water to the maximum extent possible.

The proposed Specific Plan will not alter drainage patterns in a manner which will cause flooding, erosion, or siltation. Surface runoff from the area will be managed via parcel-based LID measures, detention/retention basins, and flow reducing BMPs to prevent local flooding within the site. These features will also reduce peak flows from the Plan Area to receiving creeks and storm drains to amounts equal to or less than flows under existing conditions. Sediment in the stormwater flows will be captured in detention ponds designed to prevent siltation. Flooding, erosion, or siltation is not anticipated by the proposed Specific Plan given the storm drain design requirements and best management practices that will be implemented.

The proposed Specific Plan would not alter the existing drainage pattern in a manner which would result in substantial erosion, siltation, flooding, or polluted runoff. With the implementation of the Specific Plan policies already presented above, compliance with existing regulatory requirements

which pertain to water quality and runoff, and with the design and construction of the improvements included in the proposed storm drainage system, the proposed Specific Plan would have a ***less than significant*** impact relative to this topic.

Impact 3.9-5: The Specific Plan would not release pollutants due to Plan Area inundation by flood hazard, tsunami, or seiche. (Less than Significant)

As shown in Figure 3.9-2, the entire Plan Area is designated unshaded Zone X - minimal flood hazard, and would not be expected to have a flood hazard up to the level of the 0.2-percent annual chance flood. Lands designated as unshaded Zone X are outside of the Special Flood Hazard Areas. Changes to land surfaces in these areas do not trigger map revisions and no flood insurance requirements are imposed on structures in these areas.

Although the Plan Area's northern boundary is very near the San Joaquin River, the area is not within a Special Flood Hazard Area. Local flooding can occur for events larger than a two-year event, but runoff is generally contained in the streets or other breakover easements. Such flooding is not reflected on FEMA's maps. Improvements to storm drainage facilities are accomplished either as a part of privately funded on-site developments or as a part of the master plan, funded by drainage fees. FMFCD maintains an on-going update to the system hydraulic model for flood control and prepares a capital improvement plan update every five years.

A tsunami is a sea wave caused by a submarine earthquake, landslide, or volcanic eruption. Tsunami can cause catastrophic damage to shallow or exposed shorelines. The Plan Area is approximately 105 miles from the coast, which is sufficiently distant to preclude effects from a tsunami. Additionally, tsunami inundation maps show no risk of tsunami inundation for the Plan Area.

Seiches are changes or oscillations of water levels within a confined water body. Seiches are caused by fluctuation in the atmosphere, tidal currents or earthquakes. The effect of this phenomenon is a standing wave that would occur when influenced by the external causes. The Plan Area is not adjacent to any lakes that pose significant a risk from a seiche event.

A small portion of the Plan Area located in the northernmost point is located within the dam failure inundation area for the Friant Dam. Potential inundation from the Friant Dam is shown in Figure 3.9-3. Dam failure is generally a result of structural instability caused by improper design or construction, instability resulting from seismic shaking, or overtopping and erosion of the dam. The DSD is responsible for inspecting and monitoring these dams. The Fresno County Multi-Hazard Mitigation Plan outlines the mitigation strategy for reducing potential losses identified in Chapter 4, Risk Assessment, of the Plan.

Provided that the storm drain system and detention/retention facilities to be installed as part of the proposed development are adequately sized and properly installed and maintained, additional flooding and/or impedance or redirection of flows will not be induced by the proposed Specific Plan. As a result, the proposed Specific Plan would have a ***less-than-significant*** impact relative to this topic.

Impact 3.9-6: The Specific Plan would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. (Less than Significant)

The Water Quality Control Plan for the Central Valley Region and the GSP are the two guiding documents for water quality and sustainable groundwater management in the Plan Area. Consistency with the two plans are discussed below.

WATER QUALITY CONTROL PLAN FOR THE CENTRAL VALLEY REGION

The Water Quality Control Plan for the Central Valley Region (Basin Plan) includes a summary of beneficial water uses, water quality objectives needed to protect the identified beneficial uses, and implementation measures. The Basin Plan establishes water quality standards for all the ground and surface waters of the region. The RWQCB regulates waste discharges to minimize and control their effects on the quality of the region's ground and surface water. Permits are issued under a number of programs and authorities. The terms and conditions of these discharge permits are enforced through a variety of technical, administrative, and legal means. Water quality problems in the region are listed in the Basin Plan, along with the causes, where known.

As discussed in Impacts 3.9-1 and 3.9-2, impacts related to water quality during construction and operation of future projects in the Plan Area would be less than significant. Through compliance with future site-specific SWPPPs, the proposed project Specific Plan would have a less than significant impact relative to construction. Through compliance with the FMFCD's Storm Water Quality Management Plan, City General Plan policies, City Municipal Code requirements, and proposed Specific Plan policies, the proposed Specific Plan would have a less than significant impact relative to operation.

GROUNDWATER MANAGEMENT PLAN

As part of a partnership of local municipal water purveyors, irrigation districts, a flood control district, and the overlying county, the FARGMP was prepared in conformance with AB 3030 and SB 1938. The objectives of the FARGMP have been developed to monitor, protect, and sustain groundwater within the region. The City of Fresno and the other participating agencies subsequently adopted the groundwater management plan in 2006. The City of Fresno falls within the North Kings Groundwater Sustainability Agency (NKGSA). As a high priority basin, the Kings Subbasin must be managed under a GSP by January 31, 2020. The NKGSA completed the GSP on January 28, 2020.

As discussed in Impact 3.9-3, Specific Plan implementation would not decrease groundwater supplies or interfere substantially with groundwater recharge such that the Specific Plan may impede sustainable groundwater management of the basin. The required stormwater BMPs and retention basins would be designed to reduce runoff below that which occurs currently during storm events and ensure groundwater recharge from the Plan Area to the extent possible. Additionally, the Specific Plan water demand is not expected to exceed the City's supplies in any normal, single dry, or multiple dry year between 2020 and 2040, and the Plan would not conflict with the FARGMP.

Further, the Specific Plan includes two policies, listed above, which would encourage nonporous surfaces for groundwater recharge and other design strategies to maximize recharge.

CONCLUSION

Overall, implementation of the proposed project would have a ***less than significant*** impact related to conflicts with the Basin Plan and the GSP.

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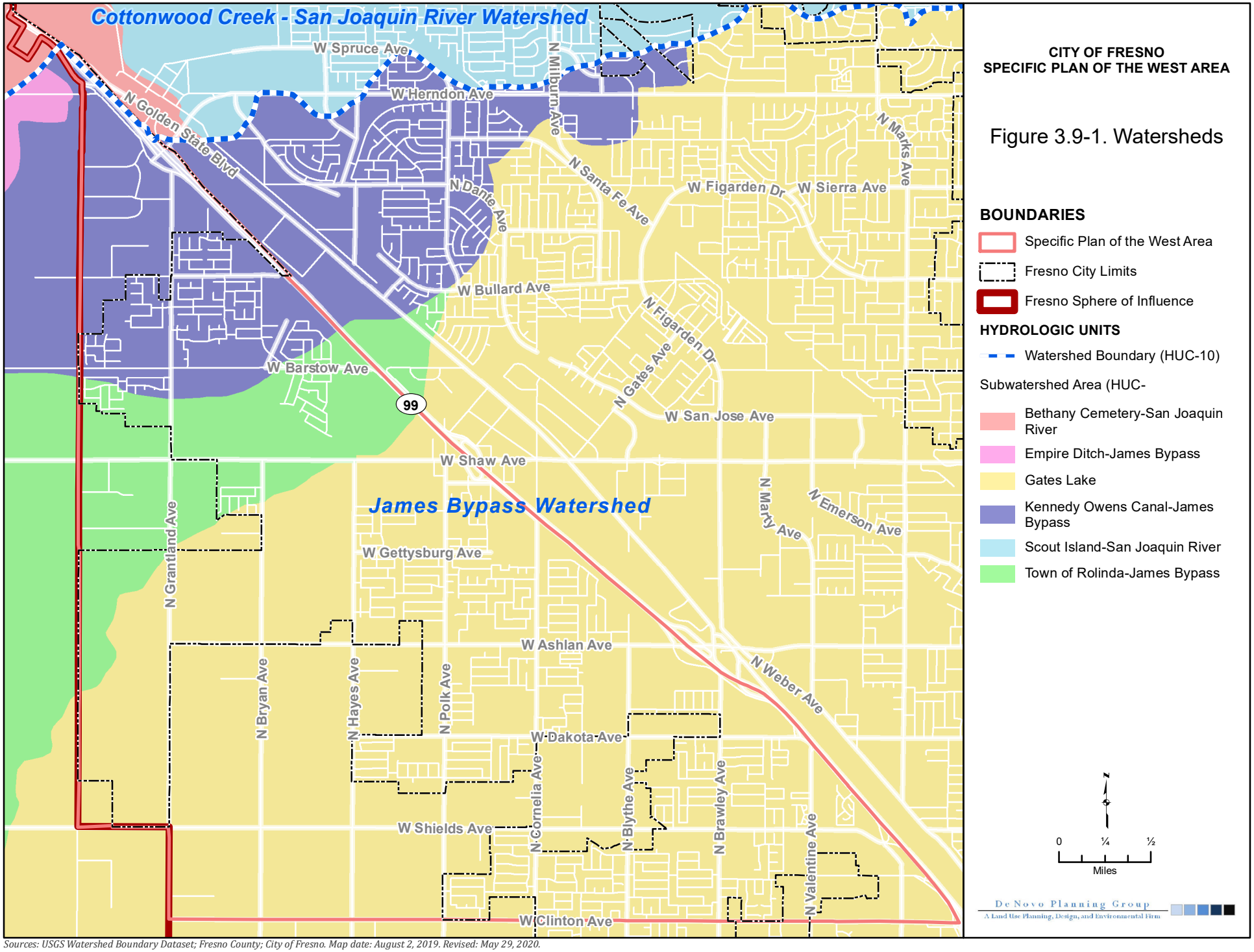

Sources: USGS Watershed Boundary Dataset; Fresno County; City of Fresno. Map date: August 2, 2019. Revised: May 29, 2020.

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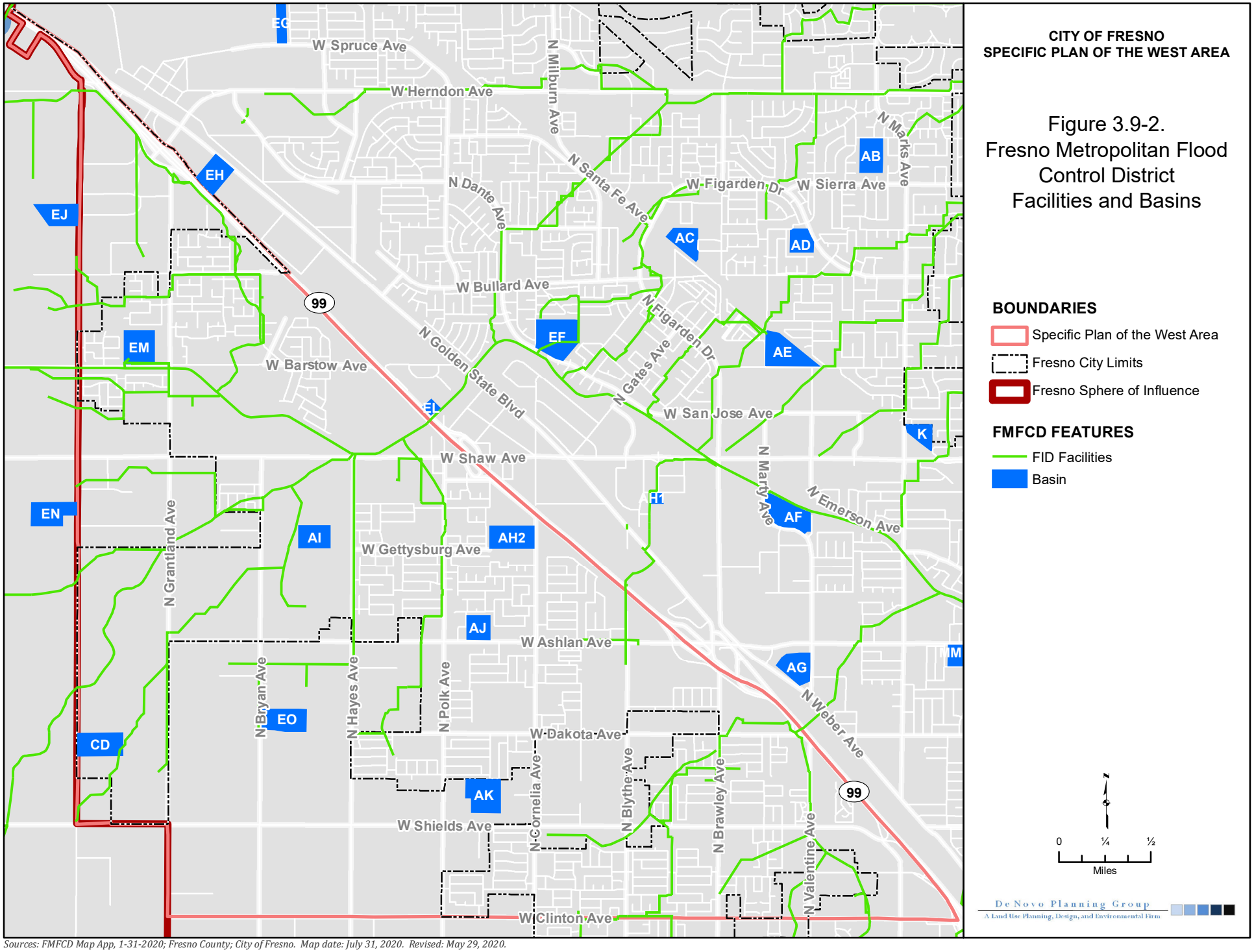

Sources: FMFCD Map App, 1-31-2020; Fresno County; City of Fresno. Map date: July 31, 2020. Revised: May 29, 2020.

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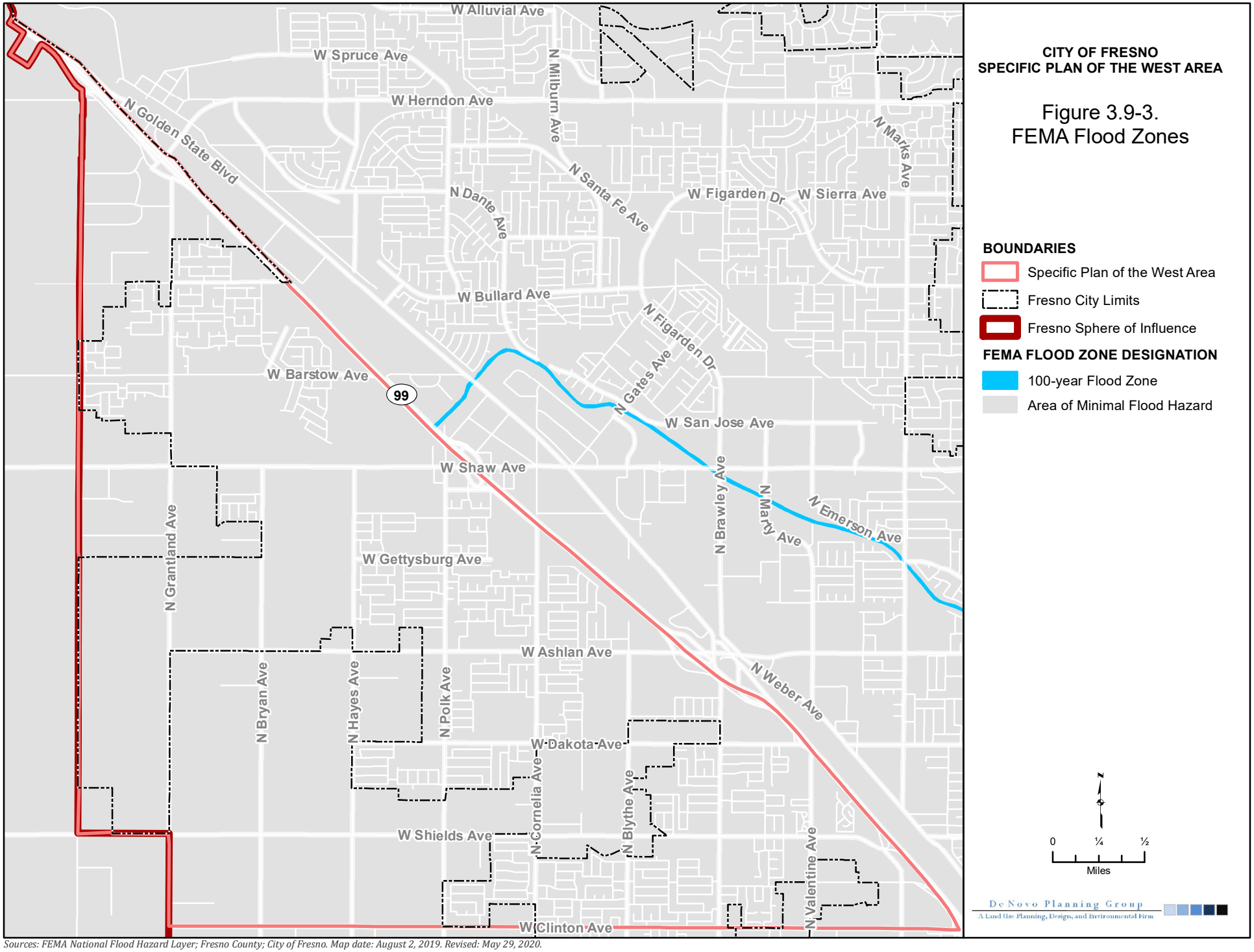

Sources: FEMA National Flood Hazard Layer; Fresno County; City of Fresno. Map date: August 2, 2019. Revised: May 29, 2020.

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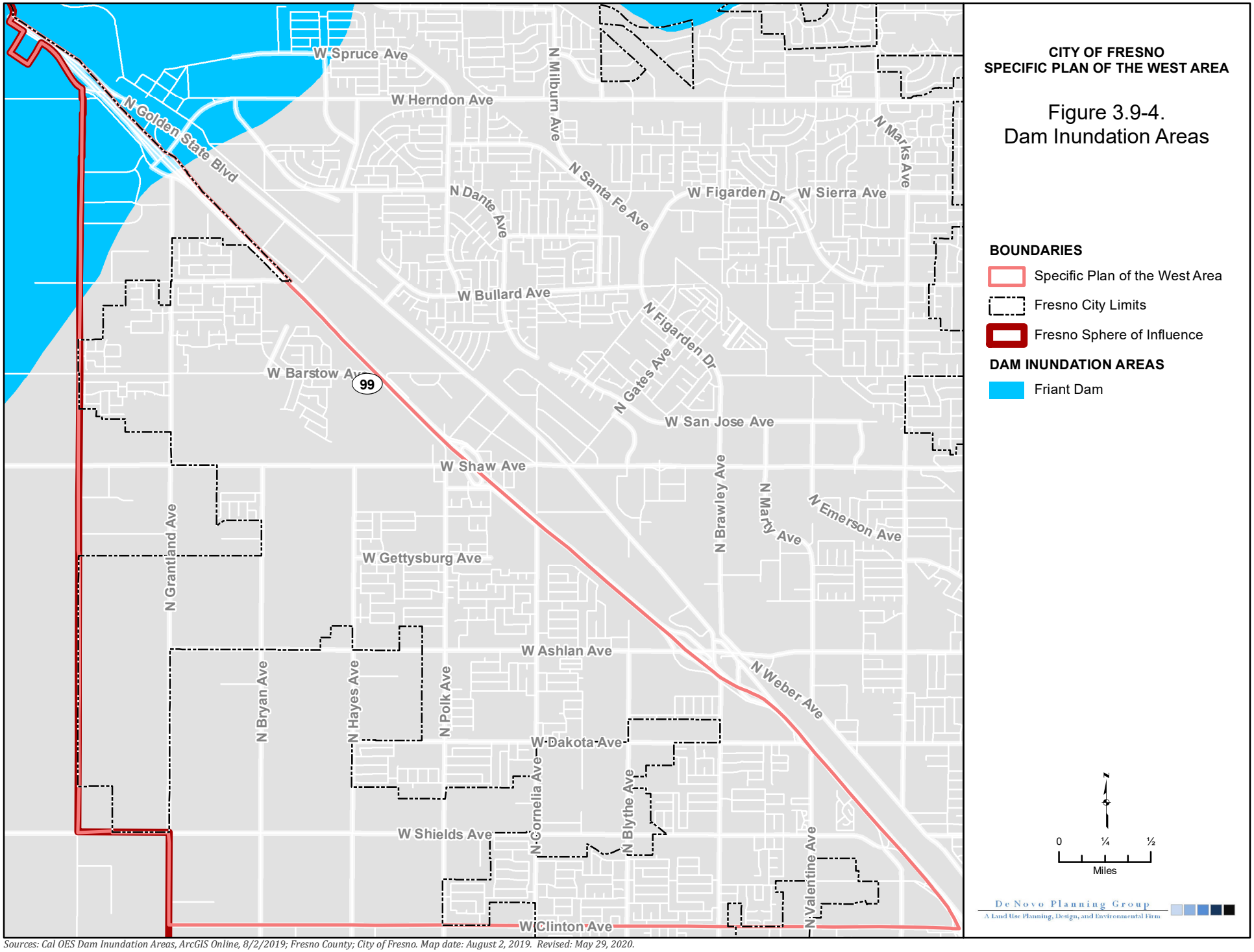

Sources: Cal OES Dam Inundation Areas, ArcGIS Online, 8/2/2019; Fresno County; City of Fresno. Map date: August 2, 2019. Revised: May 29, 2020.

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