DROUGHT PREPAREDNESS & RESPONSE

June 2016

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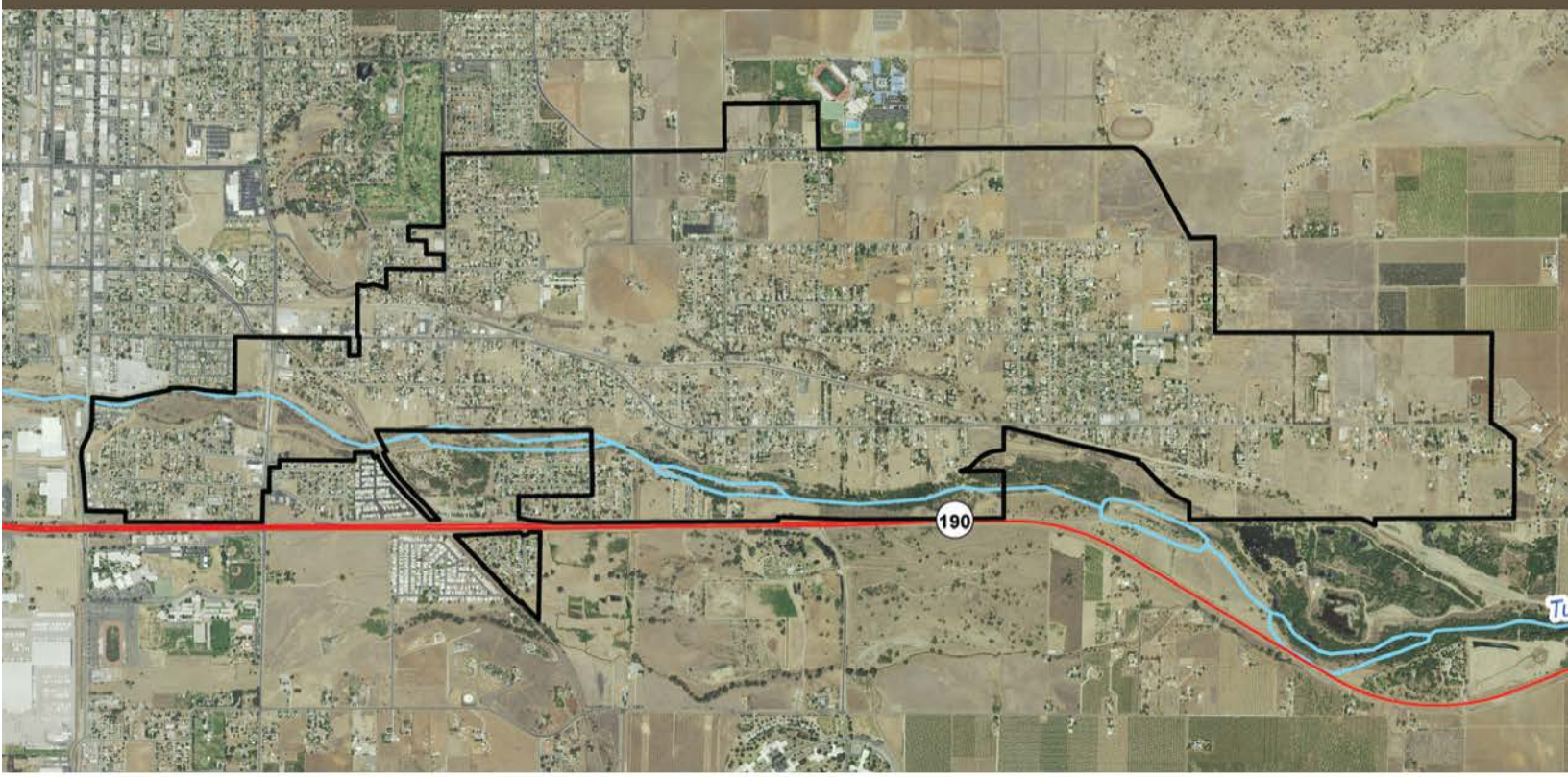
EAST PORTERVILLE WATER SUPPLY PROJECT

FEASIBILITY STUDY

California Department of Water Resources



in Partnership with

Water Boards

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Executive Summary

In January 2016, the State of California (State) authorized this study to evaluate the feasibility of creating a new public water system or connecting the East Porterville community to an existing public water system. The catalyst for the State's involvement was the Emergency Water Tank Replacement project, but the goal of the Feasibility Study is to develop a municipal water system for the unincorporated community of East Porterville in Tulare County. East Porterville is located on the east side of the San Joaquin Valley at the base of the Sierra Nevada Mountains and at the eastern edge of the Tulare Lake Groundwater Basin.

East Porterville does not have access to an adequate supply of safe drinking water. There are approximately 1,800 residences in East Porterville that mainly rely on private wells, many of which are shallow, varying from 20 feet to 100 feet below ground surface, with rainfall as the primary source of recharge. California has been experiencing a historic drought since 2012 leading to declining groundwater levels and reduced pumping capacity. As a result, approximately 1,200 wells have gone dry in Tulare County, with approximately 500 of them in the East Porterville area. In addition to the critical water quantity shortage, Tulare County Health and Human Services have tested the water quality and found nitrate contamination.Tulare County's Office of Emergency Services (County OES), Department of Water Resources (DWR) and the State Water Resources Control Board (SWRCB) have been offering several forms of assistance to the individuals affected by this drought through a household tank program, non-potable water tanks and a bottled water program. These programs have provided temporary relief to the drought-stricken East Porterville area. Due to their high expense, these programs are not sustainable.

DWR and SWRCB are jointly leading work on a solution for both the current drought emergency and long-term drought resiliency for communities in and around Porterville. Partners include California Office of Emergency Services (Cal OES), Tulare County, City of Porterville, California Department of Housing and Community Development, and several local advocates.

SWRCB's Technical, Managerial and Financial Assessments guidance requires consolidation feasibility when a water system is within the established service area of another water system, one of the water systems is within an existing General Plan's sphere of influence or the water system is within five miles of another public water system. As a result, water system options for the community of East Porterville were evaluated as follows:

- Expanding services of the City of Porterville water system;
- Expanding services of the existing Public Utility District;
- Consolidation with a private for-profit water company (California Water Service Company or Del Oro Water Company);

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- Forming a new private non-profit water company or Special District.

City of Porterville - The City of Porterville has owned and operated its water system since 1903. The City has existing infrastructure in East Porterville to supply a small previously acquired water system that includes ten miles of water main serving 252 properties in East Porterville. This existing infrastructure offers significant time and cost savings to the future water system that would be built as part of the long-term solution. However, the City's existing Urban Development Boundary (UDB) does not extend far enough east to include all the parcels that can benefit from the creation of a water system. The City, State and County agencies would need to work towards boundary amendments for the long-term solution.

Tulare County Local Agency Formation Commission (LAFCo) (2014) determined that "the City has a sound governmental structure that provides necessary resources to provide public services and infrastructure improvements within the Sphere of Influence (SOI) area."

Porter Vista Public Utility District (PVPUD) - The PVPUD was formed in 1974 as a result of the recommendation for municipal services made by Tulare County Health Department and SWRCB due to water quality concerns. The intent of PVPUD was to initially provide sewage collection service and later provide domestic water. PVPUD conducted a feasibility analysis in 1982 (Feasibility Report for Porter Vista Public Utility District Water Project) to evaluate opportunities to construct a municipal water system in East Porterville. The study conducted by RL Schaefer & Associates (1982) reports that the project was cost prohibitive and could not reasonably result in a stand-alone operation.

PVPUD's Board discussed the opportunity to operate the East Porterville community water system as is discussed in this Feasibility Study in its board meeting on May 11, 2016. In a majority vote (4 of 5 members), the board decided that PVPUD is not interested in being a domestic water supplier for East Porterville. The district cited the City of Porterville representatives, who explicitly stated they do not want to partner with the PVPUD to supply domestic water, as they did with sewer service; other contributing factors in the decision were the feasibility study's cost estimates and the lack of local water supplies. Consequently, the PVPUD was not considered a viable alternative as the water purveyor of the East Porterville community.

Private For-Profit Company - There are two private for-profit water companies that provide service within five miles of East Porterville—California Water Service Company (Cal Water) and Del Oro Water Company. These water companies are not in close enough proximity to physically interconnect their existing water systems to East Porterville and would require a non-infrastructure and management consolidation. Since both Cal Water and Del Oro are successfully managing satellite water systems, this option was considered for alternative analysis.

Cal Water is an investor-owned public utility that operates 27 separate service districts in 63 communities throughout California and serves 1.7 million Californians through 425,000

connections. Cal Water has demonstrated its technical capability to own, operate and manage water systems of various sizes through the large number of customers currently supplied.

Its Visalia District is located approximately 24 miles northwest of Porterville and serves the City of Visalia, as well as some small water systems in nearby communities, including the Mullen water system, which is located approximately 1.5 miles from East Porterville. However, physical interconnection with the Mullen system is not a feasible alternative. Groundwater wells to supply East Porterville will be most productive if they are located west of the city of Porterville or within the City of Porterville's service area. To avoid installing additional pipelines to convey the source water to East Porterville, the State would need to establish a wheeling agreement with the City for Cal Water. If a wheeling agreement could not be established, alternative sources of supply would need to be evaluated.

Del Oro Water Company was established in 1963 and currently operates 18 districts with 24 service areas throughout California. Four of these districts are located in Tulare County, one of which is Grandview Gardens located approximately one-half mile northwest of Porterville serving 389 customers through 119 connections.

Similar to Cal Water, Del Oro would need to receive source water through wheeling agreements with the City.

Private Non-Profit Company - There are no known private non-profit water companies currently providing service in East Porterville.

Preferred Alternative - The study of available water supplies in the region and hydrogeological conditions (Figure 2) conducted as part of this project indicate that sustainable and resilient water supplies are predominately located in the western portion of East Porterville, west of Porterville and within Porterville city limits. If a private for-profit company were to be considered as the preferred alternative, the State would need to establish a wheeling agreement with the City. The City indicated that its existing infrastructure doesn't have enough capacity to wheel additional water through its system. At the time of this report, this potential issue has not been studied.

The City of Porterville has an existing pipeline that has been supplying water to a few small water systems within East Porterville for several years. Currently, another small portion of the community (approximately 40 homes in Phase I) is in the process of connecting to the City as an emergency drought response effort. The City, County and State are currently working on a Memorandum of Understanding (MOU) to connect approximately 460 additional homes as part of this emergency drought response effort. Since the City has existing infrastructure in the region, extending permanent water service can be an efficient option. Additionally, physical interconnection generally provides water systems with the greatest efficiency. Therefore, the State recommends the City of Porterville as the preferred water purveyor for the community of East Porterville.

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However, this option requires approval by all stakeholders, including the homeowners of the East Porterville community. This feasibility study provides the necessary details for the homeowners to make an informed decision. Stakeholders are encouraged to read the full feasibility study to better understand the implications of each potential purveyor and allow for an informed decision-making process.

Community members are already signing agreements to become part of the City's water system as part of the long-term solution. The State will brief the community on this Feasibility Study and ongoing emergency work on the evening of Thursday, June 23, 2016 at a public workshop.

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1.0 Introduction

1.1 Location

East Porterville is located on the east side of the San Joaquin Valley in an unincorporated area of Tulare County (County) at the base of the Sierra Nevada Mountains and at the eastern edge of the Tulare Lake Hydrologic Region. It is approximately 24 miles southeast of Visalia and 50 miles north of Bakersfield. The Tule River generally runs along the southern boundary with the City of Porterville lying to the immediate north and west (Figure 1).

The central portion of the County, which is situated in the Tule Groundwater Subbasin of the San Joaquin Valley Groundwater Basin, is underlain by a shallow aquifer that is recharged by flows from the Tule River. The ground slopes toward the river from the north, west and south with elevations ranging from around 560 feet in the northeast to 460 feet in the west. The average annual rainfall in the area is 13 inches. The highest average monthly temperature occurs in July, 100.5° F, and the lowest average monthly temperature is 35.6° F in January.

1.2 Existing Conditions

1.2.1 Existing Facilities

East Porterville is an unincorporated community within an area of 2.5 square miles comprised of several County tracts and large areas of subdivided lots. An unincorporated community is a region of land or developed community that is not governed by its own local municipality, such as an incorporated city. East Porterville is governed by the County of Tulare rather than the City of Porterville. In unincorporated communities, municipal services such as domestic water, storm water management, garbage, street lights/cleaning, etc. are not typically provided. While small portions of the community are currently receiving domestic water from the City of Porterville, the majority of residents obtain water through private wells. There are no other permitted municipal water suppliers within the boundaries of East Porterville.

There are approximately 1,800 residences in East Porterville that rely on private wells, many of which are shallow, extending down to less than 100 feet below ground surface (bgs), with some wells as shallow as 20 feet. The primary source of recharge is rainfall; therefore, as a consequence of the severe hydrologic drought California has experienced over the past five years, a large number of these wells are dry. A majority of East Porterville residents have incomes below the federal poverty line and cannot afford to drill deeper wells.

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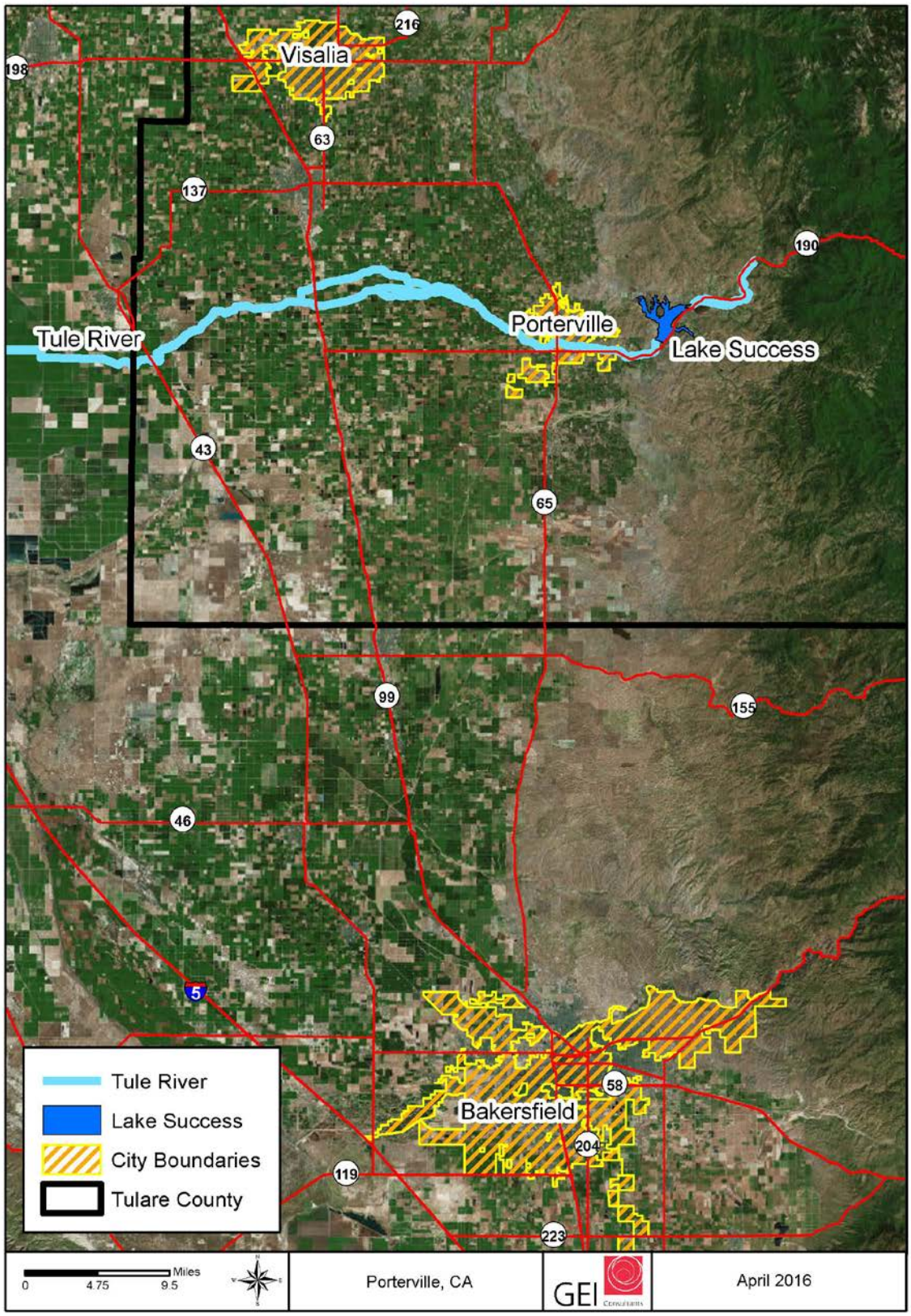

Figure 1. Location of Porterville

1.2.2 Hydrogeological Conditions

East Porterville and the City of Porterville are located near the eastern edge of the San Joaquin Valley Groundwater Basin within the Tule Groundwater Subbasin. The groundwater subbasin is in overdraft and has been designated by DWR as being a high-priority basin. The estimated annual overdraft within the City's UDB area is about 1,200 acre-feet per year (AFY) (Schmidt, 2009).

In the vicinity of East Porterville, the geologic materials vary from hardrock (bedrock) to alluvial sediments, as shown on Figure 2. East of the City, the bedrock consists of granites, meta-sediments, meta-volcanics and ultramafic rocks of various ages (California Geologic Survey, 2010). These rocks produce low-yielding wells.

The bedrock is overlain by sediments. Most of the area is covered with Younger Alluvium underlain by Older Alluvium, as shown on Figure 2. Underlying both of these alluviums are older marine sedimentary deposits, which occur at relatively shallow depths and can contain oil. An oil field is present about 4 miles south of the Tule River. The uppermost marine sediments are the Santa Margarita Formation. The Santa Margarita Formation varies from as shallow as 400 feet bgs south of the City to over 900 feet bgs near the western edge of the City (Schmidt, 2009). Based on interpretations of the descriptions from well drillers, the top of the older marine sediments maybe where the sediments are described as shale.

In general, the alluvial sediments are thinnest to the east and thicken to the west. An unnamed inactive fault is present just west of where the bedrock is exposed at ground surface. The fault appears to have down-dropped the bedrock on the west side and up-lifted the bedrock on the east side. The relative amount of movement on the fault is unknown. It is unlikely that the fault is a barrier to groundwater flow.

The Younger Alluvium thickness gradually increases and broadens to the west. Figure 2 shows the aerial distribution of the Younger Alluvium, Figures 3 through 5 show the thickness of the Younger Alluvium, based on interpretation of water well drillers' logs that do not define the sediments by the type of alluvium encountered. Coarse-grained sediments and gravels are fairly abundant in the Younger Alluvium, but with distance from the foothills to the west, they become interbedded with clays. The gravels were deposited by the Tule River in sinusoidal meandering channel deposits that likely overlap and allow for vertical migration of groundwater. Groundwater in the Younger Alluvium occurs under unconfined conditions.

Underlying the Younger Alluvium is the Older Alluvium, which is widely distributed and consists predominately of clays with 6- to 30 foot-thick layers of sand and gravel. Figures 3 through 5 show that the thickness of the Older Alluvium also increases to the west and thins to the east. Due to the clayey nature of the formation, groundwater occurs under semi-confined to confined conditions.

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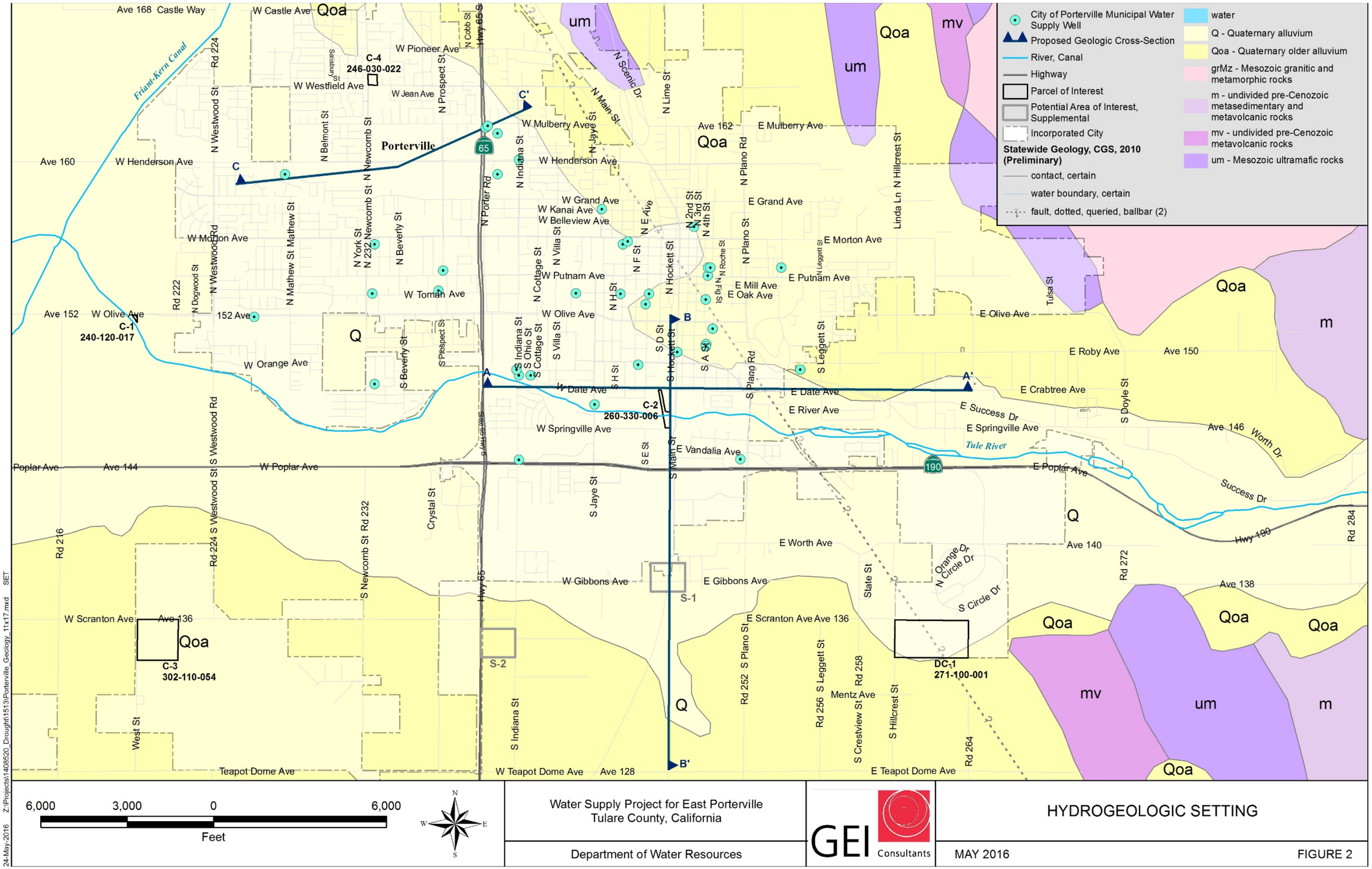

Figure 2. Hydrogeological Conditions in Porterville Area

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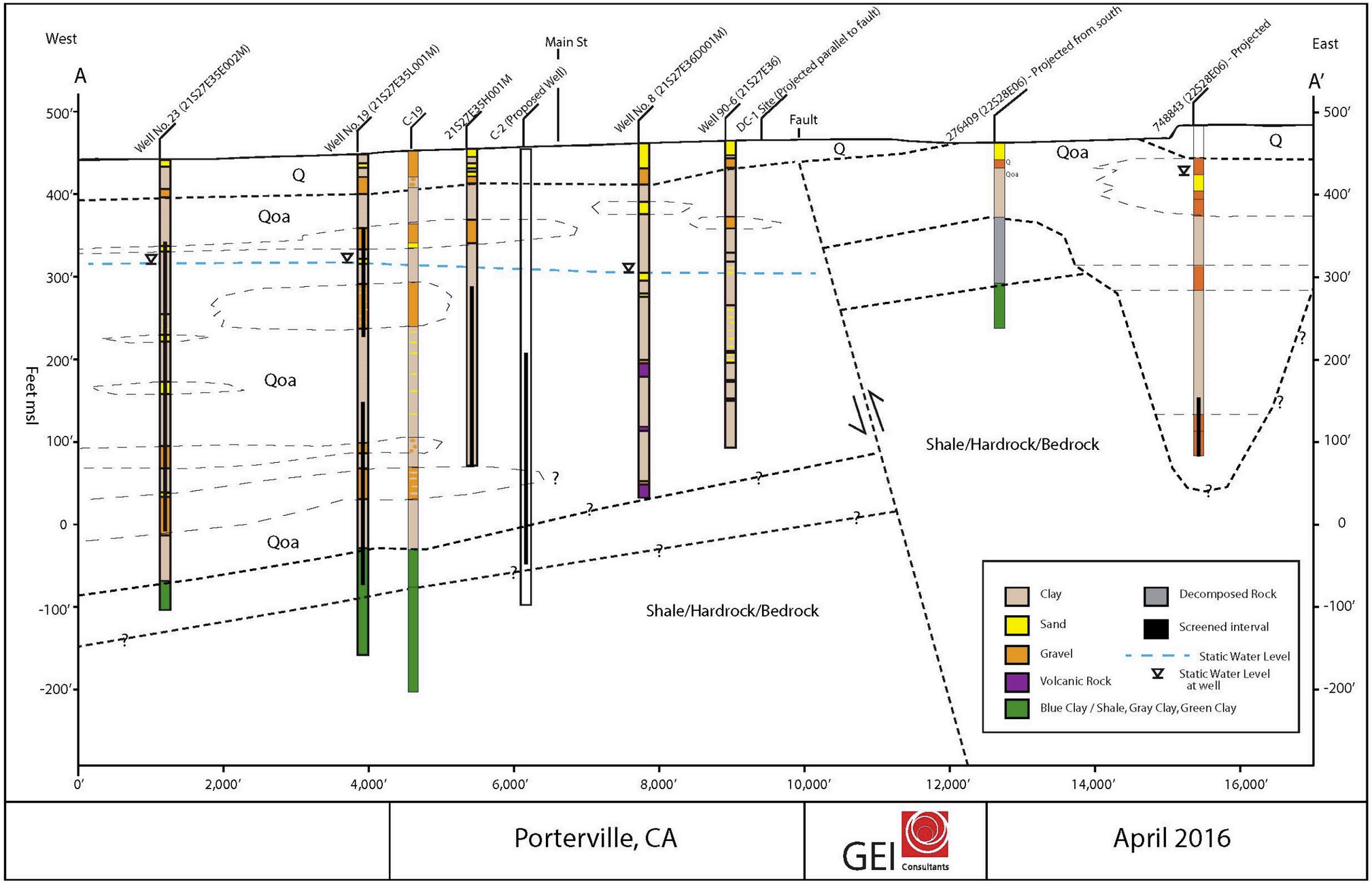

	Porterville, CA	GEI Consultants	April 2016

Figure 3. Cross-section A-A'

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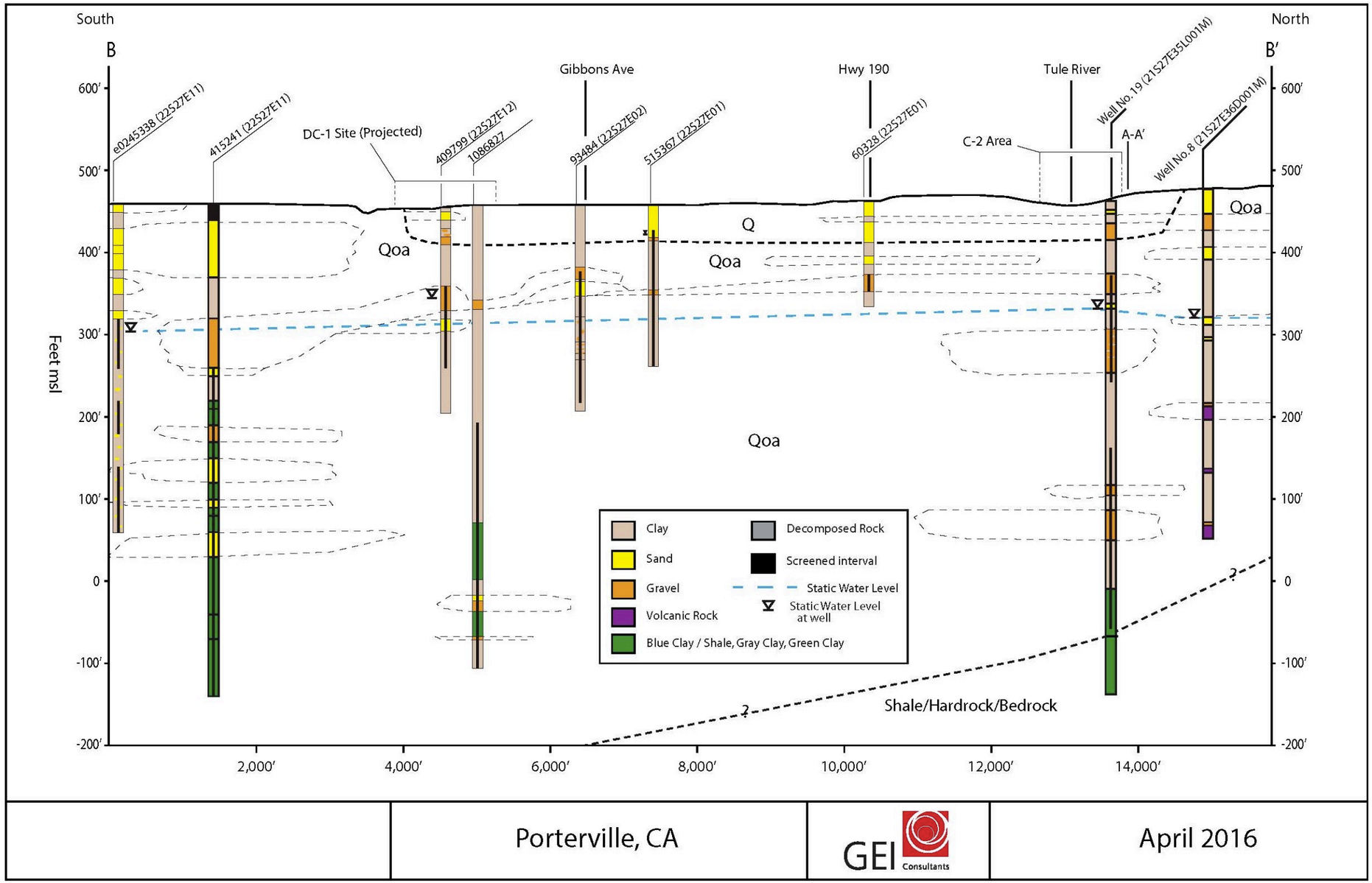

	Porterville, CA	GEI Consultants	April 2016

Figure 4. Cross-section B-B'

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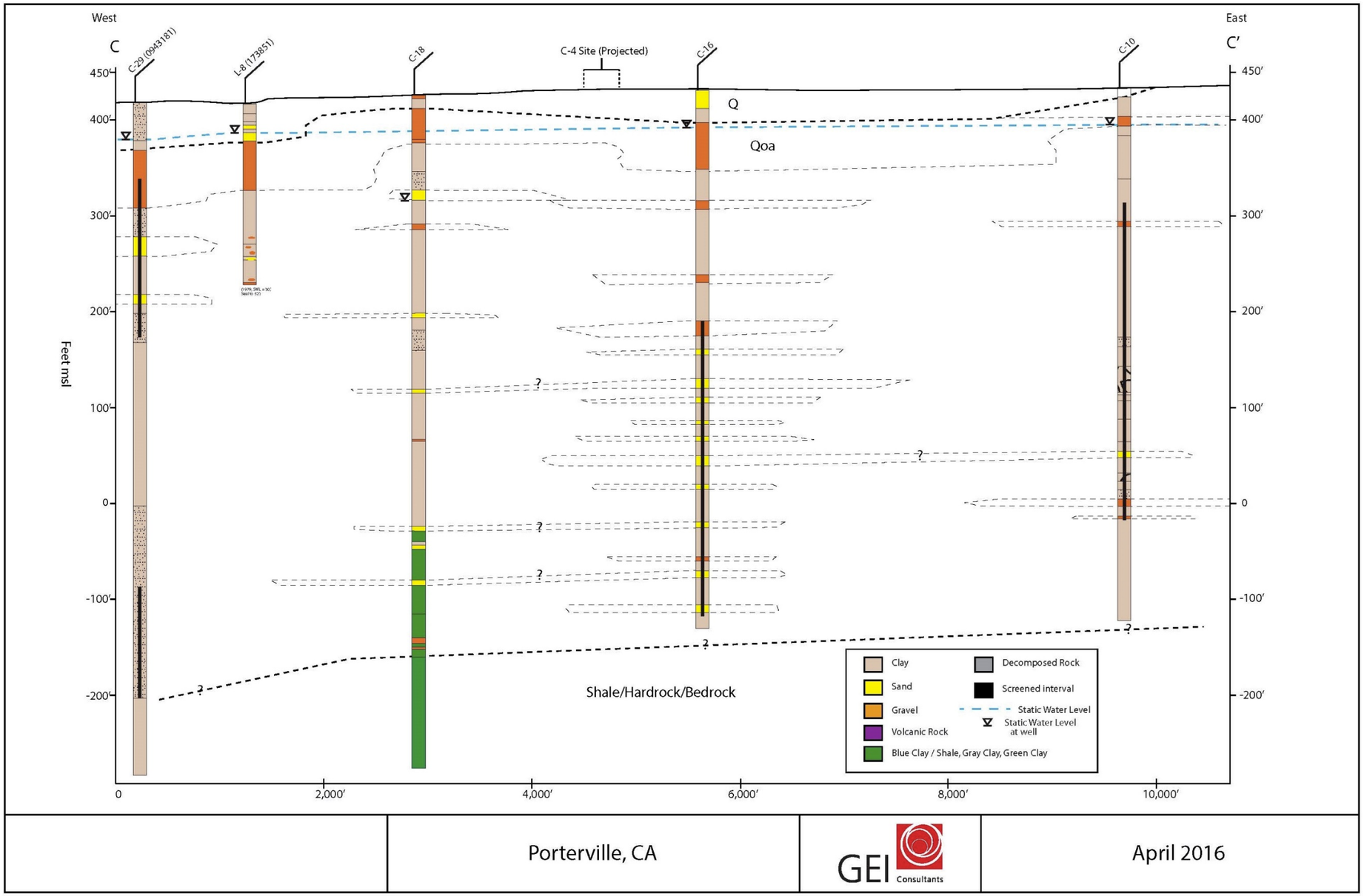

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Figure 5. Cross-section C-C'

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In the East Porterville area, both the Younger and Older Alluvium appear to have been deposited within a relatively narrow canyon east of the unnamed fault. The thickness of these sediments is variable, thinning towards the edges of the old canyon and increasing towards the canyon axis, to a maximum thickness of about 160 feet. However, most of these sediments are clayey, and coarse sediments that can convey water are near the surface and reach a maximum thickness of about 110 feet. These near-surface sediments have been relied on by domestic wells in East Porterville. The coarse-grained sediments underlie the Tule River, which would provide recharge. With the drought, the Tule River has been dry and groundwater levels have declined, dropping below the bottom of most of the domestic wells.

West of the unnamed fault, the bedrock is rarely encountered and is at depths of about 600 feet or greater bgs. The extent of the Younger Alluvium is broader but still exhibits a river-like pattern. Its thickness is poorly defined but may be present to depths of about 100 feet. The underlying Older Alluvium thickness also increases 900 feet bgs near the western edge of the City.

1.2.3 Groundwater

Groundwater in the area is variable, ranging from as shallow as 28 feet bgs to as much as 341 feet bgs. Depending on climate conditions, the Younger Alluvium may be partially saturated to dry. The Older Alluvium is typically saturated. Historically, groundwater levels in the aquifers continue to decline.

The ability of the sediments to transmit groundwater to wells is poor to moderate. Wells producing water from the Younger Alluvium have a specific capacity of and can produce 1 to 20 gallons per minute (gpm) per foot of drawdown based on pumping information provided from City wells (Dee Jaspers, 2015). Only a few wells constructed into the Older Alluvium have specific capacity this high. Most wells have production capacity of one to five gpm per foot of drawdown. Because the sediments have poorly transmissive pumping rates, City wells range from about 150 to 600 gpm. The most recently constructed well at the C-1 site was tested at 800 gpm.

Pumping of wells creates drawdown of the groundwater surface, with the greatest drawdown occurring in the well and decreasing away from the well. The maximum drawdown in the City wells is 190 feet. Projections of drawdown away from wells indicates that drawdown decreases to less than 10 feet between about one-half and three-quarters of a mile from a pumping well, depending on its pumping rate. Wells in similar aquifers that are closely spaced can experience the drawdown effects from other wells. Therefore, new wells should be spaced at least one-half mile away from existing wells.

Groundwater levels in the vicinity have been measured by DWR and the City since about 1921. DWR typically has tracked groundwater levels in the Younger Alluvium. The City has done much more extensive evaluation of the groundwater levels.

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On average, the subbasin water level has risen about four feet from 1970 through 2000. The period from 1970 to 1978 showed a general decline, bottoming out at 13 feet below 1970 levels in 1978. There was a steep rise in water levels in the ten-year period from 1978 to 1988, topping out at 20 feet above 1970 water levels in 1988. There was a sharp lowering of water levels of 34 feet from 1988 to 1995, with the lowest level reached in 1993 at 16 feet below 1970 water levels. From 1995 to 2000, water levels generally rose, eventually reaching four feet above 1970 water levels in 2000 (DWR, 2006). Based on groundwater levels at well 21S27E36F001M, which is located just west of the City, the trend in groundwater measurement levels seen between 1995 and 2000 continued through 2004. In 2004 the spring groundwater levels fell by about 16 feet below the 1970 level but remained about the same through 2010. In 2011, the groundwater level rose and maintained a similar level though 2013 but still remained about 10 feet below the 1970 levels. Between 2013 and 2016, groundwater levels declined significantly and are about 40 feet below the 1970 water level (DWR, CASGEM website 2016).

1.3 Need for a Project

California has been experiencing a historic drought since 2012 resulting in East Porterville, the City of Porterville and the surrounding unincorporated areas experiencing declining groundwater levels and reduced pumping capacity. During the drought, approximately 1,200 wells have gone dry in Tulare County of which approximately 500 are within East Porterville, where the majority of residents rely on shallow private wells as their only source of water.

To provide water to residences, a household tank program initially was set up by a local non-profit; services then increased through response by a collaboration of agencies and non-profits managed by the County Office of Emergency Services. As part of this program, pressurized tanks were installed at the residences by Self-Help Enterprises and are filled as needed by contract water haulers. Water is being hauled from a nearby municipal water supplier.

Additional assistance has been provided through a county-wide bottled water program developed and run by the SWRCB. These interim solutions have successfully kept residents supplied with water; however, they are expensive and only temporary solutions. The household tank program and water hauling program costs approximately $570,000 per month. The bottled water program costs approximately $60 per month for each household. These interim solutions are not only cost prohibitive, they are not suitable as long-term solutions because the contracted water suppliers are also experiencing supply issues. Thus, constructing a municipal water system is necessary to provide a drought-resilient, reliable and sustainable solution.

Figure 6 shows the reported current dry wells in the East Porterville Water Supply Project Area.

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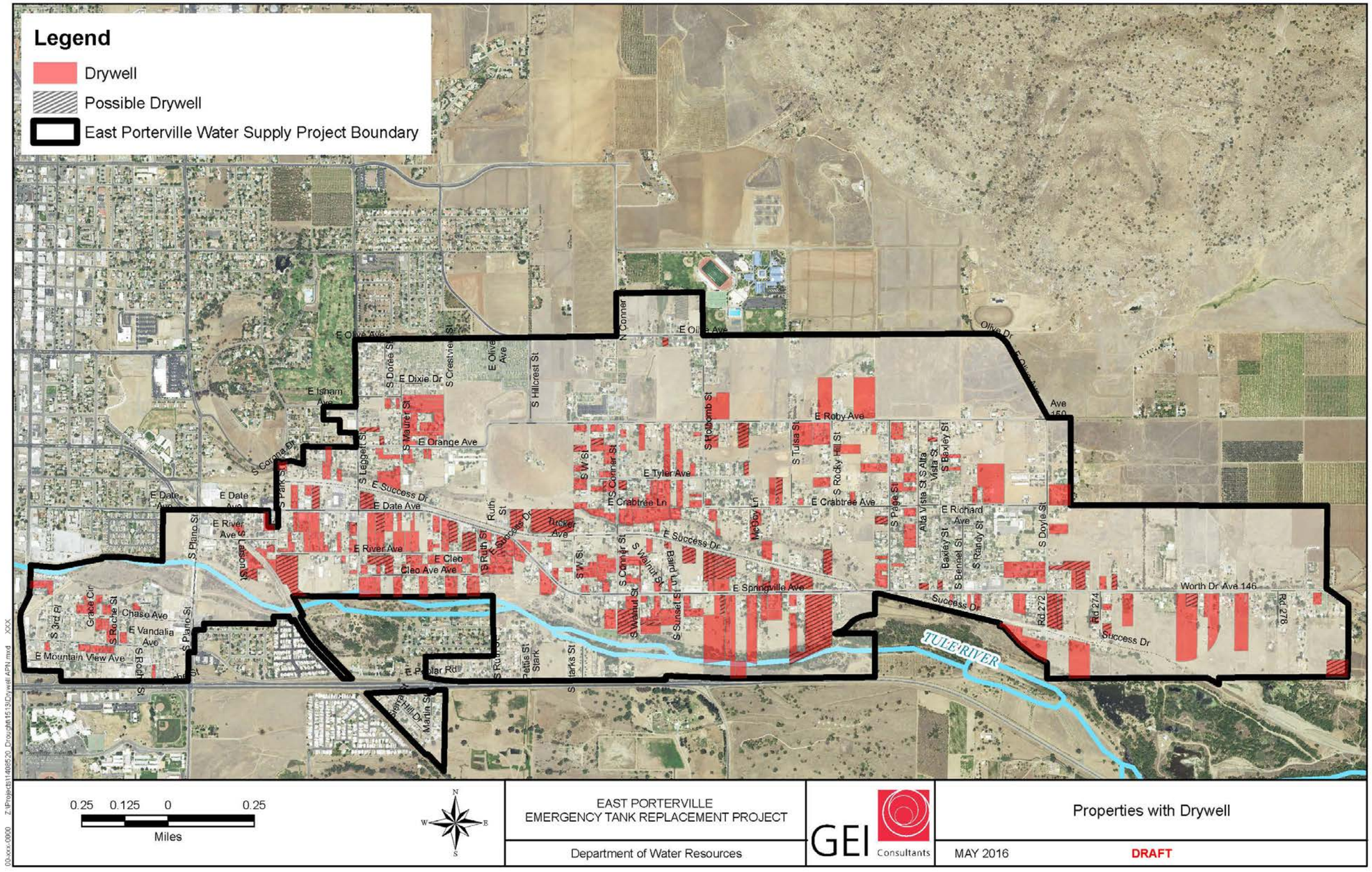

Figure 6. East Porterville Water Supply Project Boundary with reported Dry Wells

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1.4 Need for a Feasibility Study

When forming a new water system, it is important to consider the severe challenges associated with increasing regulations, declining water quality and quantity, legal liability for failing to meet requirements of the Safe Drinking Water Act, financial distress and customer assistance. As an independent water system, East Porterville is highly susceptible to struggling with these challenges, because a system's ability to deal with these challenges greatly depends on its technical, managerial and financial capabilities (TMF).

In addition to considering the potential challenges to East Porterville, the federal Safe Drinking Water Act requires states to incorporate TMF capacity into the public water system permitting process to ensure long-term sustainability and the system's ability to comply with all applicable drinking water laws and regulations. The California Health and Safety Code, §116540 states:

> No public water system that was not in existence on January 1, 1998, shall be granted a permit unless the system demonstrates to the department that the water supplier possesses adequate financial, managerial, and technical capability to assure the delivery of pure, wholesome, and potable drinking water.

In accordance with the SWRCB's TMF guidance, consolidation feasibility should be considered when:

- A water system is within the established service area of another system;
- One of the water systems is within an existing General Plan's zone of influence;
- The water system is within five miles of another public water system.

Using the above defined criteria, potential governance structures will be evaluated for the newly formed East Porterville water system. This effort includes identifying existing and potential water suppliers with which to connect or consolidate. In addition to following TMF guidelines, the Disadvantaged Community Water Study for the Tulare Lake Basin (DAC Study) was referenced for consistency with recommended planning, infrastructure and other water management actions. The DAC Study was undertaken to develop an integrated plan to address the drinking water and wastewater needs of DAC's in the Tulare Lake Basin, as appropriated by Senate Bill SBX2 1.

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1.5 Organization of Feasibility Study

- **Chapter 1 – Introduction:** The geographic setting, existing conditions in East Porterville, project boundary and organization of the report.
- **Chapter 2 – Existing and Potential Water Suppliers:** Existing and potential water suppliers around East Porterville.
- **Chapter 3 – Sources of Water Supply:** Sources of water supply for East Porterville.
- **Chapter 4 – Alternatives Analysis:** Alternatives for operating the newly installed public water supply system in East Porterville.
- **Chapter 5 – Alternative Selection:** Selection of the preferred alternative.
- **Chapter 6 – References:** Reference documents that were used as part of this feasibility study.

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2.0 Existing and Potential Water Suppliers

2.1 Existing Public Water Systems

2.1.1 City of Porterville

The City of Porterville, founded in 1849 and incorporated in 1902, operates under the Council-Manager form of government and became a Charter City in 1926 with an incorporated area of 17.61 square miles (Figure 7). The City's land use is primarily a mix of urban and rural areas with a heavy share of residential, commercial and industrial land uses on a scale to serve the southeastern Tulare County area. Over 35 percent of the Sphere of Influence (SOI) is categorized as single-family use, and approximately 18.5 percent is identified as vacant or agricultural land.

The 2010 Census reports that the City's population is 54,165, which is 12.3 percent of Tulare County's population. The City's population has steadily increased as a percentage of the County's total, from 9.5 percent in 1990 to 10.7 percent in 2000 and 12.3 percent in 2010. From 1990 to 2010, Porterville experienced an average growth rate of 3.0 percent. However, the 2008 Porterville General Plan Update projected an accelerated annual average growth rate of 3.7 percent over a 30-year period, increasing the City of Porterville's SOI to 17.2 percent of the County's population.

Services provided by the City are public safety (police and fire protection); domestic water; sanitary sewer collection, treatment and disposal; transportation, and solid waste collection and disposal. The domestic water system is operated and maintained by its Public Works Department. As of 2015, the population served was approximately 62,000 through nearly 15,600 service connections.

The City of Porterville relies solely on groundwater for supplying municipal water to its residents. The City's water system infrastructure includes 33 active groundwater wells scattered through the southwest portion of the system. Most these wells are gravel-packed and range from 230 feet to 700 feet in depth, with a combined maximum production capacity of approximately 14,000 to 15,000 gpm. Wells are located in the area west of Plano Avenue, and while some have a maximum capacity of 1,500 gpm, for various reasons they have experienced severe yield declines over the past ten years. According to the City's 2001 Master Plan, the current population served is near the system's design capacity of 65,807 (LAFCo, 2014). The Water System Hydraulic Analysis (May 2015) presented to City Council on June 2, 2015, recommended that no new services be connected to the City water system until new wells are constructed.

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Twenty-two of the 33 active well pumps are controlled by a telemetry system to maintain system pressure under varying loads. The distribution system consists of approximately 200 miles of water mains ranging in size from 2 to 16 inches in diameter. These water mains extend into a portion of East Porterville as a result of the acquisition of a small water system. The City currently operates and maintains five hillside reservoirs—three with a capacity of 3,000,000 gallons, one with a capacity of 550,000 gallons and one with a capacity of 300,000 gallons. The City also maintains a 300,000 gallon, non-elevated reservoir at the municipal airport. Water levels in the storage tanks are monitored and controlled by the computerized telemetry control system. Additional water infrastructure includes booster pump stations and pressure regulating valves.

The City's groundwater resources are recharged through rainfall and the Tule River. Consequently, drought has impacted groundwater levels; between the summers of 2012 and 2013, water levels dropped an average of 22 feet in the City's active wells. Current well production is at approximately 51 percent of original design capacity (Hydraulic Analysis Memorandum, 2015). Water rights were purchased for 900 acre-feet (AF) of water annually; however, historically only some of this water is used to recharge the groundwater through a small pond at Murry Park. Even if the full water right were used, the basin would still have an overdraft of 300 AF, considering their total overdraft of 1,200 AFY. The City has a groundwater management policy that does not discourage additional reliance on the groundwater aquifers as the source for future water supply.

2.1.2 California Water Service Company

Cal Water is an investor-owned public utility that operates 27 separate service districts in 63 communities throughout California. Cal Water has provided water utility services in Visalia since 1926. The Visalia District is located approximately 24 miles northeast of Porterville and serves the City of Visalia, as well as some small water systems in nearby communities. One such system is the Mullen water system, a small community water system south of Porterville, located approximately 1.5 miles south of Ave 146.

The Visalia District serves a total population of 136,744 through three physically separate water systems. The Visalia water system, located in the City of Visalia, is the largest system serving a population of 135,923 through 37,657 service connections; the Tulco water system, located in Tulare County south of Visalia, serves a population of 716 through 183 service connections; and the Mullen water system serves a population of 135 through 42 service connections. Infrastructure in the Mullen system consists of a six-inch water main, two groundwater wells, one nitrate and perchlorate treatment plant and one 500k gallon storage tank. While the system is near the community of East Porterville, Cal Water's local management has said it is not feasible to interconnect its Mullen system with East Porterville because of the local terrain (Personal Communication with Stephen Johnson, CWS Superintendent).

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2.1.3 Del Oro Water Company

Del Oro Water Company was established in 1963 to meet the water needs of the Paradise Pines area in Magalia. Since then, it has grown and currently operates 18 Districts with 24 service areas throughout California. Four of these Districts are located in Tulare County serving a combined population of 3,553—the California Pines District, which serves 1,073 customers through 325 service connections, the River Island Districts #1 and #2, which serve 1,541 through 446 service connections, the Traver District serving 500 customers through 180 connections and the Tulare District, which includes East Plano (serving 50 customers through 15 connections) and Grandview Gardens (serving 389 customers through 119 connections).

Grandview Gardens is located approximately one-half mile northwest of Porterville, and the area known as East Plano is located approximately 1 mile south of Porterville in the unincorporated area of Tulare County. Del Oro Water Company also provides contract management services to Ducor Community Services District (CSD). Figure 7 presents a map of regional water suppliers in the Porterville area, including systems owned and operated by Del Oro. The Disadvantaged Community Pilot Study (2014) states that Del Oro has expressed interest in acquiring additional systems. Opportunities exist for either acquisition or contract operation and management services. The Tulare District currently offers two part-time employees, a general manager/district secretary and a maintenance repairman (County of Tulare Pilot Study, 2014, pg. 100).

2.2 Potential Public Water Systems

2.2.1 Porter Vista Public Utility District

Public Utility Districts are established in accordance with Division 7 of the California Public Utilities Code Section 15501 et seq., Public Utility District Act. When the district lies entirely in one county, three directors are elected at large. This number may be increased to five by majority of the voters in the district. Typically, a Public Utility District maintains the infrastructure and provides public utility services such as water, sewer, electricity, natural gas, waste collection, etc. to the residents of that district.

The Porter Vista Public Utilities District (PVPUD) was formed in January 1977 to provide sewer collection service to a 1,733-acre area east of the City of Porterville. The District's SOI encompasses a 1,749-acre area that matches the District's jurisdictional boundaries with the exception of a 16-acre area located in the District's northwest region. It has a Board of Directors comprised of five members elected at large from within the District.

PVPUD was initially formed to provide a community sewage collection system with an intended secondary purpose to construct a community water system. Formation of the PVPUD was prompted by a study conducted by the Tulare County Health Department in 1974, which concluded that a health problem was evident in East Porterville due to: 1) smaller than normal lot

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sizes, 2) failing septic tank-leach line systems, 3) severe soil conditions, 4) shallow water table, and 5) unsatisfactory well systems (Porter Vista Final EIR, 1975).

On July 1, 1995, the PVPUD and the City of Porterville executed an intra-jurisdictional agreement providing for the joint use of the Porterville wastewater treatment facility (WWTF) under which PVPUD is identified as a contributing agency.

PVPUD's funding comes primarily from user fees and connection charges. Sewer rates are set through ordinance by the District, and connection fees are determined through a joint District/City process. Since East Porterville struggles with concentrated poverty, rates are infrequently increased because residents are unable to bear the economic burden of traditional revenue-generating mechanisms such as rate hikes, benefits assessments or special taxes. The most recent Prop 218 rate structure change was in 2012; prior to that, rates were only increased one time, in 1996. This financial limitation forces the District to rely almost exclusively on State and federal funds to cover infrastructure upgrades for even basic maintenance/operating costs.

Over the past 23 years, the PVPUD has helped the City of Porterville fund the cost of infrastructure upgrades only once. The Tulare County Auditor Controller's report shows that the District's operating expenses exceed revenue and carry relatively high debt resulting from the sale of bonds in 1978. Consequently, LAFCo recommends that since the District is almost completely surrounded by the City and relies on the City for the completion of its one existing service, it should wholly be included within the City's SOI (LAFCo, 2011).

2.2.2 Private Non-Profit Water Company/Special District

There are no known private non-profit water companies currently providing service in East Porterville. Since the goal of this chapter is to identify all potential governance structures, this option is discussed in a general context. Based on the estimated population of 7,331 and 1,800 proposed service connections, a private non-profit water company in East Porterville will be classified as a small community water system. By definition, it is also a severely disadvantaged community, meaning the median household income of the entire service area is less than 60 percent of the statewide average. Because of the burden that monthly water rates may cause to East Porterville residents, a non-profit water company is being considered. However, as an independent non-profit water company, East Porterville is unlikely to meet the SWRCB's TMF capacity requirements.

A non-profit entity is one that provides services at cost of operation on a not-for-profit basis. There are no known not-for-profit water purveyors in the Porterville region. Therefore, this section provides information for governance and operating structures of non-profit entities. Examples of existing entities in Tulare County are referenced as well.

In consideration of water services, the most common organizational structure is a Community Services District (CSD) or a Mutual Water Company. Often, these entities are formed by

residents of an unincorporated community that is authorized to provide a wide variety of services, including water, garbage collection, wastewater management, fire protection, etc. As recommended in the Disadvantaged Community Pilot Project (2014), East Porterville would need to consider partnering with neighboring water systems or an operations and maintenance contract to leverage operational economies of scale to provide cost-effective services to the residents. The Okieville Highland Acres Mutual Water Company is currently considering partnering with Plainview and Hardwick Water Companies. East Porterville could potentially join this partnership to gain the economies of scale necessary to efficiently operate an independent water company.

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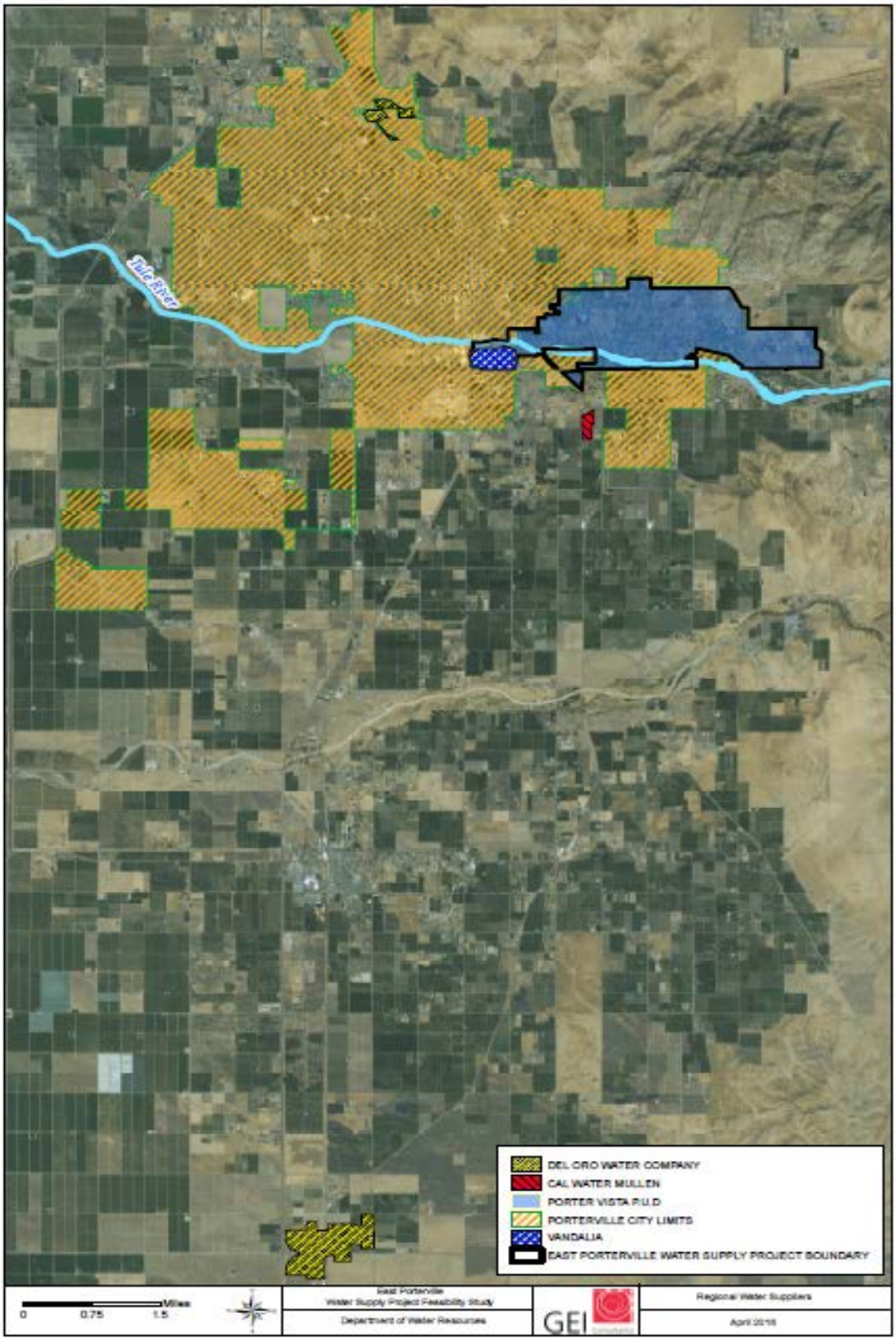

Figure 7. Map of Water Suppliers Within Five Miles of East Porterville

3.0 Sources of Water Supply

3.1 Surface Water Supply

The only potential source of surface water in the area is the Central Valley Project's (CVP) Friant-Kern Canal (FKC), located west of the City of Porterville. The CVP was built primarily to protect California from water shortages and hazardous floods. The FKC delivers water to over one million acres of irrigated farm land on the east side of the southern San Joaquin Valley. Annual deliveries are reported to average around 1,300,000 AF. Twenty-eight water districts have long-term contracts with Reclamation for the delivery of water.

The FKC employs a two-class system of water allocation – Class I and Class II. Class I water is the firm supply amounting to the first 800,000 AF of storable water (if available) in the Millerton Reservoir. It is delivered to those districts that have limited or no access to groundwater and as a base supply to other districts. Class I supplies are insufficient to meet the base supplies of all districts. Class II water develops only after the Class I allotment has been fully met. Class II water is often used for irrigation supplies and is typically under contract to those districts that have access to good groundwater supplies and use groundwater as their principal source of supply.

All of Class I water is fully allocated, and there is no unallocated water available. Class II water cannot be relied upon as a source of supply, as they are "supplemental" supplies. As a result, the only way to acquire surface water is to purchase Class I water rights from a willing seller. However, it is extremely difficult to find a willing seller. Even when available, the cost of Class 1 water is highly expensive. For example, in 2010, Porterville Irrigation District sold its excess water at $5,000 per AF. With a per-capita consumption of 300 gallons per day and a population of approximately 7,000, East Porterville would need approximately 2,350 AFY and, at $5,000 per AF, would need approximately $11.8 million dollars to purchase sufficient rights.

3.2 Groundwater

Groundwater is the most viable source of supply to the City and East Porterville. The groundwater basin can act as a storage reservoir where surface water can be stored and then later retrieved. However, the City and East Porterville lie within the Tulare Lake Hydrologic Region in the southern portion of the San Joaquin Valley Groundwater Basin and in the Tule Groundwater Subbasin. The Tulare Lake Hydraulic Region is in an area significantly affected by overdraft; DWR has estimated the total overdraft at 820,000AFY, the greatest overdraft projected in the State and 54 percent of the statewide total overdraft. The estimated annual overdraft just within the City's UDB area is about 1,200 AFY (Schmidt, 2009).

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3.2.1 Existing Groundwater Recharge Sources

Groundwater recharge in the Porterville area is from precipitation, recharge along the Tule River and Porter Slough, deep percolation of applied water, seepage from unlined canals and ditches, small ponds and water features and managed groundwater recharge facilities. Groundwater is also recharged from shallower aquifers into the deeper confined aquifers by wells. Details regarding these recharge sources and their capacities are discussed in greater detail below.

Table 1 provides a summary of the average recharge rates and the maximum recharge volumes. Groundwater recharge from the Tule River has been estimated as channel seepage losses between the Success Dam and Oelette Bridge by the Tule River Association. The Oelette Bridge is about one mile west of the City's UDB. The long-term channel losses from 1984 to 2007 averaged about 18,600 AFY. The maximum loss or capacity of the natural system to recharge groundwater is about 35,500 AFY based on wet year, high flow conditions.

Groundwater recharge also occurs along Porter Slough, a natural distributary of the Tule River that flows through the center of Porterville. From 1984 to 2007, channel losses between the headgate in the Tule River and Road 192 averaged 9,300 AFY. The maximum loss, or capacity of the natural system to recharge groundwater, was about 26,000 AFY based on wet year, high flow conditions.

The Friant-Kern Canal crosses diagonally just west of the City. The amount of recharge from the canal has not been quantified. Because the canal is downgradient of the City, the groundwater recharge is a benefit to the groundwater subbasin, but not necessarily to the City.

Table 1. Average Recharge Rates and Maximum Volumes

Source	Average AFY	Maximum AFY
Natural Sources:		
Precipitation	No Estimate	No Estimate
Tule River	18,600	35,500
Porter Slough	9,300	26,000
Subtotal	**27,900**	**61,500**
Managed Artificial Recharge:		
City Managed Tule River Recharge	720	920
Vandalia WD Recharge Basins	3,500	No Estimate
Deep Percolation Applied Water	2,000	No Estimate
Flo-path Wells	No Estimate	No Estimate
Subtotal	**6,220**	**920**
Total	**34,120**	**62,420**

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Deep percolation from applied water for agriculture also provides recharge to the aquifers within the City's proposed UDB. The Pioneer Water Company, Porterville Irrigation District, Vandalia Water District and Teapot Dome Water District supply an average of about 7,900 AFY of water to growers covering an area of 3,600 acres. The City also supplies approximately 3,000 AFY of secondary treated water each year for irrigated lands in the airport area. The average amount of deep percolation from applied water is about 2,000 AFY (Schmidt, 2009). This estimate includes seepage from canals and ditches.

The City also recharges Tule River flows. In 2007 and 2008, they recharged approximately 920 AF and 520 AF respectively. This included water purchased from the Lower Tule River Irrigation District, Porterville Irrigation District and Pioneer Water Company. The City also places water into a small pond at Murry Park. It is unknown how this recharge is accounted for in the estimates.

Secondary treated water also recharges the local groundwater. The most recent readily available estimate of recharge of the treated water was in 2008 and was about 2,000 AF (Schmidt, 2009). The ponds are just outside the City's UDB. Because the ponds are downgradient of the City, the groundwater recharge is a benefit to the groundwater subbasin but not a direct benefit to the City.

Vandalia Water District operates 70 acres of percolation ponds within the City's UDB that are used for groundwater recharge of Tule River water. Thirty acres of these ponds are operated at the Porterville Developmental Center. Between 2005 and 2008 an average of about 3,500 AFY was recharged (Schmidt, 2009).

The City has about 14 "flo-path" wells that have been constructed to allow shallow groundwater to drain vertically from the shallow aquifers into the deeper aquifers, from the Younger Alluvium sediments that are recharged by the Tule River into the Older Alluvium. Outer well screens were placed from just below the groundwater surface to depths of about 200 to 300 feet bgs, and another set of internal casing screens are placed generally below a depth of about 300 feet. Flo-path wells allow shallow groundwater to migrate vertically and recharge the deeper confined aquifers. Insufficient information is currently available to estimate the amount of recharge that may be occurring from these wells.

3.2.2 Groundwater Recharge Recovery

Between 2000 and 2006, the City extracted an average of 12,300 AFY. The pumpingincreased in 2008 to 13,400 AF (Schmidt, 2009). Pumping by the City recovers about 35 percent of the average annual groundwater recharge in the area by all sources, as provided in Table 1. The managed recharge, which provides benefit to City wells, only replenishes about 50 percent of the City's use, or a shortfall of about 6,200 AFY. By 2030, urban water demand for just the City is projected to increase to 23,300 AFY, which may increase the overdraft within the area and subbasin. This increases the shortfall of recharge to urban demand by about 11,000 AFY (23,300-12,300 =11,000). As shown in Table 1, the area has groundwater recharge facilities capable of recharging this amount but is dependent upon the availability of surface water, which when available for recharge may be present only for short times and at large volumes.

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3.2.3 Advantages and Disadvantages

Groundwater recharge as a means of balancing and supplementing the existing groundwater demand for municipal and residential uses in the City and in East Portville offers an effective and economical alternative for increasing the reliability of the local water supply. Under current conditions, the combined demand of the City and of East Porterville would require an additional 8,550 AFY (=6,200+2,350) to balance the needs of both the City and East Porterville.

Aside from rights to Pioneer Ditch Company water averaging deliveries of approximately 900 AFY, the City does not have rights to surface water that can be used for groundwater recharge above what occurs naturally in the Tule River or Porter Slough channels. The ability to increase the amount of groundwater recharge is dependent upon obtaining additional surface water supplies from either within or outside the basin. Recent drought conditions and groundwater legislation requiring sustainable management of groundwater resources combine to increase the competition for available surplus water supplies in all year types, making acquisition of additional supplies challenging.

The advantage of acquiring additional water supplies for groundwater recharge is that water can be recharged opportunistically when such supplies are available and can be purchased at costs meeting the criteria of the buyer. Generally, supplemental water is more plentiful during wet periods and is also available at lower costs. During wet years, the City and/or East Porterville can purchase and recharge water in excess of annual demands and recharge that water for later use through groundwater extractions. While the water market has become more competitive in recent years, there are still opportunities to acquire wet year's supplies if they can be managed and recharged for later use.

An additional advantage is the avoided cost of purchasing a more secure water supply at a higher cost and the cost of developing and operating surface water treatment facilities. The ability to acquire a reliable annual supply to meet either the City's or East Porterville's demand would be challenging.

3.2.4 Potential Limitations and Obstacles

Managed recharge will have to be through surface water spreading basins or through natural channels along the Tule River. This source of water can recharge the unconfined aquifers but will do little to recharge the deeper confined aquifers. Recharge to the confined aquifers can be accomplished by construction of additional flo-path wells. However, this approach is not controllable, may deplete water in the shallow aquifers and may contribute or cause existing wells to plug.

Since the majority of the groundwater recharge occurs along the Tule River, releasing water to the river provides the greatest recharge for the least cost, as new spreading basins do not have to be constructed. The Tule River is fed by water releases from Success Reservoir, which is operated by the U.S. Bureau of Reclamation (USBR). Reservoir operating manuals should be reviewed to assess opportunities for storage and managed releases for recharge.

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Historically there have been high flows in the Tule River, which, if more of those flows could be taken out of the river during peak event could increase recharge. This could be accomplished thru the use of the City's ponds or through agreements with growers to flood fields.

Future urban water developments should be required to retain storm water on-site and recharge the aquifers instead of allowing it to flow offsite. The required amount of recharge should be set at the natural recharge amount prior to installation of hardscape.

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4.0 Alternatives Analysis

Potential alternatives identified in Chapters 2 and 3 include existing and potential water suppliers as well as sources of supply. The geohydrology data indicate that groundwater wells must be constructed within the City of Porterville to obtain adequate capacity for the demand of East Porterville. Since supply options are relatively confined, sources of supply are not heavily weighted in this section.

Rather, the alternatives analysis focuses on defining criteria to evaluate feasibility of the potential governance structures, identify potential obstacles to implementing the recommended alternative, and apply the criteria to the regional water suppliers to support the recommended alternative.

4.1 No Project Condition

California experienced one of the most severe droughts in its history from 2012 to 2016. Since the drought's beginning in 2012, approximately 1,200 wells have gone dry in Tulare County, and approximately 500 of them are within East Porterville, where the majority of residents rely on shallow private wells as their only source of water.

Tulare County's OES program has been tasked with the overall coordination of the County's responses to this drought emergency. County OES has offered several forms of assistance to the individuals affected by this drought. Of these, the following offer direct and immediate relief:

- Household Tank Program
- Non-Potable Water Tanks
- Bottled Water Program

4.1.1 Household Tank Program

An individual household tank program was implemented by the County OES in coordination with and funded by California Office of Emergency Services (CalOES). This program provides potable water tanks that are pressurized and plumbed into each qualified residence with a dry well. Self Help Enterprises, a non-profit community aid organization, was contracted to perform these installations. These tanks are filled routinely using water sources from the City of Porterville, Cal Water and the State by contracted water haulers. Approximately 164 tanks have been installed in East Porterville serving approximately 176 properties. These tanks hold approximately 2,500 gallons, and water is delivered at regular intervals depending on the number of persons in the household, with water usage estimated at 50 gallons per person per day.

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4.1.2 Non-Potable Water Tanks

Apart from these household tanks, 5,000-gallon non-potable water tanks are installed and operated by County OES for the purpose of providing access to water used for sanitation. This water is mainly used for washing clothes, bathing and flushing toilets. These tanks were installed at two locations in the East Porterville area – one at Tulare County Fire Station #20 and the other at Tulare County Deputy Sheriff's Association. The frequency of filling these tanks varies widely based on the time of year (more in the hot months, less in the cold). At its peak during summer months, these tanks were filled five times a day and in the winter months were filled once every other day. County OES has used both County Fire water tenders and commercial vendor's non-potable trucks for filling these water tanks.

4.1.3 Household Bottled Water Program

The County of Tulare received funding from the SWRCB to provide bottled drinking water to those residents within the County who have contaminated drinking water and whose annual income is at or below 80 percent of the California median annual household income. This program utilizes commercial water delivery vendors to deliver bottled water at a volume of 64 fluid ounces of water per person, per day.

4.1.4 Cost

These programs have provided temporary relief to drought-stricken East Porterville. However, these programs involve high costs. Water delivery through the Household tank program and non-potable water tanks cost approximately $1.5 million per month for the Tulare County area. It was estimated that approximately 38 percent of these costs are from East Porterville—$570,000 per month. The SWRCB bottled water program is estimated to cost $2.2 million per year for Tulare County area. Of this cost, East Porterville is estimated to be 35 percent—$63,500 per month.

In total, drought assistance to East Porterville through the Household tank program, non-potable water tanks and Household bottled water drinking program is estimated at approximately $633,500 per month and $7.6 million per year. Due to the high costs involved, these programs can only serve as an interim solution and cannot be sustainable long-term.

4.2 City of Porterville

The City of Porterville's domestic water system is managed by the Public Works Department. The Department's mission is to serve and respond to the needs of the citizens of the Porterville community by providing opportunities for development and essential services for a better quality of life through visionary planning and design, quality construction and dedicated maintenance of City facilities and infrastructure. Responsibilities include reviewing all plans for development within the City to ensure compliance with City standards, ordinances, resolutions and other regulations.

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The Engineering Division is a multidisciplinary group whose primary function is to plan, design and oversee the construction and maintenance of public infrastructure improvement projects; to provide technical expertise and support incidental to the planning and development of private enterprise; and to handle engineering-related issues in support of other City departments. This division also provides survey information to assist public and private projects as well as geographic data to aid the City's GIS department in the development of citywide mapping services.

4.2.1 Technical Capability

Consolidation Feasibility

The City of Porterville possesses consolidation feasibility through either annexation or extraterritorial agreement. However, Resolutions 74-2014 and 75-2014, which define objectives, policies and procedures for annexations and extensions of municipal services, limit the City's ability to serve all properties with dry wells in East Porterville. This is a result of the existing UDB not extending far enough east to include all applicable parcels. However, the Community Development Department has been actively engaged with the State and County agencies working towards a solution for East Porterville residents and have recommended policy boundary amendments that will further the City's ability to serve as a partner in the long-term solution. Staff recommendations are that the City Council approve:

1. Expansion of the UDB to include all parcels within the East Porterville Feasibility Study project area as prepared by the SWRCB. Minor adjustments to this boundary during the course of preparation, if any, may be authorized by the Zoning Administrator
2. Adopt the draft resolution modifying the extra-territorial service agreement procedures

The City has existing infrastructure in East Porterville to supply a small water system previously acquired. This infrastructure includes ten miles of water main serving 252 properties in East Porterville. This existing infrastructure offers significant time and cost savings to the overall project. Appendix A provides a copy of the April 2016 Council Agenda item, which addresses Policy Amendments to Accommodate East Porterville Water Connection Program.

The majority of the East Porterville project area is within the City's UDB, which is coterminous with the Tulare County adopted City UDB and the Tulare County LAFCo Porterville SOI. In the April 2016 Council meeting, staff requested that the Council authorize the expansion of the UDB to match the project area to be adopted later this calendar year. Upon approval of the UDB amendment, application would be made to Tulare County LAFCo to amend the SOI accordingly. Tulare County LAFCo Policy C-5.2 states the following:

> *Where differences exist between County and City adopted twenty-year boundaries, for the same community, the Commission shall determine which boundary most closely reflects the statutory requirements or intent of the Cortese-Knox-Hertzberg Act for the setting of Spheres of Influence. Among other considerations, the Commission may determine which boundary is supported by the most recent or most complete analysis, including such documentation as may be required by the California Environmental Quality Act (CEQA). Should LAFCO determine that no existing*

> *Planning Boundary complies with the statutory requirements or intent of the Cortese-Knox-Hertzberg Act, the Commission shall determine the twenty-year growth boundary independently of other agencies. In all cases of conflicting boundaries, the commission shall attempt to reconcile the various boundaries and the Sphere of Influence before adoption.*

In April 2014, the City and County entered into a Settlement Agreement (Tulare County Agreement No. 25643) in which both parties agreed on the intent to align the City UDB and County-adopted City UDB with the LAFCo SOI. This settlement agreement constitutes a "mutually adopted agreement between County and Porterville regarding the collection of public facilities impact fees" and details development standards and planning within the UDB. The following outlines the procedures for UDB modifications:

> *Prior to a city submitting an application to the commission to update its sphere of influence, representatives from the city and representatives from the county shall meet to discuss the proposed new boundaries of the sphere and explore methods to reach agreement on development standards and planning and zoning requirements within the sphere to ensure that development within the sphere occurs in a manner that reflects the concerns of the affected city and is accomplished in a manner that promotes the logical and orderly development of areas within the sphere. If an agreement is reached between the city and county, the city shall forward the agreement in writing to the commission, along with the application to update the sphere of influence. The commission shall consider and adopt a sphere of influence for the city consistent with the policies adopted by the commission pursuant to this section, and the commission shall give great weight to the agreement to the extent that it is consistent with commission policies in its final determination of the city sphere.*

System Description

The City of Porterville relies solely on groundwater for supplying municipal water to its residents. A series of groundwater wells generally scattered west of Plano Avenue and south of Westfield Avenue extract water from the aquifers underlying the City that are recharged from rainfall and runoff of the western Sierra Nevada. The primary water system contributing to recharge of the Tule Basin Aquifer underlying Porterville is the Tule River. A detailed description of the City's water system is provided in Chapter 2, Section 2.1.

Technical elements of the system that were not previously addressed are compliance with State and federal drinking water regulations and operations. This portion of the Feasibility Study only assesses high-level compliance and relies primarily on publicly available information; therefore, review of the City's operations plans have not been requested.

Division of Drinking Water records available since 1976 indicate that the City has only received one monitoring and reporting violation, which was mitigated through corrective actions and public notification. Water quality data presented in Consumer Confidence Reports (CCR), available from 2010 through 2012 and 2014 (2013 CCR is not posted on the City's website), indicate that the water distributed to its consumers meets all State and federal drinking water

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standards. These compliance indicators demonstrate the City's capability to manage a community water system. Key indicators that demonstrate technical capability are:

- Employs management staff and appropriately certified water treatment and distribution operators dedicated to domestic water operations.
- Uses modern technology such as telemetry and SCADA to manage and remotely monitor their water system.

4.2.2 Managerial Capability

Ownership
The City of Porterville has owned and operated their water system since 1903, shortly after the City was incorporated. The determination made by Tulare County LAFCo (2014) is that "the City has a sound governmental structure that provides necessary resources to provide public services and infrastructure improvements within the SOI area." Management responsibilities for the domestic water system are spread throughout multiple levels of City government. Primary responsibilities are carried out through the Field Services Divisions.

Organization
The Field Services Division, under the Direction of the Public Works Department, encapsulates all the public utilities provided by the City: domestic water, refuse\recycling collection, wastewater treatment, sanitary sewer services and the supervision of the City's CNG fueling facility. The Water Utility Superintendent, two supervisors and 13 field operators are dedicated to operating and maintaining the domestic water system. **Figure 8** shows an organizational chart for the Public Works Department, including the Water Utility staff. The City of Porterville domestic water system is classified as a D5 distribution and T1 treatment system. The City employs operators with certification grades up to D5 and T1.

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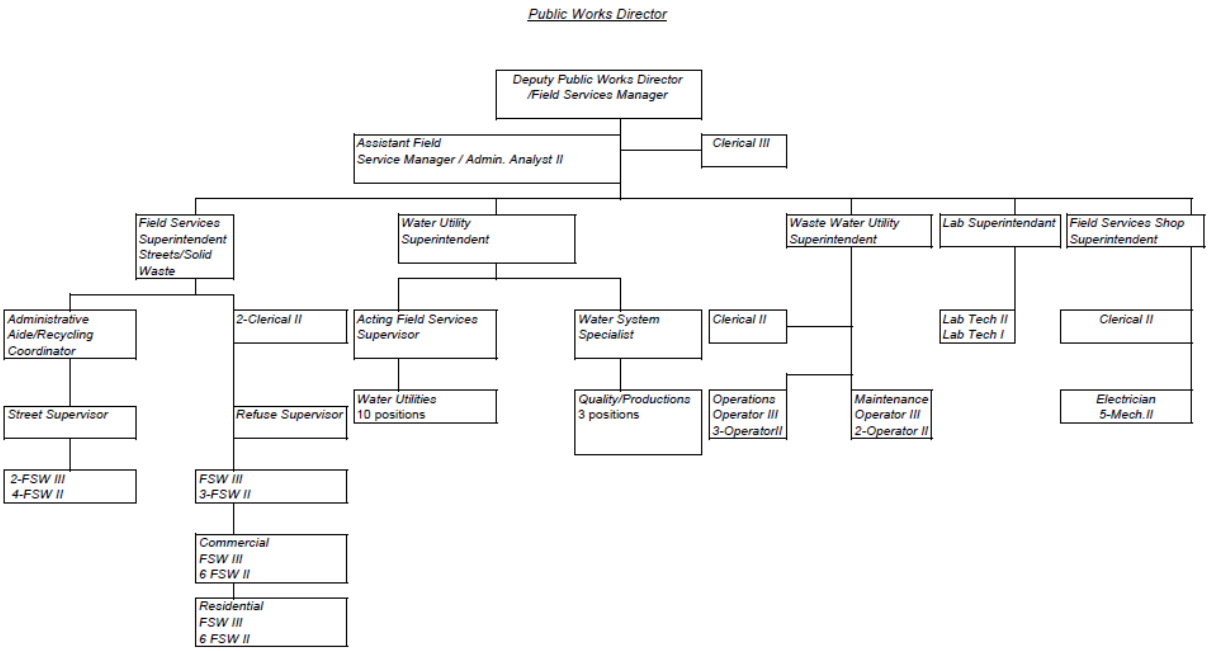

Figure 8. City of Porterville Public Works Department Organizational Chart

Water Rights

The City's water system is supplied entirely by groundwater. Therefore, water rights are in the form of an overlying land owner who may extract groundwater for beneficial use. While California does not have a permit process for regulation of ground water use, the Sustainable Groundwater Management Act (2014) requires groundwater users to form local groundwater sustainability agencies (GSAs) that must assess conditions in their local water basins and adopt locally based management plans. The City of Porterville is involved in the development of an Eastern Tule subbasin GSA. Currently, the group has accepted a MOU to move forward with implementing a Joint Powers Agreement to form a GSA.

To protect their groundwater supplies during the severe drought conditions, the City is complying with the Governor's Executive Orders that required it to reduce water usage by 32 percent compared to 2013 water use from June 2015 through February 2016 (this target was reduced to 26 percent for the summer of 2016). The City is in compliance with the required production and conservation reporting to the SWRCB and has actively worked toward achieving this target. The City enacted Phase IV of its emergency drought response plan in 2015/16. However, Council approved a transition to Phase III drought response effective June 1, 2016.

In addition to groundwater, the City purchased water rights for about 900 AFY from the Pioneer Ditch Company and Porter Slough Ditch Company. Some of this water is used for a small pond at Murry Park in Porterville.

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Emergency Response Plan
According to the City's Urban Water Management Plans (UWMP) dated August 2014, the City does not have a formal written plan to address a catastrophic non-drought-related interruption in water supply (i.e., power outage, system failure, natural disaster, etc.). However, the WCP could be used to reduce consumption after a catastrophic supply interruption. The City also has back-up generators in the event of a power outage. Figure 9 shows actions that would be taken by the City of Porterville in case of an emergency. Lastly, the City recognizes the need for more contingency plans to address non-drought-related events and plans to investigate other alternatives.

Event	Action
Regional Power Outage	Utilize emergency backup power at selected facilities and provide public notice through broadcasts of emergency and ask customers to reduce consumption to essential uses.
Terrorism Event	Make use of alternate production facilities as available
Natural Disaster	Utilize emergency backup power if utility-provided power is interrupted. Utilize intertie connection if available. Immediately implement Phase III demand reduction program.

Figure 9. City of Porterville Emergency Response Plan

Policies
City policies are recommended by staff and adopted by City Council. The City has provided numerous policy documents that are cited throughout this report. However, a general City policy, development or sustainability policy is not available.

4.2.3 Financial Capability

The City's financial capability is best demonstrated by it accomplishments over the past 23 consecutive years in receiving a Certificate of Achievement for Excellence in Financial Reporting (CAFR program) from the Government Finance Officers Association. This award is earned through participation in the program, which encourages and assists State and local governments to go beyond the minimum requirements of generally accepted accounting principles to prepare comprehensive annual financial reports that evidence the spirit of transparency and full disclosure and then to recognize individual governments that succeed in achieving that goal. The goal of the program is not to assess the financial health of participating governments but rather to ensure that users of their financial statements have the information they need to do so themselves. Tulare County LAFCo's assessment of the City's finances reports that "there is no evidence indicating that the City's current management structure would not be able to assume services within the SOI area, and/or continue to assist other agencies through mutual aid agreements" (City of Porterville MSR, 2014).

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Budget/Capital Improvement Plan
Financial planning responsibilities specific to the domestic water system are addressed through the City's Master Plan and General Plan and are financed by the Water Development, Operations and Replacement Fund. The purpose of this fund is to ensure the water supply and distribution system will have the capacity to serve its residents. Maintaining this fund requires the City to diligently manage their assets and plan for anticipated infrastructure improvements as well as future capital planning. This planning requires foresight to strategic efforts to avoid unnecessary costs.

The City of Porterville imposes a Utility User Tax (UUT) based on the consumption of utility services, which may include electricity, gas, water, sewer, telephone (including cell phone and long distance), sanitation and cable television. Most large cities have UUTs; roughly half of California residents and businesses pay a utility user tax. Rates of the tax and the use of its revenues are determined by the local agency. The tax is levied by the City on the consumer of the utility services, collected by the utility (i.e., Southern California Edison or Phone Company) as a part of its regular billing procedure and then remitted to the City. Currently, all City UUT levies in California are general taxes.

The City of Porterville's UUT is a general fund revenue source applied to telephone, electricity, gas, cable and water. Statewide, UUT rates range from 1 percent to 11 percent. Table 2 provides a comparison of UUTs for cities located in Tulare County. The City of Porterville's tax is 6 percent, which is in line with the County average and amounts to approximately 16 percent of the general fund revenues (City of Porterville MSR, 2014).

Table 2. Utility User Tax for Cities in Tulare County

City	Tax	Utilities Provided
Dinuba	7%	Telephone, Electricity, Gas
Exeter	5%	Telephone, Electricity, Gas, Cable
Lindsay	6%	Telephone, Electricity, Gas, Cable, Water, Sewer, Garbage
Porterville	6%	Telephone, Electricity, Gas, Cable, Water
Tulare	7%	Telephone, Electricity, Gas, Cable, Water
Woodlake	6%	Telephone, Electricity, Gas, Cable

Budget Control
The City avoids unnecessary costs through the implementation of infrastructure Master Plans and the General Plan, which assist in eliminating overlapping or duplicative services. Master planning documents also provide sound funding alternatives for their implementation and plan for growth within and surrounding the City. Planning out to ultimate service area boundaries helps identify any impacts that future planned infrastructure may have on current infrastructure in place and mitigations that would alleviate such impacts.

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Additionally, the City assesses development impact fees for the purpose of financing public infrastructure, which helps offset the financial responsibility of the City to install and maintain the infrastructure necessary to serve new developments. Essentially, this program ensures that developers are responsible for new growth, and the burden is not passed on to existing customers.

4.2.4 Water Rates

The water system receives revenue through water service charges based on a monthly service fee and the metered water consumption. Rates are proposed by the Public Works Department and City Manager and approved by the elected five-member City Council. Resolution 53-2015 establishes that rates must reflect the actual cost of supplying water, including administration, construction, maintenance and replacements to the water system. Through this resolution, the City Council is implementing an annual rate increase over the next five budget cycles that is tied to the Consumer Price Index (CPI) for the San Francisco Bay Area-All Urban Consumers.

In addition to the annual CPI increases, the City initiated the Prop 218 Rate Increase process. The goal of this process is to ensure that the revenues cover the cost of services, meet the debt coverage and reserve requirements and provide revenue for capital improvements. Notification was distributed to residents, and a public hearing is scheduled for July 19, 2016 in the City Council Chambers. The notice states that a water rate increase is needed to:

1. Adequately fund the water system so it can be operated safely and provide residents and businesses with clean, safe and reliable potable water
2. Fund capacity enhancement projects
3. Provide timely maintenance of existing facilities
4. Design and implement infrastructure needed and required by the Sustainable Groundwater Management Act (SGMA)
5. Address capital costs and increasing costs of water quality monitoring imposed by SGMA
6. Fund a pipe replacement program

The public notice further explains that the “City’s Water Development, Operations and Replacement Funds are declining to a point where maintenance and replacement projects are being deferred due to lack of funding” (Proposition 218 Notice, 2016). The proposed annual fixed rate increase is based on 2.3 percent adjustments over the next five years (through Fiscal year 2021/22). If approved, the increased water rate will take effect on August 1, 2016.

Additionally, the Council will consider authorizing a 20-percent water consumption rate increase in Phase V of the City’s Water Conservation Plan. This proposed increase will encourage water conservation as well as serve as a provision to recover the lost revenues from water conservation.

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Monthly water bills include a service charge based on meter size (larger meters have a larger service charge) and metered water consumption charge. In times of severe drought, the water consumption charge is increased to the Phase V Rate to encourage conservation. Based on the proposed rates for fiscal year 2016/17, a typical residential water bill, using a one-inch meter and 22 units of water (1 unit = 748 gallons) would be $56.65 per month; under the proposed Phase V rate, a monthly water bill would be $64.35. Table 3 provides an example of the typical water bill calculations. Appendix B includes a copy of a typical water bill, current water rates and the Proposition 218 Notice. It should be noted that this is a proposed rate and is subject to Council approval. Depending on public comment, Council may propose a lower or phased rate increase.

Table 3. Calculation for a Typical Water Bill for the City of Porterville

Current Rate	Units	Charge	Proposed 2016/17 Rate	Units	Charge
1” meter	1	11.25	1” meter	1	18.15
Water consumption	22 x $0.92	20.24	Water consumption	22 x $1.75	38.50
Total water bill		**$31.49**	Total water bill		**$56.65**

4.2.5 Through Annexation

The City of Porterville plans for future growth through the implementation of policies and standards set forth in their General Plan, which is a long-term, comprehensive framework to attain the City’s goals within its ultimate service area. The UDB is an administrative boundary beyond which urban development is not allowed during the time for which it is effective. The current UDB was last amended in 1993; however, the City is currently in the updating process. As described in Section 4.1.1 City of Porterville Consolidation Feasibility, Community Development staff recommended options to the City Council in April 2016 to extend water services to East Porterville residents. Consequently, Resolution 19-2016, established procedures for annexations and extension of municipal services. Appendix C provides a copy of this Resolution, including the details of annexation procedures.

Consolidation with the City of Porterville through a single annexation is not administratively feasible. It is both time and cost prohibitive. City staff have advised that they anticipate annexation will be phased to ease the financial burden of infrastructure investment required to bring East Porterville up to City standards.

Appendix D includes Frequently Asked Questions that residents of East Porterville can reference to better understand implications of future annexation into the City. Since the community of East Porterville is designated as severely disadvantaged, an important consideration is increased taxes that may be associated with this alternative. Most taxes will not be increased; rather, they will be diverted from the County to the City. However, the City’s 6 percent UUT will be applied within a few months of annexation. On average, this UUT costs an extra $20 per month per household. Because it is based on the utility bill itself, it could vary from house to house. This 6 percent tax

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is applied to phone, electric, gas, cable TV and municipal water bills. It typically does not apply to cell phones or internet, but it depends on the service provider.

4.2.6 Through Extraterritorial Service Agreement

Extraterritorial service agreement allows East Porterville residents to receive domestic water service from the City of Porterville prior to being annexed into the City. Resolution 19-2016 permits East Porterville properties within the Feasibility Study project area to apply for connection whether in association with DWR, SWRCB or on their own at a later date. The following procedures are included in this agreement:

- Irrevocable agreement to annex when it is properly approved through appropriate legal proceedings and Owner does further agree to provide all reasonable cooperation and assistance to the City in the annexation proceedings. Said cooperation is contemplated to include signing any applications or consent prepared by the City and submitting any evidence reasonably within the control of Owner to the various hearings required for the annexation.
- General Plan consistency, agreements and covenants, time limitations and improvement plans.
- Deed Restriction for IAA #002: As a condition of the extraterritorial service agreement, no expansion or modification of the property's use, including conversion of structures or addition of habitable structures, may be permitted without approval of the City Council of the City of Porterville. The keeping of animals may be maintained in accordance with Tulare County Animal Control and Land Use ordinances, not to exceed the existing number of agricultural animals (6).

4.3 Porter Vista Public Utility District

In 1972, in response to a severe three-year drought that led to many domestic well failures, annexation of a large portion of East Porterville was proposed by the City and approved by LAFCo. However, annexation was defeated at election. In 1974, a study conducted by Tulare County Health Department and SWRCB highlighted the need for municipal services. As a result of continued opposition from residents to annex, the PVPUD was formed (City of Porterville MSR, 2014). The intent of PVPUD initially was to provide sewage collection service and later provide domestic water.

PVPUD conducted a Feasibility Analysis in 1982 to evaluate opportunity to construct a municipal water system in East Porterville. The study conducted by RL Schaefer & Associates (1982) reports that the project was cost prohibitive and could not reasonably result in a standalone operation. Schaefer identifies the deficiency in available groundwater beneath East Porterville as the greatest limitation. Since supply wells would need to be constructed within the City of Porterville's service area, it is not cost-effective to expand their partnership with the City. Likewise, the City does not benefit from sharing facilities with PVPUD.

This Feasibility Study also identified several limitations that precluded the District from proceeding. These limitations are highlighted in the following points:

- Groundwater of acceptable quality may not be available in a quantity sufficient to meet the present and future needs of the District (Schafer, 1982, pg. 11).
- Capital investment for infrastructure for the project would cost $6,235,000 (this translates to $16,333,916 in 2016 dollars based on the Consumer Price Index using a cumulative rate inflation of 162 percent). This estimate includes contingencies, engineering and legal.
- Total labor, operation and maintenance costs were estimated at $190,000 per year (approximately $500,000 per year in 2016 dollars). This does not include costs for capital replacement nor any debt retirement.
- Based on these estimates, the average monthly water bill would be $8.80 in 1981 dollars, this translates to $23.05 per month in 2016 dollars.

While these estimates are helpful to a high-level feasibility study, it is important to acknowledge that State and federal regulations are much stricter now than they were in 1981. Costs are likely to be significantly higher than is reflected in the CPI adjustments.

PVPUD assessed the opportunity to assume ownership of a domestic water system in East Porterville in the Districts May 11, 2016 board meeting and passed a resolution (through a majority vote of 4 out of 5 members) that PVPUD is not interested in being a water supplier. PVPUD cited that since City of Porterville representatives indicated that the City does not want to partner with the PVPUD to supply domestic water as it did with sewer, along with the feasibility study cost estimates and the lack of local water supplies as the reasons for the outcome of the voting, it does not see any opportunity to successfully manage the municipal water system. Consequently, TMF capability was not conducted for PVPUD.

One of LAFCo's responsibilities in its Multiple Services Review (MSR) is to evaluate conflicting growth boundaries. In its evaluation of the UDB and SOI between the City of Porterville and PVPUD, there is recognition that the community would be best served if it were annexed or merged into the City. The annexation of the area would mean that the PVPUD would be maintained as a subsidiary district to the City while a merger of the PVPUD into the City would result in the PVPUD being dissolved. However, a future annexation or merger is dependent on registered voter and landowner support (City of Porterville MSR, 2014).

4.4 Private For-Profit Water Company

The private for-profit water companies in the region are not within close enough proximity to physically interconnect their existing water systems to East Porterville. Therefore, these alternatives will require a non-infrastructure and management consolidation. Since both Cal Water and Del Oro are successfully managing satellite water systems, this option should be considered an acceptable alternative.

The CPUC regulates privately owned for-profit water utilities. Multi-utility districts like Cal Water and Del Oro are subject to CPUC Decision 14-10-047, the Water Action Plan Objective of Setting Rates that Balance Investment, Conservation and Affordability. This Decision was an effort to balance high cost areas by distributing the costs amongst the utilities' larger customer base to enable affordable water rates to its water systems operating under a single management structure, regardless of physical interconnection.

The CPUC also promotes programs that help customers in need. Depending on household income, some customers may qualify for discounted water services. In order to fulfill its role in overseeing services that are essential to the lives of Californians, the CPUC employs a dedicated staff of analysts, economists, engineers, administrative law judges, accountants, lawyers and safety professionals. It also has a Division of Ratepayer Advocates, an independent division that represents consumers in rate case proceedings. CPUC's work in water includes:

- Investigating water and sewer system service quality issues;
- Promoting water conservation and metering;
- Reducing the energy usage in the delivery and treatment of water;
- Improving low income programs;
- Analyzing and processing rate change requests;
- Tracking and certifying compliance with CPUC requirements;
- Enforcing compliance with CPUC orders through a citation program.

4.4.1 California Water Service Company

Cal Water is an investor-owned public utility supplying water service to 1.7 million Californians through 425,000 connections. Its 24 separate water systems serve 63 communities from Chico in the north to Palos Verdes Peninsula in the south (UWMP, 2016). In Visalia, Cal Water was incorporated in 1926 with the purchase of the Visalia Water Company. The Visalia District serves the communities of Visalia, Mullen and Tulco.

Cal Water is considered in this feasibility study in accordance with the SWRCB's TMF guidelines for consolidation feasibility. In order to determine the feasibility of consolidating into another public water system, the consolidation assessment should include a list of all, or at least one, large water systems within five miles and a description of the feasibility of consolidating into another system on the list that includes the results of any consolidation discussions conducted with at least one system within the five-mile radius.

Since Cal Water has not been engaged as a project partner, the information provided in this section relies exclusively on publicly available information from the company's website, its draft 2015 UWMP, the Division of Drinking Water and the CPUC.

4.4.1.1. Technical Capability

Consolidation Feasibility
Cal Water demonstrated its technical capability to own, operate and manage water systems of various sizes through the large number of customers currently supplied. It should be noted that the Office of Ratepayer Advocates (ORA) recommends that when Cal Water is considering future acquisitions, "the Commission should require Cal Water to make a showing that it has exhausted every effort to pursue grants and loans to fund the infrastructure needs of the acquired systems to lessen rate impacts on existing customers" (ORA Company-Wide Report on the Results of Operations, pg. 8, 2016).

System Description
Cal Water's Visalia District is primarily based in the City of Visalia with two small water systems that are operated by Visalia management and operations personnel. The Visalia District serves a population of 136,744 through three physically separate water systems. Infrastructure in the Mullen system consists of a six-inch water main, two groundwater wells, one nitrate and perchlorate treatment plant and one 500,000 gallon storage tank.

Division of Drinking Water records available since 1979 indicate that the Mullen water system was issued five total violations – three monitoring and reporting violations in 1997and 1998 and one total coliform MCL exceedance, followed by a monitoring and reporting violation in 2003. Since Cal Water accepted ownership of the system in 2000, the first three violations were issued to the previous owner. The 2003 violations were issued to Cal Water. Infrastructure improvements were made in 2004 to mitigate the legacy water system issues. No violations have been issued since 2003.

Consumer confidence reports posted on the Company's website from 2012 to 2014 report that water supplied to its Mullen customers meets or surpasses primary and secondary drinking water standards. A water quality review from the Office of Ratepayer Advocates reports that the CPUC should adopt a finding that Cal Water's systems are in compliance with water quality standards.

Certified Operators
Cal Water's website indicates that many positions in the company require a Water Distribution and/or Water Treatment Certification issued by the SWRCB's Division of Drinking Water. No specific information is publicly available regarding certified operators in the Visalia District. However, the SWRCB advises that the Visalia District is certified as a T2 Treatment and D4 Distribution system. The Visalia District employs T3 and D5 certified operators.

Source Capacity
While the Mullen system is only 1.5 miles from East Porterville, physical interconnection is not a feasible alternative. Therefore, consolidation with Cal Water would require a non-infrastructure management alternative. As discussed in Section 3.2, groundwater wells to supply East Porterville would be most productive if they are located within the City of Porterville's service

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area. To avoid installing additional pipelines to covey the source water to East Porterville, Cal Water would need to establish a wheeling agreement with the City. If a wheeling agreement cannot be established, alternative sources of supply need to be evaluated.

Operations Plan and Training
This information is not publicly available at the time of this report preparation.

4.4.1.2. Managerial Capability

Ownership
According to the Mullen Consumer Confidence Reports, Cal Water has provided high-quality water utility services in the Visalia area since 1926. The Mullen water system serves a population of 135 through 42 service connections. Cal Water has owned and operated the Mullen water system since 2000.

Organization
Little information is available on Cal Water's Visalia District management team. Its website notes that "the Company's management team averages more than 20 years of experience in the water utility sector." There is an expansive discussion about Corporate Governance, including a code of conduct and business ethics. An organizational chart is not publicly available.

Water Rights
Since groundwater is the only source of supply readily available to the Porterville region, water rights are in the form of overlying land owners who may extract it for beneficial use. Cal Water's 2015 UWMP and 2014 Corporate Sustainability Report define the Company's efforts to collaboratively manage resources. The processes in which it uses opportunities to manage groundwater for long-term benefits include partnerships with the cities in which they are a water supplier. In Visalia, Cal Water participated as a stakeholder in the development of the Groundwater Management Plan (GMP) and is a signatory of the MOU for the GMP (2015 UWMP, pg.49). It also participates as a stakeholder in the Integrated Water Management process. It contributes to mitigating groundwater overdraft by paying groundwater recharge, extraction and mitigation fees based on the volume of water pumped. These funds are used by the City of Visalia to purchase surface water to recharge the basin.

Emergency Response Plan
According to the 2015 UWMP, Cal Water has an Emergency Response Plan (ERP) in place that coordinates the overall company response to a disaster in any or all of its districts. In addition, the ERP requires each district to have a local disaster plan that coordinates emergency response with other agencies in the area.

Cal Water also inspects its facilities annually for earthquake safety. To prevent loss of these facilities during an earthquake, auxiliary generators and improvements to the water storage facilities have been installed as part of the its annual budgeting and improvement process. In

districts where the water systems are geographically isolated and there is no ability to form interconnections with neighboring utilities, adequate backup power is installed to a number of facilities spread throughout the distribution system.

Policies
This information is not publicly available at the time of this report.

4.4.1.3. Financial Capability

There are no easily discernible reports, such as LAFCo Multiple Services Reviews, that assess Cal Water's financial capability. However, the company is regulated by the CPUC, which requires a rigorous audit at least every three years.

Budget/Capital Improvement Plan
This information is not publicly available at the time of this report.

Budget Control
Budget Control is addressed by the ORA Executive Summary Report of Cal Water's July 2015 rate case filing. This report prescribes the following to ensure budget control. Appendix E includes the full executive summary.

> *Affordability among CWS's customers is of utmost importance. ORA addresses affordability through modifications to CWS's Rate Support Fund (RSF) and Low Income Ratepayer Assistance (LIRA) programs. CWS's LIRA program provides bill reductions for qualifying low-income customers and ORA supports increasing the caps for the credit, but not removing the cap entirely. ORA's Report on Sales and Rate Design, Chapter 2 discusses this recommendation in detail. The RSF program provides bill reductions for all customers in rate areas where customers have both inordinately high bills and affordability problems. In crafting its recommendations, ORA followed the affordability framework the Commission outlined in the industry-wide rulemaking regarding setting rates that balance investment, conservation and affordability and recommends certain modifications to CWS's RSF program. In considering funding levels for both the LIRA Program and the RSF program there is a balance between providing additional funding to alleviate affordability issues for qualifying customers and mitigating bill impacts for customers who must pay for the programs. The Commission should deny CWS's requests for district consolidations because they are not in the public interest. Accordingly, ORA recommends that the Commission reject CWS's proposed district consolidations and, in lieu of this, approve ORA's recommended modifications of the RSF.*

4.4.1.4. Water Rates

Cal Water receives revenue through monthly service charges and water sales. CPUC requires utilities to file a General Rate Case (GRC) every three years. During this process, the ORA

thoroughly audits Cal Water's operations, books, service and needs. Customers and other interested parties can participate in this process either formally or informally. Its most recent rate case was filed in July 2015, with rates becoming effective in January 2017. The CPUC has not made a decision on this rate case filing as it is currently undergoing the public hearing process. However, ORA recommends the following increases for the Visalia District: 1.5-percent increase in 2017, 0.2-percent increase in 2018 and .02-percent increase in 2019.

Based on the current water rates and service fees, a typical residential water bill, using a one-inch meter and 22 units of water (1 unit = 748 gallons), would be $58.73 per month; if the CPUC follows ORA's recommendation for a 1.5-percent increase in 2017, the monthly bill will increase to $59.61. This bill includes a monthly service charge, tiered water usage fee, a CPUC fee, a LIRA fee and a PBOP amortization surcharge. Figure 10 shows an example of a standard monthly water bill.

Since East Porterville is a severely Disadvantaged Community, residents will qualify for Cal Water's Low Income Rate Assistance program that gives customers a 50-percent discount off the 5/8" meter service charge (regardless of actual meter size). This discount program would reduce the monthly bill to $53.67 per month (or $54.48 in 2017). Cal Water's qualifying low income customers are required to pay the full water usage charge and miscellaneous surcharges. Since the largest fee is associated with the water usage charge, customers could further reduce their monthly bills through reducing their water usage.

It should be noted that Cal Water's bill includes tiered water rates to encourage conservation, rather than implementing a single higher water rate. The CPUC supports increasing block rates, also called tiered or conservation rates, because they provide an incentive for customers to conserve water. This structure also encourages conservation because the monthly water bill is significantly reduced when water rates remain within the first tier. With this rate structure, high-water-using customers will pay more, and low-water-using customers will pay less.

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Service Area * Visalia

Meter Size * 1-inch meter

Water usage * 22

Monthly in Ccf (hundreds of cubic feet)

Estimate Charge

1 Ccf = 748 gallons

ITEM	DETAIL		CHARGE
Meter	1 - inch meter	$	25.32
Quantity charge (Tier 1)	$1.4165 x 11 Ccf	$	15.58
Quantity charge (Tier 2)	$1.4420 x 11 Ccf	$	15.86
CPUC fee	1.5% x above charges	$	0.85
LIRA quantity surcharge	$ 0.047 x 22 Ccf	$	1.03
PBOP amoritization surcharge	$ 0.004 x 22 Ccf	$	0.09
	TOTAL :	$	58.73

Your water rate tiers are as follows

Tier 1: For the first 11 Ccf -- $1.4165

Tier 2: From 12 to 29 Ccf -- $1.4420

Tier 3: For all over 29 Ccf -- $1.6082

Figure 10. Cal Water Example Bill Relevant to East Porterville Residents

This monthly estimate assumes that the CPUC's multi-district water rate structure would apply to the East Porterville Water System. If so, the water rates would be consistent with the Visalia district rates. These rates are structured so that a percentage covers the cost of capital, and the remaining percentage covers operations and maintenance. Since the capital is funded by DWR/SWRCB, and CPUC-regulated utilities are not allowed to earn revenue on grant-funded assets, the water rates could potentially be lower. However, the actual rates cannot be known until a rate study is conducted to determine the cost of service and the appropriate rate structure. Also, the wheeling fees from the City of Porterville may influence this cost of service.

4.4.2 Del Oro Water Company

Similar to Cal Water, Del Oro's water rates are regulated by the CPUC. As such, it is required to file a GRC every three years. During this process, the ORA thoroughly audits Del Oro's operations, books, service and needs. Customers and other interested parties can participate in this process either formally or informally.

Del Oro is a Class B Utility, meaning it provides water service to less than 10,000 connections. Therefore, it is not required to offer rate assistance or implement conservation measures.

Consequently, Del Oro's water rates are significantly higher than the alternatives previously evaluated.

Based on the current water rates and service fees, a typical residential water bill, using a one-inch meter and 22 units of water (1 unit = 748 gallons), would be $96.90 per month. This bill includes a monthly service charge, per unit water consumption fee and a 1.7-percent CPUC fee. LIRA and conservation efforts are not offered by Del Oro. Table 4 provides an example of a typical water bill calculation. Figure 11 shows the Tulare District's rates and tariffs.

Table 4. Typical Water Bill Calculation for Del Oro Tulare District

Fee Description	Units	Charge
1" meter	1	71.51
Water consumption	22 x $1.103	24.27
CPUC Fee	1.7%	1.12
	Total water bill	$96.90

As stated with Cal Water's estimated monthly water bill, this is assuming that the CPUC's Multi-District water rate structure (Decision 14-10-047) would apply to the East Porterville Water System. If so, the water rates would be consistent with the Tulare District rates. Since East Porterville is severely disadvantaged and these water rates would cause a significant financial burden, TMF was not conducted as Del Oro will not be a feasible alternative.

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Service Charges

The Service Charge is a *Readiness to Serve Charge* which is applicable to all metered water service and to which is added the charge for water used, computed at the *Quantity Rate* below.

New Service *Advance Deposit*	**$ 228.88**

Meter Size	**Monthly Charge**
5/8 x 3/4 inch	$ 28.61
3/4 inch	$ 42.91
1 inch	$ 71.51
1 1/2 inch	$ 143.02
2 inch	$ 228.83
3 inch	$ 429.06
4 inch	$ 715.10

Quantity Rate	
For all water used, per 100 cubic feet	$ 1.103

Late Fee	
For monthly bills not paid by the due date	$ 5.00

California Public Utilities Commission (CPUC) Reimbursement Surcharge

A 1.17% surcharge is required to be added to all customers' bills, which is calculated on all amounts due and is forwarded to the Commission throughout the year.

Other Services and Fees

Please see the back of your bill for additional information about other services and fees.

Figure 11. Del Oro Tulare District Rates and Tariffs

4.5 Private Non-Profit Water Company

Revenue for a CSD is received through service charges, similar to for-profit water companies, but services are offered at cost. This revenue mechanism most closely resembles a city's Public Works Department. Additionally, a CSD may issue bonds or form an improvement district for the purpose of issuing bonds as any city or county might do. Any bond issuance or other long-term debt will require a two-thirds majority approval of registered voters residing within the district.

Monthly water bills of non-profit water companies in Tulare County range from $9.50 to $55.00, with an average bill of $23.17 per month (LAFCo, 2006). It is important to note that the majority of these non-profit water companies are not in compliance with drinking water standards and

lack the necessary funding to maintain their existing infrastructure. These TMF challenges have been studied extensively by the DWR and Tulare County. The most recent study, the Disadvantaged Community Water Study for the Tulare Lake Basin (2014), reports that nearly 70 percent of the communities identified in the Tulare Lake Basin are DACs. Nearly all of these DACs have a water quality issue and/or infrastructure deficiencies. To mitigate these issues, the study recommends interconnection with a nearby water supplier as the preferred alternative.

When interconnection is not feasible, another studied alternative was management and non-infrastructure solutions. This alternative recommends various cost-sharing opportunities, such as sharing operations and management personnel, professional services and pooling resources such as tools and replacement parts. Examples of existing efforts include Pixley PUD, Tipton CSD and Woodville PUD, which all share resources on an informal basis. Fairways Tract MWC consolidated its water supply and distribution system with the City of Porterville through annexation into the City.

4.6 Water Rates Affordability

Water affordability is a central element to water access. When water costs make water unaffordable, it can pose a health and safety issue and a myriad of administrative and political problems. Water affordability is typically measured by the annual cost of water bills as a percentage of median household income. Households paying an amount for water that exceeds an affordability threshold are considered to be paying a cost that is unaffordable and a "high burden" (Pacific Institute, Water Affordability).

The State's commitment to water affordability is rooted in both human rights and public welfare. In 2012, California's Legislature passed AB 685, which established a human right to water in California and directed "all relevant State agencies, including the Department [of Water Resources], State Board and the State Department of Public Health [to] consider this State policy when revising and adopting or establishing policies, regulations and grant criteria" (AWWA, Water Affordability Programs).

The SWRCB measures water rates affordability as 1.5 percent of the median household income, whereas the federal measure (U.S. Environmental Protection Agency) is 2.3 percent of median household income.

One of the studies on water rates affordability by the Pacific Institute also notes that regional solutions and water system consolidation offer a promising approach to affordability and improving service through improved TMF. However, they caution that in the process of developing regional solutions or joint collaborations, particular attention must be paid to ensuring that rates are structured to support system sustainability ***and*** affordability. Appendix F provides a copy of the Water Affordability Study.

Table 5 compares water rates of the alternatives evaluated with State and federal thresholds. East Porterville residents have a median household income of $31,900 (2014 American Community

Survey). Using the latest US Government CPI published on May 17, 2016, to adjust for inflation and calculate the cumulative inflation rate, the median income is $32,240. Table 5 uses this income level to compare affordability of the alternatives considered in this study, as well as a summary of TMF capability.

Table 5. Summary of Water Rates Affordability and TMF Capability

Alternative	Monthly Bill	Affordability		TMF Capability?
		1.5% ($32,240)	2.3% ($32,240)	
[1]City of Porterville	$31.49 $56.65	$40.30	$61.79	Yes
Porter Vista PUD	n/a			No
[2]Cal Water	$53.67			Yes
Del Oro	$96.90			n/a
Form a CSD	n/a	n/a	n/a	No

[1]Range of potential water rates depending on Council approval.
[2]Estimate is not adjusted to account for disallowed earning from grant-funded capital or wheeling fees that may influence the cost of service.

Evaluation of the alternatives should also consider that consolidation with the City of Porterville would result in annexation when it is administratively feasible. City staff advise that annexing the project area would not be completed for possibly 20 or more years due to the significantly deteriorated infrastructure and the long term to reserve funds to make necessary improvements. Within a few months of annexation, East Porterville residents would be charged a 6-percent UUT on some utilities. This is a new tax that the residents are not currently paying and is estimated to cost an additional $20 per month, depending on usage.

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5.0 Alternative Selection

The alternatives analysis shown in Chapter 4 focuses on evaluating suitable purveyors for the East Porterville water system. A thorough evaluation of existing and potential water suppliers, following the SWRCB's TMF guidelines, resulted in two potential options – interconnection with the City of Porterville or a non-infrastructure management consolidation with Cal Water. This section will further evaluate the feasibility of these potential governance structures and define potential obstacles to implementing the alternatives.

The Tulare Lake Basin Disadvantaged Community Pilot Study (DAC Pilot Study, 2014), focused in the Porterville area, considered potential alternatives and identified obstacles to implementation. General consensus of the study's community review process was that if a solution would provide the community with safe and affordable drinking water and good service, residents should be willing to consider either of the alternatives considered. However, a few of the potential obstacles that are applicable to East Porterville include the following:

- Consolidation may result in a loss of identity for a local community;
- Local political barriers could be significant;
- Management goals of multiple systems may conflict.

In trying to overcome these obstacles and barriers, it is important that the entities involved are encouraged to focus on the common need they are trying to resolve. The long-term health and wellbeing of the residents within the region should be the primary goal and should outweigh the other obstacles and barriers that may inhibit communities from working together (DAC Pilot Study, 2014, pg. 147).

5.1 Preferred Alternative

The study of available water supplies in the region indicates that sustainable and resilient water supplies are predominately located in the western portion of East Porterville and within Porterville City limits. If Cal Water were considered as the preferred alternative, it would need to establish a wheeling agreement with the City. If a wheeling agreement could not be established, alternative sources of supply would need to be evaluated. However, the City has indicated that its existing infrastructure may not have enough capacity to wheel additional water through their system. If this is the case, alternative sources of supply would need to be evaluated outside the City boundary, which may require numerous miles of transmission pipeline connecting the source of water to the East Porterville system. This would increase the cost of construction and operations and maintenance and may result in Cal Water being a cost-prohibitive alternative.

The City of Porterville has existing pipeline supplying water to few small water systems within East Porterville for several years. Currently, another small portion of the community (approximately 40 homes in Phase I) are in the process of connecting to the City as an emergency drought response effort. The City is currently working on a MOU between the City,

County, and DWR, CalOES, and SWRCB that can lead to agreements to connect approximately 460 additional homes as part of this emergency drought response effort. Since the City has existing infrastructure in the region, extending service is an efficient option. Additionally, physical interconnection generally provides water systems with the greatest efficiency. Therefore, the City of Porterville is the preferred water purveyor for the community of East Porterville.

Cities are limited to providing municipal services only within their jurisdictional boundaries to avoid duplication of services between governmental agencies (i.e., city and county governments). However, the executive branch of city government can authorize extraterritorial agreements allowing certain services to be extended into its UDB to protect health, safety, welfare and quality of life of the residents. Residents requiring emergency water service will need to proceed with the extraterritorial service agreement option, which will allow them to immediately receive domestic water service from the City of Porterville. However, this option requires the residents to sign an irrevocable agreement to annex into the City when it is properly approved by LAFCo and is administratively feasible. To accommodate East Porterville residents, the City adopted Resolution 19-2016 to allow East Porterville properties within the Feasibility Study project area (Figure 6) to apply for domestic water service by making exceptions for property size limits and structures that do not conform to the City's general plan. Through extraterritorial service agreements, residents within the East Porterville Feasibility Study area can receive domestic water service whether in association with DWR, SWRCB, CalOES or on their own at a later date. Appendix G provides an example of the agreement.

The following procedures are included in the extraterritorial services agreement:

- Irrevocable agreement to annex when it is properly approved through appropriate legal proceedings and Owner does further agree to provide all reasonable cooperation and assistance to the City in the annexation proceedings. Said cooperation is contemplated to include signing any applications or consent prepared by the City and submitting any evidence reasonably within the control of Owner to the various hearings required for the annexation.
- General Plan consistency, agreements and covenants, time limitations and improvement plans.
- Deed restriction that conditions the water service upon an agreement that no expansion or modification of the property's use may be permitted without approval of the City Council of the City of Porterville.

Additionally, Ordinance No. 1832 was passed, approved and adopted on May 17, 2016 to amend the Porterville Municipal Code, which requires private water wells to be abandoned [destroyed] when the property is connected to the City's municipal water system. The purpose and intent of this ordinance is to protect the health, safety and general welfare of the people by ensuring that the groundwater of the city and the Tule Subbasin will not be polluted, contaminated or used in an unsustainable manner. However, Section 26-2 of the Well Abandonment Upon Municipal

Service Connection provides an exemption for parcels five (5) acres in size or greater or if the well provides irrigation for an agricultural crop. Appendix H provides a copy of the Ordinance.

5.2 Conclusion

The decision on the preferred water purveyor is to be made by all stakeholders, including the homeowners of the East Porterville community. This feasibility study provides the necessary details for the homeowners to make an informed decision. Stakeholders are encouraged to read the full Feasibility Study to better understand the implications of each potential purveyor and allow for an informed decision-making process.

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