CHAPTER 5: Utilities and Infrastructure

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CHAPTER 5 UTILITIES AND INFRASTRUCTURE

5.1 INTRODUCTION

This chapter addresses the approach to providing adequate and upgraded infrastructure and facilities to serve the El Charro Specific Plan Area. Each component of the infrastructure system will be designed to accommodate the ultimate build out of the Specific Plan Area. The following table summarizes the utility providers for the Plan Area.

Table 5-1: Utility Providers

Utility	*Provider*
Storm Drainage	City of Livermore
Flood Control	City of Livermore/Zone 7
Potable and Recycled Water	City of Livermore
Wastewater	City of Livermore
Electric Service	Pacific Gas & Electric (PG&E)
Natural Gas	Pacific Gas & Electric (PG&E)
Telecommunications	AT&T
Cable	Comcast
Solid Waste	Livermore Dublin Disposal (Waste Management, Inc.)

5.2 UTILITIES AND INFRASTRUCTURE GOALS AND POLICIES

Implementation of the following regulatory strategies will ensure that utilities and infrastructure within the El Charro Specific Plan Area will be able to meet the demands of future retail development in the Plan Area.

Goal 5.1: Adequate utilities and infrastructure within the El Charro Specific Plan Area to serve future development shall be provided.

Policy 5.1.1 Recycled water shall be used for irrigation. Potable water shall be used for fire protection, to irrigate the vineyard buffer area should the grapes be harvested for human consumption, and other uses deemed appropriate by City staff.

Objective 5.1.1a: Water pipelines for the El Charro Specific Plan Area shall be sized in accordance with the City's Design Standards and Guidelines.

Policy 5.1.2 Provide a storm drainage system sufficient to serve the build out capacity of the El Charro Specific Plan Area.

Objective 5.1.2a: Ensure adequate land for stormwater conveyance within the Plan Area.

Objective 5.1.2b: Design the stormwater conveyance system to serve as a functional component of the stormwater system as well as an attractive recreational amenity within El Charro Specific Plan Area.

Objective 5.1.2c: Design floodwater conveyance to be consistent with regional as well as Citywide floodwater conveyance objectives.

Objective 5.1.2d: All storm drainage improvements to serve the Plan Area must be consistent with the City's Storm Drainage Master Plan.

Objective 5.1.2e: All stormwater runoff within the Specific Plan area must be treated to a minimum level of 50 percent on-site. Prior to entering the Arroyo Las Positas, additional off-site treatment will be provided to a minimum level of 80 percent, and attenuated to match pre-project flows in accordance with the Regional Water Quality Control Board Permit requirements.

Objective 5.1.2f: Permanent flood and stormwater control devices must be installed and functioning prior to the occupancy of the development they serve.

5.3 EXISTING UTILITIES AND INFRASTRUCTURE

5.3.1 Storm Drainage and Flood Control

Little development has occurred within the Specific Plan Area to date. Current storm drainage is managed by absorption into the land as well as by the Arroyo Las Positas. Recently, Zone 7 realigned and improved Arroyo Las Positas and its confluence with Arroyo Mocho from the eastern edge of Pleasanton to the western edge of Livermore. As a result of this project, the abandoned creek was filled-in on the property owned by the Alameda County Surplus Agency known as Staples Ranch, and the creek flood conveyance capacity was increased to contain the 100-year flood flows within the improved section. In addition, the channel banks were lowered on the south side to allow for flood flows escaping the creek banks upstream to re-enter the channel in the improved section. Although this work was completed, the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) that are used to regulate development in the floodplain were not updated to reflect these improvements. These improvements, however, were not adequate to take the surplus land area entirely out of the floodplain. Currently (in 2006), flood flows escaping from the northern banks of the Arroyo Las Positas flow across the northern properties south of the freeway, flow across El Charro Road, across the Staples Ranch property to the west, and north across the 580 freeway. These flows continue west to Dublin and then flow south back into the creek.

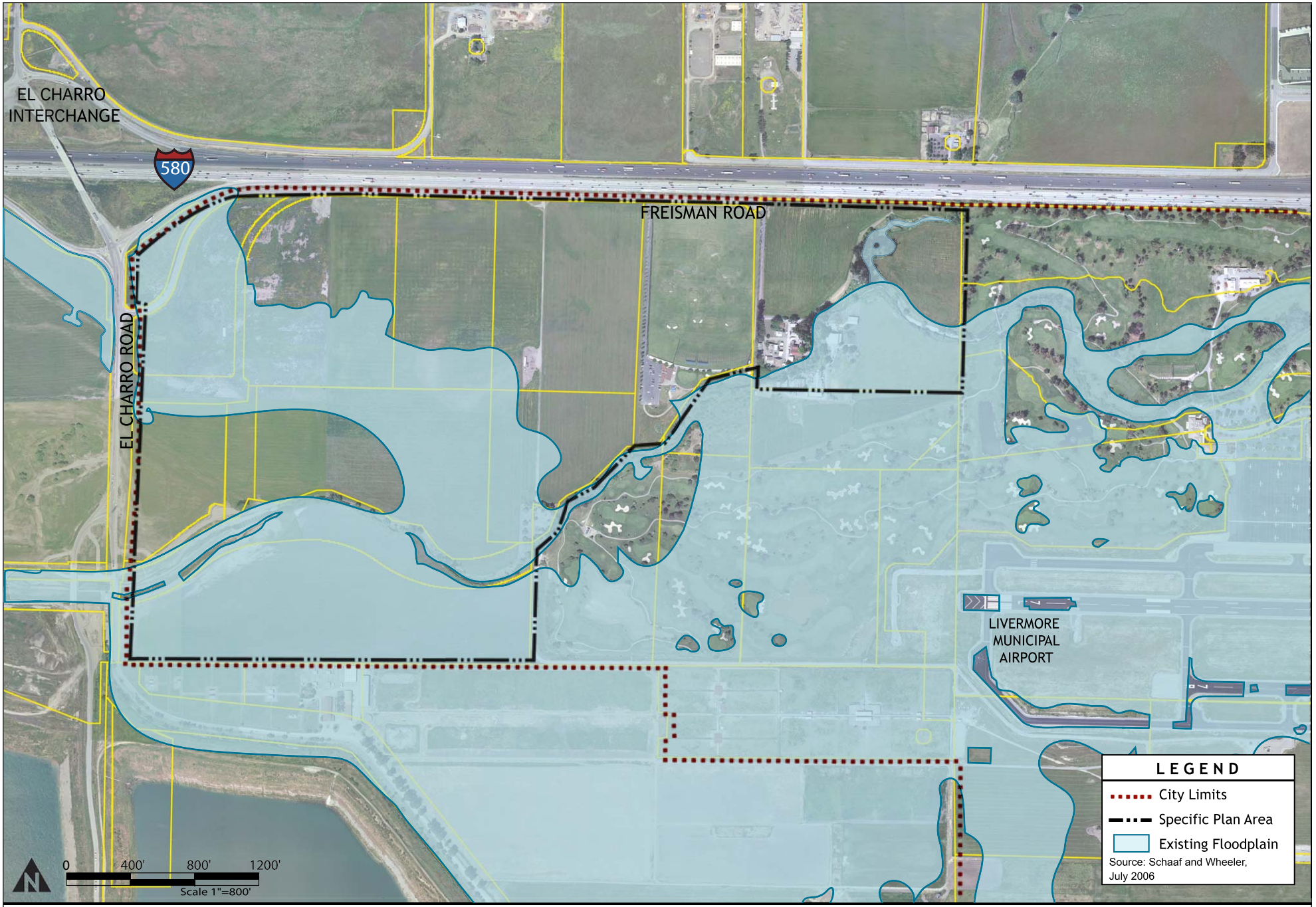

Figure 5-1 Existing Flood Zones
CITY OF LIVERMORE EL CHARRO SPECIFIC PLAN

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The FEMA Flood Insurance Rate Maps for this area show that most of the Specific Plan Area lies within the 100-year flood zone. As part of the El Charro Specific Plan flood analysis, Schaaf and Wheeler determined the actual existing floodplain conditions, which reflect the channel improvements completed by Zone 7 (see Figure 5-1). Floodwater is conveyed through the Arroyo Las Positas and is detained naturally in low-lying land. Future development will need to provide improvements to accommodate the addition of impervious surfaces and fill, both of which reduce the ability of the land to absorb storm runoff and detain flood flows.

5.3.2 Water

As part of development within the Specific Plan, both potable and recycled water service will need to be expanded in order to accommodate the additional demand and infrastructure. No City-owned wells are located within the Plan Area; however, Zone 7 does have some wells throughout the area.

An emergency water supply must be provided prior to any construction above the building foundations. In addition, fire flow rates of 3,500 gpm at 20 psi residual pressure must be provided.

5.3.3 Wastewater

A sewer pump station is currently located at the end of Jack London Boulevard. A new pump station and force main will be needed to augment the current pump station in order to handle wastewater removal for the Plan Area and its immediate surroundings. The sewer pumps will convey sewage to the wastewater treatment plant.

5.3.4 Electrical, Natural Gas and Telecommunications

Dry utility services are not directly provided by the City of Livermore. Electrical and natural gas services are provided by PG&E, while telecommunications services are provided by AT&T. The closest gas line is located along Freisman Road. Electric overhead utilities run along the east side of El Charro Road and down the access road to the Children's Hospital property. A series of fiber optic cables run through the northern portion of the Plan Area and are owned by AT&T. These cables are part of a transcontinental network and development must account for access to these facilities, therefore buildings cannot occur atop of the fiber optic cables. An easement of 20 feet exists along the full alignment of the cables through the Plan Area to provide for ease of maintenance and operation of the line.

5.4 EL CHARRO SPECIFIC PLAN UTILITIES AND INFRASTRUCTURE SYSTEM

The location of the infrastructure needed to serve the El Charro Specific Plan Area varies slightly depending on the alignment chosen for Jack London Boulevard. In most cases the backbone infrastructure will run along the street right-of-way (ROW). New utilities will be located within the proposed future ROW for all infrastructure. In the event that monies become available for future I-580 widening from Alameda County's Congestion Management Agency (CMA) or Transportation Improvement Authority (ACTIA), the Specific Plan infrastructure shall be located outside the future freeway ROW. Figure 5-2 depicts the location of all infrastructure improvements needed for the new roadway alignment.

5.4.1 Storm Drainage and Flood Control

The storm drainage system for the Plan Area consists of creeks, enhanced channels and culverts, and is designed to discharge into swales and other water treatment and attenuation devices, such as detention basins, prior to entering into the Arroyo Las Positas Creek. The on-site infrastructure for Specific Plan developments will need to be sized per the City's 2005 Storm Drainage Facility Guidelines. Additionally, they must comply with the Regional Water Quality Control Board permit for stormwater treatment and attenuation, and be consistent with both the City and Zone 7's local and regional flood control plans that serve the region. These flood control improvements are identified in Zone 7's Stream Management Master Plan, and the City will work with Zone 7 to implement these improvements. Flood infrastructure, stormwater treatment, and attenuation facilities have been proposed to serve the Specific Plan Area (shown in Figures 5-2 and 6-1). Any changes to the floodplain resulting from these developments and infrastructure improvements must be approved first by FEMA as a Conditional Letter of Map Revision and followed by a Letter of Map Revision from FEMA after the changes to the floodplain have been made.

5.4.2 Water

Infrastructure to provide the El Charro Specific Plan Area with both potable and recycled water will be expanded as part of development within the Plan Area. The 2004 Water Master Plan specifies that all new development within the El Charro Plan Area must use recycled water for irrigation and potable water for fire protection and all other needs. Potable water, however, shall be used to irrigate the vineyard buffer area should the grapes be harvested for human consumption.

Potable Water

An average potable daily water demand of 121,600 gallons per day is estimated for the Plan Area. This is based on 152 acres of Business Commercial Park (BCP) and 800 gallons per day per acre of

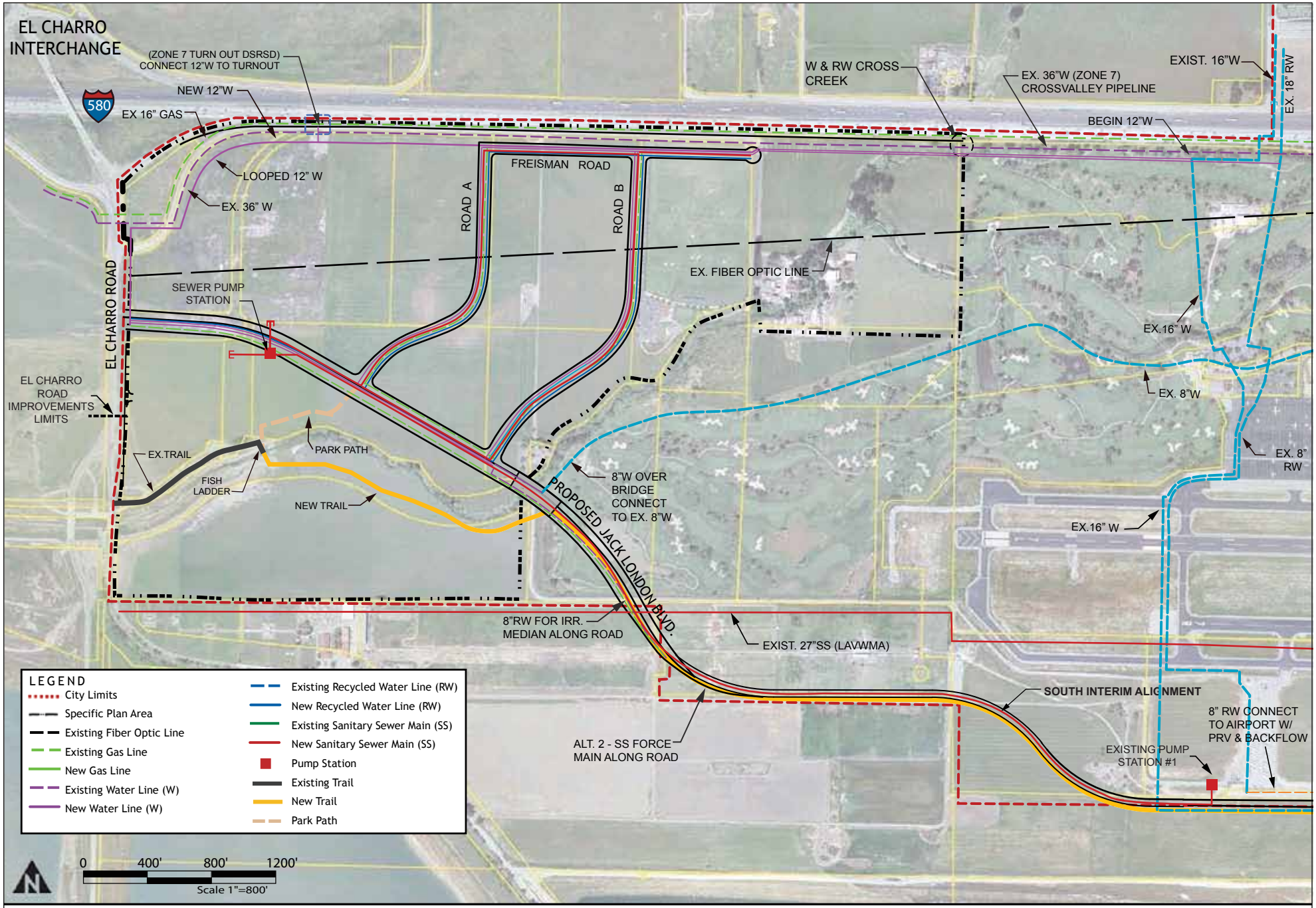

Figure 5-2 Southern Roadway Alignment Utilities System

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Revised July 2012

Note: This figure is conceptual in nature and subject to modifications based on subsequent development review.

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BCP (152 x 800). Maximum day demand is 243,200 gallons per day, two times the average day demand; and peak hourly demand is 364,800 gallons per day, three times the average day demand.

The Water Master Plan shows the major water infrastructure improvements required for the El Charro Plan Area. The City completed a 16-inch waterline crossing under the freeway south of Doolan Road. The Oak Business Park development is going to construct a 16-inch waterline across the golf course driving range.

Development within the Plan Area will need to construct and fund a looped water pipeline extension system. The system consists of a 12-inch pipeline south of I-580 that will tie into a tee at the intersection of the 16-inch waterline being constructed by the Oak Business Pak development. This tee will be located west of the thirteenth tee box at the Las Positas Golf Course. An eight-inch pipeline will also tie into an existing eight-inch pipeline at the west end of the golf course. The remainder of the system consists of a 12-inch backbone pipeline that will serve the individual parcels. Pressure reducing valves will need to be installed on each of the individual water service laterals.

The City has constructed a water pump station that will be sized to handle estimated flows for the Specific Plan Area. The City is scheduled to construct, by 2008, a 3 million gallon reservoir that will provide operational, emergency, and fire storage for the Plan Area.

Recycled Water

The El Charro Plan Area is within the City's Recycled Water Service Area. As such, City policy requires that recycled water be used for all irrigation demands. The 2004 Recycled Water System Master Plan estimates an average irrigation season demand of 231,040 gallons per day for the El Charro Plan Area based on 152 acres and 1,520 gallons per day per acre of recycled water demand for irrigation (152 x 1,520). The Master Plan assumes a 214-day irrigation season. Maximum day demand is 485,184 gallons per day, 2.1 times the average day demand; and peak hourly demand is 1.46 million gallons per day, 6.3 times the average day demand.

The Recycled Water Master Plan shows major recycled water infrastructure improvements required for the Plan Area. A 12-inch pipeline will need to be constructed south of I-580 to connect the Specific Plan Area with the existing City system. The 12-inch pipeline will tie into the existing 18-inch pipeline just east of the thirteenth tee box at the Las Positas Golf Course. The 12-inch pipeline extension and additional required service laterals to the individual parcels in the Plan Area will need to be constructed and funded by the El Charro development. Pressure reducing valves will need to be installed on each of the individual recycled water service lateral.

Several upgrades to the recycled water system are being planned by the City of Livermore. These improvements include water filters and a new pump station at the Water Reclamation plant as well as

construction of a new 1.88 million gallon recycled water reservoir that will supply required recycled water demands and operational storage for the Plan Area. These improvements are funded in the City's 2006-2008 Capital Improvement Budget and are scheduled to be constructed by 2008.

5.4.3 Wastewater

Average daily base dry weather flow for the El Charro Specific Plan Area is estimated at 91,200 gallons per day based on 152 acres of BCP with 600 gallons per day per acre of base sewer flow. Peak hourly base dry weather flow is approximately 1.8 times the average daily dry weather flow or 168,160 gallons per day (1.8 x 91,200). Peak hourly rainfall dependent infiltration and inflow (RDI/I) is estimated as 152,000 gallons per day based on 1,000 gallons per day of peak hourly RDI/I and 152 acres. The peak hourly wet weather flow for the area is therefore estimated at 316,160 gallons per day ((91,200 x 1.8) + 152,000).

Proposed major sewer infrastructure for this area was planned for under the 2004 Sewer Master Plan. As indicated, a new pump station will need to be constructed because the Plan Area is at a lower elevation than the Water Reclamation Plant. The new pump station will need to have a firm capacity of 325,000 gallons per day (firm capacity equals the capacity of the pump station with largest pump out of service). The new pump station will discharge through a new force main into the existing trunk line that feeds the Airport Pump Station at the west end of West Jack London Boulevard. The Airport Pump Station has an existing firm capacity of 1.65 million gallons per day (MGD) which is adequate to handle the projected 0.325 million gallons per day from the Plan Area along with an ultimate 1.0 MGD tributary to the station itself. The existing ten inch force main between the Airport Pump Station and the Water Reclamation Plant is adequately sized to handle the combined ultimate peak hourly wet weather flow of 1.325 million gallons per day.

In summary a local collection system will have to be constructed for the Plan Area that flows into a new 0.325 million gallon per day pump station. A force main will need to be constructed that connects the new El Charro Plan Area pump station with the existing Airport Pump Station. All of these improvements are specific to the Plan Area and will therefore need to be constructed and funded entirely by the development within the Specific Plan Area.

5.4.4 Electrical, Natural Gas and Telecommunications

Project applicants and developers will be required to coordinate with the appropriate service providers to provide electrical, nature gas, and telecommunications services to their developments. All new and existing utilities shall be placed underground; however, PG&E lines greater than 60 kv will be above ground. PG& E will need a minimum of two service connections. As of 2006, three exist to the north, west, and east.