4.6 PUBLIC UTILITIES

4.6.1 Introduction

This section describes existing public utilities (wastewater, solid waste collection and disposal, and energy resources), that would serve the project site, and identifies anticipated demand for these services resulting from development of the Roberts' Ranch Specific Plan (proposed project).

Two comments were received in response to the Notice of Preparation (NOP) regarding public utilities. A comment from the Central Valley Regional Water Quality Control Board (CVRQCB) regarding wastewater treatment requirements. An additional comment from Solano LAFCO requested a discussion of the detention basin northeast of the project site since the basin is important to stormwater services in the City. Concerns regarding stormwater are addressed in Section 4.4, Hydrology, Drainage and Water Quality. A copy of the NOP and letters received in response to the NOP are included in Appendix A.

Information to prepare this section was obtained from the City of Vacaville General Plan (City of Vacaville 2015a) and City of Vacaville General Plan and Energy Conservation Action Strategy Environmental Impact Report (General Plan EIR) (City of Vacaville 2013a), the 2010 Urban Water Management Plan Update (2010 UWMP) (City of Vacaville 2011), the City of Vacaville Energy and Conservation Action Strategy (City of Vacaville 2015b), the Wastewater Technical Memorandum (Appendix G)], the City of Vacaville Utilities Department (City of Vacaville Utilities Department 2016), and individual service providers.

4.6.2 Environmental Setting

This section describes existing wastewater[1] systems for the City of Vacaville (City) that serve the project area, as well as information on solid waste collection and disposal and energy supply. Because the increased demand in water supply associated with buildout of the city, which includes the project site, was addressed in the City's General Plan EIR water supply is not evaluated in this section, but discussed in the Modified Initial Study included in Appendix B.

Existing Site

Wastewater

Wastewater collection and treatment for most developed areas within the City limits is provided by the City of Vacaville. The project site would be served by the City's wastewater infrastructure if the project is approved and the site annexed into the City. The City's sewer service includes operation and maintenance of gravity sewers, lift stations, force mains, and the Easterly Wastewater

[1] Sewer and wastewater are terms used interchangeably throughout this analysis.

Treatment Plant (Easterly WWTP). Since the project proposes to annex the project site into the City limits, wastewater collection and treatment services would be provided by the City.

Easterly Wastewater Treatment Plant

The Easterly WWTP is located east of the City adjacent to the unincorporated town of Elmira. The Easterly WWTP is operated by Wastewater Operations. Treated effluent from the Easterly WWTP flows into Old Alamo Creek. The Easterly WWTP treats an average of 8 million gallons per day (mgd) of wastewater and has a design capacity of 15 mgd sanitary base flow (SBF) and peak wet weather flows (PWWF) of 55.2 mgd (City of Vacaville 2016). The Easterly WWTP is permitted under National Pollution Discharge Elimination System (NPDES) permit No. CA0077691. In order to comply with provisions of the NPDES permit, the Easterly WWTP has recently completed treatment upgrades in order to provide tertiary filtration, advanced disinfection, denitrification, elimination of effluent blending, and related improvements (City of Vacaville 2013a). These upgrades do not affect the treatment capacity of the plant.

Project Area Wastewater Infrastructure

Existing trunk sewer lines are located adjacent to the Union Pacific Railroad tracks and along Fry Road near the project site. There is no sewer infrastructure on the project site. Sewer from the project site would ultimately be conveyed to planned, new improvements that would convey flows from the Alamo/Fry trunk line and the CSP-S trunk line. There is no current capacity available in the Alamo/Fry trunk sewer line to accommodate flows from the project site (West Yost Associates 2016). The CSP-S trunk line has a current capacity of 0.45 mgd but that capacity would eventually be consumed by flows from approved development in southeast Vacaville. Therefore, in the absence of further development beyond existing conditions the CSP-S line could accept some increased flows from the project, but the line does not contain sufficient capacity to accommodate the proposed project at buildout conditions for approved land uses (West Yost Associates 2016).

Solid Waste

Under a franchise agreement, Recology Vacaville Solano (RVS) holds the exclusive right to provide residential, commercial, and industrial solid waste collection and hauling in the City. Recyclable material can also be taken to several drop-off recycling centers throughout the City including the Recology Vacaville Recycling Center located at 855 1/2 Davis Street. Recyclable material collected by RVS is sent to the Recology Vallejo facility located at 2021 Broadway Street in Vallejo.

Refuse from the City is transported to the privately owned and operated Recology Hay Road Landfill located in the unincorporated county east of Vacaville. The Recology Hay Road landfill (Solid Waste Facilities Permit 48-AA-0002) has a permitted daily capacity of 2,400 tons and

receives 226,777 cubic yards and 136,066 tons of solid waste per year (CalRecycle 2016a, Solano County 2010). The total capacity of the landfill is 37 million cubic yards; as of 2010 the landfill has a remaining capacity of 30.4 million cubic yards and is projected to remain open until 2077 (CalRecycle 2016a). In 2014, Vacaville's per capita disposal rate was 4.6 pounds per person per day (PPD), which was well below the City's target disposal rate of 6.5 PPD, but slightly above the statewide average of 4.5 PPD (CalRecycle 2016b).

Energy

Energy Consumption

California's major sources of energy are petroleum products (i.e., gasoline, diesel, and oil), electricity and natural gas. In 2014 California generated 198,973 gigawatt hours (GWH) of electricity in-state including: 1,011 GWH from coal, 14,052 GWH from large hydro, 121,934 GWH from natural gas, 17,027 GWH from nuclear, 46 GWH from oil, 44,887 GWH from renewables and 16 GWH from other sources (CEC 2015).

An overview of electricity and natural gas consumption statewide and on a local level is provided below.

Electricity

California's major electric utilities send power through roughly 200,000 miles of overhead transmission and distribution lines and an additional 70,000 miles of underground lines (CEC 2016a).

Based on data and reports compiled by the California Energy Commission (CEC), in 2014, Californians consumed 293,268 GWH of electricity (CEC 2015). California produces roughly 68% of its electricity from power plants located within the state and from plants located outside the state but owned by California utilities. About 32% is imported electricity from the Pacific Northwest and the Pacific Southwest. In 2014, the total electricity imported, not counting California owned plants, was 94,360 GWH (CEC 2016a).

Electricity usage in California varies substantially by the type or function of the building, type of construction materials used, and the efficiency of each electrical device within the building. In 2014, the average annual usage of electricity for single-family residences in the U.S. was 10,932 kilowatthours (kWh), an average of 911 kWh per month (EIA 2015). In 2014, Solano County's residential energy consumption was 1004.91 million kilowatts (ECDMS 2016a).

Natural Gas

California's natural gas demand for industrial, residential, commercial and electric power generation was 2,313 billion cubic feet in 2012 (CEC 2016b). The natural gas was used to produce electricity (45%), in industrial use (25%), in residential use (21%), and in commercial uses (9%) (CEC 2016b).

Natural gas usage in residential homes varies base on the size of the unit, the type of dwelling, the number of major appliances and the construction and siting of the structure. In 2012, residential natural gas consumption totaled 6,312 thousand therms per year of which 41.7% was used for water heating, 3.61% was used for clothes dryers, 6.88% was used for cooking, 2.24% was use for pools and spas, and 45.56% was used for heating (CEC 2016b). Solano County's residential natural gas consumption in 2014 was 50.10 million therms (ECDMS 2016b).

City of Vacaville

Pacific Gas & Electric (PG&E) provides electric power and natural gas to the City of Vacaville. PG&E's service area stretches north–south from Eureka to Bakersfield and west–east from the Pacific Ocean to the Sierra Nevada Mountains. Northern California-sourced gas supplies come primarily from the gas fields in the Sacramento Valley. PG&E has 42,141 miles of natural gas distribution pipelines and 141,215 circuit miles of electric distribution. PG&E delivers 2.6 billion cubic feet of gas per day to its customers (PG&E 2016).

Based on average energy use from 2006 to 2008, residential land uses consume approximately 46% of the City's electricity demand (254 GWH) and 53% of the City's natural gas demand (13 million therms) (City of Vacaville 2013a). The City's Energy and Conservation Action Strategy (ECAS) (City of Vacaville 2015b) establishes energy conservation goals of reducing greenhouse gas emissions by 21.7% below the City's 2020 Business as usual (BAU) forecast. The ECAS includes community-wide measures aimed at reducing GHG emissions in the following nine sectors: transportation and land use; green building; renewable energy and low carbon fuels; energy conservation; water and wastewater; solid waste; parks, open space and agriculture; purchasing; and community action (City of Vacaville 2015b).

4.6.3 Regulatory Setting

Federal Regulations

Wastewater

National Pollution Discharge Elimination System Permit

Discharge of treated wastewater to surface water(s) of the United States, including wetlands, require a NDPES permit. In California, the Regional Water Quality Control Board (RWQCB)

administers the issuance of these federal permits. Detailed information is required to obtain a NDPES permit, including characterization of wastewater sources, treatment and processes, and effluent quality. Whether or not a permit may be issued and the condition of a permit are subject to many factors such as basin plan water quality objectives, impaired water body status of the receiving water, historical flow rates of the receiving water, effluent quality and flow, the air quality State Implementation Plan (SIP), the California Toxics Rule, and established total maximum daily loading rates for various pollutants.

Federal and State Clean Water Act

The Porter-Cologne Water Quality Control Act gives the ultimate authority over California water rights and water quality policy to the California State Water Resources Control Board (SWRCB). In addition, the Porter-Cologne Act established nine Regional Water Quality Control Boards (RWQCBs) to ensure that water quality on a local/regional level is maintained. The project site is under the jurisdiction of the Central Valley Regional Water Quality Control Board (CVRWQCB).

Electricity and Natural Gas

Federal Energy Regulatory Commission

The Federal Energy Regulatory Commission (FERC) regulates and oversees the energy industries in the interests of the American public. The Energy Policy Act of 2005 gave FERC additional responsibilities including interstate commerce, licenses and inspections, energy markets, and penalizing energy organizers and individuals who violate FERC rules in the energy market.

State Regulations

Wastewater

General Waste Discharge Requirements for Sanitary Sewer Systems

The General Waste Discharge Requirements (WDRs) for Sanitary Sewer Systems were adopted by the SWRCB in May 2006. These WDRs require local jurisdictions to develop a sewer system management plan (SSMP) that addresses the necessary operation and emergency response plans to reduce sanitary sewer overflows. The WDRs require that the local jurisdiction approve the SSMP; the Vacaville City Council approved the City's SSMP on July 9, 2009.

Waste Discharge requirements included in NPDES permits issued by the CVRWQCB are based on the following guidance documents:

- Water Quality Control Plan for the Sacramento and San Joaquin River Basins (Basin Plan)
- California Toxics Rule

- Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Plan)
- State Title 22 requirements
- Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan)

Solid Waste

California Integrated Waste Management Act – AB 939

To minimize the amount of solid waste that must be disposed of by transformation (i.e., recycling) and land disposal, the State Legislature passed the California Integrated Waste Management Act of 1989 (AB 939), effective January 1990. According to AB 939, all cities and counties are required to divert 25% of all solid waste from landfill facilities by January 1, 1995, and 50% by January 1, 2000. Solid waste plans are required to explain how each city's AB 939 plan will be integrated within the respective county plan.

Senate Bill 1016

SB 1016 enacted in 2007 changes the process for bi-annual review of a jurisdiction's source reduction and recycling element and allows the California Integrated Waste Management Board to make a finding whether each jurisdiction is in compliance with the act's diversion requirements based on the jurisdiction's change in its per capita disposal rate. No longer is a diversion rate used to calculate compliance with AB 939, but a per capita disposal rate is used that calculates the number of pounds of solid waste diverted, divided by the total population, divided by 365 days. The City's 2015 diversion rate is 4.9 pounds per day (PPD), which is below the target of 6.5 PPD, but slightly above the state average of 4.5 PPD (Cal Recycle 2016b).

Energy

California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24 Building Standards)

The CEC administers Title 24 Building Standards, which were established in 1978 in response to a legislative mandate to reduce California's energy consumption. Standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. California's building efficiency standards are updated on an approximately 3-year cycle. The 2016 Standards will continue to improve upon the current 2013 Standards for new construction of, and additions and alterations to, residential and

nonresidential buildings. The 2016 Standards will go into effect on January 1, 2017, following approval of the California Building Standards Commission (CEC 2016b).

Warren-Alquist Energy Resources Conservation and Development Act

The Warren-Alquist Act gives statutory authority over energy resources to the CEC. The CEC regulates energy resources coordinating research into energy supply and demand problems and to reduce the increase of energy consumption.

Local Regulations

Wastewater

Vacaville Municipal Code

Chapter 13.08, Sewers, of the Vacaville Municipal Code (City of Vacaville 2016) contains regulations to prevent pollution and control, and improve the quality and quantity of waste discharge. Chapter 11.01, Development Impact Fees, describes the Sewer System Impact Fee. The Sewer System Impact Fee are required for all new development in the City to provide for the construction of sewer and wastewater facilities as needed to serve the growing demand.

Sewer System Management Plan

The City's SSMP was developed in response to the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, as described above. The SSMP was completed in June 2009 and provides a general framework for collection system operations, maintenance, and overflow prevention. It includes the following elements, commensurate with the statewide Waste Discharge Requirements:

- Development plan and schedule
- Goals
- Organization
- Legal authority
- Operation and maintenance programs
- Design and performance provisions
- Overflow emergency response program
- Fats, oils, and grease (FOG) control program
- System evaluation and capacity assurance plan

- Monitoring, measurement, an program modifications
- SSMP audits
- Communication program

City of Vacaville General Plan

The following goals and policies from the City of Vacaville General Plan Public Facilities and Services (PUB) Element, and Land Use (LU) Element are applicable to the proposed project.

Goal PUB-13 Collect, transmit, treat, and dispose of wastewater in ways that are safe, sanitary, and environmentally acceptable.

Policy PUB-P13.3 Require that new habitable structures located within the city limits connect to the public wastewater collection system.

Goal PUB-14 Coordinate wastewater conveyance, treatment, and disposal with land use planning.

Policy PUB-P14.3 Ensure that new development provides adequate funding for all wastewater infrastructure and facilities.

Policy PUB-P14.4 Prohibit any development that will not maintain adequate standards for wastewater service. All wastewater service standards shall be met prior to project occupancy.

Policy PUB-P14.5 Require that new development designate sewer easements or routes when tentative maps or specific plans are approved.

Goal LU-3 Coordinate land development with the provision of services and infrastructure.

Policy LU-P3.2 Manage growth so that the quantity and quality of public services and utilities provided to existing businesses and residents will not drop below the required levels of service because of new development, except when required findings related to levels of service are made. While existing development bears some responsibility to fund improvements that will resolve such deficits, ensure that new development also funds its fair share of the costs of maintenance and depreciation of facilities.

Policy LU-P3.4 Do not approve new development unless there is infrastructure in place or planned to support growth.

Policy LU-P3.5 Require that new development or Specific Plan areas be located immediately adjacent to existing development or infrastructure.

Goal LU-6 All development shall pay its own way and not result in a financial burden to existing development or services.

Policy LU-P6.2 Require that infrastructure and service improvements for future annexations or growth areas do not create an undue burden on existing City infrastructure and services.

Energy Conservation and Action Strategy

The following community-wide measures from the *Energy Conservation and Action Strategy* are applicable to the proposed project.

Wastewater Measures

WW-1 Support the conservation measures outlined in the City's Urban Water Management Plan and implement the City's Water Efficient Landscape requirements through the following sub-measures.

A. For all new development, require all water use and efficiency measures to comply with City Codes.

D. Implement water efficient residential programs identified in the current Urban Water Management Plan.

F. Encourage the use of non-potable water and recovered residential rainwater for irrigation purposes.

G. Continue to meter with commodity rates all new connections and retrofits of existing connections.

Solid Waste

Vacaville Municipal Code

Section 8.08 of the Vacaville Municipal Code, Solid Waste, Yard Waste, and Household Hazardous Waste, regulates the collection and disposal of solid waste, yard waste, and household hazardous materials. This section also implements the provisions of the Source Reduction and Recycling Element required by AB 939 and the SB 1016 update. The City's diversion rate target is 6.4 PPD and the City's actual 2015 diversion rate was 4.9 PPD (CalRecycle 2016b). The City currently has 40 programs in place to facilitate recycling, facility recovery, public education, transformation, and source reduction (CalRecycle 2016c). In addition, residential, commercial, business, industrial and public districts are all required to

provide areas for the collection of recyclable materials and solid waste per Section 14.09 of the City's Land Use and Development Code.

City of Vacaville General Plan

The following goals and policies from the City of Vacaville General Plan Public Facilities and Services (PUB) Element are applicable to the proposed project.

Goal PUB-9 Reduce the volume of solid waste generated in Vacaville through recycling and resource conservation.

Policy PUB-P9.3 Maintain and expand the citywide curb recycling program.

Policy PUB-P9.4 Maintain and expand the citywide household hazardous waste collection program.

Policy PUB-P9.5 Maintain and expand the citywide separate yard waste collection and composting program.

Policy PUB-P9.9 Require that construction sites provide for the salvage, reuse, or recycling of construction and demolition materials and debris.

Energy Conservation and Action Strategy

The following community-wide measures from the *Energy Conservation and Action Strategy* are applicable to the proposed project.

Solid Waste Measures

SW-1 Support waste reduction through the following sub-measures:

A. Continue to require at least 50 percent diversion (i.e., reuse or recycling) of non-hazardous construction waste from disposal, consistent with CALGreen – the Statewide Green Building code.

D**.** Encourage the use of salvaged and recycled-content materials and other materials that have low production energy costs for building materials, hard surfaces, and non-plant landscaping. Require sourcing of construction materials locally, as feasible.

Energy

City of Vacaville General Plan

The following goals and policies from the City of Vacaville General Plan Conservation and Open Space (COS) Element are applicable to the proposed project.

Goal COS-11 Conserve energy and fuel resources by increasing energy efficiency.

Policy COS-P11.1 Require that new development incorporate energy-efficient design features for HVAC, lighting systems, and insulation that exceed Title 24.

Policy COS-P11.2 Require that site and structure designs for new development promote energy efficiency.

Energy Conservation and Action Strategy

The following community-wide measures from the *Energy Conservation and Action Strategy* are applicable to the proposed project.

Renewable Energy and Low Carbon Fuels

RE-2 Encourage residential projects of ten units or more to participate in the CEC's New Solar Homes Partnership, which provides rebates to developers of six units or more who offer solar power in 50% of new units and is a component of the California Solar Initiative, or a similar program with solar power requirements equal to or greater than those of the CEC's New Solar Homes Partnership.

RE-5 Require that all new buildings be constructed to allow for the easy, cost-effective installation of future solar energy systems, unless prohibited by topographical conditions or other site specific constraints. "Solar ready" features should include: proper solar orientation (i.e., south facing roof area sloped at 20 to 55 degrees from the horizontal); clear access on the south sloped roof (i.e., no chimneys, heating vents, plumbing vents, etc.); electrical conduit installed for solar electric system wiring; plumbing installed for solar hot water system; and space provided for a solar hot water storage tank.

Energy Conservation

EC-1 Mandate the use of energy-efficient appliances in new development that meet Energy Star standards and the use of energy-efficient lighting technologies that meet or exceed Title 24 standards.

4.6.4 Impacts

Methods of Analysis

Wastewater

The analysis of impacts to wastewater treatment services is based on a wastewater treatment demand generated by the proposed project compared to the thresholds of significance listed below. Wastewater demand for the proposed project was quantified based on the planned land uses and wastewater flow generation rates specified in the City's *Sanitary Sewer System Design Standards* (City of Vacaville 2013b). The project's total wastewater generation is calculated in Table 4.6-1 below.

Table 4.6-1
Proposed Project Wastewater Generation

Proposed Development	Parcel Acres	Land Use		Flow Factor		Average Dry Weather Flows (gpd)[2]
		Quantity	*Units*	*Value*	*Units*	
Residential – Low Density	166.2	657	Du[1]	240	gpd/du	157,680
Residential-Low/Medium Density	29	128	Du	240	gpd/du	30,720
Public School - Elementary	16.5	726[3]	Students	25	gpd/student	18,150
Parks	2.9	2.5	Acres	0	gpd/acre	0
Frontage Right of Way	5.7	5.7	Acres	0	gpd/acre	0
Agricultural Buffer, Community Park	21.2	21.2	Acres	0	gpd/acre	0
Totals	**241.6**					**206,550**

Notes: Appendix G represents a conservative analysis of this demand because it uses a higher number of dwelling units than included in the final project design.

1 du = dwelling Unit

2 gpd = gallons per day

3 Estimated student enrollment; assumes all students associated with General Plan growth will be evenly distributed among four future middle schools, one located in Roberts' Ranch.

Source: Appendix G

As shown in Table 4.6-1, the project's total wastewater demand would be 206,550 gpd or approximately 0.21 million gallons per day (mgd) average dry weather flows (ADWF). Using a peaking factor of 2.3, the project's peak dry weather flow would be approximately 0.48 mgd.

Solid Waste

The analysis of impacts to landfill capacity is based on the amount of solid waste that would be generated by the proposed project compared to the thresholds of significance listed below. Solid waste generation was calculated for the project site based on the City's demand rate for solid waste of 4.9 pounds per resident per day (City of Vacaville 2013a). The project's total solid waste generation is calculated in Table 4.6-2 below.

Table 4.6-2
Proposed Project Solid Waste Generation

Proposed Use	Demand Factor	Residents[1]	Solid Waste Generation (lbs/day)	Solid Waste Generation (tons/year)
Single-family Residential	4.9 lbs/person/day	2,151	10,539.9	1,923.5
		Total	**10,539.9**	**1,923.5**

Notes:
1 Based on the City's person per household of 2.74 (City of Vacaville 2015a) and a total of 785 units
2 Solid waste generated by the future school site is not included in this estimate because the Vacaville Unified School District does not currently have plans to develop this site anytime in the near future.
Source: City of Vacaville 2013a

Issues Addressed in the Modified Initial Study

The General Plan EIR evaluated the increase in water demand and availability of water supplies associated with buildout of the general plan, which includes the project site. Adequate water supplies are available to serve the City; therefore, this topic is addressed in the Modified Initial Study included in Appendix B.

Thresholds of Significance

Consistent with Appendix G of the CEQA Guidelines, the County's General Plan, and professional judgment, a significant impact would occur if development of the proposed project would do any of the following:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.
- Require or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.
- Result in determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

- Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs.
- Increase demand on local and regional energy supplies requiring additional capacity and infrastructure.
- Comply with existing federal, state and local energy standards.
- Require or result in the construction of new energy production and/or transmission facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

Impacts and Mitigation Measures

4.6-1: The proposed project could exceed the treatment requirements of the applicable Regional Water Quality Control Board. This would be a less-than-significant impact.

Flows from the project site would be conveyed to the Easterly WWTP. The Easterly WWTP is permitted under National Pollution Discharge Elimination System (NPDES) permit CA-0077691 and the Central Valley Regional Water Quality Control Board (CVRWQCB) Waste Discharge Requirements (WDRs) Order R5-2012-0072. Under the NPDES permit, the Easterly WWTP is permitted to discharge 15 mgd ADWF into Old Alamo Creek. In order to comply with provisions of the NPDES permit, the Easterly WWTP recently underwent treatment upgrades in order to provide tertiary filtration, advanced disinfection, denitrification, elimination of effluent blending, and related improvements (City of Vacaville 2013a). The Easterly WWTP is required to comply with the NPDES permit requirements as well as the CVRWQCB's WDRs and added flows from the project would be within the plant's existing treatment capacity. Therefore, the project would have a **less-than-significant impact** on the ability of the Easterly WWTP to meet wastewater treatment requirements.

Mitigation Measures

None required.

4.6-2: The proposed project could require or result in the construction of new wastewater facilities or the expansion of existing facilities, the construction of which could cause significant environmental effects. This would be a less-than-significant impact.

The Easterly WWTP treats an average of 8 mgd of wastewater and has a design capacity of 15 mgd sanitary base flow (SBF) and peak wet weather flows (PWWF) of 55.2 mgd (City of Vacaville 2016). The project's wastewater demand, as calculated in Table 4.6-1, would be approximately 0.21 mgd. Flows from the project site would equal approximately 2.6% of the wastewater currently

being treated by the Easterly WWTP. The increase in flows from the project site would represent an incremental increase in the flows currently treated at the plant and would not exceed the EWWTP's capacity. Therefore, this impact would be **less than significant**.

Mitigation Measures

None required.

4.6-3: The proposed project could result in a determination by the wastewater treatment provider that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments. This would be a significant impact.

The proposed project would install 8-inch to 10- or 12-inch sewer lines within all roadways to service the residents and wastewater flows would be conveyed to the Alamo/Fry trunk line and/or the CSP-S trunk line. These lines then convey flow east to the Easterly WWTP. Site-specific conditions may require a new lift station if adequate fall cannot otherwise be maintained within project site sewers.

As discussed in the Environmental Setting, the Alamo/Fry trunk sewer line does not have existing capacity to accommodate flows from the project site through build-out. The CSP-S trunk line has an existing capacity of 0.45 mgd. with buildout of the General Plan, not including the proposed project, the CSP-S line would not have sufficient capacity to accommodate flows from both the project site and approved projects located south of the project area.

The proposed point of connection for sewer flows collected from the project site is a point located east of the site, north of Fry Road and immediately south of the detention basin, as illustrated in Figure 4.6-1. Additional capacity would be needed in the CSP-S trunk sewer line between the point of connection and the junction structure, located north of the point of connection and immediately east of the detention basin (see Figure 4.6-1). The City is currently updating its Wastewater System Master Plan, which would identify necessary improvements to wastewater infrastructure, including the Alamo/Fry and CSP-S trunk sewer lines. The City's development impact fee (DIF) program includes a list of sewer improvement projects that would be updated following completion of the update to the Wastewater System Master Plan. Based on the modeling for the updated Master Plan conducted by West Yost Associates, the City is planning improvements that would combine flows from the two nearby existing trunk sewers and upsize the downstream portion of the CSP-S trunk sewer (the downstream portion of the previously identified DIF 54A sewer project). The CSP-S trunk sewer line north of Fry Road and south of the point where the existing trunks are to be combined as part of the DIF 54A project would not require upsizing in the absence of the proposed project. Improvements covered under the DIF program for the CSP-S trunk line would begin near the north end of the detention basin and continue east to the Easterly WWTP (West Yost Associates 2016). Completion of the DIF 54A improvement

project would be required in order for there to be adequate capacity to convey the proposed project's wastewater flows. This would be a **significant impact**.

Sewer flows from the proposed project would ultimately be conveyed to the Easterly WWTP for treatment prior to being discharged to Old Alamo Creek. Evaluation of the existing capacity of the Easterly WWTP and ability to accommodate the project flows is evaluated under Impact 4.6-2.

Mitigation Measures

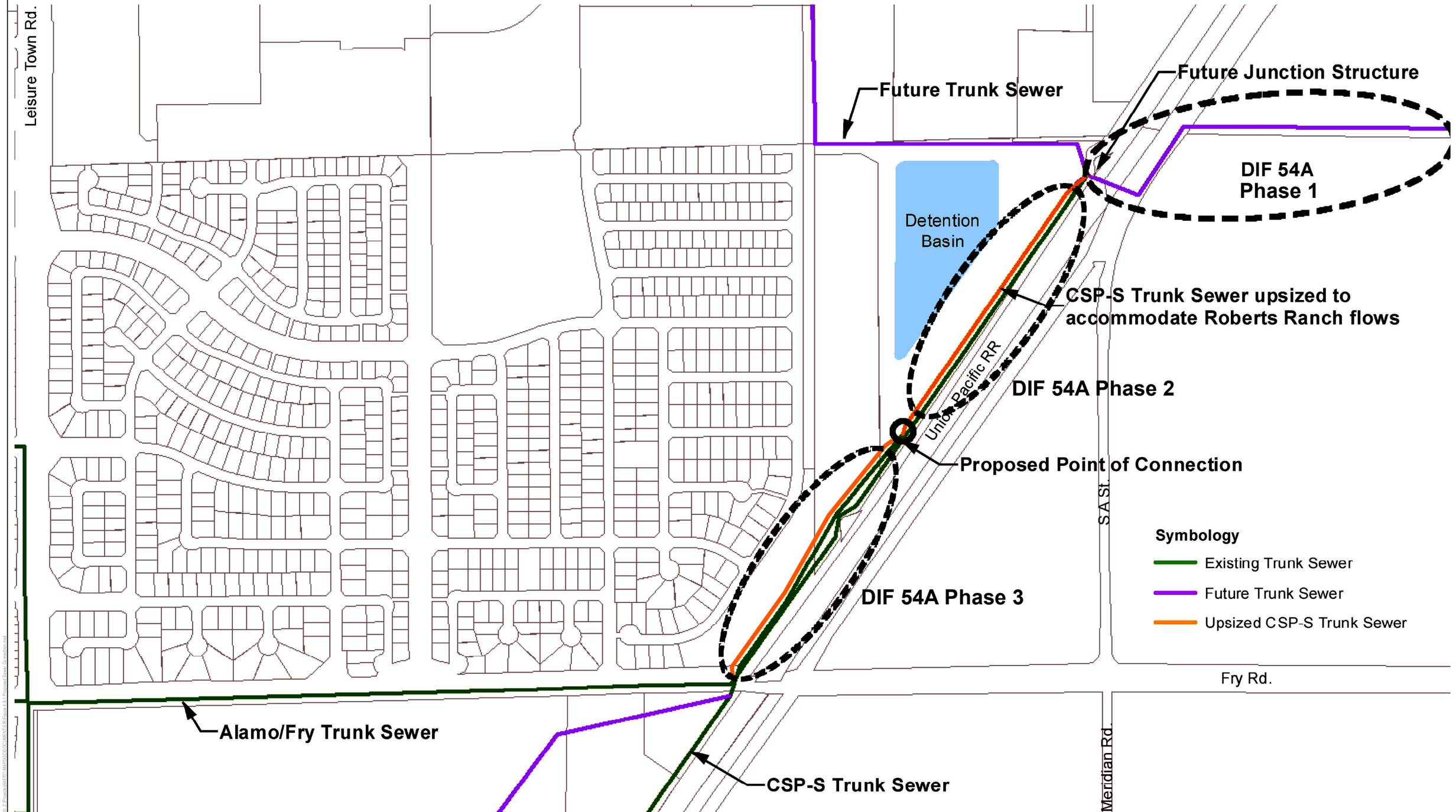
The following mitigation measures would require the project applicant to pay a development impact fee to pay for required infrastructure improvements, as well as fund the upsizing of an additional portion of trunk sewer. DIF54A is a connection-fee funded project and implementation of Mitigation Measure WW-1 would be required to address a portion of the capacity limitations, while Mitigation Measure WW-2 is necessary to extend improvements to the project's point of connection. Compliance with Mitigation Measures WW-1 and WW-2 would reduce the project's impact to less than significant.

WW-1 The project applicant shall pay connection fees as determined by the City's Department of Utilities and specified in the City's DIF program.

WW-2 The project applicant shall fund construction of any trunk sewer improvements needed upstream of the point where the Alamo/Fry trunk sewer and the CSP-S trunk sewer are combined under the DIF 54A project, beginning at the proposed project's point of connection.

4.6-4: The proposed project could be served by a landfill without sufficient permitted capacity to accommodate the project's solid waste disposal needs. This would be a less-than-significant impact.

The proposed project would generate solid waste associated with construction activities as well as from project operation. The project would comply with General Plan policy PUB-P9.9 that require construction sites provide for the salvage, reuse, or recycling of construction and demolition materials and debris.



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Roberts' Ranch Specific Plan EIR

FIGURE 4.6-1

Proposed Sewer Connection

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As shown in Table 4.6-2, the proposed project would generate approximately 1,923.5 tons per year (5.27 tons per day) of solid waste at buildout. Solid waste generated in the Specific Plan area would be transferred to the Hay Road Landfill in Vacaville. The Hay Road Landfill is permitted to accept up to 2,400 tons of refuse per day and receives approximately 136,066 tons per year of solid waste (CalRecycle 2016a, Solano County 2010). Of the 136,066 tons of solid waste received per year at the landfill, approximately 81,268 (59.7%) is from the City of Vacaville (City of Vacaville 2013a). The project's estimated solid waste generation would be less than one% of the permitted daily capacity and would be approximately 1.4% of the yearly tonnage received at the Hay Road Landfill. The project's total solid waste generation would increase the amount of tonnage received from the City of Vacaville by 2.3%. Additionally, the total capacity of the landfill is 37 million cubic yards; as of 2010 the landfill has a remaining capacity of 30.4 million cubic yards and is projected to remain open until 2077 (CalRecycle 2016a). Therefore, the Hay Road Landfill would have sufficient capacity to accommodate the proposed project and this impact would be **less than significant**.

Mitigation Measures

None required.

4.6-5: The proposed project could require or result in the construction of new energy production and/or transmission facilities or expansion of existing facilities. This would be a less-than-significant impact.

Electricity and natural gas services in the project area are provided by PG&E. Policies contained in the General Plan are aimed to reduce energy consumption by preventing energy waste and encouraging renewable energy generation. Policy COS-P11.1 requires new commercial and residential buildings to exceed the Title 24 standards for HVAC, lighting and insulation. Additional measures are provided in the ECAS in the Green Building, Renewable Energy and Low Carbon Fuels, and Energy Conservation sectors to promote energy conservation and the development of renewable energy sources in the City. The ECAS is intended to reduce overall energy usage throughout the City and is addressing this by reducing demand thereby reducing the need to require new energy-related infrastructure. The proposed project includes a number of sustainability measures (outlined in Chapter 3, Section 3.3), including use of roof integrated solar panels and large roof overhangs to create shade; use of energy efficient appliances; consideration of solar orientation in architectural design and use of landscaping, prevailing winds, shade, and sun screens to minimize solar heat in the summer and maximize solar heat gains in the winter; and incorporation of shaded courtyards and outdoor rooms to promote airflow within buildings and reduce the need for air-conditioning. Integration of energy conservation measures in addition to compliance with General Plan and ECAS policies would ensure that the proposed project has a **less-than-significant**

impact on energy demand and would not require the need for PG&E to construct new infrastructure or expand existing infrastructure to accommodate the project.

Mitigation Measures

None required.

4.6.5 Cumulative Impacts

The cumulative impact analysis includes projected buildout under the City of Vacaville 2035 General Plan. In addition to buildout of the 2035 General Plan, the cumulative context for wastewater treatment, solid waste, and energy includes buildout of the specific service area for each utility provided including recently approved and reasonably foreseeable development within the boundaries of the Wastewater Operations service area for wastewater, the Recology Hay Road service area for solid waste, and the PG&E service area for energy.

4.6-6: The proposed project could contribute to a cumulative increase in the demand for wastewater treatment, which could result in inadequate capacity and require the construction of new or expansion of existing wastewater treatment facilities. Based on the analysis below the impact is less than significant.

Buildout of the General Plan in addition to other reasonably foreseeable projects and plans within the Wastewater Operations service area, would increase demands on the Easterly WWTP and wastewater collection infrastructure such that there would be a significant cumulative impact in the absence of system upgrades.

The General Plan EIR noted that the Easterly WWTP is considered to have sufficient capacity to serve anticipated growth in the City for 16 years without the need for further expansion. Future development within the City is expected to increase flows to the Easterly WWTP to 16.2 mgd by 2035, which would exceed the current treatment capacity of the plant by approximately 8% (City of Vacaville 2013a). Current improvements to the Easterly WWTP allow for compliance with new NPDES permit discharge requirements, but would not add capacity over the current 15 mgd (City of Vacaville 2016). The City is required to plan, construct and maintain wastewater treatment facilities to meet State discharge requirements and to plan for expanding wastewater treatment capacity consistent with anticipated needs under General Plan policy PUB-P13.4. Additionally, under the NPDES permit, the City is required to annually estimate when flows are expected to reach the plant's 15.0 mgd capacity. When projections indicate that capacity would be reached within four years, the City is required to complete a plan to address the capacity limitations and send the plan for approval to the CVRWQCB within 120 days (West Yost Associates 2016). The General Plan EIR concluded that compliance with the NPDES permit requirements and implementation of General Plan policies, future development within the City

which included the project site would have a **less-than-significant impact** on the demand for wastewater treatment and meeting wastewater treatment requirements (City of Vacaville 2013a). Therefore, the proposed project would not contribute additional impacts to an existing cumulative impact.

Mitigation Measures

None required.

4.6-7: The proposed project could contribute to a cumulative increase in solid waste, which could result in either the construction of new solid waste facilities or the expansion of existing facilities, the construction of which could cause significant environmental effects. Based on the analysis below the impact is less than significant.

According to the 2035 General Plan EIR, buildout of the General Plan which includes the project site would result in approximately 26,500 new residents that would generate an additional 26,698 tons of solid waste per year (City of Vacaville 2013a). The City's ECAS includes measures to reduce solid waste and increase recycling, which would reduce the actual amount of solid waste sent to the landfill. All solid waste in the City would be delivered to the Recology Hay Road Landfill. The Recology Hay Road Landfill, as of 2010, has an estimated remaining capacity of 30.4 million cubic yards and is estimated to be enough capacity to remain open until 2077 (CalRecycle 2016a). Solid waste generated through buildout of the General Plan would increase the City's annual solid waste by approximately 0.03% of the permitted capacity of the Recology Hay Road Landfill (City of Vacaville 2013a).

Solano County generated 327,993 tons of solid waste in 2010. Based on County development trends, in the year 2035 the County would generate 411,921 tons of solid waste, approximately 26% more solid waste than it did in 2010. Solano County has successfully diverted more than the state mandated diversion rate and it is reasonable to assume that the County would continue to meet the diversion goals as the population continues to grow in the future (City of Vacaville 2013a).

Cumulative development under the City's General Plan and within the County of Solano was determined would not result in the need to expand existing landfills or construct a new landfill creating a cumulative impact. Cumulative impacts to solid waste facilities were determined to be a **less than significant**; therefore, the proposed project would not contribute to an existing cumulative impact.

Mitigation Measures

None required.

4.6-8: The proposed project could contribute to a cumulative increase in energy demand, which could result in the need for construction of new energy production and/or transmission facilities or expansion of existing facilities. Based on the analysis below the impact is less than significant.

Future development under the City's General Plan would increase the demand for electricity and natural gas in the City and within the PG&E service boundary. Policies from the General Plan and the ECAS include measures to prevent the wasteful use of energy as well as meet the State's energy efficiency standards. The General Plan EIR concluded that implementation of General Plan policies would ensure that future development within the City would not result in significant impacts associated with the cumulative increase in demand for energy resulting in the need for construction or expansion of facilities (City of Vacaville 2013a). Since other jurisdictions in the region are required to meet the State's Title 24 energy efficiency standards, future development within the City would not contribute to a cumulative impact to increased energy demand, which would require the construction or expansion of production facilities and the impact is **less than significant**. Therefore, the proposed project would not contribute to an existing cumulative impact.

Mitigation Measures

None required.

4.6.6 References

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