

3.13 Utilities

This section describes infrastructure conditions and needs for the following utility systems: potable water, wastewater, storm drains, solid waste, oil and gas, and electricity. Water quality and stormwater management are evaluated in Section 3.9 Hydrology and Water Quality.

ENVIRONMENTAL SETTING

PHYSICAL SETTING

Potable Water

Potable water supply for the Hillcrest Station Area is provided by the City of Antioch through its municipal water system. The City provides water service to homes, businesses, and industry. The City of Antioch Urban Water Management Plan Update (UWMP) indicates that the system serves about 101,049 people within a 28.8 square mile area. Annually the City provides approximately 7,100 million gallons of water (21,576 acre feet per year) to 28,860 connections. The City currently relies entirely on surface water. Its primary sources are the San Joaquin River and the Delta through water purchased from Contra Costa Water District (CCWD). (City of Antioch, 2006)

Water Use

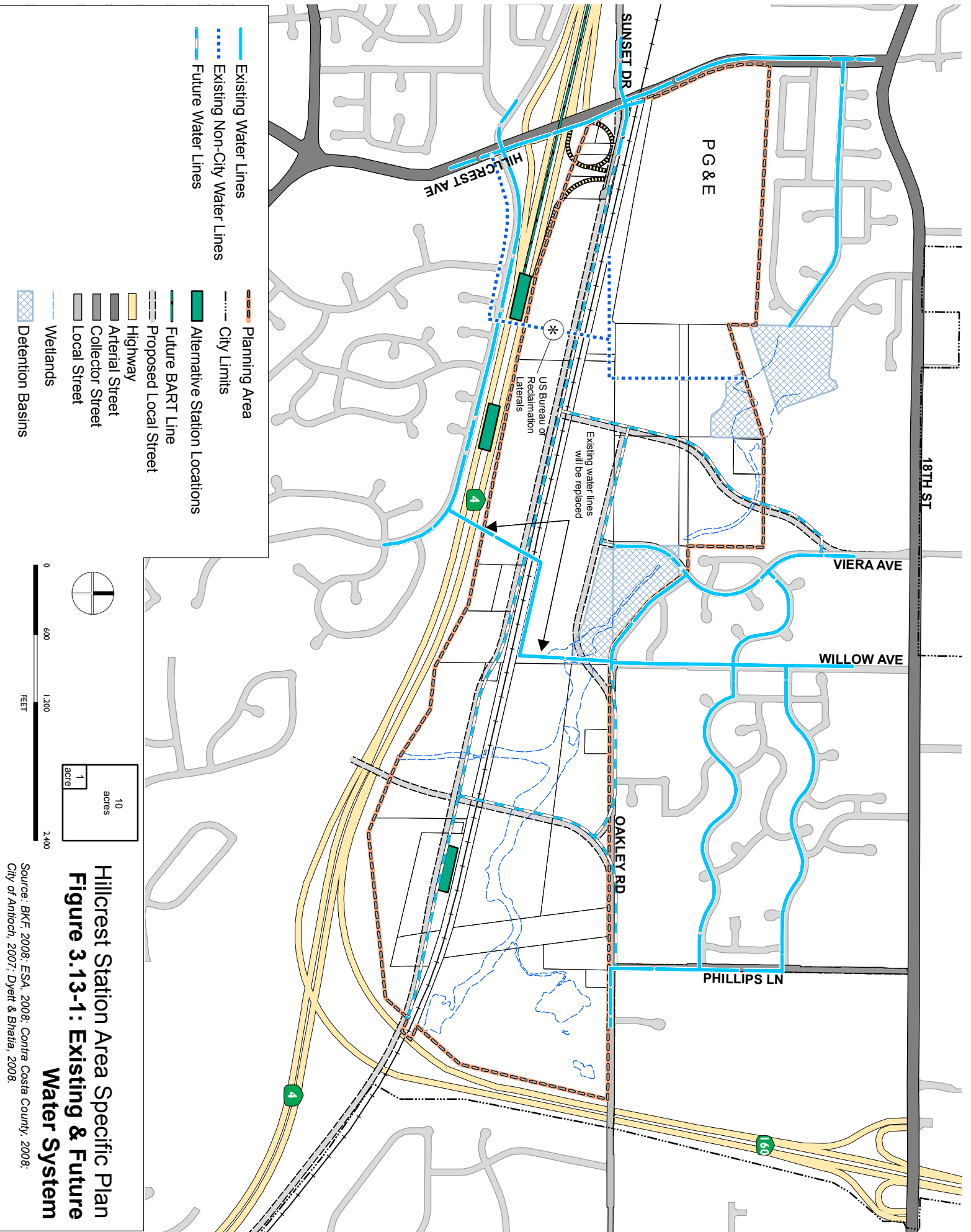
Over the past seven years, average daily water use in Antioch has increased by approximately 10 percent, which is a similar growth rate as population over the same time period.

Table 3.13-1 Historic Average Daily Water Use

<i>Year</i>	<i>Million Gallons per Day (MGD)</i>	<i>Percent Change</i>
2007	19.08	9%
2006	17.50	-4%
2005	18.25	-5%
2004	19.21	4%
2003	18.46	-1%
2002	18.66	4%
2001	17.89	4%
2000	17.21	

Source: City of Antioch, Public Works Department, 2008; City of Antioch, Urban Water Management Plan Update, 2006

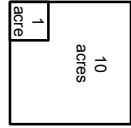
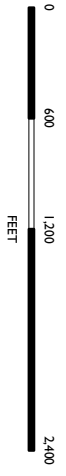
In 2007, single-family homes used the most water, followed by landscape irrigation. The remaining land use types account for less than 20 percent of the annual water use.



- Existing Water Lines
- - - Existing Non-City Water Lines
- Future Water Lines

- Planning Area
- - - City Limits
- Alternative Station Locations
- Future BART Line
- - - Proposed Local Street
- Highway
- Arterial Street
- Collector Street
- Local Street

- Wetlands
- Detention Basins



Hillcrest Station Area Specific Plan Figure 3.13-1: Existing & Future Water System

Source: BKF, 2008; ESA, 2008; Contra Costa County, 2008;
City of Antioch, 2007; Dyett & Bhatia, 2008.

Table 3.13-2 2007 Water Use by Land Use Type

<i>Land Use</i>	<i>Million Gallons Per Year</i>	<i>Percentage</i>
Single-Family Residential	4,658	65%
Multi-Family Residential	458	6%
Commercial	479	7%
Industrial	273	4%
Landscape Irrigation	1,242	17%
Other	33	<1%
Total	7,143	100%

Source: City of Antioch, Public Works Department, 2008

The UWMP includes water use projections based on the 2002 ABAG population projections and water use factors derived from City records. The City will use approximately 25,284 acre feet per year, an estimated 8,400 million gallons per year (an average of approximately 23 mgd) in 2025. This represents about a 21 percent increase over water use in 2007.

Table 3.13-3 Total Annual Water Use Projections

<i>Year</i>	<i>Million Gallons</i>	<i>Acre Feet</i>
2010	7,300	22,403
2015	7,750	23,784
2020	8,200	25,165
2025	8,400	25,779

Source: City of Antioch, Urban Water Management Plan Update, 2006; Dyett & Bhatia, 2008

Water Supply and Quality

In 2004, the City purchased 15,501 acre feet (74 percent) (5,051 million gallons) from the Contra Costa Water District, and pumped 5,511 acre feet (26 percent) (1,796 million gallons) from the San Joaquin River for a total water supply of 21,012 acre feet (6,847 million gallons). The City has an agreement with the State of California Department of Water Resources that allows a maximum of 10,200 acre feet per year (3,324 million gallons) to be taken from the river. This contract expires in 2008. Historically, the City has pumped an average of only 6,438 acre feet per year (2,098 million gallons), 63 percent of the permitted amount, from the river. The City only withdraws water from the river when salinity levels are sufficiently low.

CCWD is prepared to sell the City all its projected water needs through year 2028, unless constrained by drought conditions. The total available water supply projected for the 2025 is 49,140 acre feet per year (16,012 million gallons). This is almost double the projected water use, which is approximately 26,000 acre feet per year (8,400 million gallons) in 2025. Thus the City will have an adequate water supply during normal, single dry years, and multiple dry years.

The quality of the water in the Contra Costa Canal is dependent on a multitude of factors outside CCWD control. The US Bureau of Reclamation is not required to deliver any specific water

quality level to the Canal. The State Water Resources Control Board (SWRCB) has established water quality standards for the Delta.

The Antioch Water Treatment Plant (WTP), managed by the City of Antioch, produces high-quality drinking water that meets all state and federal primary and secondary standards. The WTP provides conventional treatment/disinfection, flocculation, sedimentation, and filtration to ensure water meets public health standards.

Recycled Water

Delta Diablo Sanitation District (DDSD) supplies the City of Antioch with approximately 530 acre feet (173 million gallons) of tertiary-treated recycled water per year. (City of Antioch, 2006) DDSD began its water recycling program in 2001 in an effort to protect the state's valuable and limited water supply. Recycled water is used at two Calpine power generating plants and for landscape irrigation on lands adjacent to the existing pipeline. A new recycled water pipeline is proposed for construction from the existing recycled water pipeline to several existing and new users in Antioch. The proposed pipeline would provide recycled water to the Lone Tree Golf Course, Fairview Park, Babe Ruth Baseball Fields, Memorial Park, Mountaire Park, Chichibu Park, Antioch Fairgrounds, and the Antioch City Park, and eventually other users such as Live Oak High School and Antioch High School. (RMC Water and Environment, 2006) The new pipeline would not serve the Planning Area and there are no plans to extend recycled water to the Hillcrest Station Area at this time. (Chapman, 2008)

Water Conservation

Contra Costa Water District and the City of Antioch work together to implement an ongoing water conservation program. The overall program is made up of various demand management measures, including: water survey programs for residential connections; residential plumbing retrofit programs which distributes low-flow showerheads, faucet aerators, and toilet leak detection tablets; landscape water budget program for large landscape irrigation accounts; high-efficiency washing machine rebate program; public information programs; school education programs; conservation programs for commercial, institutional, and industrial accounts; conservation pricing; water waste prohibitions; and a residential ultra-low flush toilet replacement program. Additional water conservation measures have been established for water supply shortages.

Water Infrastructure and Treatment Plant

The City of Antioch operates a water treatment, storage, and distribution system which serves the entire City. Raw water is stored in the Municipal Reservoir (735 acre-foot capacity), located adjacent to the Lone Tree Golf Course, and then treated at the Antioch Water Treatment Plant (WTP), located on Putnam Street. The WTP currently has a maximum capacity of 38 million gallons per day (MGD). After treatment, the water is transmitted through a distribution system of 4- to 30-inch diameter pipelines throughout the City. In addition to the Municipal Reservoir and Water Treatment Plant, the City owns and operates 12 storage reservoirs with a combined storage capacity of 25.5 million gallons, eight booster stations, and several backup wells. (City of Antioch, 2006)

Contra Costa Water District also maintains untreated water lines on behalf of the United States Bureau of Reclamation within the Planning Area. Laterals 9.1 and 9.1-1 are located near the

intersection of SR 4 and Hillcrest Avenue. Any impacts to these laterals will require NEPA (National Environmental Policy Act) review and Reclamation approval.

Water Distribution Pipelines Serving the Planning Area

The majority of the Planning Area is in Pressure Zone II, though the southeastern portion of the site is in Pressure Zone III East. In Pressure Zone II, there are four reservoirs with a combined storage capacity of 7.5 million gallons, and two booster stations.

Due to the limited development in the Planning Area, few water mains have been installed. Hillcrest Avenue (20-inch diameter), Viera Avenue (16-inch diameter), Willow Avenue (16-inch diameter), Sunset Drive (10-inch diameter), and portions of Oakley Road (12-inch diameter) have existing water mains. In addition, there are a few pipelines (8-16-inch diameters) which are not built as part of the road network, but serve the existing housing units near the south end of Willow Avenue. The Water System Master Plan Update anticipated the need for new water mains along Oakley Road (12-inch diameter), Phillips Lane (12-inch diameter), along PG&E power transmission rights-of-way, and an east-west link between Hillcrest Avenue and Viera Avenue (20-inch diameter) prior to 2028. (City of Antioch, 1999) The system improvements were planned based on primarily industrial development within the Planning Area.

Wastewater Management

Conveyance and Treatment

Delta Diablo Sanitation District (DDSD) provides sewer treatment service to Antioch, as well as to Pittsburg and Bay Point. The Delta Diablo Sanitation District is also responsible for conveyance of wastewater from City pipelines to interceptor sewers, which convey the sewage to the Bridgehead and Fulton Shipyard (Antioch) pump stations, located in southeast Antioch and at Fulton Shipyard Road, respectively. The wastewater is treated at the DDSD Water Pollution Control Facility (WPCF), located near the border of Antioch and Pittsburg.

DDSD is currently planning WPCF improvements to increase the capacity from 16.5 mgd to approximately 18.0 mgd. New capacity should be operational in March 2010. Capacity improvements are constructed gradually as demand increases, based on the District's master plan. In 2020, DDSD anticipates increasing capacity to 22.5 mgd, and after 2030, capacity is expected to be 24.0 mgd. (Delta Diablo Sanitation District, 2007) Revenues for expansion projects come from Capital Facility Capacity Charges. The fees were evaluated in fiscal year 2005-2006, and new fees were established in 2007.

In 2003, the average annual flow to the WPCF was 14.2 mgd, of which about half comes from the City of Antioch. Approximately 92 percent of the flow is generated from residential sources. Based on per capita projections and the water conservation programs in place in 2003, it is estimated that average annual flows will increase to 24.0 mgd by 2025. (City of Antioch, 2006) This amount is consistent with the planned WPCF capacity improvements to handle 24.0 mgd by 2030. The full capacity may need to be provided sooner, depending on the actual timing of new growth.

Discharge and Recycled Water

DDSD has a current National Pollutant Discharge Elimination System (NPDES) permit to discharge treated and disinfected secondary effluent into New York Slough in the San Joaquin

Delta. In 2005, 9.25 acre feet were discharged, all of which met the NPDES permit’s quality requirements.

In addition to discharging treated wastewater, DDS D diverts a portion of the effluent to the Recycled Water Facility. Approximately 7.0 mgd of recycled water is piped to two power generation centers and two parks in Pittsburg. DDS D and the City of Antioch are exploring the potential to expand recycled water deliveries to users in Antioch.

Municipal Wastewater Collection System

The City is responsible for collection of wastewater and maintenance of local sanitary sewer lines. The City of Antioch’s sewer system consists of approximately 282 miles of pipeline ranging from 4-inches to 68-inches in diameter, plus 5,300 manholes, cleanouts, and other access structures. The City of Antioch’s wastewater collection system was built beginning in the early 1950’s, after the old combined sewer system converted to sanitary sewer system. (Winzler & Kelly, 2003)

The 2003 Wastewater Collection System Master Plan developed future scenarios for capacity analysis, by distributing total population growth and nonresidential land use expansion to General Plan focus areas. The distribution of growth was based on existing land use designation, total area of the focus area, current population, and the areas of developed non-residential parcels. Table 3.13-4 contains the estimated wastewater flow for the City of Antioch as estimated in 2003, based on the land uses in the General Plan.

Table 3.13-4 Master Plan Design Flow Scenarios Summary

<i>Design Flow Scenario</i>	<i>2002</i>	<i>2007</i>	<i>2012</i>	<i>2020</i>	<i>2020*</i>
Total Wastewater Flow from south Antioch through Bridgehead Pump Station (MGD)					
Average Dry Weather Flow	2.6	3.7	4.8	6.0	8.1
Peak Dry Weather Flow	4.4	6.3	8.3	10.4	14.4
Peak Wet Weather Flow with 5-year Storm	7.2	9.7	12.3	15.0	19.9
Peak Wet Weather Flow with 25-year Storm	8.2	10.9	13.7	16.4	21.9
Peak Wet Weather Flow with 100-year Storm	9.5	12.4	15.4	18.5	24.4
Total Wastewater Flow from Other Parts of the City (MGD)					
Average Dry Weather Flow	5.1	5.8	6.3	6.8	6.8
Peak Dry Weather Flow	9.6	10.3	11.2	12.1	12.2
Peak Wet Weather Flow with 5-year Storm	12.7	13.7	14.6	15.6	15.7
Peak Wet Weather Flow with 25-year Storm	13.2	14.1	15.2	16.1	16.3
Peak Wet Weather Flow with 100-year Storm	13.9	14.9	15.9	16.9	17.1
Total Wastewater Flow from City of Antioch (MGD)					
Average Dry Weather Flow	7.7	9.6	11.2	12.8	14.9
Peak Dry Weather Flow	13.9	16.7	19.5	22.5	26.6
Peak Wet Weather Flow with 5-year Storm	19.9	23.3	26.9	30.5	35.6
Peak Wet Weather Flow with 25-year Storm	21.4	25.0	28.8	32.5	38.2
Peak Wet Weather Flow with 100-year Storm	23.3	27.3	31.3	35.4	41.5

* Includes Roddy Ranch and Ginocchio future urban areas. Roddy Ranch has been annexed.

Only a portion, about 200 acres, of the Ginocchio urban area has been annexed.

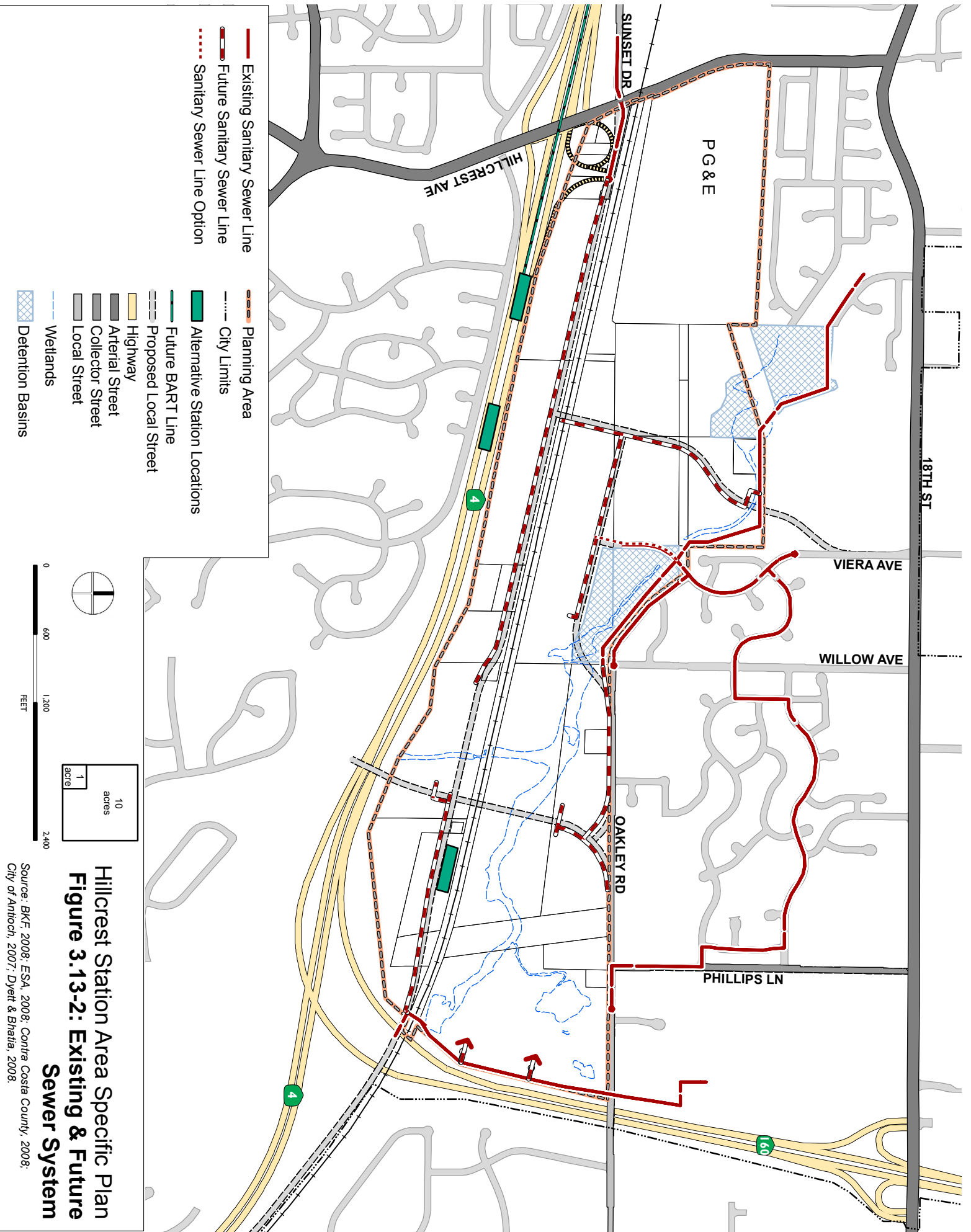
Source: Winzler & Kelly, *Wastewater Collection System Master Plan, 2003.*

The City of Antioch Wastewater Collection System Master Plan compares the total flows through the DDSD pump stations with the estimated flows in the DDSD Conveyance System Master Plan. The comparison shows that the flow estimates agree with DDSD's estimates except for peak wet weather flow. The deviation is due to different definitions of peak wet weather flow in the two studies. The City of Antioch Master Plan includes peak base wastewater flow (BWF) in the peak wet weather flow calculation while DDSD uses average BWF for their peak wet weather flow estimates, as shown in Table 3.13-5.

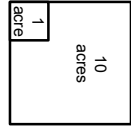
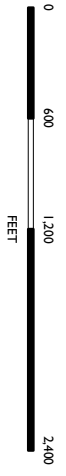
Table 3.13-5 DDSD Master Plan Data and City of Antioch Master Plan Data

<i>Location</i>	<i>Peak Dry Weather Flow (MGD)</i>		<i>Peak Wet Weather Flow (MGD)</i>	
	<i>DDSD</i>	<i>Antioch</i>	<i>DDSD</i>	<i>Antioch</i>
Bridgehead Pump Station (from south Antioch through Bridgehead Pump Station)	10.5	10.4	9.7	15
Fulton Shipyard Pump Station (from other parts of Antioch)	12.8	12.1	13.9	15.6

Source: Winzler & Kelly, Wastewater Collection System Master Plan, 2003.

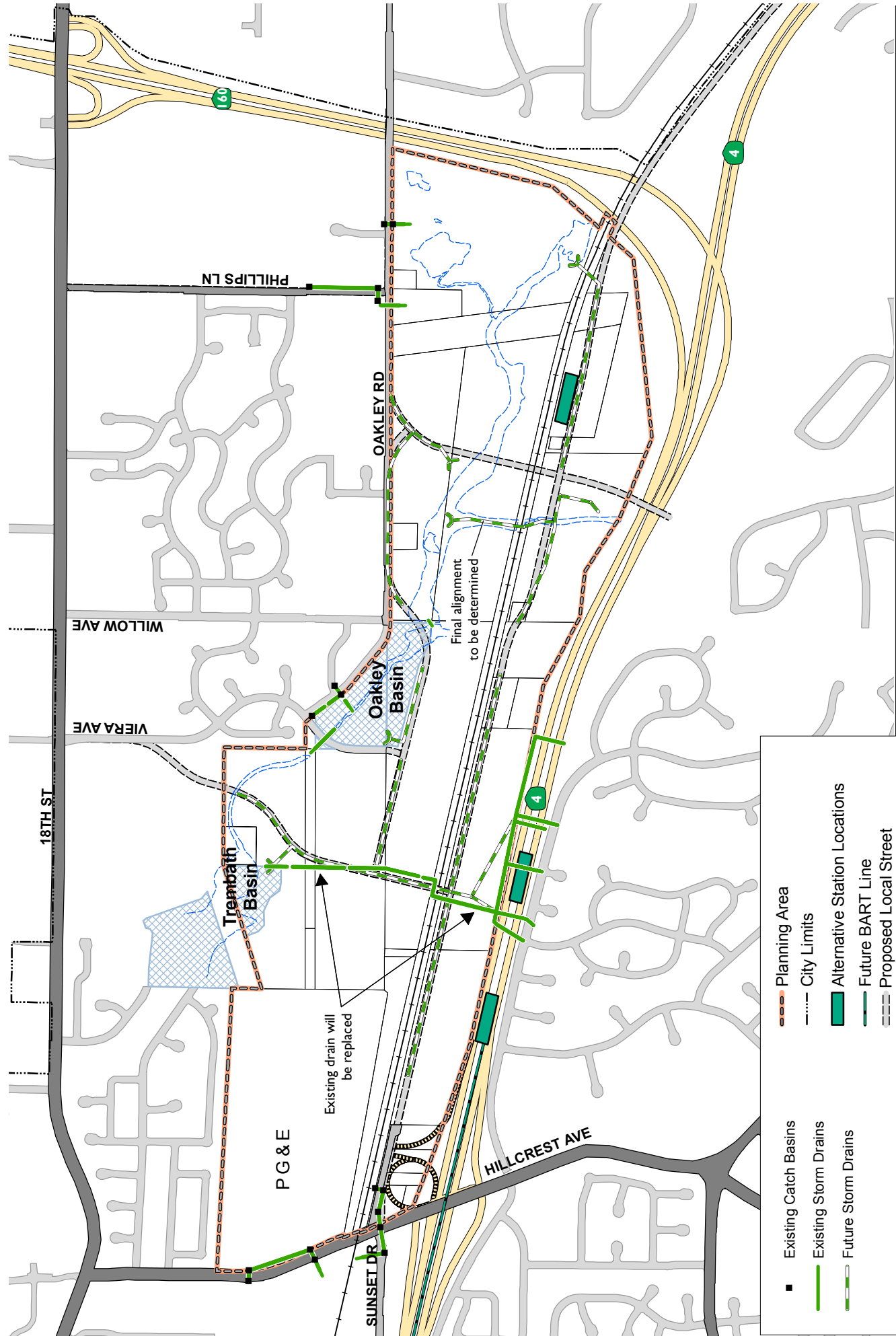


- Existing Sanitary Sewer Line
- - - Future Sanitary Sewer Line
- Sanitary Sewer Line Option
- Alternative Station Locations
- - - City Limits
- Future BART Line
- - - Proposed Local Street
- Highway
- Arterial Street
- Collector Street
- Local Street
- Wetlands
- Detention Basins



Hillcrest Station Area Specific Plan
Figure 3.13-2: Existing & Future
Sewer System

Source: BKF, 2008; ESA, 2008; Contra Costa County, 2008; City of Antioch, 2007; Dyett & Bhatia, 2008.



- Existing Catch Basins
- Existing Storm Drains
- Future Storm Drains
- ▭ Planning Area
- - - City Limits
- ▭ Alternative Station Locations
- Future BART Line
- - - Proposed Local Street
- ▭ Highway
- ▭ Arterial Street
- ▭ Collector Street
- ▭ Local Street
- Wetlands
- ▭ Detention Basins

10 acres
1 acre

0 600 1,200 2,400 FEET

Hillcrest Station Area Specific Plan

Figure 3.13-3: Existing & Future Storm Drains

Source: BKF, 2008; ESA, 2008; Contra Costa County, 2008; City of Antioch, 2007; Dyett & Bhatia, 2008.

The existing sewer lines near the Planning Area were installed post-1960, with rubber compression joints for better leakage protection. Due to the lack of development within the Hillcrest Station Area, there is limited sewer service in the Planning Area. Sewer lines serve the adjacent neighborhoods to the north. These pipes flow to the Fulton Shipyard (Antioch) Pump Station. No improvements were recommended for this pipeline in the 2003 Wastewater Collection System Master Plan. In addition, there is a sewer mainline that parallels the eastern edge of the Planning Area, which collects wastewater from the southern part of the City and transports it to the Bridgehead Pump Station. The 2003 Master Plan recommended that 3,567 feet of this pipeline starting at the Union Pacific Railroad north to East 18th Street be upgraded to help serve development in the southern part of the City.

Storm Drainage Conveyance

The City of Antioch owns and maintains systems of street gutters, more than 110 miles of underground pipes, catch basins, storm channels, culverts, and ditches that handle urban runoff before conveying it to channels owned and maintained by the City and the Contra Costa Flood Control and Water Conservation District (CCCFCWCD). The channels eventually release stormwater to the San Joaquin River. Within the Station Area, the majority of stormwater is conveyed from surrounding development via several existing mains to East Antioch Creek and the two detention basins in the Planning Area, Oakley and Trembath. Maintenance fees for the system are collected by the City through the Contra Costa County Clean Water Program. Potential impacts to the detention basins are addressed in Section 3.9 Hydrology and Water Quality.

Solid Waste

Pleasant Hill Bayshore Disposal currently provides solid waste collection, disposal, recycling, and yard waste services to the City through a franchise agreement. Solid waste and recyclables from Antioch are taken to the Contra Costa Transfer and Recovery Station located in Martinez, where recyclables are separated out and stored before shipment to recycling markets. Solid waste is transferred from the transfer station to the Keller Canyon Landfill in Pittsburg. The landfill has a permitted lifetime site capacity of 64 million cubic yards, although the actual site capacity is estimated at over 70.2 million cubic yards. The operators of the landfill estimate its life span to be beyond 2060, even accounting for expected growth throughout Contra Costa County. The landfill serves the entire County, and accepts all general refuse, construction debris (including concrete, soil, and roofing materials), appliances, and tires, but no hazardous, flammable, or special wastes.

Pleasant Hill Bayshore Disposal, Contra Costa Transfer & Recovery, and the Keller Canyon Landfill Company are wholly-owned subsidiaries of Allied Waste Industries, forming a vertically integrated solid waste and recyclables collection and disposal operation serving residential and commercial customers in Contra Costa and Solano Counties.

The City disposed of 80,765 tons of solid waste in 1998. Households generated 40 percent, and businesses generated 60 percent of the total solid waste. In 2005 the City disposed of 91,414 tons of solid waste, of which the households generated 40 percent and businesses 60 percent. (CIWMB, 2008) As of 2005 and 2006, the City of Antioch has been in compliance of the state-mandated solid waste diversion targets (50 percent of all solid waste must be diverted from the landfill through recycling, composting, or other reuse efforts.)

Electricity and Gas

Pacific Gas & Electric provides electricity and natural gas to the Planning Area. PG&E does not foresee any issues meeting the gas and electricity needs for the development area. In addition, PG&E owns two gas distribution pipelines that run from the Hillcrest Substation along the northwestern border of the Planning Area under the electricity transmission towers and line.

The Hillcrest Yard and Substation site serves as a 230 kV substation and construction yard, and houses the local engineering department. At this time, between 60 and 70 employees work on the site. PG&E currently has no major capital improvement projects planned on the substation site.

PG&E electrical transmission and distribution lines criss-cross the Planning Area. Large towers (between 80 and 100 feet tall) supporting 230 kV lines run approximately north-south at both the east and west ends of the Planning Area. PG&E owns a 200-foot wide parcel for the lines and towers at the east end of the Planning Area. This right-of-way was reserved for an additional line in the future. The second 230 kV line crosses SR 4 to the substation in the western portion of the Planning Area. PG&E maintains a 175 foot easement on the Parachini property for this line. This line exits the substation's northeast corner where PG&E owns the right-of-way.

Distribution lines, typically 12 and 21 kV, extend east-west near Oakley Road, across Oakley Detention Basin to the substation. PG&E and County Flood Control will need to work together to move or raise one of the transmission towers when the detention basins are expanded and improved. Another set of distribution lines extend north-south from Oakley Road to the PDQ Products property.

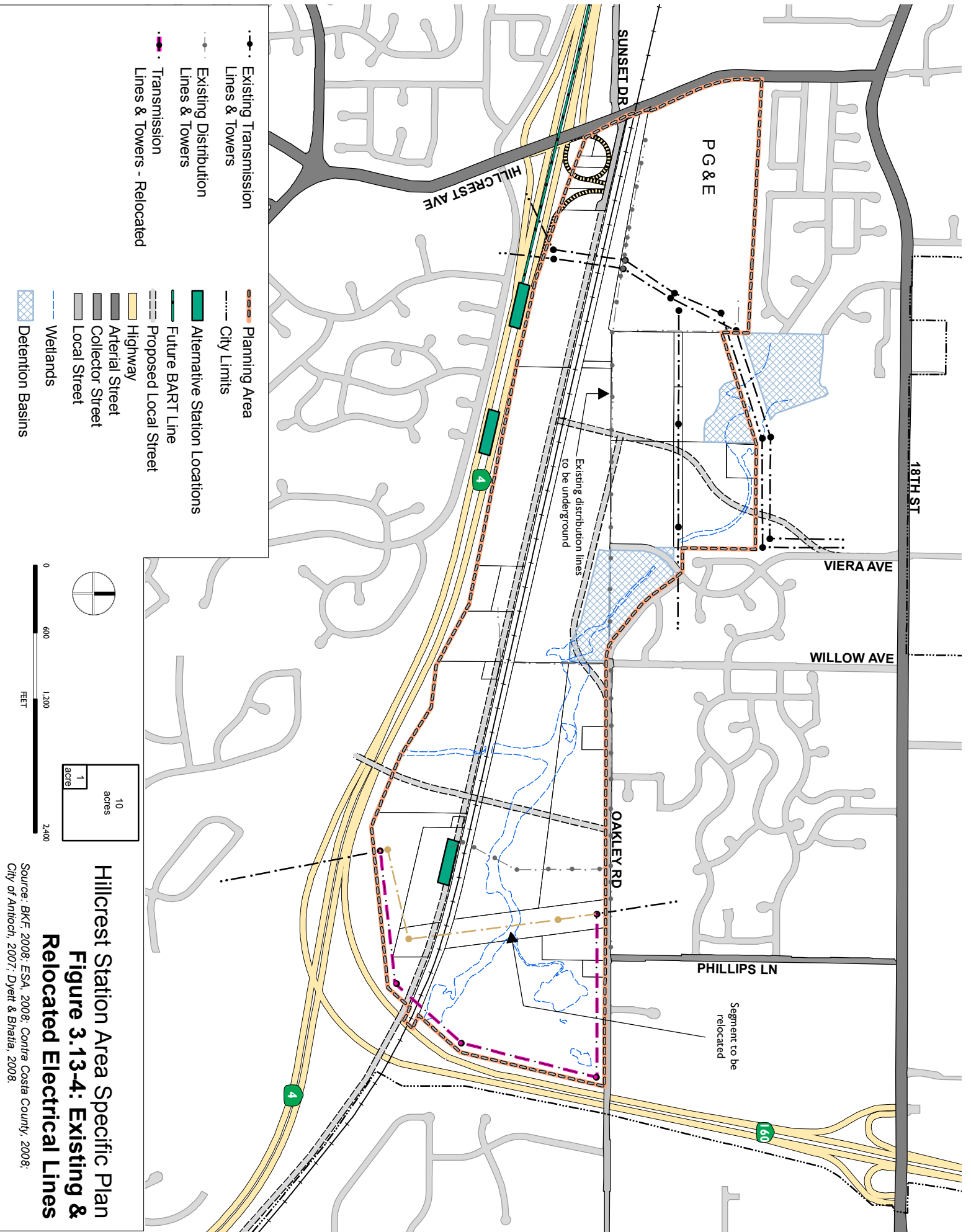
Gas and Oil Pipeline Easements

In the early 1900s, Chevron's predecessors built the Tidewater Associated (TAOC) and Old Valley (OVP) pipelines to transport heavy crude oil and Bunker C fuel oils from the oilfields in Kern County to its Richmond refinery located in Richmond, California. The pipelines were operated until the early 1970s when they were emptied, cleaned, and decommissioned. The pipelines are no longer active and the bulk of the pipe has already been removed. The TAOC pipelines were parallel to the railroad right-of-way. (Mansholt, 2008)

Chevron operates one active pipeline near the Union Pacific right-of-way. This 8-inch steel high pressure pipeline transports refined petroleum products. In addition, Chevron operates a scraper trap/block valve site on parcel APN: 052-052-008. Impacts related to high-pressure pipelines are addressed in Section 3.8 Hazardous Materials and Safety. PG&E operates natural gas pipelines in parcel APN: 051-170-010 to the north of the Planning Area and adjacent to Viera Avenue.

Telecommunications

Pacific Bell is the primary provider of residential and commercial telephone service in the City. Pacific Bell also provides or hosts a variety of telecommunication services such as Digital Subscriber Lines (DSL), Internet Service Providers (ISP), web hosting, virtual private networking, and wireless/cellular paging services. AT&T and Sprint are also an internet Service Providers (ISP) in the City. The City of Antioch negotiates franchises with both ISP and cable television providers and requires that their coverage includes the entire City. Fiber optic networks in the City have been installed by Pacific Bell and AT&T. These networks are privately owned and maintained.



Hillcrest Station Area Specific Plan
Figure 3.13-4: Existing & Relocated Electrical Lines

Source: BKF 2008; ESA, 2008; Contra Costa County, 2008; City of Antioch, 2007; Dyett & Bhatia, 2008.

The California Public Utilities Commission (CPUC) requires that telecommunications companies anticipate and serve new growth. To meet this new requirement, Pacific Bell continually upgrades their facilities and infrastructure; adding new facilities and technology to remain in conformance with CPUC tariffs and to serve customer demand in the City.

Any additions to City infrastructure, zoning changes, or growth would cause a need for expansion or changes in Pacific Bell's infrastructure. Expansion of Pacific Bell's infrastructure involves finding suitable sites to place equipment. Suitable sites must meet requirements for the physical transmission of telecommunication services and conform to the City's guidelines. Pacific Bell also works with the City to ensure that construction of new facilities does not interfere with any new or newly paved streets.

REGULATORY SETTING

Utilities are not regulated as a whole, but rather different utilities are subject to different local, state, or federal regulations. This section provides a brief overview of the regulatory setting for each of the utilities serving the Hillcrest Station Area.

Federal Regulations

Water

Clean Water Act. The Clean Water Act is the principal federal law that addresses water quality. The primary objectives include the regulation of pollutant discharges to surface water, financial assistance for public wastewater treatment systems, technology development, and non-point source pollution prevention programs. The Clean Water Act also requires that states adopt water quality standards to protect public health and welfare and enhance the quality of water.

Safe Drinking Water Act. The Safe Drinking Water Act (SDWA), administered by the U.S. EPA in coordination with the states, is the main federal law that ensures the quality of drinking water. Under the SDWA, EPA sets standards for drinking water quality and oversees the states, localities, and water suppliers who implement those standards. The Department of Public Health administers the regulations contained in the Act in the State of California.

Solid Waste

Resource Conservation and Recovery Act (Amended 1986). The Resource Conservation and Recovery Act is a federal act regulating the potential health and environmental problems associated with solid waste hazards and non-hazardous wastes. Specific regulations addressing solid waste issues are contained in Title 40, Code of Federal Regulations.

State Regulations

Water

California Water Code. California Water Code (Porter-Cologne Act) establishes a program to protect water quality and beneficial uses of state water resources and includes groundwater and surface water. The State Water Resources Control Board and the Regional Water Quality Control Boards (RWQCBs) are the principal state agencies responsible for control of water quality.

California Department of Public Health. A major component of the State Department of Public Health, Division of Drinking Water and Environmental Management, is the Drinking Water Program which regulates public water systems. Regulatory responsibilities include the enforcement of the federal and state Safe Drinking Water Acts, the regulatory oversight of public water systems, issuance of water treatment permits, and certification of drinking water treatment and distribution operators. State regulations for potable water are contained primarily within Titles 22 and 17, Chapter 5 of the California Code of Regulations.

The regulations governing recycled water are found in a combination of sources including the Health and Safety Code, Water Code, and Titles 22 and 17 of the California Code of Regulations. Issues related to treatment and distribution of recycled water are generally under the influence of the RWQCB, while issues related to use and quality of recycled water are the responsibility of the California Department of Public Health.

California Environmental Quality Act, SB 610, and SB 221. Section 15083.5 of the CEQA Guidelines requires the City to request certain information from the public water supply system(s) serving the planning area. This requested information includes: an indication of whether the projected water demand associated with the proposed general plan was included in its last urban water management plan; and, an assessment for any major development projects “whether its total projected water supplies available during normal, single-dry, and multiple-dry water years as included in the 20-year projection contained in its urban water management plan will meet the projected water demand associated with the proposed project, in addition to the system’s existing and planned future uses.”

Senate Bill 610 became effective January 1, 2002, and requires cities in connection with CEQA review to consider water supply assessments to determine whether projected water supplies can meet the project’s anticipated water demand. SB 610 also requires additional factors to be considered in the preparation of urban water management plans and water supply assessments.

SB 610 and CEQA Guidelines Section 15083.5 identifies those projects generally as a residential development of more than 500 dwelling units; a commercial or industrial business employing more than 1,000 persons; or any other project that would have a water demand at least equal to a 500 dwelling unit project. SB 221 contains similar provisions as SB 610 but is intended for use with large residential subdivisions and is usually required at the time of tentative tract map approval.

Solid Waste

California Integrated Waste Management Board. The California Integrated Waste Management Board (CIWMB) establishes the statewide regulations for solid waste collection and disposal, including state-mandated diversion goals. Regulations authored by CIWMB (Title 14) were integrated with related regulations adopted by the State Water Resources Control Board pertaining to landfills (Title 23, Chapter 15) to form Title 27 of the California Code of Regulations.

The California Integrated Waste Management Act, AB 939 mandated that all jurisdictions in the State divert at least 50 percent by 2000 through source reduction, composting, and recycling activities. The Act gives the highest priority to source reduction and defines it as the act of reducing the amount of solid waste generated in the first place. Recycling and composting are

given the next highest priority. The Act specifies that all other waste that is not diverted be properly and safely disposed of in a landfill or through incineration. The California Integrated Waste Management Act also mandates that each jurisdiction adopt a Source Reduction and Recycling Element (SRRE) which specifies how the community will meet the 50 percent goals set forth in the Act. Each community is also required to take measures to reduce solid waste generation and to provide for the safe disposal of special and hazardous wastes.

The Solid Waste Disposal Measurement System Act of 2008, SB 1016, amended the California Integrated Waste Management Act procedures for measuring and reporting diversion requirements. Starting in 2009, jurisdictions are required to calculate the 50 percent diversion requirement in a per capita disposal rate equivalent. CIWMB will determine the per capita disposal rate equivalent for each jurisdiction.

Gas and Electricity

California Public Utilities Commission. The California Public Utilities Commission (CPUC) regulates Investor-Owned Utilities (IOUs) including those that offer electric, natural gas, steam, and petroleum service to consumers. The CPUC regulates both electric and natural gas rates and services provided by these utilities including in-state transportation over the utilities' transmission and distribution pipeline systems, storage, procurement, metering and billing. Natural gas regulations are found in General Orders 58, 94, 96, and 112, while electrical distribution regulations are found in General Orders 95, 128, 131, 165, and 166.

Regional and Local Regulations

The San Francisco Bay Regional Water Quality Control Board (RWQCB) governs many of the regulations associated with utilities, specifically potable water, sanitary sewers, storm drains, and recycled water.

Water

RWQCB has the authority to enforce water quality regulations found in the Clean Water Act based on the Porter-Cologne Water Quality Control Act. Issues related to treatment and distribution of recycled water are generally under the influence of the RWQCB, while issues related to use and quality of recycled water are the responsibility of the California Department of Public Health.

City of Antioch, Urban Water Management Plan Update, Final Report, January 2006. The City of Antioch's Urban Water Management Plan (UWMP) documents the City's planning activities to ensure adequate water supplies to meet existing and future demands for water. The UWMP presents forecasted supplies and demands, describes the District's conservation programs, and identifies recycled water opportunities to the year 2030. The UWMP also includes a water shortage contingency analysis and a description of the plan adoption, public coordination, and planning coordination activities.

City of Antioch, Water System Master Plan Update, September 1999. The Public Works Department uses the Master Plan as the basis for projecting water demand and infrastructure capacity improvements. The document also includes the minimum system requirements for equalization, fire flow, and emergencies based on 2028 projections.

The Antioch Municipal Code contains regulations related to the water system in Title 6, Chapter 5. The Subdivision Ordinance contains the specific water pipelines system requirements for development projects.

Wastewater

The RWQCB administers regulations related to wastewater discharges under the Federal Water Pollution Control Act of 1972, as amended, more commonly known as the Clean Water Act. Wastewater discharges are guided by NPDES (National Pollutant Discharge Elimination System) permits granted by the RWQCB. The Antioch Municipal Code contains regulations related to the sewer system, including sewage disposal and service fees, in Title 6, Chapter 4. The Subdivision Ordinance contains the specific sanitary sewer system requirements for development projects.

Storm Drains

The City's storm drain outfalls operate under NPDES permits granted by the RWQCB. The Antioch Municipal Code contains regulations related to stormwater management in Title 6, Chapter 9. The Subdivision Ordinance contains the specific drainage requirements for development projects.

Solid Waste

The CIWMB delegates local permitting, enforcement, and inspection responsibilities to Local Enforcement Agencies (LEA). The Antioch Municipal Code contains regulations related to solid waste and recycling, including construction and demolition debris recycling, in Title 6, Chapter 3.

Antioch General Plan

Water

3.5.4.2 Performance Standard

Adequate fire flow as established by the Contra Costa County Fire Protection District, along with sufficient storage for emergency and drought situations and to maintain adequate service pressures.

8.4.2 Water Facilities Policies

- a. As part of the design of water systems, provide adequate pumping and storage capacity for both drought and emergency conditions, as well as the ability to provide fire flows required by the Contra Costa County Fire Protection District.
- b. Ensure that adequate infrastructure is in place and operational prior to occupancy or new development, such that (1) new development will not negatively impact the performance of water facilities serving existing developed areas, and (2) the performance standards set forth in the Growth Management Element will continue to be met.
- c. Maintain an up-to-date master plan of water facilities.
- d. Maintain existing levels of water service by protecting and improving infrastructure, replacing water mains and pumping facilities as necessary, and improving the efficiency of water transmission facilities.
- e. Permit the construction of interim facilities only when it is found that construction of such facilities will not impair the financing or timely construction of master planned facilities.

- f. Periodically evaluate local water consumption patterns, the adequacy of existing facilities, and the need for new facilities, including this information in the comparison of proposed development projects to the performance standards of the Growth Management Element.
- g. Incorporate expected reductions in the need for water facilities resulting from water conservation programs only after several years of experience with the implementation of such programs.
- h. Provide the Contra Costa Water District with timely information on development proposals and projected levels of future growth so that it can maintain appropriate long-term master plans and refine the delivery of service and facilities to maintain the performance standards set

10.7.2 Water Resources Policies

Water Supply

- a. As part of the implementing the City's residential growth management program and its development review process for non-residential development, ensure that adequate long-term water supplies are available to serve the development being granted new allocations, including consideration of peak drought and peak fire fighting needs.
- b. Require new development to be equipped with drought tolerant landscaping and water conservation devices.
- c. Work with Delta Diablo Sanitation District to make reclaimed wastewater available for irrigation use. Where reclaimed wastewater can be made available at a reasonable cost, require the installation of dual water systems in development projects and public facilities, using reclaimed wastewater for irrigation.
- d. Protect, where possible, groundwater recharge areas, including protection of stream sides from urban encroachment.
- e. Oppose proposals with the potential to increase the salinity of the Delta and/or endanger the City's rights to divert water from the San Joaquin River.

Water Quality

- f. Participate in the Contra Costa Clean Water program to reduce storm water pollution and protect the water quality of the City's waterways.
- g. Require public and private development projects to be in compliance with applicable national Pollution Discharge Elimination System (NPDES) permit requirements, and require the implementation of best management practices to minimize erosion and sedimentation resulting from new development.
- h. Participate in regional watershed planning efforts to enhance area water quality.
- i. Design drainage within urban areas to avoid runoff from landscaped areas and impervious surfaces from carrying pesticides, fertilizers, and urban and other contaminants into natural streams.

Wastewater

3.5.5.2 Performance Standards

- a. Sanitary Sewers (except for force mains) will exhibit unrestricted flow in normal and peak flows.

b. Prior to approval of discretionary development projects, require written verification from the Delta Diablo Sanitation District that the proposed project will not cause the rated capacity of treatment facilities to be exceeded during normal or peak flows.

8.5.2 Wastewater Management Policies

a. As part of the design of sewer systems, provide adequate capacity for average and peak conditions.

b. Ensure that adequate infrastructure is in place and operational prior to occupancy of new development; such that new development will (1) not negatively impact the performance of sewer facilities serving existing developed areas, and (2) the performance standards set forth in the Growth Management Element will continue to be met.

c. Maintain an up-to-date master plan of sewer facilities.

d. Continue to facilitate economically feasible water conservation programs as a means of reducing sewage generation and the need for expanding sewage treatment capacity.

e. Work with Delta Diablo Sanitation District to explore and develop uses for treated wastewater. Where reclaimed wastewater can be economically delivered, require the installation of dual water systems permitting the use of reclaimed water supplies for irrigation purposes and industrial purposes.

f. Incorporate expected reductions in sewage flow projections and the need for sewage treatment capacity resulting from water conservation programs only after several years of experience with the implementation of such programs.

g. Permit the construction of interim facilities only when it is found that construction of such facilities will not impair the financing or timely construction of master planned facilities.

h. Periodically evaluate local sewage generation patterns, the adequacy of existing facilities, and the need for new facilities, including this information in the comparison of proposed development projects to the performance standards of the Growth Management Element.

i. Provide the Delta Diablo Sanitary District with timely information on development proposals and projected levels of future growth so that it can maintain appropriate long-term master plans and refine the delivery of service and facilities to maintain the performance standards set forth in the Growth Management Element.

j. Work cooperatively with affected agencies to ensure that capacity allocations are adjusted among the agencies swerved by Delta Diablo Sanitation District to optimize plant utilization, avoid unnecessary expansions, and facilitate needed expansions.

Storm Drainage System

8.7.2 Storm Drainage and Flood Control Policies

a. Continue working with the Contra Costa County Flood Control District to ensure that runoff from new development is adequately handled.

b. Require adequate infrastructure to be in place and operational prior to occupancy of new development, such that:

- new development will not negatively impact the performance of storm drain facilities serving existing developed areas and

- the performance standards set forth in the Growth Management Element will continue to be met.
- c. Design flood control within existing creek areas to maximize protection of existing natural settings and habitat.
- d. Provide retention basins in recreation areas where feasible to reduce increases in the amount of runoff resulting from new development.
- e. Require new developments to provide erosion and sedimentation control measures to maintain the capacity of area storm drains and protect water quality.
- f. Require implementation of Best Management Practices in the design of drainage systems to reduce discharge of non-point source pollutants originating in streets, parking lots, paved industrial work areas, and open spaces involved with pesticide applications.

Solid Waste

8.6.2 Solid Waste Management Policies

- a. Continue contracting for garbage and recycling collection services.
- b. Require provision of attractive, convenient recycling bins and trash enclosures in new residential and non-residential development.
- c. Provide and promote opportunities to reduce solid waste generation at home and in businesses and public facilities, making possible the safe disposal of hazardous materials.
- d. Require builders to incorporate interior and exterior storage areas for recyclables into new commercial, industrial, and public buildings.
- e. Consider the use of co-generation at appropriate facilities.
- f. Support the identification and selection of new landfill sites in remote locations of the County outside of and not requiring access through the Antioch Planning Area, where such sites would not impact existing or proposed parks or water storage facilities.
- g. Limit the location of solid waste transfer stations to areas where heavy industrial uses would be appropriate, avoiding traffic, odor, and other environmental impacts on the community.
- h. The City of Antioch shall follow State regulations in implementing the goals, policies, and programs in order to achieve and maintain a 50 percent reduction in solid waste disposal through source reduction, reuse, recycling, and composting.
- j. The City shall require all development projects to coordinate with appropriate departments and/or agencies to ensure that there is adequate waste disposal capacity to meet the waste disposal requirements of the project, and the City shall recommend that all development projects incorporate measures to promote waste reduction, reuse, recycling, and composting.

Electricity and Gas

10.8.2 Energy Resource Policies

- a. Continue to implement Title 24 of the State Building Code, and provide incentives to encourage architects and builders to exceed the energy efficiency standards of Title 24 through increased use of passive, solar design and day-lighting.

- b. Promote the use of site design, landscaping, and solar orientation to decrease the need for summer cooling and winter heating.
- c. Where feasible, incorporate recycled materials in new construction.
- d. Encourage the installation of energy-efficient lighting, reduced thermostat settings, and elimination of unnecessary lighting in public facilities.
- e. Facilitate the installation of environmentally acceptable forms of distributed generation, where such systems can be safely and economically provided.
- f. Maintain City physical facilities so as to ensure that optimum energy conservation is achieved.
- g. Promote purchasing of energy-efficient equipment based on a fair return on investment, and use energy-savings estimates as one basis for purchasing decisions for major energy-using devices
- h. Promote coordination of new public facilities with transit services and non-motorized transportation facilities, including bicycles, and design structures to enhance transit, bicycle, and pedestrian use.
- i. The City shall review all development plans prior to approval to guarantee that energy conservation and efficiency standards of Title 24 are met and are incorporated into the design of the future proposed project

Telecommunications

6.3.5 Commercial and Industrial Land Availability Policies

- c. Promote the establishment of workplace alternatives, including home occupations and telecommuting.
 - Promote the provision of high-speed telecommunications cabling in new residential development.
- e. Require the provision of fiber optic networks and other advanced telecommunications in new employment-generating developments.

Antioch Municipal Code

Section 6-3.02

The Antioch Municipal Code requires all commercial and residential owners or managers to provide and keep at all times an adequate level of service including solid waste, green waste, and recycling collection for all materials produced or accumulated on the premises. In addition, all construction, demolition, and renovation projects (including tenant improvements) within the city, which are projected to cost more than \$75,000 or are sponsored by the city or redevelopment agency, must submit a waste management plan (WMP) which demonstrates that 50 percent of all construction and demolition debris materials have been diverted. All other projects shall be encouraged to divert as much project-related construction and demolition debris as possible.

IMPACT ANALYSIS

SIGNIFICANCE CRITERIA

Implementation of the proposed Plan would have a potentially significant adverse impact on public utilities if the Plan would:

- Have insufficient water supplies available to serve the project from existing entitlements and resources, or require new or expanded entitlements.
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.
- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.
- Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs.
- Comply with federal, state, and local statutes and regulations related to solid waste.
- Substantially increase reliance on natural gas and oil, or substantially decrease reliance on renewable energy sources, thereby resulting in wasteful, inefficient, and unnecessary consumption of energy.
- Have an adverse effect on local and regional energy supplies and/or on requirements for additional capacity.

METHODOLOGY AND ASSUMPTIONS

This EIR addresses impacts to the backbone infrastructure affected by the proposed Specific Plan at the program level. Subsequent CEQA review at the project level may be required to determine whether significant environmental effects would result from the construction of infrastructure systems on development sites for water distribution lines, wastewater collection system components, storm drainage conveyance pipes, and any onsite storage or pumping facilities. Project-level review will occur when proposed development plans for the infrastructure facilities are prepared.

Water

The UWMP developed unit water use factors to estimate future water demand. These factors are used to plan for total capacity of the water treatment plant. For programmatic planning, the City uses 190 gallons of water per capita per day as the unit water use factor. This factor is used to estimate the water demand for the development contained in the proposed Specific Plan.

Wastewater

City of Antioch uses average base wastewater flows to plan for pipeline design. These factors were used to estimate total wastewater flow from the projected Specific Plan development. More specific criteria will need to be used to determine the exact pipeline design for the Planning Area.

Table 3.13-6 Base Wastewater Unit Flow Factors

<i>Land Use Category</i>	<i>BWF Unit Flow Factor</i>	
	<i>gpd/acre</i>	<i>gpd/capita</i>
ER – Estate Residential	-	140
LDR – Low Density Residential	-	140
MLDR – Medium Low Density Residential	-	75
MDR / MU – Medium Density Residential/Mixed Use	-	70
HDR – High Density Residential	-	55
MU – Mixed Use	400*	70**
PI – Public Institutional	400	15 – 22.5 ***
OS – Open Space	1	-
CR - Commercial Retail	300	-
CO – Commercial Office	700	-
CS – Commercial Services	1000	-
CN – Commercial Neighborhood	1000	-
CC - Commercial Convenience	900	-
IH – Heavy Industrial	400	-
BP – Business Park	600	-
IL – Light Industrial	500	-

* Commercial / Industrial area
 ** Residential area
 *** gpd/student for schools

Source: Winzler & Kelly, 2003.

The City also uses the following peaking factors to estimate necessary pipe capacity:

Table 3.13-7 Peaking Factors

<i>Land Use</i>	<i>Peaking Factor</i>
Residential	1.7
Commercial	2
Industrial	2
School	2.4

Source: Winzler & Kelly, 2003.

SUMMARY OF IMPACTS

All of the impacts expected to occur as a result of the proposed project will be less than significant after Specific Plan policies are implemented. Cumulative growth in the City of Antioch is anticipated to be consistent with current population and employment projections. (ABAG 2007).

Potable Water

Based on available water supply from the Contra Costa Water District, the City will have an adequate water supply during normal, single dry years, and multiple dry years. The water treatment plant will have sufficient capacity to treat the future water demand for the City. The potable water distribution system will need to be expanded to serve development in the Planning Area. Specific Plan policies prioritize water conservation in new development, and the impact to the existing and future water system will be less than significant.

Stormwater Management System

New storm drainage mains will be located within the backbone street alignments in order to convey runoff to East Antioch Creek. The unnamed creek tributary is proposed to be filled and the runoff conveyed in a new pipe. The impacts to the stormwater drainage system will be less than significant.

Wastewater Collection System

Planned DDS Water Pollution Control Facility capacity will be sufficient to treat the wastewater generated by new development in the Planning Area. However, the municipal wastewater collection system will need to be upgraded and expanded to support development in the Planning Area. Specific Plan policies prioritize water conservation in new development, therefore, less wastewater should be generated, and the impacts to the wastewater management collection system will be less than significant.

Solid Waste

The landfills used by the City of Antioch's solid waste contractor have the permitted capacity to accommodate the solid waste generated by development in the proposed Plan. The City of Antioch has met the state-mandated diversion levels in 2005 and 2006. Based on the draft CIWMB per capita disposal rate equivalent, 4.2 pounds, the proposed Plan development will be required to generate less than 21,000 pounds (10.5 tons) of solid waste per day. Even though no adverse impacts are anticipated and evaluated in this EIR, the proposed Plan includes policies intended to reduce solid waste generation and disposal in the Planning Area. No potential adverse impacts were identified and analyzed because adequate landfill capacity is available and the City has met the state-mandated diversion levels.

Gas and Electricity

According to PG&E, the anticipated energy demand would not exceed the energy generation capacity. As new development must meet California's Title 24 energy-efficiency requirements, the proposed Specific Plan will not result in wasteful, inefficient, and unnecessary consumption of energy or have an adverse effect on local and regional energy supplies. Therefore, this impact is not analyzed further.

IMPACTS AND MITIGATION MEASURES

3.13-1 *Expected buildout of the Hillcrest Station Area will increase demand for potable water in the Planning Area and will require the expansion of the municipal water distribution system. (Less than Significant)*

The Contra Costa Water District has a water supply contract through 2045 with the U.S. Bureau of Reclamation for water from the Central Valley Project. The CCWD contract provides up to 195,000 acre feet per year for the total service area. CCWD is prepared to sell the City all its projected water needs through year 2028, unless constrained by drought conditions. The total available water supply for the City of Antioch is projected to be 49,140 acre feet per year in 2025. This is almost double the projected water demand for the whole City, as analyzed in the 2006 Urban Water Management Plan. Thus the City will have an adequate water supply during normal, single dry years, and multiple dry years.

Projected new water demand associated with the development program is primarily associated with population growth. The 2006 Urban Water Management Plan uses a water use factor of 190 gallons per capita per day to project water use in the City. Based on this assumption, the projected development in the Planning Area would require approximately 950,000 gallons per day (1,064 acre feet per year). The anticipated water demand from the Station Area will not cause the City's total demand to exceed the total available supply. Nor will it require that the water treatment plant capacity be increased beyond projections in the Urban Water Management Plan.

The new water demand created by development in the Station Area requires improvements to the existing water distribution infrastructure. New water distribution lines are expected to be installed along new major roads, Viera Avenue (new), Slatten Ranch Road, Oakley Road, and Phillips Lane (New). New lines will be efficiently connected to the existing system and provide hook-ups to new development areas. The existing lines may be moved or removed.

Compliance with General Plan and Specific Plan policies that address water supply, distribution, and water conservation will ensure that impacts on the municipal water system and supply are less than significant.

Specific Plan Policies that Reduce Impact

Implementation of the following proposed Specific Plan policies would help to reduce the impact on the municipal water treatment and distribution system to a less than significant level:

- UT-5 Expand the water distribution system such that it is adequate to serve new development in the Hillcrest Station Area, as conceptually illustrated in Figure 6-3, Existing and Future Water System.
- UT-6 Work with the Contra Costa County Fire Protection District to determine required fire flow and the need for water pressure boosting systems.

- UT-7 To reduce water consumption, require the installation of:
- Low-flow showerheads, faucets, and toilets;
 - Low-flow irrigation systems in public rights-of-way, public parks, and recreation areas; and,
 - Drought-tolerant plant palettes in all new streetscape areas.
- UT-8 To reduce water consumption, recommend the installation of:
- Low-flow irrigation systems in private landscaped areas; and
 - Drought-tolerant plant palettes in private landscaped areas.

Mitigation Measures

No mitigation measures are required.

3.13-2 *Implementation of the proposed Specific Plan would increase urban runoff and require the expansion of the municipal stormwater management system. (Less than Significant)*

Storm runoff is expected to increase as the Station Area develops. Areas that are now vacant soil will be paved and built upon. Therefore improvements to the stormwater collections system could be required. Specific Plan policies below require a Drainage and Flood Management Master Plan for the Hillcrest Station Area. It is anticipated that new stormwater lines will be constructed along the major roads in the area. Lines will drain directly to the detention basins or the wetlands.

Specific Plan Policies that Reduce Impact

Implementation of the following proposed Specific Plan policies would help to reduce the impact of increased urban runoff on the municipal stormwater management system to a less than significant level:

- UT-1 Prior to approval of any land subdivisions or development projects within the Hillcrest Station Area, a Drainage and Flood Management Master Plan shall be prepared in collaboration with Contra Costa County Flood Control and Water Conservation District, the City of Antioch Public Works Department, the City of Antioch Planning Department, and the City of Antioch Parks and Recreation Department. The Plan shall:
- Document the overall drainage and flood control concept to be employed within the Hillcrest Station Area to ensure adequate and safe storm flows and to minimize flooding;
 - Address funding and responsibility for long-term maintenance of the flood control improvements;
 - Demonstrate how the natural hydrologic functions of the site are integrated with the storm drainage system and the overall site design, to the maximum extent feasible; and,
 - Identify how improvements can be phased for each development area.

- UT-2 Continue the Contra Costa County Flood Control and Water Conservation District Drainage Area Fee Program to fund flood control improvements in the Hillcrest Station Area.
- UT-3 Ensure that new development provides needed drainage and flood protection improvements in proportion to a project's impacts, to assure an equitable distribution of costs to construct and maintain drainage infrastructure. Construct new trunk mains along the backbone street alignments and provide connections into East Antioch Creek, as shown conceptually in Figure 6-2, Existing and Future Storm Drains.
- UT-4 Minimize total impervious areas by allowing narrow road sections and shared driveways, and using pervious materials on driveways, gutters, and off-street parking areas, where appropriate.
- EH-45 Development projects in the Station Area shall comply with the requirements of Provision C.3 of the NPDES Municipal Stormwater Permit issued to the Contra Costa County Clean Water Program. As required by the C.3 Provisions, building permit applications must be accompanied by a Stormwater Control Plan, for review and approval by the City Engineer, which specifies the treatment measures and appropriate source control and site design features that will be incorporated into project design and construction to reduce the pollutant load in storm water discharges and manage runoff flows.
- EH-46 Design storm drainage and flood control structures to minimize erosion and creek sedimentation, and to preserve and enhance the wildlife habitat and vegetation of East Antioch Creek.

Mitigation Measures

No mitigation measures are required.

3.13-3 *Expected buildout of the proposed Specific Plan will require the expansion of the municipal wastewater collection system. (Less than Significant)*

Due to the lack of development within the Hillcrest Station Area, there is limited sewer service. Sewer lines serve the adjacent neighborhoods to the north. These pipes flow to the Antioch Pump Station. No improvements were recommended for this pipeline in the *2003 Wastewater Collection System Master Plan*. There is one line that parallels the eastern edge of the Planning Area, which collects wastewater from the southern part of the City and transports it to the Bridgehead Pump Station. Wastewater from the Planning Area would flow either to this main, the sewer line serving the neighborhood north of the Planning Area, or a new main line. The *Wastewater Collection System Master Plan* evaluated projected flows with and without the Roddy Ranch and Ginochio Focus Areas. Since 2003, Roddy Ranch and a portion of the Ginochio Focus Area, about 200 acres, have been annexed into the City.

According to the *Wastewater Collection System Master Plan*, the General Plan SR 4 Industrial Frontage Focus Area would generate approximately 246,000 gallons of wastewater per day at the time of General Plan buildout (2020). This amount would be doubled when peaking factors are applied. To support this development and other development in south Antioch, the 2003 Master Plan recommended that 3,567 feet of sewer main on the eastern edge of the Planning area between the UP railroad and East 18th Street be replaced. If Roddy Ranch and Ginochio Focus areas are not

developed, the main should be replaced with either a 39-inch new pipe or a 27-inch parallel pipe. If the two focus areas are developed, then the main should be replaced with a 45-inch new pipe or a 33-inch parallel pipe.

Table 3.13-8 estimates the total gallons of wastewater flow per day based on the unit flow factors used by the City of Antioch and the projected development under the proposed Plan. The projected development would generate almost 424,000 gallons of wastewater per day. By applying peaking factors, the estimated wastewater flow is almost doubled. These estimates do not account for groundwater infiltration or rain dependent infiltration and inflow. Based on the existing General Plan land uses, the estimated wastewater flow for the Planning Area evaluated in the *2003 Wastewater Collection Master Plan* would have been approximately 311,000 gallons per day. (This estimate uses the Mixed Use commercial flow factor [400] and the maximum anticipated persons per acre [25] for the TOD land use district.) The projected development under the proposed Plan would generate 37 percent more wastewater per day. Therefore the planned improvements of the existing system are likely to be insufficient.

Table 3.13-8 Buildout Projections: Average Daily Wastewater Flows

<i>Land Use</i>	<i>Gross Acres</i>	<i>Commercial Unit Flow Factor (gpd/acre)</i>	<i>Population</i>	<i>Residential Unit Flow Factor (gpd/capita)</i>	<i>Wastewater Flow (gpd)</i>	<i>Peak Wastewater Flow (gpd)</i> ¹
Town Center Mixed Use	105.5	1000	3,000	55	270,500	541,000
Residential TOD	38.2		2,000	55	110,000	187,000
Office TOD	36.6	700			25,620	51,240
Community Retail	13.0	1000			13,000	26,000
eBART Yard and Future Station	9.7	500			4,850	9,700
Total	203.0		5,000		423,970	814,940

1. Peaking factor assumed to be 2 for mixed use areas; 2 for commercial areas; and 1.7 for residential areas.

Source: Dyett & Bhatia, 2008.

The substantial increase in wastewater generation created by development in the Station Area requires improvements to the existing wastewater collection infrastructure. New trunk lines will be built along new major roads. In addition, the planned improvements to the sewer mains documented in the *2003 Wastewater Collection System Master Plan* may not be sufficient to support the cumulative City growth. Therefore, the City's wastewater model will need to be updated based on the proposed land uses in the Planning Area, plus Roddy Ranch and the annexed portion of the Ginochio Focus Area.

Specific Plan Policies that Reduce Impact

Implementation of the following proposed Specific Plan policies would help to reduce the impact on wastewater collection and treatment to a less than significant level:

UT-9 Expand the wastewater collection system such that it is adequate to serve new development in the Hillcrest Station Area, as conceptually illustrated in Figure 6-4, Existing and Future Sewer System. The 2003 Wastewater Collection System Master Plan identifies the sewer main on the eastern edge of the Planning Area between the Union Pacific Railroad tracks and East 18th as needing substantial additional capacity.

UT-10 Amend sewer fees and/or other financing mechanisms if necessary such that Hillcrest Station Area project sponsors pay their fair share of the costs for sewer main improvements.

Mitigation Measures

No mitigation measures are required.