SECTION 2.0
CITY OF ANTIOCH
WATER AND WASTEWATER SERVICES

2.1 Overview

The City of Antioch was incorporated in 1872, and serves a population of approximately 101,000 in an area of 28.8 square miles. Located in eastern Contra Costa County, the City is bounded to the north by the San Joaquin River, to the west by the City of Pittsburgh and unincorporated Contra Costa County, to the south by unincorporated Contra Costa County, and to the east by the Cities of Oakley and Brentwood. The City's Sphere of Influence (SOI) encompasses additional lands to the west, northeast, and south. This includes pockets of unincorporated area in the western portion of the city, unincorporated area in the northeast, and area to the south of Roddy Ranch. In November 2006, LAFCO approved the Roddy Ranch Reorganization, which included annexation of 930± acres (18 parcels) to both the City and the Delta Diablo Sanitation District (DDSD). The area generally extends southerly from Empire Mine Road to the ridgeline between Horse Valley and Deer Valley, westerly from Deer Valley Road, including the already developed Roddy Ranch golf course.

The City of Antioch's principal sources of untreated water supply are the San Joaquin River and the Contra Costa Canal; Canal water is purchased from the Contra Costa Water District (CCWD). The City provides water treatment and distribution and wastewater collection services, discharging the wastewater into the DDSD conveyance system for treatment, disposal, and the production of recycled water. The City provides services for the entire city as well as certain unincorporated areas within the City's SOI, including the County Fairgrounds. A map of the City's boundary and current SOI are shown in *Figure 2.1* and the City's profile for water and wastewater service is shown in *Table 2.1*.

Table 2.1
City of Antioch
Water and Wastewater Service Information

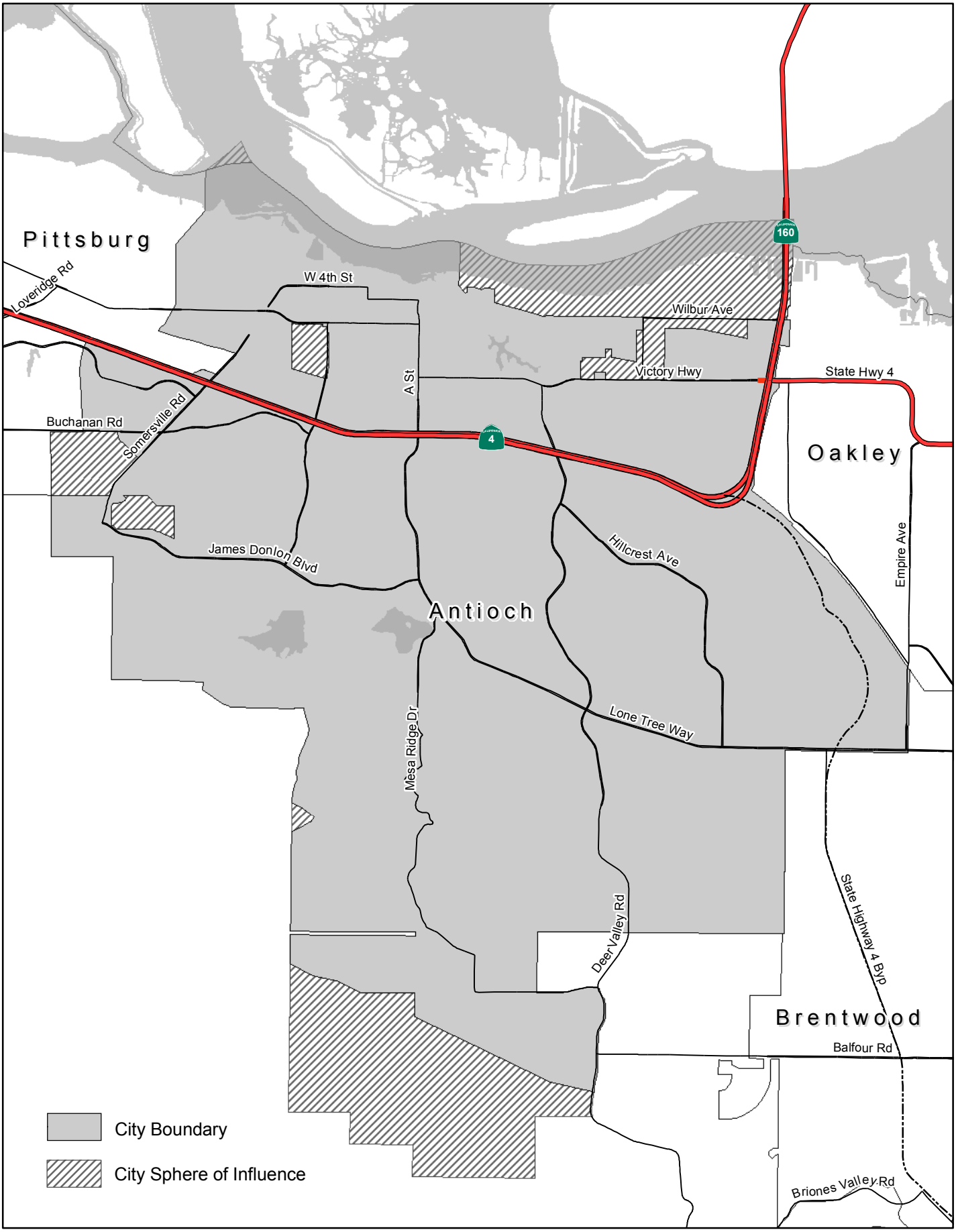
Service Area / Financial Summary	
Public Works Department:	1201 West Forth Street Antioch, CA 94509 (925) 779-6950 www.ci.antioch.ca.us
Service Area:	28.8 square miles
Population:	100,150 (Year 2007) / 124,000 (Year 2030) Average Annual Growth Rate = 1.0%

Table 2.1
City of Antioch
Water and Wastewater Service Information

Operating Budget (FY 2007/2008):	
Water/Water Line Expansion Enterprise Funds	Revenues / Expenditures:$24,001,300 / $28,033,776
Sewer/Sewer Facility Expansion Enterprise Funds	Revenues / Expenditures: $4,365,000 / $3,806,070
Net Assets:	Water Fund Net Assets 06/30/2006: $92,668,220
	Sewer Fund Net Assets 06/30/2006: $56,093,595
Water Service Data	
Services	Water Treatment and Distribution
Number of Service Connections	~30,458
Water Main / Booster Stations	326 miles of main / 7 booster stations
Average Age of Distribution System	> 27.5 years
Treatment and Capacity	City of Antioch Water Treatment Plant / 28 mgd
Storage Capacity	11 reservoirs / 24.7 mg
Average Day Demand / Maximum Day Demand	18.3 mgd/31.017mgd
Wastewater Service Data	
Services	Collection
Number of Service Connections	30,697
Miles of Sewer Main / Number of Pump Stations	319 miles / 3 pump stations
Average Age of Collection System	≥57 years
Average Dry Weather Flow	7.7 mgd
Treatment	Delta Diablo Sanitation District WWTP
RWQCB Region	Region 5 – Central Valley
Orders	Order No. 2006-0003 – Statewide General Waste Discharge Rqmts for Sanitary Sewer Systems

Figure 2.1

City of Antioch Boundary and Sphere of Influence



Map created 10/1/2007
by Contra Costa County Community Development, GIS Group
651 Pine Street, 4th Floor North Wing, Martinez, CA 94553-0095
37:59:48.455N 122:06:35.384W

This map was created by the Contra Costa County Community Development Department with data from the Contra Costa County GIS Program. Some base data, primarily City Limits, is derived from the CA State Board of Equalization's tax rate areas. While obligated to use this data the County assumes no responsibility for its accuracy. This map contains copyrighted information and may not be altered. It may be reproduced in its current state if the source is cited. Users of this map agree to read and accept the County of Contra Costa disclaimer of liability for geographic information.

0 0.5 1 Miles

2.2 Growth and Population Projections

The City of Antioch has an estimated current population of 100,150 residents. Moderate growth is anticipated, ultimately reaching a population of 124,000 by 2030[1] with an average annual growth rate of 1.0 percent.

In 1998, the voters in Antioch approved Measure U, an advisory measure calling for the City to phase future development. The City's Residential Development Allocation Ordinance limits the number of housing units to not more than 600 units per year, with certain exceptions. In November 2005, the voters approved Measure K, which established an Urban Limit Line (ULL). This measure also amended the City's General Plan and Zoning Ordinance to reduce the number of housing units permitted on Roddy Ranch south of the city to not more than 700 units, with development tied to improvements to Highway 4.

The Growth Management Element in the City's 2003 General Plan sets forth the following goal:

- Maintain a clear linkage between growth and development within the city and expansion of its service and infrastructure systems, including transportation systems; parks, fire, police, sanitary sewer, water, and flood control facilities; schools; and other essential municipal services, so as to ensure the continuing adequacy of these service facilities.

The General Plan Public Services and Facilities Element supports this goal, identifying water and wastewater management objectives and a number of policies to ensure adequate, efficient service commensurate with growth. Policies include maintaining up-to-date master plans of water and sewer facilities and maintaining existing levels of service by protecting and improving infrastructure, replacing water mains and pumping facilities as necessary and improving the efficiency of water transmission facilities.

Given the current urban land uses and anticipated growth, there will be an increased need for water and wastewater services within the City of Antioch.

2.3 Infrastructure Needs or Deficiencies

Antioch's water and wastewater infrastructure includes a water treatment plant, water distribution system, and wastewater collection system. The Public Services and Facilities Element of the City's 2003 General Plan includes the following goal for public services and facilities:

[1] Association of Bay Area Governments, Projections 2007.

- Provide for the timely expansion of high quality public services and infrastructure to serve existing and future residents, businesses, recreational facilities, and other facilities within the City of Antioch consistent with the service levels set forth in the Growth Management Element.

The performance standards included in the General Plan for water service include adequate fire flow and sufficient storage for emergency and drought conditions (drought conditions are not defined as to single or multiple dry years). Performance standards for wastewater include sanitary sewers with unrestricted flow in normal and peak flows and, for discretionary development projects, verification from DDSD that the proposed project will not cause the rated capacity of the treatment facilities to be exceeded during normal or peak flows.

2.3.1 Water Supply and Demand

Water Supply

The City of Antioch's water sources include untreated water purchased from the Contra Costa Water District (CCWD) and delivered through the Contra Costa Canal and diversions from the San Joaquin River.

Policies related to water supply in the General Plan Resource Management Element include ensuring that adequate long term water supplies are available to serve new development including peak drought and peak fire fighting needs (to be considered in the development review process), requiring new development to have drought tolerant and water conservation devices, protecting groundwater recharge areas, and working with DDSD to make reclaimed water available for irrigation. Lastly, the City has a policy to oppose proposals with the potential to increase salinity in the Delta and/or endanger the City's rights to divert water from the San Joaquin River.

Antioch obtains approximately 83 percent of its untreated water from CCWD through the United States Bureau of Reclamation (USBR) Central Valley Project (CVP). CCWD's untreated water service area includes Antioch, Bay Point, Oakley, Pittsburg, and portions of Brentwood and Martinez. The untreated water is conveyed to Antioch through the Contra Costa Canal (and an adjacent pipeline).

CVP water includes regulated and unregulated flows from storage releases from Shasta, Folsom, and Clair Engle reservoirs into the Sacramento River. CCWD's long-term CVP contract was renewed in May 2005 for a 40-year term. The contract provides for a maximum delivery of 195,000 acre-feet per year (AF/Yr) with delivery reductions during water shortages due to regulatory restrictions and drought. USBR's Municipal and Industrial Water Shortage Policy

was developed to establish CVP water supply levels that would sustain urban areas during severe or continuing droughts. The Policy provides for a minimum allocation of 75 percent of adjusted historical use until irrigation allocations fall below 25 percent.

In addition, CCWD has water rights for filling Los Vaqueros Reservoir, water rights at Mallard Slough, and a permanent entitlement to surplus irrigation water from East Contra Costa Irrigation District (ECCID). The Los Vaqueros water rights are for water quality and emergency storage purposes and do not result in new supply. The Mallard right is for a maximum of 26,000 acre feet per year but is limited to an average of 3,100 acre feet per year due to water quality. The entitlement from ECCID is for a maximum of 8,200 acre feet per year with about 6,000 acre feet currently available for use. The agreement with ECCID also includes a dry year groundwater exchange option that provides up to 4,000 acre-feet when the CVP is in a shortage condition.

In 1996, CCWD completed the Future Water Supply Study (FWSS) to identify alternatives to ensure a reliable water supply for its wholesale and retail customers for the next 50 years. The FWSS was updated in 2002. The FWSS, adopted by the CCWD Board of Directors, considers water demand, conservation, and existing and potential supplies for a range of service alternatives. Per CCWD's adopted 2005 Urban Water Management Plan, the District does not anticipate any supply deficits through 2030 for normal years, single-year droughts, and the first year of multiple year droughts. In the near term, CCWD may experience a shortage of approximately 7 percent of demand; beginning in 2010, this increases to 15 percent in the third year of multi-year drought conditions. In periods with supply shortages, short-term water purchases and voluntary short-term conservation efforts should reduce demand to levels such that water supply and demand would be more closely balanced.

Water supply reliability within the CCWD service area is enhanced by the Los Vaqueros Reservoir, a 100,000 acre-foot storage reservoir southwest of Brentwood. With the reservoir, CCWD is able to draw low salinity water from the Delta during high runoff periods, and the stored water can be blended with normal withdrawals from Rock Slough, a diversion point for the Contra Costa Canal. The reservoir also serves as emergency storage in the event of a chemical spill in the Delta, levee failure or other disruption.

Antioch also purchases treated water from CCWD; the water is delivered through CCWD's Multi-Purpose Pipeline, which is located at the City's Hillcrest Pump Station. Antioch purchases the water to meet peak summer demands. The City has capacity to treat approximately 28 million gallons per day, and demands can reach over 30 million gallons a day.

Antioch has rights to draw water from the San Joaquin River, which supplements water purchased from CCWD. Water from the river comprises approximately 15 percent of the City's untreated water supply. The City's water right is not subject to appropriation limits; however,

due to infrastructure limitations, the City can draw up to 16.0 million gallons per day (mgd) from the river when water quality permits. The State Water Resources Control Board (SWRCB) has established water quality standards in the Delta, with a 150 milligrams per liter (mg/L) maximum chloride concentration at the City's river pumping station for a minimum duration, depending on net Delta outflow. Per an agreement with the State Department of Water Resources, Antioch is able to pump water with chloride content less than 250 mg/L at least 208 days per year. If the long-term average number of days of pumping is less than 208 days per year, DWR will pay the City for one-third of the incremental difference in the cost of water between river water and canal water. Decisions at the State level regarding diversions and use continue to affect river water quality, particularly as more water is diverted from the Delta to meet demand in the San Joaquin Valley and other areas.

Water Demand

In 2004, residential uses accounted for 76 percent of water demands, commercial/industrial/institutional 11 percent, and irrigation/other 13 percent. The proportional share is expected to remain relatively consistent through 2025. The City estimates future water demand based on housing projections, using a water use factor of 190 gallons per capita per day.

Balancing Supply and Demand

The projected water supply and demand through 2025 for Antioch is shown below in *Table 2.2*:

Table 2.2
City of Antioch Projected Water Supply and Demand
(AF/Yr)

	2004	2010	2015	2020	2025
Normal Conditions					
Supply:					
CCWD	40,320	40,320	40,320	40,320	40,320
San Joaquin River	7,550	7,550	7,550	7,550	7,550
Municipal Reservoir	740	740	740	740	740
Recycled	0	530	530	530	530
Total Supply	48,610	49,140	49,140	49,140	49,140
Demand	21,576	21,900	23,273	24,645	25,284
Difference	27,034	27,240	25,867	24,495	23,856
Single Dry Year Conditions					
Supply	NA	49,140	49,140	49,140	49,140
Demand	NA	22,371	23,770	25,170	25,822
Difference	NA	26,769	25,370	23,970	23,318

Source: Antioch Urban Water Management Plan Update (January 2006)

Per the City of Antioch's adopted Urban Water Management Plan Update (January 2006), the City should have adequate water supply to meet normal, single and multiple dry years through 2025 based on available supplies and reasonable levels of local water conservation. The City will implement additional voluntary and mandatory conservation measures during a drought to reduce demand. The City partners with CCWD on conservation programs and incentives.

2.3.2 Water System Infrastructure

The City's water system infrastructure includes a municipal reservoir, water treatment plant, storage facilities, and the distribution system. *Table 2.3* summarizes the existing water system facilities:

Table 2.3
City of Antioch Water System Overview

Facility	Quantity
Water Mains / Booster Stations	~326 miles / 4 pressure zones / 7 booster stations /
Storage Capacity	11 reservoirs / 24.7 mg
Average Age of Distribution System	≥ 27.5 years
Treatment / Capacity	City of Antioch Water Treatment Plant – 28 mgd
Average Day Demand / Maximum Day Demand	18.3 mgd/ 31.017mgd

Policies in the General Plan Public Services and Facilities Element relating to water service include providing adequate pumping and storage capacity for drought and emergency conditions as well as for fire flows required by the Contra Costa County Fire Protection District. Other policies include maintaining an up-to-date master plan of water facilities and maintaining 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.

Antioch owns and operates the Antioch Water Treatment Plant (AWTP), which has a maximum treatment capacity of 28 mgd. There is room to expand the facility to 48 mgd, and the City is constructing improvements to increase capacity to 36 mgd. As noted above, peak demands in summer can reach 30 mgd. The pipelines carrying water from the Canal to the AWTP have a capacity of over 60 mgd, well above the projected future demand. With the treatment upgrade and buying capacity rights of 10 mgd from CCWD, the City will be able to meet the projected demand through build out.

Antioch has a 735 acre-foot (240 mg) municipal reservoir that is used to store water from the Canal, providing supply reliability and storage equalization with some flood control benefit. The

reservoir allows the City to equalize demand for untreated water from the Canal, which reduces water costs.

The City has four primary pressure zones and approximately 326 miles of water mains. There are currently 11 distribution reservoirs with a combined capacity of 24.7 mg.

Antioch has a five-year Capital Improvement Program (CIP), with approximately $5.9 million in water system projects planned through FY 2010/2011. Water system capital projects are funded through the Water Fund and Water Line Expansion Fund. In FY 2005/2006, the City completed $4.1 million in water and sewer main line replacements. The City has funded an annual water main replacement program at $1 million per year since the early 1990's, and $100,000 per year for renovations at the AWTP.

Per the August 2007 CIP update, expansion of the AWTP is underway, and the City is installing a new 16-inch water main along Laurel Road in conjunction with the Highway 4 Bypass project. Rehabilitation of a 39-inch untreated water line from the municipal reservoir to the AWTP has not been funded.

2.3.3 Wastewater System Infrastructure

The City's wastewater collection system consists of approximately 319 miles of gravity pipeline and three pumping stations. The wastewater is discharged into the Delta Diablo Sanitary District's conveyance system for treatment at the DDSD Wastewater Treatment Plant (WWTP) located near the border of Antioch and Pittsburg.

Table 2.4 summarizes the City's existing wastewater system facilities:

Table 2.4
City of Antioch
Wastewater System Overview

Facility	Quantity
Sewer Mains	~319 miles
Pump Stations	3
Average Age of Collection System	≥ 57 years
Average Dry Weather Flow:	7.7 mgd
Treatment	DDSD WWTP – serves Bay Point, Pittsburg and Antioch

The City's wastewater collection system connects to the DDSD system at three main points—Bridgehead Pump Station, Fulton Shipyard (Antioch), and Pittsburgh-Antioch Interceptor. The Bridgehead Pump Station, located in the southern portion of the City, collects waste through the

City's Lone Tree Interceptor. Bridgehead serves the southern portion of the City and areas outside of the City limits. Wastewater collected at Bridgehead flows to the Fulton Shipyard Pump Station, located in the northern section of the City, through a DDSD force main and gravity system. DDSD's services and infrastructure are reviewed in *Chapter 8.0, Delta Diablo Sanitation District.*

The 2003 Wastewater Collection System Master Plan indicates that the system is designed to be able to accommodate a total dry weather flow at build-out of 14.9 mgd, with a 26.6 mgd peak dry weather flow. Current flow is estimated at 7.7 mgd.

The Master Plan identifies 19 improvement projects, including negative slope and hydraulic capacity bottlenecks, that will correct deficiencies in the existing system under build out conditions. Negative slope creates pressure in the gravity pipeline and reduces overall capacity within the lines. A hydraulic capacity bottleneck is an under capacity section that is less than 1,000 feet long. Estimated costs to rectify the negative slope sections are $24.2 million, and costs to repair under-capacity pipelines were estimated at an additional $4 million.

Antioch is within the jurisdictional boundaries of the Central Valley Regional Water Quality Control Board (RWQCB) – Region 5. During the period from December 2004 to May 2, 2007 the City reported two significant sanitary sewer overflows (SSOs). In December 2004 an estimated 1,750 gallons of sewage overflowed due to line blockage. In July 2005, approximately 630,000 gallons of sewage overflowed into a detention basin when a sewer main was blocked by rock from a commercial operation. All but 1,600 gallons was recovered and returned to the sanitary sewer system.

In 2006, the State Water Resources Control Board adopted the Statewide General Waste Discharge Requirements for Sanitary Sewer Systems (WQO No. 2006-003-DWQ) and Antioch (as part of the Central Valley Region) must begin reporting all sewer system overflows to the California Integrated Water Quality System (CIWQS) by September 2, 2007. One SSO was reported for August 2007; all flow was returned to the system.

The City has begun a comprehensive program of televising, archiving, and benchmarking the overall condition of the sewer system infrastructure. The information will be used to establish maintenance requirements, the need for repairs and development of CIP projects. Planned CIP projects include the following:

- Sewer Main Capacity Improvements - $800,000 per year through 2010/2011, funded through the Sewer Facility Expansion Fund
- Sewer Trunk Line Rehabilitation - $8.3 million project through 2010/2011, funded through the Sewer Fund

- Sewer Line Corrosion Rehabilitation - $250,000 per year through 2009/2010, funded through the Sewer Fund

2.3.4 Summary

Antioch's untreated water supply is obtained from CCWD through the Contra Costa Canal, and the San Joaquin River. Per the City's adopted Urban Water Management Plan Update (January 2006), the City should have adequate water supply to meet normal, single and multiple dry years through 2025 based on available supplies and reasonable levels of local water conservation.

In accordance with the policies in the 2003 General Plan, the City has planned for water and wastewater infrastructure needs through master plans, the annual budget, and the five-year CIP. The City is implementing water main and sewer line rehabilitation programs to extend the life of the infrastructure and improve performance.

2.4 Financing Constraints and Opportunities

The City of Antioch accounts for its water and wastewater utilities through enterprise funds, with services funded through service charges. Development fees are placed in the Water Line Expansion Fund and Sewer Facilities Expansion Fund and are used to fund offsite and oversize facilities.

For FY 2005/2006, total revenues for the City were $63.0 million and total expenses were $59.8 million. For the same period water operating revenues were $19.6 million and operating expenses were $17.5 million. Wastewater operating revenues were $3.9 million and operating expenses were $2.8 million. *Tables 2.5 and 2.6* summarize the financial history of the water and wastewater enterprise funds.

Table 2.5
City of Antioch
Water Utility Enterprise Funds Summary

	FY 2004/2005 Actual	FY 2005/2006 Actual	FY 2006/2007 Projected	FY 2007/2008 Budgeted
Operating Revenues	$19,058,369	$19,566,908	$20,926,309	$22,308,300
Operating Expenses	$17,613,661	$17,536,392	$18,378,025	$19,496,455
Net Non-operating Revenues / (Expenses)	$273,943	$476,532	($13,555,954)	($5,565,000)
Contributions/(Transfers)	$3,022,195	$1,232,891	($1,756,609)	($1,669,164)
Change in Net Assets	$4,740,846	$3,739,939	($12,764,269)	($4,422,319)
Beginning Balance	$84,187,435	$88,928,281	$92,668,220	
Net Assets, End of Year	$88,928,281	$92,668,220		

The Water Utility Enterprise Funds had an unrestricted net asset balance of $28.2 million at June 30, 2006.

Table 2.6
City of Antioch
Sewer Enterprise Funds Summary

	FY 2004/2005 Actual	FY 2005/2006 Actual	FY 2006/2007 Projected	FY 2007/2008 Budgeted
Operating Revenues	$3,648,437	$3,950,453	$3,779,667	$3,765,000
Operating Expenses	$3,227,905	$2,832,309	$1,632,837	$2,076,138
Net Non-operating Revenues / (Expenses)	$90,592	$86,143	($991,650)	($250,000)
Contributions/(Transfers)	$5,812,011	$2,100,053	($850,509)	($666,329)
Change in Net Assets	$6,323,135	$3,304,340	$304,671	$772,533
Beginning Balance	$84,187,435	$52,789,255	$56,093,595	
Net Assets, End of Year	$52,789,255	$56,093,595		

The Sewer Enterprise Funds had $4.4 million in unrestricted net assets at the end of the year.

In 2003, the City issued $6,405,000 in water revenue bonds in order to retire an earlier water bond issue. The bonds mature in 2013 and bear interest rates ranging from 1.25 to 3.625 percent. At June 30, 2006 the outstanding balance was $5,530,000 with average annual payments of approximately $782,000, and the City had 225-percent debt service coverage based on net revenues.

Water and wastewater projects account for 15 percent of all capital projects through 2010/2011. The City uses a pay-as-you go approach for these projects. As of June 30, 2006, the City had no outstanding long-term debt associated with the wastewater system.

In the introduction to the FY 2007/2008 budget, the City notes that reserves have been used to balance the General Fund budget. The City will be looking for opportunities to improve efficiency and seek new ideas for savings and revenue generation, including developing a two-year budget cycle. The deficit spending for the General Fund does not directly impact water and wastewater services. As enterprise activities, the water and wastewater utilities are expected to generate adequate revenues to cover operations, maintenance and capital needs. However, it is possible for the revenues from these funds to be transferred to the General Fund to cover related services, or for General Fund costs to be assigned to the enterprise activity. This is appropriate when the services directly relate to the provision of utility services and infrastructure needs, such as personnel costs for CIP engineering, etc.

The City has the financial resources and fee structures in place to provide for water and wastewater infrastructure needs and improvements and to continue to maintain adequate service levels.

2.5 Cost Avoidance Opportunities

The City is utilizing cost avoidance measures to control costs for its water and wastewater utilities. The City actively manages its water resources, maximizing the use of water from the San Joaquin River and using the storage capacity in the municipal reservoir to allow for consistent water purchases and reduced demand charges from CCWD. The City is working with Pittsburg and DDSD to develop a Sewer System Management Plan (SSMP) in accordance with the requirements of the SWRCB's General Waste Discharge Requirements for Sanitary Sewer Systems (Order No. 2006-0003-DWQ). The SSMP provides a plan and schedule to manage, operate, and maintain all parts of the sanitary sewer system to reduce and prevent SSOs and mitigate any SSOs that do occur. The City has adopted Sanitary Sewer Overflow Response Procedures to meet the requirements of the SWRCB Order. These procedures are to be followed whenever an overflow of sewage has been reported or identified, defined as any overflow, spill, release, discharge or diversion of untreated or partially untreated wastewater from a sanitary sewer system. These formal procedures are in place to ensure that the City consistently meets the requirements of the discharge order and to avoid penalties.

In addition, as noted above in *Section 2.3.3*, the City will avoid costs through documenting the overall condition of the sewer system infrastructure in order to establish maintenance requirements, the need for repairs and development of CIP projects.

2.6 Opportunities for Rate Restructuring

The City of Antioch's water rates include a service charge and single-tier usage charges. The water consumption charge is based on pressure zone and includes a pumping quantity surcharge. The City charges a flat monthly sewer maintenance charge for all customers of $8.50 plus a sewer lateral maintenance fee of $0.25 per month per unit. This rate structure was last updated in July 2004. Residential and non-residential accounts pay the same rates, shown in *Table 2.7* below:

Table 2.7
City of Antioch
2007 Water and Sewer Rates – Monthly

Type	All Accounts
Water Base Fee – 5/8 inch, ¾ inch or 1-inch meter	$8.00
Water Consumption Fee	Zone I - $1.73 per ccf Zone 2 - $1.80 per ccf Zone 3 - $1.88 per ccf Zone 4 - $2.07 per ccf Outside City – Doubled
Sewer Fee	$8.75

Given the policies in the General Plan Resources Management Element and water conditions within the State and particularly the Delta, the City should evaluate the benefits of a tiered water rate structure that encourages conservation.

Similarly, the City should evaluate the benefits of a sewer rate structure that factors in usage and wastewater loading for non-residential accounts. Per the SWRCB, Sewer System Management Plans are required to incorporate a Fats, Oils, Grease (FOG) Control Program. Although this program will avoid costs associated with system blockages and SSOs, it will increase wastewater costs for the city for education, monitoring, and enforcement.

Sewer connection and water capacity fees are charged in conjunction with new construction. In 2003, the City combined all capacity charges (connection, annexation, and storage) into one fee. Rates vary according to water meter size and/or customer class and are automatically adjusted each year in accordance with the *Engineering News Record Cost of Construction Index*. Current connection and capacity fees are $6,283 for both residential and non-residential services with a ¾ inch meter.

2.7 Opportunities for Shared Facilities

The City of Antioch shares facilities through use of CCWD's Contra Costa Canal, ~~and~~ Los Vaqueros Reservoir, and Randall-Bold WTP, as well as the DDSD conveyance system and treatment plant. Given the service demands and system conditions in the east county, there is the potential for a more regional approach to wastewater treatment whereby DDSD and the Ironhouse Sanitary District could potentially share treatment capacity in the future. The City of Antioch should participate in these discussions to evaluate the benefits that might be available to the Antioch wastewater system and its ratepayers.

2.8 Evaluation of Management Efficiencies

The City's water and wastewater utilities are managed within the Public Works Department. The City uses a number of plans to ensure that services are delivered in an efficient, cost-effective manner, including master plans, Sewer System Management Plan (under development), five year CIP, and the General Plan. The utility managers evaluate employee performance, monitor division activities and budgets, and develop and implement programs to improve department efficiency and effectiveness.

2.9 Government Structure Options

The City is providing adequate water treatment and distribution and wastewater collection services, with DDSD providing wastewater treatment and disposal services. Per the contractual requirements for USBR and the use of water from the Central Valley Project, area served with CVP water must be within the boundaries of CCWD. In addition, DDSD has a long standing co-annexation agreement with the Cities of Antioch and Pittsburg under which the District consents to a concurrent change in its boundary in order to be consistent with any changes to the Cities' boundaries. Four government structure options were identified for the City of Antioch:

- Maintain the status quo
- Annex areas receiving service into the City boundaries as well as CCWD and DDSD where necessary
- Annex areas within the City's Sphere of Influence where there are public health issues related to water and wastewater
- Consolidate sewer service with DDSD

Maintain the Status Quo: The City is currently providing water and wastewater collection service for its residents and businesses, as well as to some parcels outside city boundaries, including the County Fairgrounds. The City is not experiencing infrastructure or financial challenges that require another agency to take over service to the city. The advantages of this option are continuity of service and economies associated with internal coordination with other city projects for water pipelines, street and sidewalk repairs, etc. The disadvantage to this option is that it does not clean up boundary issues for areas where service has been extended.

Annex areas receiving service into the City boundaries as well as CCWD and DDSD: The City is providing service to certain areas outside city boundaries, including the County Fairgrounds and the Holy Cross Cemetery on East 18th Street. Antioch could annex these areas into the City, with concurrent annexation into CCWD and DDSD where necessary. The advantages of this option are to clean up boundary issues associated with service areas. The

parcels need to be evaluated to determine their location with respect to current boundaries and the adopted Urban Limit Line for the City and the County.

Annex areas within the City's SOI where there are public health issues: There is an unincorporated island between East 18th Street and Wilbur Avenue that encompasses approximately 108 acres. It is surrounded by the City and contains residential and commercial uses as well as a cemetery. The area is served by wells and properties have septic systems. The County Environmental Health Division has reviewed the conditions within the area and noted that 50 to 75 percent of the septic systems are on the verge of failing.[2] The lots are small and many do not have an adequate reserve area in the event of septic failure. In addition, the wells do not have adequate setbacks from the property lines or septic systems. The provision of municipal water and wastewater services would address these public health issues; however with no existing wastewater collection system, there would be significant infrastructure costs. Further study would be needed to determine the condition of existing water systems, and water and wastewater infrastructure needs, costs, and funding sources to provide services in this area.

Consolidate sewer service with DDSD: The City provides wastewater collection services, while DDSD provides conveyance, treatment and disposal services to the City. DDSD also provides service to portions of unincorporated County and the City of Pittsburg. The advantages of this option are potential economies of scale and other efficiencies that might be available due to the single-purpose focus of DDSD. However disadvantages such as administrative costs and loss of local control over the wastewater collection system within the city could outweigh the benefits. Further study would be needed to determine the merits of this option and benefit/costs which would affect ratepayers for both the City of Antioch and DDSD.

2.10 Local Accountability and Governance

The City of Antioch incorporated in 1872. There are four City Council Members and a directly elected Mayor. The Council members are elected at-large. The City also has a directly elected City Clerk and City Treasurer, who serve four-year terms.

The City's water and wastewater services are addressed by the City Council, which meets the second and fourth Tuesday of each month at 7:00 PM at Council Chambers located at Third and H Streets, Antioch. Meetings are open and accessible to the public. Meeting notices, agendas and supporting documentation are posted at least 72 hours in advance at City Hall, the Public Library, and a copy is also available on the City's website (www.ci.antioch.ca.us). Information is also distributed by newsletter, published, and mailed three times each year. The City's website

[2] Contra Costa Environmental Health Services letter to LAFCO September, 2007

includes information about the water and wastewater utilities, including the Sewer System Management Plan, capital improvements, rates, etc.

The current City Council is identified in *Table 2.8*.

Table 2.8
Antioch City Council

Member	Title	Term Expires
Donald P. Freitas	Mayor	November 2008
James D. Davis	Mayor Pro Tem	November 2010
Brian Kalinowski	Councilmember	November 2008
Reggie Moore	Councilmember	November 2008
Arne Simonsen	Councilmember	November 2010

Council members also serve as the Board of Directors for the City's Redevelopment Agency. Council members are compensated $941.20 per month for services to the city.

2.11 Sphere of Influence Recommendations

The Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 requires that LAFCO review and update the sphere of influence (SOI) for each of the special districts and cities within the county at least once every five years in order to promote logical and orderly development of areas within the sphere.[3] The SOI recommendations for the City of Antioch are included in the East County Municipal Service Review that considers the full range of services the City provides. There is a need within the City of Antioch for the water and wastewater services the City provides. The City is providing adequate service and has the financial resources and rate structures in place to continue to provide services and meet infrastructure needs for existing development. The City has considered future development within its Planning Area for water and wastewater service needs. For future annexations to the city, the projected water demands and wastewater flows would need to be evaluated based on the type and location of development, existing system capacity, and necessary infrastructure improvements to maintain acceptable levels of service.

[3] Government Code Section 56425 et seq.

2.12 Determinations

2.12.1 Growth and Population

Purpose: *To evaluate service needs based upon existing and anticipated growth patterns and population projections.*

The City of Antioch has an estimated population of 100,168 residents in 2007; this is projected to reach 124,000 by 2030, with a moderate average annual growth rate of 1.0 percent. As the City of Antioch continues to develop over the next twenty years, there will be an increased need for water and wastewater services.

2.12.2 Infrastructure Needs or Deficiencies

Purpose: *To evaluate the infrastructure needs and deficiencies in terms of supply, capacity, condition of facilities, and service quality.*

Antioch provides water treatment and distribution services. It obtains a majority of its untreated water supply from the Contra Costa Water District through the Contra Costa Canal, and supplements it with water pumped from the San Joaquin River. CCWD's contract for CVP water includes provisions for delivery reductions due to regulatory requirements or drought conditions. Per the adopted 2005 Urban Water Management Plan for CCWD, water supplies are adequate to meet expected demand through 2030 in normal years, single year droughts, and the first year of multi-year droughts. Per the City of Antioch's adopted Urban Water Management Plan Update (January 2006), the City should have adequate water supply to meet normal, single and multiple dry years though 2025 based on available supplies and reasonable levels of local water conservation.

The City's water system infrastructure includes a water treatment plant, storage facilities, and distribution system with pump stations and water lines. The water treatment plant has a design capacity of 28 mgd, and the City is currently increasing capacity to 36 mgd. Current average day demand is 18.3 mgd; projected demand in 2025 is 23.5 mgd. With the treatment upgrade and buying capacity rights of 10 mgd from CCWD, the City will be able to meet the projected demand through build out.

The City's wastewater system infrastructure includes a collection system; wastewater is discharged into the Delta Diablo Sanitation District system for treatment and disposal. The DDSD Wastewater Treatment Plant serves Bay Point, Pittsburg, and Antioch and has a current capacity of 16.5 mgd; average dry weather flows to the Plant are approximately 14.2 mgd. The City currently has average dry weather flows of 7.7 mgd. The City is implementing sewer main rehabilitation projects to address system deficiencies and improve system performance.

No infrastructure needs or deficiencies were identified for the water and wastewater systems that are not being addressed in the City's capital improvement plans and operations and maintenance plans.

2.12.3 Financing Constraints and Opportunities

Purpose: To evaluate a jurisdiction's capacity to finance needed improvements and services.

The City funds water and wastewater services, including capital improvements, through service charges and development fees. The City generally uses a pay as you go approach to fund capital improvements and has one revenue bond issue for water service and no outstanding debt related to its wastewater system. With the current rate structure and limited debt, the City has adequate capacity to finance water and wastewater services and needed improvements.

2.12.4 Cost Avoidance Opportunities

Purpose: To identify practices or opportunities that may help eliminate unnecessary costs.

The City utilizes cost avoidance measures to control costs for its water and wastewater utilities, including rehabilitating mains and laterals to maintain the integrity of the system, reducing infiltration from storm and groundwater and avoiding sanitary sewer overflows. The City uses the storage capacity in the municipal reservoir to purchase water from CCWD at consistent amounts, which lowers water costs by reducing demand charges.

2.12.5 Opportunities for Rate Restructuring

Purpose: To identify opportunities to impact rates positively without decreasing service levels.

The City uses a flat rate structure for water and sewer service. The water rate structure is based on pressure zone and includes pumping surcharges. The sewer rate structure includes a nominal sewer lateral maintenance charge. The costs to provide wastewater service may increase with the implementation of the Sewer System Maintenance Program required by the SWRCB for all sanitary sewer systems. The City should evaluate the benefits of a water rate structure that encourages conservation. In addition, the City should evaluate a sewer rate structure based on use and wastewater loading to ensure that revenues continue to fully fund operations, maintenance and capital needs.

2.12.6 Opportunities for Shared Facilities

Purpose: To evaluate the opportunities for a jurisdiction to share facilities and resources to develop more efficient service delivery systems.

The City shares facilities with CCWD for untreated water supply delivery and DDSD, which provides treatment and disposal services for Antioch. There may be opportunities to develop a regional approach to sharing treatment capacity between DDSD and the Ironhouse Sanitary District. The City of Antioch should participate in the discussions and evaluate the benefits to city services.

2.12.7 Evaluation of Management Efficiencies

Purpose: To evaluate management efficiencies of the jurisdiction.

The City's water and wastewater utilities are managed under the Public Works Department. The City uses a number of plans to ensure that services are delivered in an efficient, cost-effective manner, including master plans, Sewer System Management Plan (under development), five-year CIP, and the General Plan.

2.12.8 Government Structure Options

Purpose: To consider the advantages and disadvantages of various government structures to provide public services.

The City is providing adequate water and wastewater collection services to its residents and businesses, and is providing service to some areas outside city boundaries. The City is not experiencing infrastructure or financial challenges that require another agency to take over service to the City. Four government structure options were identified for the City of Antioch:

Maintain the Status Quo: The advantages of this option are continuity of service and economies associated with internal coordination with other city projects for water pipelines, street and sidewalk repairs, etc. Disadvantage is that it does not clean up boundary issues for areas where service has been extended.

Annex areas receiving service into the City boundaries: The City is providing service to certain areas outside city boundaries. Antioch could annex these areas into the City with concurrent annexation into CCWD and DDSD where necessary. The advantages of this option are to clean up boundary issues associated with service areas. The parcels need to be evaluated to determine their location with respect to current boundaries and the adopted Urban Limit Line for the City and the County.

Annex areas within the City's SOI where there are public health issues: There is an unincorporated island area between East 18th Street and Wilbur Avenue that encompasses

approximately 108 acres and is served by wells and individual septic systems. The provision of municipal water and sewer services would address public health issues related to failing septic systems and inadequate setback for wells. Further study would be needed to determine the condition of existing water systems, and water and wastewater infrastructure needs, costs, and funding sources to provide services in this area.

Consolidate sewer service with DDSD: The City provides wastewater collection services, while DDSD provides conveyance, treatment and disposal services to the City. The advantages of this option are potential economies of scale and other efficiencies that might be available due to the single-purpose focus of DDSD. Disadvantages include a potential increase in administrative costs and loss of local control for the services and infrastructure management within the city. Further study would be needed to determine the merits of this option and benefit/costs which would affect ratepayers for both the City of Antioch and DDSD.

2.12.9 Local Accountability and Governance

Purpose: *To evaluate the accessibility and levels of public participation associated with the agency's decision-making and management process.*

Water and wastewater services provided by the City are addressed by the City Council. The City Council meetings are open and accessible to the public. Information on the City's water and wastewater services, including facilities, capital improvements, financing and utility rates is available on the City's website.