SECTION 5.0
DIABLO WATER DISTRICT
WATER SERVICE

5.1 Overview

The Diablo Water District (DWD) was formed in 1953 as the Oakley Water District. The District now serves an area of approximately 17 square miles, including the City of Oakley and unincorporated areas such as the Hotchkiss Tract, East Cypress Corridor Specific Plan Area, and Summer Lakes development; the Town of Knightsen; and certain communities on Bethel Island including Delta Coves. The District is bounded by the San Joaquin River to the north, the City of Antioch to the west, the City of Brentwood to the south, and unincorporated area to the east. The District's current Sphere of Influence (SOI) encompasses an additional 3.5 square miles and includes area adjacent to the District's southern and eastern boundaries and the Veale Tract to the southeast.

The District primarily supplies treated water for domestic use and some non-potable water for park and landscape irrigation. DWD's sources of water supply are untreated water from the Central Valley Project (CVP) purchased from the Contra Costa Water District (CCWD) and groundwater extracted from the San Joaquin Valley Basin. The surface water is conveyed through the Contra Costa Canal and treated at the Randall-Bold Water Treatment Plant (RBWTP) in Oakley. The RBWTP is jointly owned by DWD and CCWD. The plant is managed and operated by CCWD.

DWD's profile for water service is shown in *Table 5.1* and a map of the District's boundary and current SOI are shown in *Figure 5.1*.

Table 5.1
Diablo Water District
Water Service Information

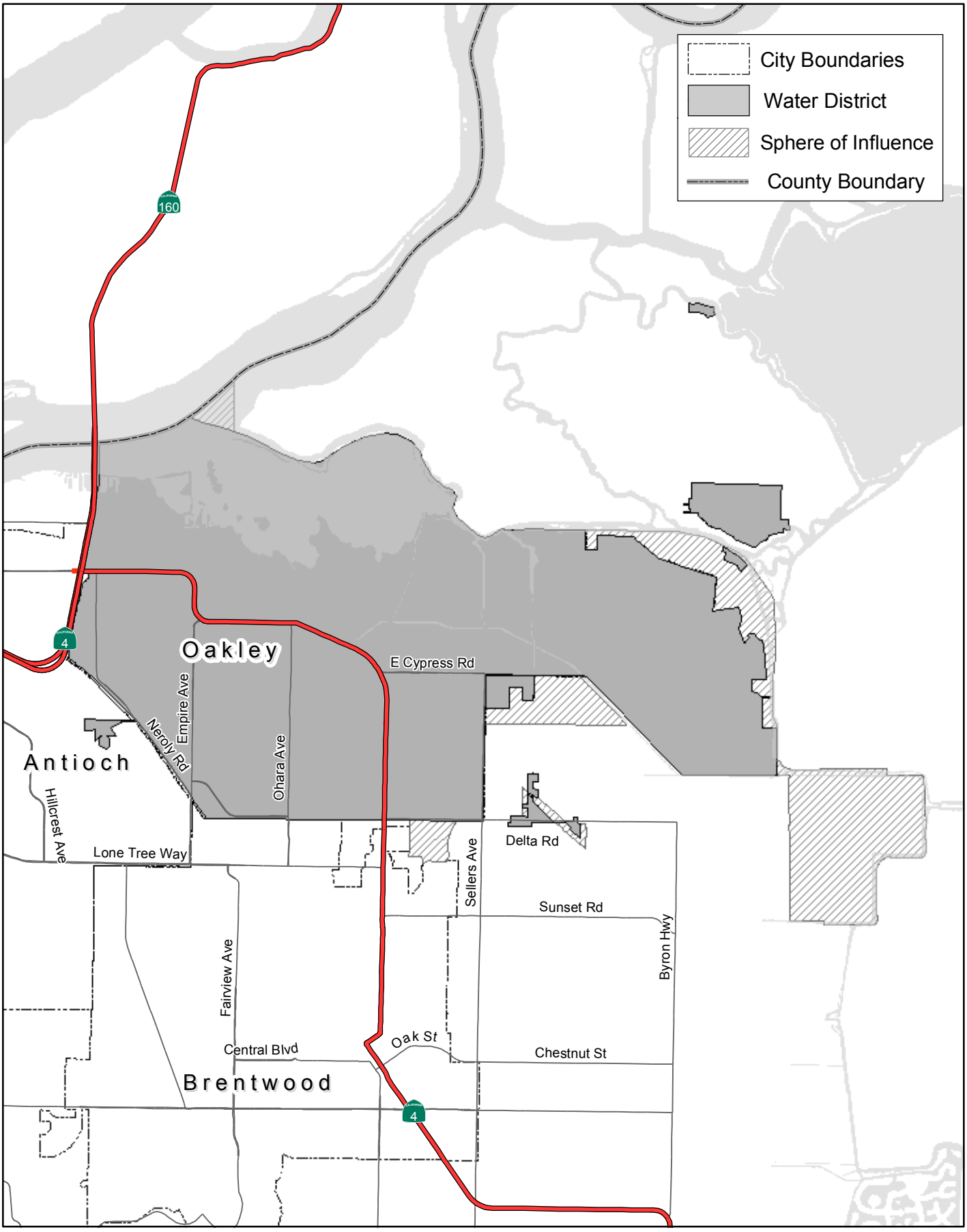
Service Area / Financial Summary	
District Office:	2107 Main Street (PO Box 127) Oakley, CA 94561-0127 (925) 625-3798 www.diablowater.org
Service Area:	17 square miles
Population:	30,385 (Year 2007) / 41,330 (Year 2030) Average Annual Growth Rate = 1.6%

Table 5.1
Diablo Water District
Water Service Information

Operating Budget (FY 2007/2008):	Operating Revenues / Expenditures: $7,633,314 / $7,295,017 Net Non-Operating Revenues: $6,386,438 Net Assets 06/30/2006: $ 28,760,863
Water Service Data	
Services	Water Supply, Treatment and Distribution
Number of Service Connections	Approx. 10,000
Water Main / Booster Stations	97.5 miles of main / 2 booster stations
Average Age of Distribution System	20 years
Treatment and Capacity	Randall-Bold Water Treatment Plant / 40 mgd total (15 mgd for DWD / 25 mgd for CCWD) Glen Park Well Pump Station 2 mgd
Storage Capacity	2 reservoirs / 7.5 mg (3rd 5 mg reservoir under construction)
Average Day Demand / Maximum Day Demand	4.6 mgd / 9.2 mgd

Figure 5.1

Diablo Water District 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

0 0.5 1 2 Miles

5.2 Growth and Population Projections

DWD serves the City of Oakley and unincorporated areas including Hotchkiss Tract, the East Cypress Corridor Specific Plan Area, and Summer Lakes development; the Town of Knightsen; and communities on Bethel Island including Delta Coves. The District's service area has an estimated current population of 30,385 residents. This is projected to reach 41,330 by 2030[1] with an average annual growth rate of 1.6 percent.

Significant development is expected to occur within DWD's boundaries. The City of Oakley's General Plan provides for future development over the next 10 to 20 years within the City's current boundaries and within the City's larger planning area that was used for the 2020 General Plan (adopted in 2002). This Planning Area encompasses an additional 2,700 acres east of the city and includes the Cypress Corridor Expansion Area and the proposed Cypress Lakes project. This area is within the current boundaries of DWD.

DWD's 2006 Facilities Plan considered land use at build-out based on the City of Oakley General Plan 2020 for the City's planning area west of Jersey Island Road, the East Cypress Corridor Specific Plan (2005) for the City's planning area east of Jersey Island Road, and the Contra Costa County General Plan (2005) for Knightsen and Bethel Island. The build out land uses include 6,666 acres of residential, 2,213 acres of non-residential (commercial, industrial, parks and recreation), and 9,771 acres of agriculture and open space. Based on an average of the low and high range of units per acre, the estimated number of dwelling units at build out is 25,453, with 3,795 on Bethel Island and 21,658 in the remainder of the area.

Given the current urban land uses and anticipated growth, there will be an increased need for water services within the DWD service area. The District will be responsible for providing adequate, reliable water supplies and infrastructure for treatment and distribution. To ensure that there are no service impacts to existing customers and that service levels will be adequate and reliable throughout the service area, the District will need to coordinate with CCWD on water purchases and continue to develop groundwater supplies in accordance with the objectives and management actions included in the District's adopted Groundwater Management Plan (May 2007). It will also require that DWD coordinate with CCWD to implement phased expansions to the RBWTP as well as implement system improvements as identified in the District's Facilities Plan (July 2006) with costs shared equitably between existing users and new development.

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

5.3 Infrastructure Needs or Deficiencies

The Diablo Water District provides domestic water service within its service area. The District's sources of water supply include surface water from the Central Valley Project purchased from the Contra Costa Water District (CCWD) and groundwater produced from the San Joaquin Valley Groundwater Basin. Untreated water is conveyed through the Contra Costa Canal to the Randall-Bold Water Treatment Plant (RBWTP) in Oakley, which is jointly owned by the DWD and CCWD.

5.3.1 Water Supply and Demand

DWD's primary source of untreated water supply is surface water from the Central Valley Project (CVP) purchased from CCWD. In the past this has been the District's only source of supply. DWD has developed a groundwater supply system to improve reliability, reduce its operating costs, and to provide an alternate source during dry years when CVP supplies may be reduced. DWD's water supply projections for 2030 include 80 percent CVP water and 20 percent locally produced groundwater.

Surface Water Supply

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. The United States Bureau of Reclamation's (USBR) 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.

CCWD's untreated water intake facilities are located in Rock Slough at the origination of the Contra Costa Canal and at Old River. CCWD's untreated water service area includes Antioch, Bay Point, Oakley, Pittsburg, and portions of Brentwood and Martinez. CCWD also has a retail service area in the central region of the county. 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 which has variable water quality. The reservoir also serves as emergency storage in the event of a chemical spill in the Delta, levee failure or other disruption.

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.

Groundwater Supply

To supplement surface water supplies, DWD is developing a groundwater supply system that will improve supply reliability and lower water supply costs. DWD overlies the northwestern portion of the Tracy Groundwater Subbasin, one of several subbasins in the San Joaquin Valley Groundwater Basin. The San Joaquin Valley Groundwater Basin is not adjudicated.

The first phase of DWD's groundwater supply system included construction of a 315-foot deep well and pump station in Glen Park in Oakley, a blending facility at the RBWTP, and a dedicated 3 mile long well supply pipeline connecting the well and the blending facility. The Glen Park well provides between 1 mgd and 2 mgd on average.

DWD intends to develop additional wells in the future; with an ultimate well capacity of 6 to 7 mgd that would provide an estimated 20 percent of total water supply. The decision to expand the groundwater supply system will be based on the performance of the Glen Park well and groundwater monitoring in other locations in the region. In the event that it is not possible to develop the anticipated groundwater supplies as planned, the District will procure additional surface water supplies from CCWD and/or investigate other local supply sources.

There is a concern that DWD's groundwater program will impact existing wells with respect to water levels and water quality. Extensive hydrogeologic studies have not been conducted for the this area of the subbasin, although the City of Brentwood has municipal wells and the East Contra Costa Irrigation District (ECCID) has monitoring wells within DWD's boundaries. DWD recently completed a Groundwater Management Plan (May 2007) that was prepared in accordance with the Groundwater Management Planning Act (AB 3030 and California Water Code Sections 10750-10546). The Plan identifies three areas of concern that may require changes in future groundwater management: 1) sustainable pumpage; 2) preservation of water quality; and 3) land subsidence. The Plan includes a component to assess sustainable pumpage and monitor and report on groundwater levels. It also includes an approach such that the District will design future wells in a manner that avoids adverse and widespread pumping influences and monitor key wells for indications of potential adverse conditions. In addition, the Plan includes a strategy whereby ongoing groundwater level monitoring and conjunctive use of surface water and groundwater resources will avoid impacts of land subsidence.

DWD's Groundwater Management Plan includes four regional and three local basin management objectives to be achieved through various strategies and action items:

- Regional Basin Management Objectives:
  - Assessment of Groundwater Basin Conditions
  - Avoidance of Overdraft
  - Preservation of Groundwater Quality
  - Preservation of Interrelated Surface Water and Groundwater Resources
- Local Basin Management Objectives:
  - Understanding Local Groundwater Conditions
  - Preservation of Groundwater Quality
  - Avoid Impacts to Shallow Groundwater
  - Local Groundwater Monitoring and Coordination with Regional Monitoring Program

DWD's local monitoring program includes monitoring groundwater levels, groundwater quality, and groundwater pumpage. The primary focus is on monitoring groundwater levels in the vicinity of the Glen Park well. The District plans to coordinate its groundwater monitoring program with other groundwater producers in the subbasin to ensure completeness.

Avoiding overdraft requires that progressive groundwater level declines be avoided. Since a majority of the water supply has been from surface water, groundwater levels have historically been stable. Seasonal water fluctuations are anticipated and will likely increase in magnitude as

pumping increases, but this is not expected to result in significant groundwater level declines. Full water recovery is expected during winter months except during dry years. Year to year water level fluctuations may occur because of conjunctive water management where more groundwater would be used during dry periods and more surface water would be used during periods of availability and when groundwater recharge is occurring.

The management decision regarding the use of one water supply over another is a function of several factors including supply availability, water quality, and cost among others. DWD has adopted groundwater management objectives and components that will be used to accomplish the objectives. Each of the five components – Monitoring Program, Water Resource Sustainability, Groundwater Resource Protection, Agency Coordination and Public Outreach, and Plan Implementation and Updates – has specific action items, which the District will carry out. DWD intends to use several data sources including monitoring wells in various locations to ensure that the groundwater management objectives are achieved.

The results of DWD's groundwater production will need to be monitored, along with the District's adherence to the objectives, components, and action items incorporated in its Groundwater Management Plan. As an indication of the District's commitment to avoiding impacts to other local wells, DWD is pursuing an alternate location in Oakley for its next well after a concern over groundwater level impacts was raised by the Knightsen community.

The Ironhouse Sanitary District (ISD) owns and operates the wastewater treatment plant that serves properties within the DWD service area. All treated wastewater is currently used by ISD on agricultural lands; when ISD was evaluating potential treatment options at its new wastewater treatment plant, only one potential recycled water customer was identified and it was determined that providing tertiary treatment would not be cost effective. However, DWD has a policy that all new projects with large turf areas will be irrigated with non-potable water from a source other than DWD.

Water Demand

Residential use comprises the largest category of water use within the District, representing approximately 97 percent of existing total water demand. Non-residential uses, including commercial, institutional, and parks, comprise the remaining 3 percent of existing demand. Currently there are no large industrial customers. Open space, agriculture, and Delta recreation areas are not irrigated with DWD water. DWD's policy is to require that large new turf landscape areas use private groundwater wells or non-potable water for irrigation. It is assumed that parks and landscape areas in new development areas will irrigate large landscape areas with groundwater, not with DWD treated water. As noted above, recycled water from ISD is not currently available.

DWD estimates future water demand based on housing projections, using a water use factor of 525 gallons per unit per day for a single family residential property. The water demand projections include a placeholder amount for anticipated industrial uses as well as unaccounted-for water loss.

Balancing Supply and Demand

The projected water supply and demand through 2030 for DWD is shown below in *Table 5.2*.

Table 5.2
Diablo Water District Projected Water Supply and Demand
(AF/Yr)

	2005	2010	2015	2020	2025	2030
Normal Conditions						
Supply:						
CCWD – Surface Water	8,403	8,403	11,201	11,201	14,000	14,000
Groundwater	0	1,679	1,679	3,360	3,360	5,039
Recycled	0	0	0	0	0	0
Total Supply	8,403	10,081	12,880	14,562	17,361	19,039
Demand	5,171	7,132	9,096	11,057	13,018	14,979
Difference	3,232	2,949	3,784	3,505	4,342	4,060
Single Dry Year Conditions						
Supply	8,403	10,081	12,880	14,562	17,361	19,039
Demand	5,171	7,132	9,096	11,057	13,018	14,979
Difference	3,232	2,949	3,784	3,505	4,342	4,060

Source: DWD 2005 Urban Water Management Plan (data converted to AF/Yr)

Per DWD's adopted 2005 Urban Water Management Plan, the District should have adequate water supply to meet normal, single and multiple dry years based on available supplies and reasonable levels of local water conservation. Although the District is not a signatory to the California Urban Water Conservation Council's Memorandum of Understanding Regarding Urban Water Conservation in California, the District is implementing the applicable demand management measures with assistance from CCWD (CCWD is a signatory).

5.3.2 Water System Infrastructure

Facilities operated by DWD include a groundwater supply system, a blending facility near the RBWTP, and a treated water distribution system consisting of a pipeline network, distribution pumping facilities, and distribution storage facilities. *Table 5.3* summarizes the existing water system facilities:

Table 5.3
Diablo Water District System Overview

	Quantity
Wells	1 – Glen Park Well w/ capacity of 1 – 2 mgd
Water Mains / Booster Stations	97.5miles / 1 pressure zone / 2 booster stations
Storage Capacity	2 reservoirs / 7.5 mg (3rd reservoir under construction)
Average Age of Distribution System	≥ 20 years
Treatment / Capacity	Randall-Bold Water Treatment Plant – 40 mgd (25 mgd CCWD / 15 mgd DWD) Glen Park Well 2 mgd
Average Day Demand / Maximum Day Demand	4.6 mgd/ 9.2 mgd
Emergency Interties	3 with Antioch

DWD updated its Facilities Plan in 2006 based on planned land uses, estimated population growth, and water demand projections. The Plan identifies facilities needed to serve future growth and provides a phased Capital Improvement Program for implementation of improvements. The Plan assumes full build out of DWD's service area by 2040. It should be noted that the Facilities Plan uses population projections that reach 75,000 by 2040 (61,575 by 2030), which are significantly higher than the projections developed for this review.

DWD uses a Supervisory Control and Data Acquisition (SCADA) system for its facilities to ensure efficient operation and to immediately alert operators in the event of a malfunction. DWD has emergency operations plans in place to address system outages.

Water Treatment

The Randall-Bold Water Treatment Plant (RBWTP) is jointly owned by CCWD and DWD. The plant is managed and operated by CCWD. DWD has a 37.5 percent share in the facility with treatment capacity of 15 mgd. The RBWTP was designed with an initial capacity of 40 mgd with expansion capability to 80 mgd. DWD is entitled to increase its share in 5 mgd increments to an ultimate 30 mgd, either through acquiring unused capacity from CCWD or plant expansion. Treated water is pumped into DWD's distribution system, which DWD owns and operates. There are four pumps at the plant that serve the DWD system, with a firm capacity of 17.2 mgd.

Groundwater from DWD's Glen Park well (and future wells) is conveyed to a blending facility located near the RBWTP. The groundwater is blended with treated surface water to achieve water quality levels that are consistent with the State's more stringent secondary drinking water

quality standards. There is space at the blending facility site to add potential future treatment processes if needed.

Storage and Distribution System

DWD has two treated water reservoirs with a capacity of 7.5 mg and emergency storage of 2 mgd with the Glen Park well that has been constructed to operate with power from a portable District-owned generator. A third reservoir with a capacity of 5 mg is being built next to an existing 5 mg reservoir located in a hilly region of Antioch approximately one mile west of Oakley The ultimate storage capacity needed for build out conditions is approximately 35 mg.

Most of the distribution system is a looped grid, which is highly desirable for system reliability and economy. There are no longer any substandard mains in the DWD distribution system because of past projects undertaken by the District to improve undersized pipes in the older downtown areas.

DWD's 2006 Facilities Plan uses fire protection objectives of 2,000 gallons per minute (gpm) from any two adjacent fire hydrants for residential areas and 3,500 gpm from any three hydrants in non-residential areas. Fire reserve storage is calculated at 240,000 gallons for 2 hours of fire flow for residential and 630,000 gallons for 3 hours for non-residential. The deficiency in fire flow noted in the 1998 Facilities Plan has been corrected, and there are no other fire flow deficiencies noted in the 2006 Plan.

DWD has three emergency interties with the City of Antioch at the west boundary of the DWD system, each with a capacity of 1,000 gpm. The emergency intertie with Brentwood is no longer operational. The District has an historic unaccounted for water loss of 6 percent due to hydrant use, line flushing, and system leaks. This is within the suggested ten percent benchmark of the American Waterworks Association.

5.3.3 Other Water Systems

There are over 30 small water systems serving areas in the eastern portion of DWD's planning area. These systems provide water to residents of Knightsen, Hotchkiss Tract, and Bethel Island. Three of the systems were transferred to DWD through the 2003 reorganization involving the dissolution of three County Service Areas (CSAs) (M-25 Knightsen, M-26 Beacon West, and M-27 Willow Park Marina) with concurrent annexation to DWD (LAFCO 02-44). The District still provides contract services to CSA M-28 (Willow Mobile Home Park) and the Delta Mutual Water Company. These systems are described below:

- The Knightsen system consists of a single well with chlorination that supplies 14 homes and small businesses.

- The Beacon West system on the northern edge of Bethel Island consists of a single well with chlorination treatment that supplies approximately 20 residences.
- The Willow Park Marina system on the eastern side of Hotchkiss Tract consists of 2 chlorinated wells supplying about 160 condominium units and a club house; two additional wells are being constructed for fire protection.
- The Willow Mobile Home Park system serves 172 mobile homes. It consists of one well with a reverse osmosis unit and a 20,000 gallon storage tank.
- The Delta Mutual Water Company well is located at Sandmound Boulevard on Hotchkiss Tract. It serves approximately 115 connections through two wells with chlorination.

DWD plans to own two wells that will provide water for the Rock Island Marina development adjacent to Sand Mound Slough. An emergency well has been constructed and placed into operation as a back up source of supply for the Summer Lakes Development. The well has a capacity of 2,000 gallons per minute and has been in service since the fall of 2006. The well has yet to be needed for emergency purposes but the District keeps it fresh and active by using it on a regular basis for irrigation and lake fill purposes.

The 2006 Facilities Plan notes that Contra Costa County Environmental Health has indicated that some existing water systems in the area should be replaced when feasible. The groundwater from most wells meets primary drinking water standards but exceeds secondary standards for Total Dissolved Solids (TDS) unless additional treatment is provided.

5.3.4 Capital Improvements

The 2006 Facilities Plan identifies a variety of projects that will be needed to adequately serve DWD's customers under build out conditions. These capital improvement projects are new facilities to accommodate new development. No major deficiencies were noted with respect to existing facilities, although the Plan does recommend that the District fund a pipeline replacement program to accrue adequate funds prior to the time replacements are needed. The recommended projects include the following:

- Systemwide Improvements: $71.5 million to increase capacity at the RBWTP, develop groundwater wells, increase transmission capacity, expand the SCADA system, and updated the Facilities Plan, system maps, and database
- West of Jersey Island Road: $16.3 million to construct two new reservoirs with storage capacity of 5 mg each. The first reservoir is needed in the near term, between 2006 and 2010. The District recently awarded the construction contract for Reservoir No. 3 West of Jersey Island Road.

- East of Jersey Island Road: $24 million for the Cypress Reservoir and Pump Station, with three tanks totaling 6.5 mg in storage. The first phase, including pump station and 2.5 mg in storage, must be in place to serve more than 775 residential units in East Cypress Specific Plan Area. The timing for this project is driven by housing market demands. Given the current depressed housing market, this project may not occur until 2010. No specific improvements are recommended for Bethel Island. These projects are to be determined on a case-by-case basis. The current developer for the Delta Coves project is working to utilize local groundwater resources for the project instead of using treated water from Diablo Water District. However, the groundwater in this area has high iron, manganese, and Total Dissolved Solids concentrations that do not meet current drinking water standards. These issues will have to be addressed before the State Department of Health Services will issue a drinking water permit.

5.3.5 Summary

DWD primarily relies on surface water purchased from CCWD for its water supply and has developed a groundwater supply that is currently providing up to 20 percent of total supply.

DWD's 2006 Facilities Plan identifies facilities to serve future growth and provides a Capital Improvement Program with financial analysis of the proposed improvements. Treated water storage facilities are adequate to meet the current needs of the District, and all pipelines meet regulatory standards. Water services also meet the fire protection objectives of the East Contra Costa Fire Protection District. Overall the DWD system is reliable and has multiple levels of redundancy for supply and distribution to maintain supply in emergency situations.

5.4 Financing Constraints and Opportunities

DWD's primary source of revenue is service charges; this is supplemented by reimbursements for administration and inspection of construction of new water mains by developers, and contract fees to operate the systems for CSA M-28 and the Delta Water Mutual as described above in *Section 5.3.4*.

For FY 2005/2006, total revenues for DWD were $14,663,468 million and total expenses were $8,277,030 million. *Table 5.4* summarizes the District's financial history.

Table 5.4
Diablo Water District
Financial Summary

	FY 2004/2005 Actual	FY 2005/2006 Actual	FY 2006/2007 Projected	FY 2007/2008 Budgeted
Operating Revenues	$7,104,835	$7,633,314	$7,921,099	$8,132,500
Operating Expenses	$6,924,741	$7,295,017	$7,075,537	$7,505,520
Net Non-operating Revenues / (Expenses)	$2,385,621	$6,048,141	$3,331,115	($3,864,436)
Change in Net Assets	$2,932,175	$6,386,438	$4,176,677	($3,237,456)
Beginning Balance	$19,442,250	$22,374,425	$28,760,863	$32,937,540
Net Assets, End of Year	$22,374,425	$28,760,863	$32,937,540	$29,700,084

At June 30, 2006, DWD had $7,327,175 million restricted for facilities reserve fund expenditures and an unrestricted net asset balance of $6,153,589 million.

The District operates with four funds: General Fund, Facilities Reserve Fund, Main Extension Reimbursement Assessment (MERA) Fund, and the Infrastructure Replacement Fund. The District strives to maintain reserve fund minimums as follows:

- General Fund: $1.25 million – 25 percent of operations income with $600,000 for cash shortfalls and $625,000 for emergency purposes and rate stabilization
- Facilities Reserve: $1.8 million for cash shortfall due to reduced number of connections at 140 per year for three years
- Infrastructure Replacement: $1.4 million – 5 percent of the replacement cost of large depreciated assets.

DWD has long term debt that was used to finance capital improvements. In 1989, DWD entered into a Joint Powers Agreement with CCWD to form the Contra Costa Water Authority for the construction and operation of the Randall-Bold Water Treatment Plant. The Plant was completed in 1992, and DWD is responsible for 35.5 percent of the construction costs. This is being repaid to CCWD over a period of 30 years, with the funds used to pay the principal and interest on revenue bonds issued by the Contra Costa Water Authority to finance the project. DWD's outstanding balance at June 30, 2006 was $11,750,000. The semi-annual payments are funded from the General Fund (37.5%) and Facilities Reserve Fund (62.5%).

In 2005, DWD obtained $7.5 million of Series 2005 Revenue Bonds which are being used to finance improvements to the District's water system, and in particular the Well System project. DWD is required to make semi-annual payments through July 2030, with interest rates ranging from 3.75 to 4.4 percent. The outstanding balance at June 30, 2006 was $7.3 million.

DWD has the financial resources, fee structures, and policies in place to fulfill its current debt obligations and provide for water infrastructure needs and improvements.

5.5 Cost Avoidance Opportunities

DWD is avoiding water supply costs by developing groundwater production facilities. Groundwater supply is lower in cost relative to surface water and it improves water supply reliability; therefore it is in the interest of DWD to pursue development of this source.

DWD's 2006 Facilities Plan includes an analysis of capital improvements needed to serve future development as well as an analysis of costs and Facility Reserve Charges by service area. Through this Plan the District is able to assign capital costs equitably to ensure that new development within a certain area is paying a fair share.

DWD operates with 14 staff, which controls personnel and employee benefit costs.

DWD was recognized by the East Contra Costa County Fire Protection District as providing quality and reliable services within its service area. A strong fire insurance rating translates into lower fire insurance rates for homeowners and businesses.

5.6 Opportunities for Rate Restructuring

DWD's water service rates include a monthly service charge and single-tier usage charges. This rate structure was last updated in January of 1999 and the District has not needed to increase water rates since that time. Residential and non-residential accounts pay the same rates, shown in *Table 5.5* below:

Table 5.5
Diablo Water District
2007 Water Rates – Monthly

Type	All Accounts
Monthly Service Charge	
5/8 inch meter	$8.95
1 inch meter	$22.10
1 ½ inch meter	$44.10
Water Consumption Fee	$2.48 per ccf (748 gallons)

The District also sets annual water rates for the Knightsen, Beacon West, and Willow Park Marina systems. Those rates are based on operational expenses and the need to maintain adequate reserves for emergency repairs and replacement of aging infrastructure. The rates for 2007-2008 are as shown in *Table 5.5*. The District is not anticipating any rate changes for the

next three years. Given the water conditions within the State and particularly the Delta, the District should evaluate the benefits of a tiered water rate structure that encourages conservation.

DWD's water connection fees include a Facilities Reserve Charge, Main Extension Reimbursement Assessment (MERA), and a surcharge for facilities to be installed in a substandard street where applicable. The Facility Reserve Charge differs between areas with different rates charged for new connections west of Jersey Island Road, east of Jersey Island Road, and on Bethel Island. Rates vary according to water meter size and are adjusted each year in accordance with the *Engineering News Record Cost of Construction Index.* In July 2006, they were adjusted to reflect the capital improvement needs identified in the 2006 Facilities Plan and included further cost refinement by development area. New development is funding the improvements needed to serve the East Cypress Corridor Specific Plan Area. Current fees are shown in *Table 5.6*.

Table 5.6
Diablo Water District
Water Connection Fee Summary
(for 5/8-inch meter)

Year	Facility Reserve Charge			MERA*	Total for New Connection (east of Jersey Island Road)
	West of Jersey Island Rd.	East of Jersey Island Rd.	Bethel Island		
2007-08	$9,251	$13,456	$6,607	$488	$13,944
2006-07	$9,251	$13,456	$6,607	$488	$13,944
2005-06	$4,583	$4,583	$4,583	$488	$5,071
2004-05	$4,480	$4,480	$4,480	$477	$4,957

**Main Extension Reimbursement Assessment*

5.7 Opportunities for Shared Facilities

DWD shares facilities with other agencies, including infrastructure, financing, and planning. DWD shares infrastructure through the use of the Contra Costa Canal, CCWD's Los Vaqueros Reservoir, the Randall-Bold Water Treatment Plant, and the water main that delivers water from the RBWTP to the northern portion of Brentwood.

DWD is also providing contract services to two small water systems (CSA M-28 and Delta Mutual Water Company) to ensure their compliance with State Department of Health Services requirements. This is cost effective for DWD and the two systems.

DWD is participating with ISD, CCWD, and the East Bay Regional Park District in a project to construct a grade-separated railroad crossing which would eliminate four at-grade crossings.

This underpass will jointly serve all four districts and their customers when accessing their offices and facilities. This partnership, with ISD as the lead agency, has been working closely with Caltrans and the BN&SF Railroad for grant funding, agreements, and easements.

DWD is participating in the Integrated Regional Water Management Planning effort for eastern Contra Costa County with several other local jurisdictions. One goal of the plan is to improve regional competitiveness for state and federal grand funding.

5.8 Evaluation of Management Efficiencies

DWD operates with 14 staff and uses its SCADA system to monitor and control infrastructure components. The District uses its Facilities Plan and budgeting process to guide District operations.

5.9 Government Structure Options

DWD provides water services for the City of Oakley and unincorporated areas including the Hotchkiss Tract and the East Cypress Corridor Specific Plan Area and Summer Lakes development; the Town of Knightsen; and communities on Bethel Island including Delta Coves. The Liberty Union High School District is proposing to construct a new high school at the southwest corner of Delta Road and Sellers Avenue; this site is adjacent to the District's southern boundary, although this use was not factored into the District's recent Facilities Plan. Due to urbanization and projected growth, there will be an increased need for the services provided by the District, and the District has planned for service needs through its 2006 Facilities Plan. The District's western boundary is contiguous to the boundary for the City of Antioch and a portion of its southern boundary is contiguous to the boundary for the City of Brentwood. The portion of the District that receives CVP water is within the boundaries of the Contra Costa Water District.

Three government structure options were identified:

- Maintain the status quo
- Annex the Liberty Union High School District site
- Consolidate with the Contra Costa Water District

Maintain the status quo: DWD is currently providing water services for residents and businesses within its boundaries. The District is providing reliable service, maintains its infrastructure, and is financially sound. The District has planned for capital improvements needed to serve future growth, including expansion of the RBWTP and development of the groundwater supply system. The benefits of this option are continuation of service and economies that benefit ratepayers for water service.

Annex the Liberty Union High School District site: A new high school is being proposed for the southwest corner of Sellers Avenue and Delta Road. ISD indicated that it plans to serve this facility, although it is in an area that the City of Brentwood identified for a potential sphere of influence expansion. This parcel is outside the planning area for DWD's Facilities Plan and was not factored into water demands or infrastructure needs. Further study would be needed to determine the water demands and construction timing to ensure that DWD could adequately serve the site. In addition, the CEQA document being prepared by the School District will need to address the impacts of providing water service to the site.

Consolidate with the Contra Costa Water District: CCWD provides similar services within its retail service area in central Contra Costa County and is delivering treated water to DWD. CCWD and DWD were both formed under the County Water District Law (Water Code §30000 et seq.). The advantages of this option may include economies of scale due to operational efficiencies. However, the two Districts are focused on serving the needs of the communities within their respective treated water service area at opposite ends of the County. DWD is providing services to two communities on Bethel Island that are outside the boundaries of CCWD. A consolidation could result in increased costs, loss of efficiency, and loss of local control regarding the level of service, the use of groundwater resources, setting of water rates and capital improvements. Further study would be needed to determine the merits of this option and benefit/costs which would affect ratepayers for both DWD and CCWD.

5.10 Local Accountability and Governance

The Diablo Water District was formed in 1953 as the Oakley Water District. DWD is governed by a locally elected Board of Directors. Directors are elected at-large; the last contested election was in 2002. The governance is summarized in *Table 5.7*.

Table 5.7
Diablo Water District Governance

Date Formed:	1953 (as Oakley Water District) Name legally changed to Diablo Water District in 1993		
Statutory Authorization:	County Water District Law (California Water Code §30000)		
Board Meetings:	District Office, 4th Wednesday of each month at 7:30 pm		
Member	**Title**	**Term Expires**	**Compensation***
John H. de Fremery	President	December 2010	$100/mtg
Howard Hobbs	Vice President	December 2010	
Kenneth L. Crockett	Director	December 2010	
Edward Garcia	Director	December 2008	
Richard Head	Director	December 2008	

** Directors do not receive any health, medical or other benefits*

District meetings are open to the public. Meeting notices and agendas are posted at least 72 hours in advance at the District's office and on the District's website (www.diablowater.org). The website also includes information on water rates, conservation, and District activities. DWD publishes a newsletter for its customers once or twice per year.

5.11 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.[2]

DWD provides water treatment and distribution services for the City of Oakley and unincorporated areas including the Hotchkiss Tract and the East Cypress Corridor Specific Plan Area and Summer Lakes development; the Town of Knightsen; and communities on Bethel Island including Delta Coves. The District's current Sphere of Influence (SOI) encompasses an additional 3.5 square miles and includes area adjacent to the District's southern and eastern boundaries and the Veale Tract to the southeast.

Due to urbanization and projected growth, there will be an increased need within this area for the services provided by the District. The District has planned to serve this need through its Urban Water Management Plan (2005), Facilities Plan (2006), annual budgeting process, and rate structure.

One area of DWD's SOI that lies south of Delta Road and west of Marsh Creek overlaps with the SOI for the City of Brentwood. In 2000, DWD and the City of Brentwood amended their agreement regarding the Empire Avenue water main; the agreement states that service areas located south of Neroly Road/Delta Road will be served by Brentwood.

The District's SOI also currently includes the Veale Tract. This area is outside the County Urban Limit Line approved by the voters in 2006, and is designated as Delta Recreation and Resources with land uses such as agriculture, wildlife habitat, and low intensity recreational use. These land uses will not need water service from DWD and the area has been excluded from the planning area used for the District's 2006 Facilities Plan.

As discussed in *Section 5.9*, a new high school is proposed at the corner of Sellers Avenue and Delta Road. This site is outside the planning study area used for DWD's 2006 Facilities Master Plan. In addition, it is outside the County Urban Limit Line approved by the voters in 2006. The area is designated as agriculture, open space, parks, and other non-urban uses on the County's land use map. In November 2006, the voters did not approve the bond issue for the school, and

[2] State of California Government Code Section 56425 et seq.

the project has been delayed. Additional analysis will be needed to support the public services to this facility.

In addition to the Delta Coves development on the southern end of Bethel Island, DWD is currently serving two small water systems: the Beacon West community on the northern edge of Bethel Island that is within the District's boundaries and the Willow Mobile Home Park (County Service Area M-28) on the eastern side of Bethel Island through contract to the County. There are numerous small water systems that are serving other communities on Bethel Island. In 2005, the Bethel Island Municipal Improvement District (BIMID) considered providing water service and drilled a test well, but the water quality was poor. The BIMID project is not active at this time. The County recently updated its General Plan with respect to Bethel Island; the majority of the development will remain along the perimeter. In the response to this service review DWD indicated that it may be logical to include all of Bethel Island in the District's SOI; the District has included the entire island within the study area for its 2006 Facilities Plan.

Three potential options have been identified for the DWD SOI:

- **Reduce DWD's SOI to eliminate overlap with the City of Brentwood SOI:** With the exception of one area south of Delta Road and west of Marsh Creek, Neroly Road/Delta Road serves as the current SOI limit between the City of Brentwood and the City of Oakley, DWD and the Ironhouse Sanitary District.

- **Remove the Veale Tract from DWD's SOI:** The Veale Tract is outside the voter approved County Urban Limit Line and is designated as Delta Recreation on the County's General Plan Land Use map. This area will not need services from DWD, and DWD has removed it from the study area used for the 2006 Facilities Plan.

- **Expand DWD's SOI to include areas on Bethel Island with designated lands uses that allow for future development on the island:** DWD is already planning on serving the Delta Coves development, the Willow Mobile Home Park on the eastern edge by contract with the County, and the Beacon West community on the northern edge. DWD has considered the future water service needs on Bethel Island in its 2006 Facilities Plan; however future service needs will be evaluated on a case-by-case basis.

SOI Recommendation

DWD uses the General Plans for the City of Oakley and Contra Costa County, and other planning efforts to plan for the future service needs of the area it currently serves and plans to serve. The District is developing its groundwater resources and has the ability to incrementally

increase treatment capacity at the Randall-Bold Water Treatment Plant to 30 mgd. It is recommended that LAFCO reduce DWD's sphere of influence to eliminate the area south of Neroly Road/Delta Road and west of Marsh Creek that overlaps with the City of Brentwood SOI and to remove the Veale Tract southeast of the District. Although DWD has included Bethel Island within its facilities planning study area, there is no specific timeframe for when development is expected to occur and proposals to expand the District's SOI and boundaries should be evaluated on a case-by-case basis.

An analysis of SOI issues is included in *Table 5.8* below.

Table 5.8
Diablo Water District
SOI Issue Analysis

Issue	Comments
SOI Update Recommendation	Reduce SOI to eliminate overlap with Brentwood and Veale Tract
Services authorized to provide	Water supply, treatment and distribution for domestic use
Existing and Planned Land Uses and Policies	The District has no land use authority for the area where it provides domestic water services. County and city plans include land uses and population growth that will need increased water services. County and city policies support the provision of adequate water service for residents and businesses.
Potential effects on agricultural and open space lands	Although there are agricultural and open space lands within the District's boundaries and SOI, water services do not by themselves induce growth on agricultural or open space lands. No Williamson Act contracts would be affected.
Opportunity for Infill Development rather than SOI expansion	The District has no land use authority and has no control over the location of infill development.
Projected Growth in the Affected Area	Population is expected to increase by 36% over the next 23 years to 41,330 residents. There will be an increased need for domestic water services.
Services to be Provided to any areas added to the SOI	No areas are proposed to be added to the DWD SOI.
Service Capacity and Adequacy	The District is providing adequate service, is financially stable, and has the capacity to continue to provide services within its boundaries. The District has planned for capital needs based on projected growth and is implementing projects to extend the life of existing infrastructure and increase capacity where necessary.
Location of Facilities, Infrastructure and Natural Features like rivers and ridgelines	The District provides services within the City of Oakley, Bethel Island, and other unincorporated areas, including the East Cypress Corridor Specific Plan Area. DWD is bounded to the north by the San Joaquin River, to the west by the City of Antioch, to the south by the City of Brentwood and to the east by unincorporated area. The District's offices and the Randall-Bold Water Treatment Plant are located in Oakley.

Table 5.8
Diablo Water District
SOI Issue Analysis

Issue	Comments
Effects on Other Agencies	Reducing the District's SOI to eliminate the overlap with Brentwood's SOI will eliminate confusion over planning responsibilities for services to that area.
Potential for Consolidations or other Reorganizations when Boundaries Divide communities	The District's current boundaries do not divide any communities.
Social or economic communities of interest in the area	The District was formed in 1953 as the Oakley Water District. In 2003, the District annexed three County Service Areas: M-25 Knightsen, M-26 Beacon West, and M-27 Willow Park Marina. The District collects service charges from existing users and fees for new development. Property owners within the area and ratepayers have an economic interest in receiving services from this investment.
Willingness to serve	The District wishes to continue to provide services within its boundaries.

5.12 Determinations

5.12.1 Growth and Population

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

DWD serves the City of Oakley and unincorporated areas including the Hotchkiss Tract and the East Cypress Corridor Specific Plan Area and Summer Lakes development; the Town of Knightsen; and communities on Bethel Island including Delta Coves. The District's service area has an estimated current population of 30,385 residents. The population is projected to reach 41,330 by 2030[3] with an average annual growth rate of 1.6 percent. Given the current urban land uses and anticipated growth, there will be an increased need for water services within the DWD service area.

5.12.2 Infrastructure Needs or Deficiencies

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

DWD obtains a majority of its untreated water supply from the Contra Costa Water District and the Central Valley Project. DWD has developed a groundwater supply system that is providing an estimated 20 percent of water supply. Per the adopted 2005 Urban Water Management Plan

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

for CCWD, water supplies are adequate to meet expected demand through 2030 in normal years, single year droughts, and the first year of multiple dry years. Per DWD's adopted 2005 Urban Water Management Plan, the District will have adequate water supply to meet normal, single and multiple dry years through 2030 based on the use of groundwater for a portion of the supply.

The District owns a 37.5 percent share of the Randall-Bold Water Treatment Plant and CCWD owns 62.5 percent. DWD's treatment capacity is currently 15 mgd; this may be incrementally increased up to 30 mgd. The District has two reservoirs and is constructing a third; upon completion the District will have 10 mg in storage with an additional 3 mg in emergency storage.

No infrastructure needs or deficiencies were identified that are not being addressed in the District's 2006 Facilities Plan.

5.12.3 Financing Constraints and Opportunities

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

DWD funds water services, including capital improvements, through service charges and development fees. The District has financed capital projects and has outstanding debt related to its water system. The District has reserves and has the capacity to adequately fund water system operations. It has the rate structure and policies in place to finance water system improvements with costs equitably allocated between existing users and new development.

5.12.4 Cost Avoidance Opportunities

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

DWD utilizes cost avoidance measures to control costs for its water service, including developing groundwater resources to control surface water supply costs.

5.12.5 Opportunities for Rate Restructuring

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

DWD uses a flat rate structure for water service; the rates have not been adjusted since January 1999 and no increases are anticipated for at lease the next three years. The District should evaluate the benefits of a tiered water rate structure that encourages conservation.

Connection fees are reviewed annually and adjusted according to increases in the *Engineering News Record Construction Cost Index*. The 2006 Facilities Master Plan includes a phased Capital Improvement Program with infrastructure need and cost analysis based on service area

(west of Jersey Island Road, east of Jersey Island Road, and Bethel Island); this allowed the District to further refine its charges for new connections.

5.12.6 Opportunities for Shared Facilities

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

DWD shares facilities with agencies in the region to improve efficiency and control costs. This includes sharing infrastructure with CCWD for untreated water supply delivery and treatment.

5.12.7 Evaluation of Management Efficiencies

Purpose: To evaluate management efficiencies of the jurisdiction.

DWD operates with 14 staff and uses a SCADA system to monitor and control infrastructure components. The District uses its Facilities Plan and budgeting process to guide District operations.

5.12.8 Government Structure Options

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

DWD provides water services for the City of Oakley, communities on unincorporated Bethel Island, and other unincorporated areas including the East Cypress Corridor Specific Plan Area. Three government structure options were identified:

Maintain the status quo: The District is currently providing water services for residents and businesses within its boundaries. The District is providing adequate service, maintains its infrastructure, and is financially sound. The benefits of this option are continuation of service and economies that benefit ratepayers for water service.

Annex the Liberty Union High School District site: A new high school is being proposed for the southwest corner of Sellers Avenue and Delta Road. This use was not factored into the District's 2006 Facilities Plan. Further study would be needed to determine water demands and construction timing to ensure that DWD could adequately serve the site. In addition, the CEQA document being prepared by the School District will need to address the impacts of providing water service to the site.

Consolidate with the Contra Costa Water District: DWD and CCWD provide similar services within their boundaries although at opposite ends of the County. The advantages of this option may include economies of scale due to operational efficiencies. However, a consolidation could result in increased costs, loss of efficiency, and loss of local control regarding the level of

service, the use of ground water resources, setting of water rates and capital improvements. This option would require further study to determine the potential benefits and costs.

5.12.9 Local Accountability and Governance

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

DWD is governed by a five-member Board of Directors, elected at-large by the voters within the district. Information on the District, including Board agendas and minutes, are available on the District's website (www.diablowater.org). District board meetings are open and accessible to the public.