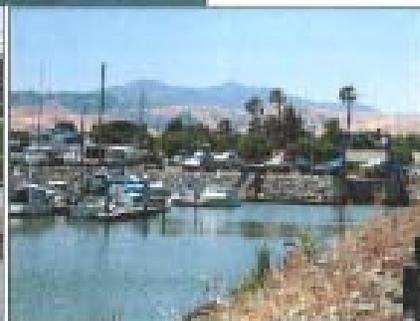
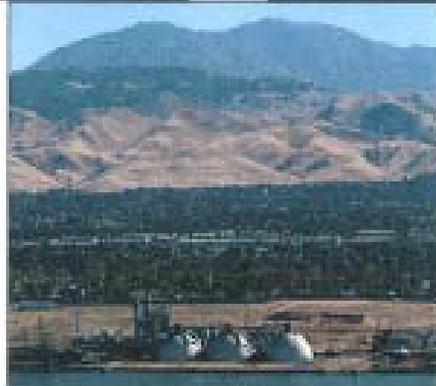




City of Pittsburg 2010 Urban Water Management Plan



August 2011

City of Pittsburgh 2010 Urban Water Management Plan

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Acronyms and Abbreviations

AFY	Acre-foot per year
CCWD	Contra Costa Water District
CII	Commercial, Industrial and Institutional
CUWCC	California Urban Water Conservation Council
CVP	Central Valley Project
DDSD	Delta Diablo Sanitation District
DMMs	Demand Management Measures
DWR	Department of Water Resources
EBMUD	East Bay Municipal Utility District
ECCID	East Contra Costa Irrigation District
ECWMA	East County Water Management Association
EGIA	Electric Gas Industries Association
ETo	Evapotranspiration
FWSS	Future Water Supply Study
gpm	Gallons Per Minute
GWMP	Groundwater Management Plan
HET	High Efficiency Toilet
IRWMP	Integrated Regional Water Management Plan
MOU	Memorandum of Understanding
MSL	Mean Seal Level
RWF	Recycled Water Facility
SBX7-7	Water Conservation Bill of 2009
TDS	Total Dissolved Solids
ULF	Ultra-low Flow
ULFTs	Ultra Low Flow Toilets
USBR	U.S. Bureau of Reclamation
UWMP	Urban Water Management Plan
UWMP Act	Urban Water Management Plan Act
WEP	Water Education Program
WWTP	Wastewater Treatment Plant

Appendices

- Appendix A - Public Outreach
- Appendix B - Notification Letters and Notice of Intention to Adopt
- Appendix C - Resolution of Adoption of UWMP
- Appendix D - City's 2009 and 2010 Water Conservation Resolutions
- Appendix E - CCWD Supply Reliability Analysis

Chapter 1 Plan Preparation

This 2010 City of Pittsburg (City) Urban Water Management Plan (UWMP) was prepared in compliance with the Urban Water Management Planning Act and the Water Conservation Bill of 2009. It includes all information necessary to meet the requirements of California Water Code, Division 6, Part 2.6.

1.1 Background

1.1.1 Urban Water Management Planning Act

Enacted in 1983, the Urban Water Management Planning Act (UWMP Act) requires every urban water supplier providing water to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually to prepare and adopt an Urban Water Management Plan (UWMP) every five years. The City of Pittsburg Water System, a water retailer, fits the defined criteria and has prepared this UWMP to address all requirements set forth in the State of California Water Code Sections 10610 through 10657.

Since its passage, 18 amendments have been added to the UWMP Act. These changes are intended to encourage increased regional planning and the cooperative management of California's most precious commodity – water. As a result, UWMPs have evolved to become:

- Foundation documents and sources of information for Water Supply Assessments (California Water Code Section 10613) and Written Verifications of Water Supply (California Water Code Section 66473.7);
- Long-range water supply planning documents;
- Source data for the development of regional water plans;
- Source documents for cities and counties preparing their General Plans;
- Key components of Integrated Regional Water Management Plans; and
- A condition to qualify for receipt of certain State grant funds.

For the City, the benefits of updating the UWMP extend beyond legislative compliance. The regional approach to documenting water-service planning allows the City to evaluate supply reliability goals and water use efficiency, identify opportunities and challenges to maximize the beneficial use of water, and provide an additional public forum for discussion of water resources issues.

This document presents the City's 2010 Urban Water Management Plan (UWMP or Plan). This Plan is organized based on guidance provided by the State of California Department of Water Resources (DWR) in their 2010 UWMP Guidebook and includes references to DWR's Guidebook table numbers and specific water code section citations, as appropriate.

1.1.2 Water Conservation Bill of 2009

On November 10, 2009, the state legislature passed the Water Conservation Bill of 2009 (also referred to as SBX7-7) as a water conservation component to the Delta legislative package. The bill seeks a 20 percent statewide reduction in urban per capita water use in California by December 31, 2020. SBX7-7 requires that each retail agency preparing a 2010 UWMP to calculate baseline water use as well as an interim (for 2015) and final (for 2020) water use reduction target. The methodologies used to calculate both the baseline per capita water use and targets were outlined in the Draft and Final UWMP guidelines published by DWR in December 2010 and March 2011, respectively. To allow DWR time to develop the water use target methodologies, the deadline for UWMP adoption and submittal was extended to July 1, 2011.

This Plan documents the City's interim and final water use reduction targets and includes a plan to achieve those targets.

1.2 Agency Coordination and Public Participation

The City of Pittsburg is located within the Contra Costa Water District (CCWD) service area and obtains roughly 85% of its water supply wholesale from CCWD. CCWD provides untreated surface water pumped from the Sacramento-San Joaquin Delta and delivered through the Contra Costa Canal. The remainder of the City's water supply is obtained from groundwater wells located within the City. Surface water from CCWD and groundwater from the City's wells are blended at the City's water treatment plant and delivered to customers within the City. Wastewater from the City is treated by Delta Diablo Sanitation District (DDSD). DDSD also provides recycled water for industrial and irrigation use within the City service area.

1.2.1 Public Participation

The City encouraged public participation in development and review of this UWMP. The City included an announcement of the UWMP update in its May 2011 Water Utilities Newsletter (see Appendix A). The City also posted a notice on its website in May 2011 alerting customers that it was preparing the plan update and providing a contact for more information. The City held an information public hearing on the UWMP approximately one month prior to the adoption hearing. At the informational hearing on July 18, 2011, the City presented a summary of the draft 2010 UWMP, including the urban water use targets and the plan for meeting them, and invited public comment. A Notice of Public Hearing to receive comments on the Draft UWMP on July 18, 2011, was published in the Contra Costa Times, East County edition on June 23, 2011 and June 30, 2011 and was posted on the City's website. The Contra Costa Times is a major local newspaper of general circulation in the City's service area. The notice advised the public that copies of the draft 2010 UWMP were available for review at the Pittsburg Public Library and City Clerk's office prior to the hearing, and that written comments could be sent to the City until July 6, 2011. Copies of all public outreach materials are included in **Appendix A**.

1.2.2 City and County Notification

Contra Costa County was sent a notification letter on January 31, 2011 that the City's 2010 UWMP was under preparation. A draft of the 2010 UWMP was also sent to the County along with a notice of intention to adopt. These notifications can be found in **Appendix B**. The City does not serve water to any other cities in the area.

1.2.3 Agency Coordination

The City coordinated closely with both CCWD and DDSD in preparing this UWMP. In February 2011, the City sent DDSD a notification letter that the 2010 UWMP was under preparation. During plan development, DDSD provided data on wastewater treatment and current and projected water recycling. DDSD also reviewed portions of the administrative draft UWMP. CCWD, as the City's wholesaler, provided information on water supply reliability and shared their draft UWMP for the City's use in developing its Plan.

In addition, the City of Pittsburg has coordinated its 2010 UWMP preparation with other appropriate agencies in the area (Table 1-1). The City has actively participated for many years in integrated water resources planning and integrated water management planning for east Contra Costa County. Water agencies, wastewater agencies, flood control districts, and watershed management groups within the eastern portion of Contra Costa County (East County) have a long history of cooperative planning for the region. In the early 1990s, the following agencies joined together as the East Contra Costa Water Management Association and undertook an East County Water Supply Management Study, a comprehensive water management plan:

- City of Antioch
- City of Brentwood
- Byron-Bethany Irrigation District
- Town of Discovery Bay Community Services District (formerly Contra Costa County Sanitation District No. 19)
- Contra Costa County Water Agency
- Contra Costa Water District
- Delta Diablo Sanitation District
- Diablo Water District
- East Contra Costa Irrigation District
- Ironhouse Sanitary District
- City of Pittsburg

This group continues to coordinate on water management issues for the region, holding regular meetings. In July 2005, this group prepared a Functionally Equivalent Integrated Regional Water Management Plan for the East Contra Costa region; tying together several regional water management plans. More recently, the group successfully went through the Region Acceptance Process for DWR’s Integrated Regional Water Management Program, and applied for Proposition 84 and Proposition 50 Supplemental Grant funding. In 2011, the group was awarded Proposition 84 Planning Grant funding for updating the Integrated Regional Water Management Plan (IRWMP) and developing a Groundwater Management Plan and a Salt and Nutrient Management Plan. A summary of agencies and organizations contacted or involved in the preparation of this 2010 UWMP are included in Table 1-1.

Table 1-1: Coordination with Appropriate Agencies (Guidebook Table 1)

Coordinating Agencies ^{1,2}	Participated in developing the plan	Commented on the draft	Attended public meetings	Was contacted for assistance	Was sent a copy of the draft plan	Was sent a notice of intention to adopt	Not involved/ No information
Other water suppliers							
Contra Costa Water District	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Delta Diablo Sanitation District	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Water Management Agencies							
East Contra Costa Water Management Association					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Relevant public agencies							
Contra Costa County					<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
General public							
City Water Customers			<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	

1.3 Plan Adoption and Submittal

The City Council of the City of Pittsburg adopted the 2010 UWMP at its regular meeting on August 15, 2011.

Notice of the Public Hearing and the Resolution adopting the UWMP are included in **Appendices A and C**.

Within 30 days of adoption, copies of this 2010 UWMP will be provided to:

- California Department of Water Resources
- California State Library
- Pittsburg Public Library
- Contra Costa County

1.4 Implementation Plan

The City will implement this UWMP, including the Water Demand Reduction Plan outlined in Section 3.5, in accordance with the requirements established in the Urban Water Management Planning Act of 1983, as amended, and the Water Conservation Act of 2009.

The City has already taken various measures to help ensure that urban water use continues to meet the 2020 target. Section 3.5 contains a detailed description of the City's water use reduction plan which includes: recycled water projects, conservation efforts and ongoing collaboration with the CCWD and the DDSD. The outreach efforts highlighted in Section 3.5 are expected to reduce urban water use, particularly irrigation use in the public landscape and residential sectors, providing the City the means for sustaining its urban use targets.

Chapter 2 System Description

2.1 Service Area Description

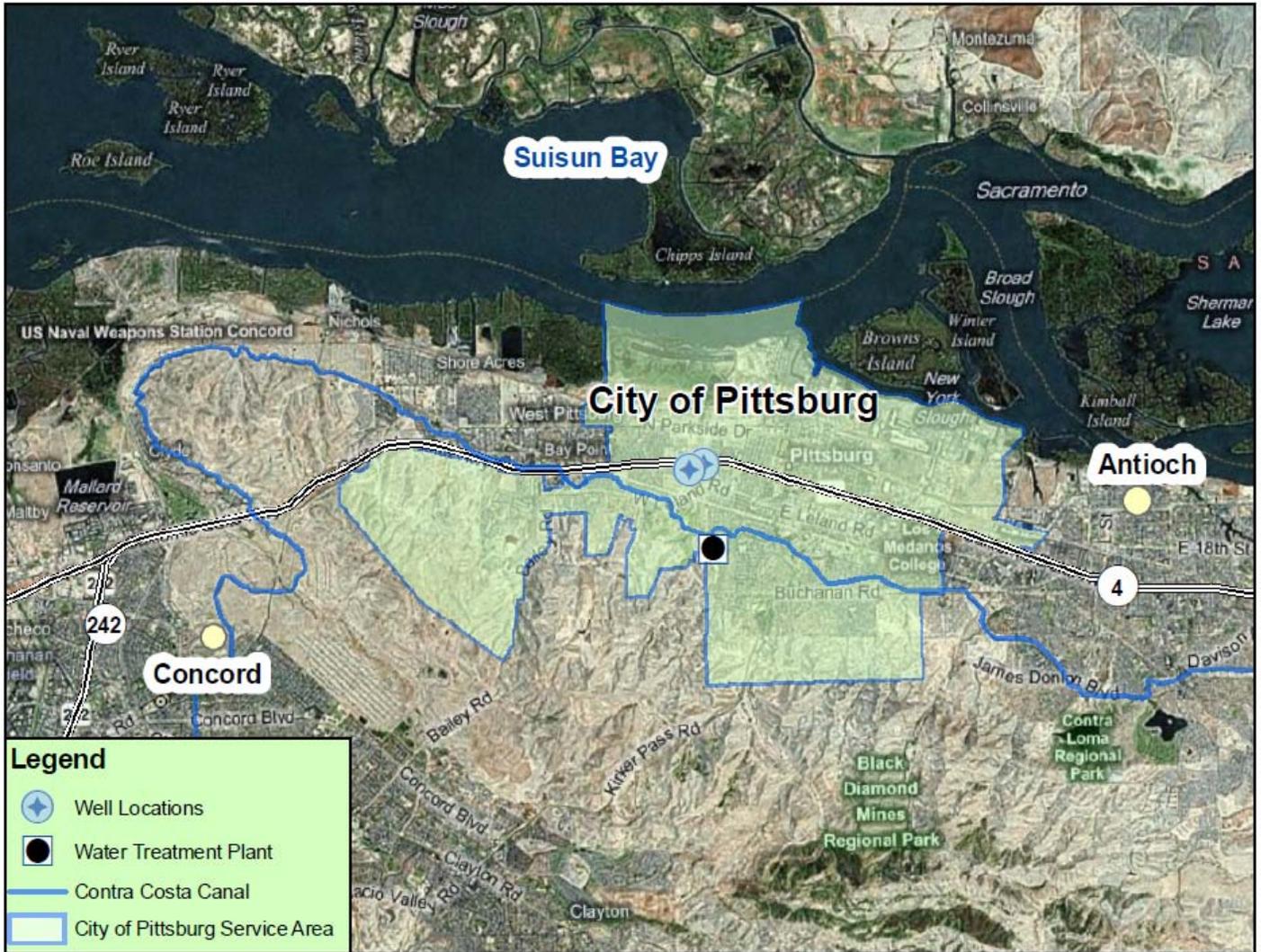
Pittsburg was established along the Suisun Bay/Delta shoreline as a 10,000-acre land grant from the government of Mexico in 1839 and grew into a settlement. Originally named New York of the Pacific, the name was changed to New York Landing during the Gold Rush, and then to Pittsburg in 1911.

The City is located in the eastern portion of Contra Costa County, about 40 miles northeast of San Francisco. Originally a coal shipping port, the City was founded in 1849, and incorporated in 1903 as a general law city. In the 1940s and early 1950s, the City was a major commercial and industrial center for the County and the eastern ports of the greater San Francisco Bay Area. Pittsburg experienced rapid population growth during the 1970s and 1980s, evolving into a bedroom community for employment centers in west and central Contra Costa County. Today the City is part of the second largest industrial center in the County and has a population of approximately 65,000.

The Pittsburg Water Service Area (Figure 2-1) comprises all of the area within the City limits, around 10,000 gross acres (15.6 square miles). The service area is a subset of the larger Pittsburg Planning Area, which comprises a total of 26,960 gross acres (42.1 square miles). Of this area, approximately 37% lies within the City's Service Area. The area outside the City of Pittsburg's Service Area is served by Golden State Water Company. The community of Bay Point lies in the Sphere of Influence and encompasses 2,300 gross acres. Bay Point, west of Pittsburg, and other unincorporated northwest areas constitute approximately 10,900 acres (33 percent of the Planning Area). Wetlands and Suisun Bay/Sacramento River environs account for 6,760 additional acres.

The City and its residents are increasingly focused on quality-of-life issues. Pittsburg has been designated both a Healthy City by California Healthy Cities and Communities Project, and a Tree City U.S.A. There is an active citywide recycling program, an Environmental Center with a varied program of environmental classes and an updated General Plan. The City has over 400 acres of parks, a remodeled and expanded 18-hole championship golf course, and a 750-berth marina.

Figure 2-1: City of Pittsburg Service Area



2.2 Topography & Hydrology

Pittsburg lies near the confluence of the San Joaquin and the Sacramento Rivers on the south shore of Suisun Bay. The northern portion of the City is relatively flat, increasing in elevation as it extends into the southern hills. The hills form the northern tip of the Diablo Range, which extends from Contra Costa County to Santa Clara County. The average city elevation is five feet above mean sea level (MSL) with a general slope rising at a rate of approximately 2 percent southward to the Contra Costa Canal. South of the Contra Costa Canal are the foothills of Mt. Diablo, and the slope of the land increases to about 8 percent. Much of the recent development is occurring on the buildable slopes of the foothills to the south. The Pittsburg General Plan contains a detailed description of the topography, geology, and soils of the service area.

The Pittsburg Water Service Area lies within two major drainage basins; that of Kirker Creek and Willow Creek. These basins discharge into Suisun Bay. The land area within the Kirker Creek drainage basin is primarily comprised of urban uses. The Willow Creek drainage area contains some open areas, but it is also increasingly developed into residential and commercial uses.

2.3 Climate

Pittsburg has a dry Mediterranean climate with hot summers and mild winters. Average summer temperatures range from highs in the upper 90s to lows in the 50s. Winter temperatures range from the 60s to the low 30s. Average precipitation is 13 inches a year, occurring predominantly from November through April. The hot, dry season of May through October creates a high demand for landscape water, as seen in Table 2-1 .

Table 2-1: Service Area - Climate^a

Month	Average Rainfall (inches)	Average Temperature (°F)	Standard Monthly Average Evapotranspiration (ET _o)
January	2.78	45.4	0.95
February	2.43	50.6	1.75
March	2.00	54.4	3.48
April	0.90	58.9	5.37
May	0.36	65.0	6.88
June	0.09	71.1	7.79
July	0.02	74.4	8.29
August	0.04	73.4	7.24
September	0.18	70.8	5.33
October	0.65	63.8	3.63
November	1.58	53.7	1.76
December	2.20	46.0	1.01
Annual Average	13.23	60.7	53.48

^aSources of climate data include: the Antioch Pumping Plant #3 weather station (#040232) from 1955-2010, and average evapotranspiration (ET_o) data for 1985-2010, for the Brentwood, California station (#47) of the California Irrigation Management Information System.

2.4 Service Area Population

Although the City of Pittsburg has shown steady population growth over the last 20 years, its future growth will be limited as the availability of open, developable land declines. In 1979, the City had 29,100 residents; by 1986 the population had increased to 41,600 and the City's 2010 population was 64,967.

The City's General Plan projects an average annual population growth rate of 1.7%. That annual growth rate and the population in 2010 were used to estimate City service area population through 2035 (**Table 2-2**).

Table 2-2: Population – Current and Projected (DWR Guidebook Table 2)

	2010	2015	2020	2025	2030	2035
Service area population^a	64,967	70,680	76,896	83,658	91,015	99,019

^aDepartment of Finance for 2010 population. 2015-2030 populations estimated assume 1.7% annual growth rate consistent with City of Pittsburg General Plan.

Chapter 3 System Demand

Water demand projections provide the basis for planning for future supplies and infrastructure. This section describes the City's historical and current water use. Historical water use and water treatment plant production records, combined with projections of population, provide the basis for estimating future water demands for the City's water service area. This section presents a summary of available demographic and water use data and the resulting projections of future water needs for the City.

3.1 Overview of Water Use

Records of historical water treatment plant production, groundwater pumping, and metered customer use were obtained from the City's Department of Water Utilities. Water treatment plant production is the volume of groundwater and surface water treated at the City's water treatment plant and conveyed in the distribution system. It includes all water delivered to residential, commercial, and industrial customers, but does not include recycled water.

Daily water demand in the City fluctuates throughout the year, primarily due to seasonal climate changes. Water demands are significantly higher in the summer than the winter. Residential use makes up the majority of potable water use within the City (approximately 70%), with commercial, governmental, institutional and industrial uses accounting for less than 30% of the City's water use. Per capita water use and water use by customer type are discussed in detail later in this section.

3.2 Water Use Baseline and Targets

The Water Conservation Bill of 2009 requires individual retail water suppliers to set water conservation targets for 2015 and 2020 to support an overall state goal of reducing urban potable per capita water use by 20% by 2020. Individual supplier conservation targets must be determined using one of four methods that are founded upon a baseline of use that is calculated using the specific guidelines described in DWR's *Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan* (March 2011).

3.2.1 Base Period Ranges

The base period ranges described in **Table 3-1** were used to develop the baseline water usage for the City of Pittsburgh's water service area.

Table 3-1: Base Period Range (Guidebook Table 13)

Base	Parameter	Value	Units
10- to 15-year base period	2008 total water deliveries	3,781	MG
	2008 total volume of delivered recycled water	26	MG
	2008 recycled water as a percent of total deliveries	0.7%	percent
	Number of years in base period	10	years
	Year beginning base period range	1996	
	Year ending base period range	2005	
5-year base period	Number of years in base period	5	years
	Year beginning base period range	2003	
	Year ending base period range	2007	

3.2.2 Service Area and Population

The City of Pittsburg's service area is contiguous with the City boundaries and has not changed since the beginning of the base period. Population estimates during the base period were based on California Department of Finance data.

3.2.3 Gross Water Use

Gross water use for each year within the base year range was calculated using DWR's Methodology 1 and was based on production data from the City's Water Treatment Plant. The gross water use is defined in California Water Code Section 10608.12(g) as the total volume of water entering the distribution system excluding recycled water. Pittsburg's gross water use for its water service area was determined based on water production data from the water treatment and does not include recycled water.

3.2.4 Baseline Per Capita Water Demand

An annual per capita use was determined by dividing the gross water use by the City's population. The base daily per capita water use was calculated by taking the average per capita use for all years within the 10-year base range. The baseline daily per capita water use for the 10-year range and the 5-year range are shown in **Table 3-2** and **Table 3-3**, respectively.

Table 3-2: Base Daily per Capita Water Use – 10 year-base (Guidebook Table 14)

Sequence Year	Calendar Year	Distribution System Population	Daily system gross water use (mgd)	Annual daily per capita water use (gpcd)
Year 1	1996	51,544	9.1	176
Year 2	1997	52,473	9.9	188
Year 3	1998	53,743	8.9	165
Year 4	1999	54,826	9.7	177
Year 5	2000	56,513	9.7	172
Year 6	2001	56,769	10.2	181
Year 7	2002	59,829	9.8	164
Year 8	2003	60,917	10.2	167
Year 9	2004	61,483	10.4	170
Year 10	2005	62,171	9.1	147
10-year Base Daily Per Capita Water Use				170

Table 3-3: Base Daily per Capita Water Use – 5-year range (Guidebook Table 15)

Sequence Year	Calendar Year	Distribution System Population	Daily system gross water use (mgd)	Annual daily per capita water use (gpcd)
Year 1	2003	60,917	10.2	167
Year 2	2004	61,483	10.4	170
Year 3	2005	62,171	9.1	147
Year 4	2006	62,189	9.8	157
Year 5	2007	62,684	10.3	165
5-year Base Daily Per Capita Water Use				161

3.2.5 Urban Water Use Target

The four allowable DWR methods for calculating water use targets are:

- Method 1: 80% of Base Daily Per Capita Water Use
- Method 2: Performance Standards
- Method 3: 95% of the DWR Hydrologic Region Per Capita Use Target
- Method 4: Applying Savings by Water Sector

Based on a preliminary evaluation of the four methods, the City utilized Method 1 to set its 2015 interim and 2020 urban water use targets. The City will update its analysis and potentially use an alternative method in its 2015 UWMP, as considered appropriate at that time. The calculated targets were compared against DWR’s maximum allowable target, which is equal to 95% of the City’s 5-year base per capita use. The City’s interim and final water usage targets are summarized in **Table 3-4**. The actual water use in 2010 is also provided for reference. Based on 2010 water use, the City is currently meeting its 2020 target. Section 3.5 Water Use Reduction Plan describes the City’s efforts to help ensure that urban water use continues to meet the 2020 target.

Table 3-4: City of Pittsburg Urban Water Use Target

Calculations	GPCD
Baseline Daily Per Capita Water Use ^a	170
Maximum Allowable Target ^b	153
2020 Water Use Target^c	136
2015 Interim Water Use Target ^d	153
2010 Actual Daily Per Capita Water Use	122

Notes:

^aSee Table 3-2 for 10-year baseline calculation.

^bSee Table 3-3 for 5-year baseline calculation.

^cCalculated using DWR Method 1: 80% of baseline

^dInterim water use target is defined as halfway between 10-year baseline and 2020 water use target.

The baseline and targets described above were calculated based on data for the City of Pittsburg’s water service area. In addition, the City is part of a regional alliance, led by CCWD. CCWD’s 2010 UWMP includes a regional alliance analysis in compliance with SBx7-7 requirements, which includes its wholesale municipal customers (Cities of Antioch, Pittsburg, Martinez, Golden State Water Company, and Diablo Water District). CCWD’s regional analysis is included in Appendix H of CCWD’s 2010 UWMP and establishes a regional target of 209 gpcd. The regional analysis baseline calculation included heavy industrial uses in CCWD’s service area, but not part of the City’s water service area. The City deemed the targets shown in Table 3-4 and based on City water use to be more appropriate for the purposes of the City’s 2010 UWMP.

3.3 Water Demands

The City’s water use for 2010 was 7,784 acre-feet (AF), which was a 13% reduction from the 2005 water use of 8,969 AF, as summarized in **Table 3-5**.

Table 3-5: Water Deliveries – Actual, 2005, 2010 (Guidebook Tables 3 and 4)

Year	Water Use Sectors	Metered		Not metered		Total
		# of accounts	Volume (AFY)	# of accounts	Volume	Volume (AFY)
2005	Single family	14,520	5,547	0	0	5,547
	Multi-family	349	1,064	0	0	1,064
	Commercial	545	636	0	0	636
	Industrial	16	349	0	0	349
	Institutional/governmental	68	234	0	0	234
	Landscape	188	569	155	570	1,139
	Agriculture ^a	0	0	0	0	0
	TOTAL	15,686	8,399	155	570	8,969
2010	Single family	15,655	4,291	0	0	4,291
	Multi-family	369	1,040	0	0	1,040
	Commercial	576	595	0	0	595
	Industrial	11	417	0	0	417
	Institutional/governmental	71	233	0	0	233
	Landscape	355	908	50	300	1,208
	Agriculture ^a	0	0	0	0	0
	TOTAL	17,037	7,484	50	300	7,784

^aAgricultural water does not include water that is privately pumped.

As part of the 2005 UWMP, the City projected that the water use in 2010 would be 13,669 AF. The actual 2010 demand was more than 40% less than the projected 2010 demand. The recent economic downturn was the biggest factor in the decrease in water demand. As the economy improves, the water demand is expected to increase. The City's future demand projections assume a near-term increase of 5 to 6% over the next three years (2011-2013), then a long-term increase of 1.5% annually. This is slightly less than the projected annual population increase of 1.7%, because new growth is expected to be more water efficient.

The City's projected water demands for 2015, 2020, 2025, 2030 and 2035 are shown in **Table 3-6**. Water demands are broken down by customer sector. The projections assume the annual growth in demand from 2010 levels is the same across all customer sectors.

Table 3-6: Water Deliveries – Projected^a 2015, 2020, 2025, 2030 and 2035 (Guidebook Tables 5, 6, and 7 respectively)

Year	Water Use Sectors	Metered		Not metered		Total
		# of accounts	Volume (AFY)	# of accounts	Volume	Volume (AFY)
2015	Single family	19,028	5,215	0	0	5,215
	Multi-family	448	1,264	0	0	1,264
	Commercial	700	723	0	0	723
	Industrial	13	507	0	0	507
	Institutional/governmental	86	283	0	0	283
	Landscape	492	1,468	0	0	1,468
	Agriculture ^b	0	0	0	0	0
	Total	20,768	9,461	0	0	9,461
2020	Single family	20,498	5,619	0	0	5,619
	Multi-family	483	1,362	0	0	1,362
	Commercial	754	779	0	0	779
	Industrial	14	546	0	0	546
	Institutional/governmental	93	305	0	0	305
	Landscape	530	1,582	0	0	1,582
	Agriculture ^b	0	0	0	0	0
	Total	22,373	10,192	0	0	10,192
2025	Single family	22,082	6,053	0	0	6,053
	Multi-family	520	1,467	0	0	1,467
	Commercial	812	839	0	0	839
	Industrial	16	588	0	0	588
	Institutional/governmental	100	329	0	0	329
	Landscape	571	1,704	0	0	1,704
	Agriculture ^b	0	0	0	0	0
	Total	24,102	10,980	0	0	10,980
2030	Single family	23,789	6,521	0	0	6,521
	Multi-family	561	1,580	0	0	1,580
	Commercial	875	904	0	0	904
	Industrial	17	634	0	0	634
	Institutional/governmental	108	354	0	0	354
	Landscape	615	1,836	0	0	1,836
	Agriculture ^b	0	0	0	0	0
	Total	25,965	11,828	0	0	11,828
2035	Single family	25,628	7,024	0	0	7,024
	Multi-family	604	1,703	0	0	1,703
	Commercial	943	974	0	0	974
	Industrial	18	683	0	0	683

Year	Water Use Sectors	Metered		Not metered		Total
		# of accounts	Volume (AFY)	# of accounts	Volume	Volume (AFY)
	Institutional/governmental	116	381	0	0	381
	Landscape	663	1,978	0	0	1,978
	Agriculture ^b	0	0	0	0	0
	Total	27,972	12,743	0	0	12,743

^aDemand projections are based on 2010 actual use, escalated assuming a 6% annual increase in 2011 and 2012, a 5% annual increase in 2013, and 1.5% annual increases thereafter.

^bAgricultural water use projections do not include water that is privately pumped.

3.3.1 Estimated Demands for Lower-Income Housing Projects

California Water Code Section 10631.1(a) requires suppliers to estimate projected water use for single-family and multifamily residential housing needed for lower income households, as identified in the Housing Element of the General Plan for the service area of the supplier. It does not require quantification of current water use by lower income households. According to the City’s current Housing Element (City of Pittsburg 2007-1014 Housing Element, adopted June 1, 2009), an estimated 54% of households in the City are lower-income. Further, per the Housing Element, the City’s Regional Housing Need Allocation for 2007 through 2014 for lower income housing was 1,772 units.

The Regional Housing Need Allocation does not break down the housing need by housing type (single-family vs. multi-family). Therefore, the projected water demand for lower income housing was conservatively estimated based on the average 2010 water demands for single-family residential customers, or 0.27 AFY per household. This estimate is considered conservative because multi-family residential housing uses less water on a per dwelling unit basis than single-family housing. This demand is incorporated in overall demand projections in this UWMP. The results for the lower-income projected water demand are included in **Table 3-7**.

Table 3-7: Low-Income Projected Water Demands (Guidebook Table 8)

Low Income Water Demands	2015 ^a	2020	2025	2030	2035
Estimated demand for future lower income housing projects	478 AFY	Not available ^b	Not available ^b	Not available ^b	Not available ^b

Notes:

^a2015 Estimate based on RHNA for 2007-2014 of 1,772 units. Demand based on actual average single-family unit demand in 2010.

^bFuture Housing Elements will address needs for 2015 and beyond. Per direction from DWR, projection of water use by units in future housing elements is not required.

3.3.2 Water Sales

The City of Pittsburg does not currently sell or plan on selling any water to other agencies.

3.3.3 Additional Water Uses and Losses

Table 3-8 summarizes additional water uses and losses. At present, there is over 6,000 AFY of recycled water use at power plants in the City of Pittsburg. This use is not counted in the overall City demands because it is provided by DDS and backstopped by CCWD, not the City. That is, if the recycled water supply were temporarily lost, CCWD would provide the power plants with water, not the City.

There are no other additional raw or potable water uses in the City not already included in the demand estimates presented in Tables 3-5 and 3-6 above.

System water losses include leaks, meter under-registration, system and hydrant flushing, use for fire protection, and hydrant use for construction. These system losses are difficult to directly measure, but have been estimated based on the difference between water treatment plant production and metered use. In 2010, water losses were approximately 12% of water treatment plant production. The City continues to take steps to reduce unaccounted for water and system losses.

Table 3-8: Additional Water Uses and Losses (Guidebook Table 10)

Water use (AFY) ^a	2005	2010	2015	2020	2025	2030	2035
Saline barriers	0	0	0	0	0	0	0
Groundwater recharge	0	0	0	0	0	0	0
Conjunctive use	0	0	0	0	0	0	0
Recycled water – power plants ^{a,b}	7,728	6,272	7,169	7,169	7,169	7,169	7,169
Recycled water – within the City ^c	125	459	465	465	479	479	498
System losses ^d	2,033	1,092	1,327	1,430	1,540	1,659	1,788
Total	9,820	7,823	8,921	9,020	9,141	9,257	9,400
Total not including power plants^a	2,092	1,551	1,752	1,851	1,972	2,088	2,231

Notes:

^aRecycled water use at power plants is presented here for informational purposes only; this water is provided by DDS and back-stopped by CCWD. It is not included in the City's total water use.

^bEstimated water use at power plants for 2015-2035 is based on average annual recycled water use from 2003 to present.

^cIncludes recycled water use for irrigation at City parks, golf course, etc.

^dProjected future system losses are estimated to be 12% of overall water production, based on losses in 2010.

3.3.4 Total Water Use

The total water use for the City includes residential, commercial, industrial, institutional/governmental, landscape uses, and system losses. Total water use between 2005 and 2035 is summarized in **Table 3-9**.

Table 3-9: Total Water Use (Guidebook Table 11)

Water Use	2005	2010	2015	2020	2025	2030	2035
Total water deliveries ^a (AFY)	8,969	7,784	9,461	10,192	10,980	11,828	12,743
Sales to Other Water Agencies	0	0	0	0	0	0	0
Additional water uses and losses	2,092	1,551	1,752	1,851	1,972	2,088	2,231
Total (AFY)	11,061	9,335	11,213	12,043	12,952	13,916	14,974

^aTotal water deliveries for 2005 and 2010 are based on City and DDS metered customer data. Estimated total water use for 2015 -2035 assumes water use increases more rapidly in 2011-2013 (6%,6%,5%) as economy recovers in near term, and then slightly less than population growth in long term (1.5%) as future growth is expected to be more water efficient.

3.4 Water Demand Projections

3.4.1 Retail Agency Demand Projections

The City provided projected water demands from 2010 to 2035 in five year increments to CCWD, the City's wholesale supplier, in August of 2010. The projections are shown in **Table 3-10**. The projected water demands provided at that time were based on anticipated growth in the City's existing demands and reflect the City's overall water demands (both groundwater and wholesale surface water). These projections were developed prior to the update of this UWMP and do not reflect the 2020 urban use targets and the water reduction measures which will be implemented by the City to meet its 2020 targets.

Hence, the water demand projections shown in **Table 3-10** are greater than the projected water demands presented in **Table 3-9**.

Table 3-10: Retail Agency Demand Projections Provided to Wholesale Suppliers (Guidebook Table 12)

Wholesaler	2010	2015 ^a	2020	2025	2030	2035
Contra Costa Water District (AFY)	8,983	14,320	16,271	17,150	18,706	Not provided

Source: Email from Walter Pease (City of Pittsburg) to Jeff Quimby (CCWD) August 27, 2010

^aProjections provided to CCWD in August 2010 included an assumption of 11% annual growth between 2011 to 2014 to account for growth in the economy as it recovers from the downturn and did not reflect the 2020 urban water use targets and measures that would be implemented to meet those targets.

3.5 Water Use Reduction Plan

This section describes the City of Pittsburg’s plan to achieve the water use reductions necessary to meet the per capita water use targets consistent with the Water Conservation Bill of 2009. The urban water use targets and how they were calculated are described in **Section 3.2**, above. The interim 2015 target is 153 gpcd and the 2020 target is 136 gpcd. The actual usage in 2010 was 122 gpcd, meeting the interim 2015 target and 2020 target.

The City has already taken various measures to help ensure that urban water use continues to meet the 2020 target. The following sections contain a detailed description of the City’s water use reduction plan which includes: recycled water projects, conservation efforts and ongoing collaboration with the CCWD and the DDS. The outreach efforts highlighted below are expected to reduce urban water use, particularly in the residential sector, providing the City the means for sustaining its urban use targets.

3.5.1 Recycled Water

Consistent with the City’s Capital Improvements Program, two major recycled water projects have been completed or are scheduled for implementation. In 2010, the City completed a recycled water project that serves City Park and City Hall landscaping, Stoneman Park North, and the Delta View Golf Course. This project was estimated to use approximately 520 AFY of recycled water, offsetting demands at the City’s Water Treatment Plant. This represents approximately 5% of the City’s total water demands.

The second recycled water project is the Marina Walk Park project, scheduled for implementation in 2012. This project is estimated to increase recycled water use by approximately 6 AFY.

3.5.2 City Landscaping Water Use Reduction

In addition to implementing recycled water projects to serve irrigation needs at City parks and landscaped areas, the City also implemented a project to centralize irrigation for greater water use efficiency. In 2008 the City initiated the installation of a California Irrigation Management Information System (CIMIS)-controlled irrigation system for 32 landscaped sites that use potable water. These sites represent 67.6 acres (45%) of the 148.8 acres that are still irrigated by the City using potable water, and over 10% of the irrigation accounts in the City. A preliminary estimate projected a water savings of at least 15% (53 AFY).

3.5.3 Conservation Program

The City collaborates closely with its wholesaler, CCWD, to encourage conservation and sustainable water use through ongoing customer outreach. CCWD offers extensive resources to its wholesale service area customers through its Conservation Program. CCWD’s Water Conservation Program is designed to reduce long-term potable water demands consistent with CCWD’s Future Water Supply Study (FWSS).

Total savings in CCWD's service area resulting from active and passive conservation activities are estimated to be 23,700 acre-feet by 2035. The following is a summary of key CCWD Conservation Program elements:

- Conservation surveys for single-family, multi-family, commercial, industrial, institutional, and large landscape customers.
- Conservation incentives including shower timers, restaurant table tents, smart car wash coupons, and money-saving mulch coupons.
- Conservation rebates for high-efficiency toilets, high-efficiency clothes washers, smart sprinkler timers, sprinkler and nozzle retrofits, drip retrofits, and pilot water-efficient landscapes.
- Education and outreach programs including flyers on how to read your meter, lawn and landscape watering schedule, and school education programs.

In addition to active conservation activities implemented through CCWD's Conservation Program, passive conservation is also achieved through state and local efficiency codes. Efficiency codes that require efficient fixtures and appliances, grant funding to promote water conservation, residential weather-based irrigation controllers, and efficient landscape practices are expected to achieve additional water use reductions in the City's water service area.

The City also maintains a water conservation page (<http://www.ci.pittsburg.ca.us/index.aspx?page=291>) that provides water conservation resources both general and specific to conditions within Contra Costa County. The site includes links to information regarding both household and irrigation conservation practices and contains various documents regarding the City's 15% Water Conservation Program, implemented in 2009, in collaboration with CCWD, to address the impacts of a severe drought in the region. As part of the conservation efforts, the City adopted Resolution No. 09-11195, establishing a Water Conservation Program including issuing a Water Conservation Advisory and establishing penalties for non-compliance. The City adopted a landscape ordinance on December 20, 2010.

3.5.4 Potential Economic Impacts

Water Code Section 10608.26 requires urban retailers to consider potential economic impacts that may result from water use reductions. While it is possible that reducing demands, and therefore water sales, within the City's service area could reduce revenues, the City has had experience planning for and implementing proactive policies to handle the impact of reduced water use. The City has an annual budgeting process that includes review and periodic updates to water rates to ensure adequate revenue to maintain operation of the utility despite reductions in per capita water use. In addition, the City has an established Water Enterprise Fund Reserve to be used during times of reduced water use.

The population growth of the City through 2020 will partially offset the reduction in water use as a result of the 20 x 2020 use reduction. Any reduction in revenue associated with reduced per capita water use will be partially offset by a reduction in expenses. Based on 2010 actual costs, the cost of purchasing raw water, including electric and chemical costs, was \$578.70 per acre foot. Conservation efforts will also defer or eliminate some capital costs for expansion of the water system.

Chapter 4 System Supplies

This chapter describes the current and future water supplies available to the City.

4.1 Overview of the City’s Supplies

The City’s water supplies include local groundwater, recycled water, and purchased surface water from CCWD. Groundwater is pumped from two wells in the central part of the City. Recycled water is delivered from DDSD. Surface water and groundwater are both conveyed to the City’s water treatment plant, treated, and then conveyed via the City’s potable distribution system. **Table 4-1** outlines the City’s current and projected water supplies.

Table 4-1: Water Supplies – Current and Projected (Guidebook Table 16)

Water Supply Sources		2010 (AFY)	2015 (AFY)	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)
Water purchased from:	Wholesaler supplied volume (yes/no)						
CCWD	No	7,815	9,248	10,078	10,973	11,937	12,976
Supplier-produced groundwater		1,061	1,500	1,500	1,500	1,500	1,500
Supplier-produced surface water		0	0	0	0	0	0
Transfers in		0	0	0	0	0	0
Exchanges In		0	0	0	0	0	0
Recycled Water		459	465	465	479	479	498
Desalinated Water		0	0	0	0	0	0
Other		0	0	0	0	0	0
Total		9,335	11,213	12,043	12,952	13,916	14,974

4.2 Surface Water

The City is within the CCWD service area and purchases Central Valley Project (CVP) water pumped from the Sacramento-San Joaquin Delta by CCWD, its wholesale supplier. CCWD has a contract with the U.S. Bureau of Reclamation (USBR) for 195,000 acre-feet/year of CVP water. In March 2005, CCWD renewed their water service contract with the USBR for a period of 40 years, through February 2045.

The City obtains 85% to 95% of its water supply from CCWD pursuant to a contractual arrangement allowing the City to obtain such quantity of water as is necessary to meet its needs, subject to rationing restrictions in the event of drought or other extraordinary circumstances. CCWD’s future supply projections indicate adequate availability of surface water sources delivered through its contract with the USBR along with other available sources and short-term purchases under normal conditions. The current and projected wholesale supply from CCWD to the City of Pittsburg is presented in **Table 4-2**. More detailed discussion of CCWD’s supply reliability is included in Section 5.

Table 4-2: Wholesale Supplies – Existing and Planned Sources of Water (Guidebook Table 17)

Wholesale sources (AFY) ^a	2015	2020	2025	2030	2035
Contra Costa Water District	9,248	10,078	10,973	11,937	12,976

^aEstimated supplies from CCWD based on City of Pittsburg projected demands and accounted for in Table 4-1 above.

4.3 Groundwater

4.3.1 Groundwater Basin

The City overlies the Pittsburg Plain Groundwater Basin (Groundwater Basin Number 2-4 as presented in DWR's Bulletin 118). This groundwater basin is not adjudicated and currently is not under a groundwater management plan, although one is under development. The basin is bounded by Suisun Bay on the north, by the Tracy Sub-basin of the San Joaquin Valley Groundwater Basin on the east, and by the Clayton Valley Groundwater Basin on the west. The southern boundary of the basin extends inland from the Suisun Bay by approximately one to three miles. It lies within the two major drainage basins of Kirker Creek and Willow Creek, both of which discharge into Suisun Bay.

The water-bearing units in the basin are Pleistocene to Recent age alluvium deposits. The Pleistocene deposits consist of consolidated and unconsolidated sediments characterized by expansive clays. The modern alluvial sediments are characterized by soft, water saturated muds, peat and loose sands. The maximum thickness of these deposits is 400 feet. The aquifers in the basin area are hydrologically connected to the Sacramento River. There are limited data regarding the occurrence and movement of ground water in the basin (DWR Bulletin 118).

Hydrographs created from DWR well data in the Pittsburg Plain Groundwater Basin indicate that groundwater levels have remained fairly stable over the period of record, with the exception of static water level drops and subsequent recovery associated with the 1976 – 1977 and 1987 – 1992 drought periods. DWR has not identified that overdraft conditions will occur if present groundwater conditions continue.

The East County Water Management Association (ECWMA) is developing a Pittsburg Plain Groundwater Management Program (GWMP) as part of its Integrated Regional Water Management Plan (IRWMP) update. Funding for this project will come from a recently awarded Proposition 84 Planning Grant. The GWMP will establish a groundwater monitoring network and coordinate data collection, providing a framework for basin management to protect the groundwater resources.

4.3.2 Groundwater Use

The City has two municipal wells, Rossmoor and Bodega, which together are currently producing about 1,500 acre-feet of groundwater per year. In 2010, the City completed the Bodega Well Pump Station Project. The Bodega well was installed to replace the Ballpark well, which experienced frequent shut downs and performed inconsistently.

These relatively shallow wells (approximately 200 feet deep) deliver approximately 600 (Rossmoor) and 1,200 (Bodega) gallons per minute respectively. The total amount of groundwater pumped from the Pittsburg Plain Groundwater Basin in 2010 was 1,061 AF, as shown in **Table 4-3**. Groundwater use was less in 2009 and 2010 because of the removal of one well from service (October 2008) and the initiation of use of a replacement well (January 2010).

Table 4-3: Groundwater – Volume Pumped (Guidebook Table 18)

Basin name	Metered or Unmetered	2006 (AFY)	2007 (AFY)	2008 (AFY)	2009 (AFY)	2010 (AFY)
Pittsburg Plain	Metered	1,773	1,825	2,092	1,188	1,061
Total groundwater pumped		1,773	1,825	2,092	1,188	1,061
Groundwater as a percent of total water supply		16%	16%	16%	18%	12%

The projected groundwater use by the City of Pittsburg from 2015 to 2035 is anticipated to remain approximately 1,500 AFY, as shown in **Table 4-4**.

Table 4-4: Groundwater – Volume Projected to be Pumped (Guidebook Table 19)

Basin name(s)	2015 (AFY)	2020 (AFY)	2025 (AFY)	2030 (AFY)	2035 (AFY)
Pittsburg Plain	1,500	1,500	1,500	1,500	1,500
Total groundwater pumped	1,500	1,500	1,500	1,500	1,500
Percent of total water supply	13%	12%	12%	11%	10%

4.4 Transfer and Exchange Opportunities

The City does not anticipate any transfer or exchange opportunities in the future, as the City receives the majority of its water supplies under its contract with CCWD and does not maintain the infrastructure necessary to facilitate these opportunities (i.e. the City does not maintain its own surface water intake). This does not, however, preclude CCWD from engaging in any transfer and/or exchange opportunities in the future.

4.5 Recycled Water

The DDSW Wastewater Treatment Plant (WWTP) serves the cities of Antioch and Pittsburg and the unincorporated county area of Bay Point. Currently, DDSW collects an estimated 14,700 acre-feet of wastewater per year, with approximately 42% of that wastewater used for recycled supply for various uses. The remaining wastewater is disposed through a river outfall into the Delta at New York Slough. It is expected that the amount of recycled water used in the DDSW service area will increase in the future.

4.5.1 Wastewater Collection and Treatment

All of the wastewater that flows in the City's sanitary sewer system is collected and treated at the DDSW WWTP. The WWTP is designed with a Delta outfall for disposal of wastewater that is not recycled. The WWTP has both secondary level and partial tertiary treatment capability consisting of the following processes:

- 1) Primary Treatment
- 2) Primary Sedimentation
- 3) Activated Sludge/Trickling Filter
- 4) Chlorination/Dechlorination
- 5) Wastewater Disposal

About half of the secondary-treated wastewater undergoes tertiary treatment at the DDSW's Recycled Water Facility. Most of this water is used for cooling water at the Delta and Los Medanos Energy Centers, with a lesser amount used for irrigation at local parks. The power plants return approximately 2

mgd (2,240 AFY) of cooling tower water to the WWTP, where it is combined with secondary-treated wastewater, chlorinated and dechlorinated prior to discharge.

Currently, the WWTP has an average dry weather capacity of 16.5 MGD. DDS D is anticipating an increase in the capacity of its WWTP in 2013, 2024 and 2030 to 19 MGD, 22.3 MGD and 25.3 MGD, respectively. The average dry weather flow is expected to increase by 0.2 MGD per year throughout the planning horizon, as shown in **Table 4-5**.

Table 4-5: Recycled Water – Wastewater Collection and Treatment (Guidebook Table 21)

Type of Wastewater	2005	2010	2015 ^b	2020 ^b	2025 ^b	2030 ^b	2035 ^b
Wastewater collected & treated in DDS D Service Area ^a (AFY)	15,906	14,786	15,906	17,026	18,146	19,266	20,387
Volume that meets recycled water standard (AFY)	7,841	6,721	14,338	14,338	14,338	14,338	14,338

Notes:

^aProjections provided by DDS D for the total DDS D service area.

^bRecycled water estimated based on DDS D’s full utilization of its 12.8 mgd (14,388 AFY) recycled water facility. (New permitted capacity of the recycled water facility will be 16.4 mgd (18,370 AFY).

4.5.2 Non-Recycled Water Disposal

Wastewater that is not treated in DDS D’s recycled water facility is discharged into the Delta. The District’s Waste Discharge Requirements (Order No. R2-2003-0114, NPDES Permit No. 0038547) allow for treated effluent to be discharged into New York Slough through a deep-water outfall, approximately 400 feet from shore. The projected discharge volumes to the Delta are presented in **Table 4-6**.

Table 4-6: Recycled Water – Non-Recycled Wastewater Disposal (Guidebook Table 22)

Method of Disposal	Treatment Level	2010	2015	2020	2025	2030	2035
Discharge to the Delta ^a	Secondary Treatment (AFY)	8,065	1,568	2,688	3,808	4,929	6,049
Total (AFY)		8,065	1,568	2,688	3,808	4,929	6,049

^aDischarge to Delta was calculated by taking the difference between the wastewater collected and treated in DDS D’s service area and the volume anticipated to be treated at DDS D’s recycled water facility.

4.5.3 Recycled Water Use

In 2000, DDS D and CCWD reached an agreement for DDS D to provide recycled wastewater to the Delta Energy Center and the Los Medanos Energy Center. Treated wastewater from DDS D is being used for turbine cooling at the energy facilities. Additional treatment of wastewater to comply with requirements of the California Department of Public Health is performed onsite at a new 12.8 mgd reclamation plant. In 2010, the Los Medanos Energy Center used 3,080 acre-feet and the Delta Energy Center used 3,192 acre-feet of recycled water.

Given the large amount of recycled water that was supplied to these industrial facilities and given that the City will not be required, even in a back-up role, to supply water for these facilities, these projected uses are not included in the estimated City demand calculations. They are shown as additional water uses in Table 3-8 for informational purposes. The backup water supply for these industrial customers is provided by CCWD.

The City supports the further development of irrigation and industrial recycled water uses where available supplies of recycled water, appropriateness of planned use, and economic feasibility coincide. The City

utilized recycled water for irrigation purposes (parks and road median landscaping) in the drought of the early 1990s. DDS D began providing recycled water to the City of Pittsburg’s irrigation locations at Central Park and along the 8th Street, Columbia and Santa Fe Corridors in 2001. The total supply of recycled water provided by DDS D and used by the City in 2009 was 125 acre-feet.

DDS D has identified landscape irrigation and industrial cooling as the primary uses of recycled water in its service area. Future recycled water projects are expected to be consistent with these two uses. To optimize the potential of its recycled water program, DDS D, is planning to expand the recycled water facility capacity and evaluate storage and equalization for future production needs. A more detailed discussion regarding recycled water service can be found in Section 5.

In the 2005 UWMP, the City of Pittsburg projected the future use of recycled water based on potential recycled water irrigation projects throughout the City. The 2005 UWMP projected potential recycled water use at 23 City landscape sites as 721 AFY. The sites that were converted to recycled water had an estimated use of 614 AFY. The actual use in 2010 was 459 AF, as shown in **Table 4-7**. The main reasons for this difference are that implementation of recycled water at the City golf course took longer than expected (with recycled water use beginning partway through 2010) and it has been more water efficient than expected, using less recycled water than was projected in 2005.

Table 4-7: Recycled Water – 2005 UWMP Use Projection Compared to 2010 Actual (Guidebook Table 24)

Use Type	2010 Actual Use (AFY)	2005 Potential for Future Use (AFY)
Landscape irrigation ^a	459	721
Total	459	721

^aIncludes parks, schools, cemeteries, churches, residential, or other public facilities

4.5.4 Future Water Recycling Projects

The City is expecting to provide recycled water to more users throughout its service area in the future. **Table 4-8** provides a list potential non-industrial future recycled water system customers identified in prior studies by the City of Pittsburg.

Table 4-8: Future Water Recycling Projects

Name / Facility	Annual Water Use (AFY)
Marina Walk ^a	6
Parkside Elementary School ^b	14
Pittsburg High School ^b	18.5
Total	38.5

Notes:

^aThe Marina Walk recycled water project is expected to be completed 2012.

^bThese projects were Identified by DDS D in prior studies in its “Technical Memorandum: Recycled Water Demand Projection” (2010)

The potential water projects identified in **Table 4-8** were used to forecast the future use of recycled water through the projected planning horizon, as summarized in **Table 4-9**.

Table 4-9: Recycled Water – Potential Future Use (Guidebook Table 23)

User Type	Description	Feasibility ^a	2010 actual	2015	2020	2025	2030	2035
Landscape irrigation^b (AFY)	Land application in Parks, schools, golf courses and city buildings	Yes, existing and planned uses	459	465	465	479	479	498
Industrial Reuse^c (AFY)	Cooling water at power plants	Yes, existing and planned use	6,272	7,169	7,169	7,169	7,169	7,169
Agricultural Irrigation	Irrigation of crops or grazing lands	No, no existing agricultural users in Pittsburg service area	0	0	0	0	0	0
Groundwater Recharge	Recharge of Pittsburg Plain GW basin	No, no plans for this use. Not expected to be economically feasible.	0	0	0	0	0	0
Wildlife habitat/wetlands	Use of recycled water in managed wildlife habitat or wetlands	No, there are no managed wildlife habitats or wetlands in the City. Economic feasibility of recycled water projects generally requires offsetting potable demand.	0	0	0	0	0	0
Total (AFY)			6,731	7,634	7,634	7,648	7,648	7,667

Notes:

^aTechnical and economic feasibility.

^bAnticipating implementation of one project every five years beginning with the Marina Walk, Parkside Elementary School and Pittsburg High School projects.

^cEstimated water use at power plants for 2015-2035 based on average annual recycled water use from 2003 to present.

4.5.5 Encouraging and Optimizing Recycled Water Use

Recycled water will continue to be a significant, reliable source of supply in the future. The mechanisms encouraging recycled water use in the City include:

- Securing funding from local, state, and federal agencies to offset capital costs.
- Ongoing coordination with DDS and CCWD.
- Promoting partnerships to encourage regional and local water recycling projects.

- Urging regulatory agencies to streamline regulatory requirements.
- Supporting research that addresses public concerns on recycled water use, develops new technology for cost reduction, and assesses health effects to protect the public.

The City does not have any current plans to utilize financial incentives for recycled water use. As recycled water projects are identified, financial incentives may be one action considered to promote the implementation of the recycled water project, if the project is feasible and cost-effective. The City will continue to evaluate the potential for grant funding of recycled water projects, and seek opportunities to implement portions of larger projects as they becomes economically feasible. The cost differential is one financial incentive for recycled water. With capital expansion and recycled water distribution costs not included, recycled water costs about \$300 per acre foot from DDS and treated water from the City costs about \$1,400 per acre foot.

4.6 Alternative Sources of Supply/Future Water Projects

4.6.1 Future Water Supply Projects

Future water supply projects for the City of Pittsburg are developed by CCWD, which provides the majority of water to the City. To evaluate alternative ways of meeting future demand in the context of an overall water supply plan, CCWD completed a Future Water Supply Study (FWSS), updated most recently in 2002. In the FWSS, future supply projects were identified that included: a renewal of CCWD’s water service contract for CVP water (which was completed in 2005); implementation of an expanded conservation program; and water transfers to cover supply deficits. Table 1, in **Appendix E**, presents CCWD’s existing sources of supply and their expected availability under various supply conditions over the next 25 years.

CCWD’s primary water supply project is expansion of the Los Vaqueros Reservoir. The project broke ground in 2011 and is expected to be completed in 2012. The project will expand the existing Los Vaqueros Reservoir capacity from 100,000 acre-feet to 160,000 acre-feet, providing 60,000 acre-feet of additional storage, water quality benefits, and an estimated 10,000 AFY per year of additional yield.

Table 4-10: Future Water Supply Projects (Guidebook Table 26)

Project name ¹	Projected start date	Projected completion date	Potential project constraints	Normal-year supply	Single-dry year supply	Multiple-dry year first year supply	Multiple-dry year second year supply	Multiple-dry year third year supply
CCWD Expansion of Los Vaqueros Reservoir	2011	2012	Construction underway	10,000 AFY ^a	10,000 AFY ^a	10,000 AFY ^a	10,000 AFY ^a	10,000 AFY ^a
Total				10,000 AFY	10,000 AFY	10,000 AFY	10,000 AFY	10,000 AFY

^a Based on water supply projections provided by CCWD. This reflects additional supply benefit for CCWD’s overall service area, not specifically for the City of Pittsburg.

4.6.2 Supplemental Sources

A seemingly apparent source of water for Pittsburg would be diversion directly from the Delta via a pump station and pipeline to the Pittsburg Water Treatment Plant. However, this is not a feasible option for several reasons:

- Pittsburg has not established water rights to the San Joaquin/Sacramento Rivers. Permits to withdraw water would be required from the State Water Resources Control Board as well as other state and federal agencies. Not only would the approval process be lengthy, but also there is no guarantee that the permit would be approved.
- Water taken from the Delta adjacent to the City is highly saline for at least part of the year, and could require extensive treatment (reverse osmosis). The City of Antioch, upstream of the city of Pittsburg, uses water from the Sacramento River only from December to July or August because of water salinity issues.
- The cost of the pump station and its attached force main was estimated to be \$1.6 million in 1985. In 2000, the cost would be approximately \$2.7 million (based on estimates cited in the City's 1995 Plan).

Other possible supplemental sources include the tie-in to another major supplier, such as the East Bay Municipal Utility District (EBMUD), or to other local water districts. EBMUD's major transmission line passes through the City of Pittsburg. CCWD has recently completed an emergency intertie with EBMUD. Under the existing water regulations, EBMUD is precluded from providing water directly to Pittsburg.

Neighboring communities that provide water service, such as the City of Antioch, are as dependent upon CCWD, similar to the City of Pittsburg. The fact that Antioch can directly draw water from the Delta allows for them to augment their CCWD source, but under a reduced supply scenario it would be unlikely that Antioch would be able to provide supplemental water to Pittsburg.

4.6.3 Potential Future Desalination

Desalination involves removing salts and impurities from non-potable water (e.g., seawater, brackish surface water or brackish groundwater) using treatment technologies such as reverse osmosis membranes or distillation methods. After treatment, the water is suitable for drinking water purposes.

Potential opportunities for desalination supply in east Contra Costa County are being explored on a regional level through the East County Water Management Association, of which the City of Pittsburg is an active participant. To date, the cost of implementing desalination supply, including brine disposal, has not been cost-effective compared with other available sources. As advancements in technology make desalination a more cost-effective option in coming years, the East County water agencies, including the City of Pittsburg, will consider desalination projects as potential supply sources.

Chapter 5 System Reliability

This section describes the overall reliability of the City of Pittsburg's water supplies, including water quality characteristics and contingency planning under drought conditions.

5.1 Water Supply Reliability

This section discusses the reliability of the City's water supplies with respect to water quality. Surface water, groundwater, and recycled water quality are each discussed. While there are water quality challenges associated with each source, the City, CCWD, and DDSD are taking steps to address these challenges and the City does not anticipate decreases in water supply over the UWMP planning horizon due to water quality concerns.

5.1.1 Surface Water

Water Quality

The City's primary wholesale water supplier, CCWD, is almost entirely dependent on the Sacramento-San Joaquin Delta (Delta) for its water supply. The quality in the Delta is deteriorating, despite efforts to improve it. Delta water quality problems are being compounded by increased water use and greater wastewater, storm water and agricultural discharges from statewide development and growth. Also, unforeseeable or non-quantifiable environmental problems, such as Delta levee failure or sea-level rise, could potentially alter the region's water supply characteristics and adversely impact service and water quality reliability.

A number of projects and programs are being developed, or are in place, to address Delta water quality degradation at the statewide level and through local and regional projects. To ensure that CCWD can meet the increasingly more stringent water quality standards and provide high quality water for its customers, including the City of Pittsburg, CCWD has initiated or is participating in a number of water quality improvement projects. These projects include the following:

- Middle River Intake (Alternative Intake Project) – relocates a portion of CCWD's diversions to a Delta location with higher water quality. Project began operation in July 2010.
- Contra Costa Canal Replacement Project - consists of lining or encasement of approximately four miles of the Contra Costa Canal from the Rock Slough Intake to Pumping Plant No. 1 to hydraulically isolate it from high saline groundwater. Phase 1 was completed in 2010.
- EBMUD-CCWD Intertie - In 2007, the EBMUD-CCWD untreated water interconnection was completed, which connected CCWD's Los Vaqueros Pipeline and the EBMUD's Mokelumne Aqueduct in Brentwood. The intertie enables CCWD to divert up to 3,200 acre-feet per year of its CVP supply at the Freeport diversion facility where water quality is better than at CCWD's Delta Intakes.
- Los Vaqueros Reservoir Expansion Project – Expansion of Los Vaqueros Reservoir from 100,000 AF to 160,000 AF to provide water supply reliability and water quality benefits. Construction began in 2010 and is scheduled for completion in 2012.
- Advanced Treatment Demonstration Project - The Advanced Treatment Demonstration Project includes a full-scale application of new technologies as applied to source water from the Sacramento-San Joaquin Delta. Study findings will be released in 2011.

More specific project details can be found in CCWD's 2010 UWMP. Water quality impacts to the CCWD's supply reliability have been considered in the development of projected supplies for the City of Pittsburg.

Service Reliability

In conformance with California Water Code Division 5, Part 2.6, Section 10635, CCWD prepared an assessment of its water supply reliability. This analysis was provided to all wholesale municipal customers of CCWD for use in the preparation of their Urban Water Management Plans.

The water supply reliability goal adopted by CCWD's Board of Directors is to meet at least 85 percent of demand during drought conditions and 100 percent of demand in normal years. The remaining 15 percent would be met by a combination of short-term water purchases and a voluntary short-term conservation program.

The projected water supplies from CCWD are not anticipated to incur supply deficits in normal years due to CCWD's long-term conservation program, existing CVP contract supply, and long-term water transfer agreement with East Contra Costa Irrigation District (ECCID). CCWD's currently available and planned supplies are sufficient to meet their reliability goals and estimated water demands during normal, single dry and the first two years of a multi-year drought. In later years, several types of drought conditions may result in supply shortfalls. Supply reliability tables provided by CCWD are included in **Appendix E**. The maximum amount of short-term conservation expected to be necessary by CCWD is 15 percent of supply.

5.1.2 Groundwater

Water Quality

The City obtains approximately 10% to 15% of its water supply from two City-owned wells, the Rossmoor and Bodega wells. Water from these wells can be high in manganese, iron and dissolved solids. Total dissolved solids (TDS) in the Rossmoor Well have been recorded at concentrations of 600 mg/L. A maximum concentration of 500 mg/L is recommended for secondary water quality standards (water aesthetics). The water produced from these wells undergoes blending and complete conventional treatment at the City's Water Treatment Plant. The City conducts regular tests of the water pumped from these two wells in compliance with State of California water quality standards (Administrative Code, Title 22) to make sure that the utilization of this water source is consistent with applicable State water standards

Service Reliability

The Bodega well came online in 2010 to replace the Ballpark well which was frequently shut down for repairs and poor water quality. The City's groundwater supply has proven to be very consistent through variable climactic conditions. There has been no change in the groundwater level reported by DWR in this area as a result of the City's use of the groundwater table. The City has implemented groundwater monitoring to enable evaluation of groundwater level trends over time to ensure that overdraft conditions (potentially resulting in seawater intrusion) do not occur.

5.1.3 Recycled Water

Water Quality

The recycled water supply for the City comes from DDS's Recycled Water Facility (RWF). The RWF ensures a consistent water quality standard is met for the City's recycled water supply.

Service Reliability

Recycled water from DDS has been a highly reliable and essentially "drought proof" supply. Production capacity at the RWF is affected by the facility's permitted capacity, use patterns of the recycled water customers, DDS's wastewater treatment plant influent diurnal flow pattern, influent average dry weather

flow, and storage/equalization capacity at the RWF. DDS is in the process of addressing these factors through various measures to ensure the continued reliability of the supply and increase the potential for future recycled water use.

5.1.4 Projected Supply and Demand Comparison

This section compares projected demands with the City's supplies (CCWD wholesale water, groundwater, and recycled water). The City continues to examine supply enhancement options, including additional water recycling, conjunctive use, water transfers, and additional imported water supplies through its participation in the East County Water Management Association and collaboration with CCWD.

Table 5-1 compares water supply and demand projections based on CCWD's projected drought supply conditions (Table 1, Appendix E). The supply deficit in the following table indicates that, in average precipitation years, the City will have sufficient water to meet its customers' needs through 2035.

5.1.5 Reliability Factors

Water Code Section 10631(c)(2) requires water suppliers to describe plans to supplement or replace sources that may not be available at a consistent level of use. As a result of the relative consistency of the City's water supplies, there are no plans at this time to replace or supplement any of the City's supply sources with alternative sources. Table 5-5 summarizes the factors that have the potential to affect the consistency of the City's supply. By continuing to use a combination of groundwater and recycled water in addition to wholesale supplies from CCWD, the City is making maximum use of its existing resources and minimizing the need to import water from other regions.

Table 5-1: Project Supply and Demand Comparison (Guidebook Tables 32, 33 and 34)

Supply and demand comparison — normal year						
	2015	2020	2025	2030	2035	
Supply totals (from Table 16)	11,213	12,043	12,952	13,916	14,974	
Demand totals (From Table 11)	11,213	12,043	12,952	13,916	14,974	
Difference	0	0	0	0	0	
Difference as % of Supply	0.0%	0.0%	0.0%	0.0%	0.0%	
Difference as % of Demand	0.0%	0.0%	0.0%	0.0%	0.0%	
Supply and demand comparison — single dry year ¹						
	2015	2020	2025	2030	2035	
Supply totals ¹	11,213	12,043	12,842	13,439	14,325	
Demand totals	11,213	12,043	12,952	13,916	14,974	
Difference	0	0	(110)	(477)	(649)	
Difference as % of Supply	0.0%	0.0%	-0.9%	-3.6%	-4.5%	
Difference as % of Demand	0.0%	0.0%	-0.8%	-3.4%	-4.3%	
Supply and demand comparison — multiple dry-year events ²						
	2015	2020	2025	2030	2035	
Multiple-dry year first year supply	Supply totals ¹	11,213	12,043	12,952	13,916	14,974
	Demand totals	11,213	12,043	12,952	13,916	14,974
	Difference	0	0	0	0	0
	Difference as % of Supply	0.0%	0.0%	0.0%	0.0%	0.0%
	Difference as % of Demand	0.0%	0.0%	0.0%	0.0%	0.0%
Multiple-dry year second year supply	Supply totals ¹	11,213	12,043	12,842	13,439	14,325
	Demand totals	11,213	12,043	12,952	13,916	14,974
	Difference	0	0	(110)	(477)	(649)
	Difference as % of Supply	0.0%	0.0%	-0.9%	-3.6%	-4.5%
	Difference as % of Demand	0.0%	0.0%	-0.8%	-3.4%	-4.3%
Multiple-dry year third year supply	Supply totals ¹	10,473	11,237	11,635	12,126	13,027
	Demand totals	11,213	12,043	12,952	13,916	14,974
	Difference	(740)	(806)	(1,317)	(1,791)	(1,946)
	Difference as % of Supply	-7.1%	-7.2%	-11.3%	-14.8%	-14.9%
	Difference as % of Demand	-6.6%	-6.7%	-10.2%	-12.9%	-13.0%

¹CCWD anticipates the following supply shortfalls in a single-year drought: 2015,(0%), 2020 (0%), 2025 (1%), 2030 (4%), 2035 (5%)

²CCWD anticipates the following supply shortfalls in a three-year drought scenario: 2015 (0%, 0%, 8%), 2020 (0%, 0%,8%), 2025 (0%,1%,12%), 2030 (0%,4%,15%), 2035 (0%,5%,15%)

Table 5-2: Factors Resulting in Inconsistencies in Supply (Guidebook Table 29)

Water Supply Sources	Limitation Quantification	Legal	Environmental	Water Quality	Climatic	Additional Information
Surface Water - CCWD Wholesale Delta Supply	Up to 15% reduction during dry years	None anticipated	Pumping from Delta can be limited at times due to fisheries concerns.	Delta water can be subject to seawater intrusion, high total organic carbon (TOC), and other water quality challenges. Levee failures can also cause water quality problems	Surface supply from the Sacramento-San Joaquin Delta is subject to reductions in dry years.	CCWD manages these challenges using the Los Vaqueros Reservoir, which provides water quality and emergency supply reliability
Groundwater - City Wells	None anticipated	None anticipated	None anticipated	High TDS and manganese	None anticipated	The Bodega well was recently constructed to replace the Ballpark well and ensure a more consistent, lower TDS supply of well water. City has implemented an ongoing groundwater monitoring program.
Recycled Water - DDSD	None anticipated	None anticipated	None anticipated	None anticipated	None anticipated	The amount of recycled water available to the City is consistent and if anything may increase in the future as water and sewer connections increase.

5.2 Drought Planning

5.2.1 Reliability and Climatic Variability

Water Code Section 10631 (c)(1) requires water suppliers to consider supply conditions during an average water year, a single dry water year, and multiple dry water years. This section identifies the historical water years that meet these conditions for drought planning purposes. Consistent with CCWD’s water supply analyses, the basis of water year data presented in this section is as follows:

- Normal (Average) represents a below normal or wetter year on the Sacramento River Hydrologic Region 40-30-30 Water Supply Index.
- Single-year drought represents 1977 conditions.
- Multiple-year drought sequence represents 1987-1992 conditions.

These designations are summarized in **Table 5-3** below.

Table 5-3: Basis of Water Year Data (Guidebook Table 27)

Water Year Type	Base Year(s)
Average Water Year	Below Normal or Wetter year on the Sacramento River Hydrologic Region 40-30-30 Water Supply Index
Single-Dry Water Year	1977
Multiple-Dry Water Years	1987-1992

Table 5-4 summarizes the water supply conditions for the City of Pittsburg under the conditions described above.

Table 5-4: Supply Reliability – Historical Conditions (Guidebook Table 28)

Average / Normal Water Year	Single Dry Water Year	Multiple Dry Water Years		
		Year 1	Year 2	Year 3
CCWD Wholesale Supply	85%	100%	100%	85%
Groundwater	100%	100%	100%	100%

^aGroundwater wells were installed in 1994 and to date production has not been impacted by drought conditions.

The City experienced multi-year drought conditions in 1976-77, 1987-1992 and again in 2007-2009. Water conservation strategies implemented by the City in partnership with CCWD resulted in a reduction in per capita water usage.

Based on experiences during the previous drought periods, the City recognizes that it is better to enter into a water shortage alert early, at a minimal level, to establish necessary rationing programs and policies, to gain public support and participation, and to reduce the likelihood of more severe shortage levels later. As the community continues to become more water efficient, it may become more difficult for customers to reduce their water use during water shortages (this is called “demand hardening”). Staff does not believe that City customers are yet approaching demand hardening, because there are still potential water efficiency improvements in residential plumbing fixtures, appliances, and landscapes, and in the commercial, industrial, and institutional sectors that have yet to be implemented. However, improved water use efficiency does mean that water supply reserves must be larger and that water shortage responses must be made early to prevent severe economic and environmental impacts.

5.2.2 Minimum Supply for the Next Three Years

California Water Code Section 10632 (b) requires an estimate of the minimum annual water supply available during each of the next three water years based on the driest three-year historical sequence for the agency’s water supply. The majority of the City’s water supply (roughly 85%) is provided by CCWD and subject to reductions under drought conditions. The City’s groundwater wells supply roughly 10-15% of City of Pittsburg’s water supply and recycled water makes up the remainder. Based on reliability data provided by CCWD, the City’s reliability under multiple dry years in the near term is summarized in **Table 5-5**. Because groundwater is not as susceptible to short term climatic changes, the reliability of the groundwater supply over a three-year drought is assumed to be 100%.

Table 5-5: Supply Reliability – Current Water Sources (Guidebook Table 31)

Water supply sources	Average / Normal Water Year ^a Supply (AFY)	Multiple Dry Water Year Supply (AFY)		
		Year 2011	Year 2012	Year 2013
Contra Costa Water District Wholesale Supply	7,815	7,815	7,815	7,112 ^b
Groundwater pumping	1,500	1,500	1,500	1,500
Recycled Water	459	459	459	459
Percent of normal year:	100%	100%	100%	93%

Notes:

^aSee Table 5-1 (Guidebook Table 27) for basis of water type years.

^bCCWD forecasts a 9% supply shortfall in the third year of a drought in the near term.

5.3 Water Shortage Contingency Planning

5.3.1 Catastrophic Supply Interruption Plan

The Water Code Section 10632(c) requires actions to be undertaken by the water supplier to prepare for, and implement during, a catastrophic interruption of water supplies. A catastrophic event that constitutes a proclamation of a water shortage would be any event, either natural or manmade, that causes a severe shortage of water. Water shortages may result from variations in weather, natural disasters, or unanticipated situations (i.e. systems failures, acts of terror). The City has developed its contingency planning in partnership with CCWD. During water shortages, CCWD manages its water supply to ensure it meets the demands of its member agencies.

In the event of a supply emergency, the City would increase media attention to the water supply situation during a shortage and would step up public water education programs, encourage property owners to apply for a landscape and interior water use survey and continue to advertise the importance of customers installing ultra-low flow (ULF) plumbing fixtures.

If an earthquake, or other form of disaster, were to damage the Contra Costa Canal or disrupt the delivery of raw water, the City would utilize; (1) the local groundwater aquifer as a raw water supply, and (2) emergency interties to the City of Antioch and the two interties to CCWD’s Multipurpose Pipeline as treated water supplies within the limitations of these sources.

Neighboring communities that provide water service, such as the City of Antioch, are as dependent upon Contra Costa Water District as the City of Pittsburg. The fact that Antioch can directly draw water from the Delta allows for them to augment this source, but under a reduced supply scenario, it would be unlikely that Antioch would be able to provide supplemental water to Pittsburg.

The City of Pittsburg Water System participated in the 1995-96 Seismic and Reliability Improvements Project to evaluate emergency measures for a disruption in water supply. Under those circumstances, the availability of uncontaminated groundwater would be crucial to the City's ability to respond to an extended reduction in surface water supplies.

During declared shortages, or when a shortage declaration appears imminent, the City Manager or his/her designee, who serves as chair, activates a City Water Shortage Response Team. The team includes: water, engineering, finance, emergency services, public affairs, and parks and recreation representatives. This team will coordinate its activities with the City Manager's Office, the Contra Costa Consolidated Fire Department, and the CCWD.

Additional action items that may be pursued in preparing for and responding to a catastrophic water supply interruption could include:

- Determine what constitutes a proclamation of a water shortage.
- Stretch existing water storage.
- Obtain additional water supplies.
- Develop alternative water supplies.
- Determine where the funding will come from.
- Contact and coordinate with other agencies.
- Create an Emergency Response Team/Coordinator.
- Create a catastrophe preparedness Plan.
- Put employees/contractors on-call.
- Develop methods to communicate with the public.
- Develop methods to prepare for water quality interruptions.

5.3.2 Rationing Stages and Reduction Goals

The City has developed a four stage rationing plan (see Table 5-6) for implementation during declared water shortages. The rationing plan includes voluntary and mandatory rationing, depending on the causes, severity, and anticipated duration of the water supply shortage.

As the retail water purveyor, the City of Pittsburg must provide the minimum health and safety water needs of the community at all times. The water shortage response is designed to provide a minimum of 50% of normal supply during a severe or extended water shortage. Rationing stages may be triggered by a shortage in one water source or a combination of sources. Although an actual shortage may occur at any time during the year, a shortage (if one occurs) can usually be forecast by the City and/or CCWD by April 1st of each year. Rationing stages may be triggered by a supply shortage, a natural disaster (canal failure due to earthquake, etc.) or by contamination in one source or a combination of sources.

In the worst-case scenario of a 50% reduction of water supplies, the City, in coordination with CCWD, would resolve any potential supply shortfalls through a combination of a short-term conservation programs and/or short-term water purchases.

Table 5-6: Water Shortage Contingency – Rationing Stages to Address Water Supply Shortages (Guidebook Table 35)

Shortage Condition	Stage	Customer Reduction Goal	Type of Rationing Program
Up to 10%	I	5-15%	Voluntary
10 – 20%	II	10-25%	Voluntary
25 - 35%	III	15-45%	Mandatory
35 - 50%	IV	35-100%	Mandatory

5.3.3 Mandatory Prohibitions

The City’s Municipal Code includes mandatory prohibitions on the waste of water. The Water Conservation Resolution, adopted by the City in 2010, includes additional prohibitions on non-essential uses of water. In addition, the City would consider additional prohibitions as appropriate given the water shortage situation. Table 5-7 lists the mandatory prohibitions in the City Municipal Code and those adopted in the 2010 Water Conservation Resolution.

Table 5-7: Water Shortage Contingency – Mandatory Prohibitions (Guidebook Table 36)

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
Permitting water to flow onto a sidewalk, driveway or street, or escape down a gutter, ditch, or other service drain.	All stages – part of Municipal Code
Irrigating landscaped areas with water in excess of that minimal amount required to sustain plant life, as determined by a staff water audit.	All stages – part of Municipal Code
Failing to repair a controllable leak of water	All stages – part of Municipal Code
Washing sidewalks, driveways, parking areas, tennis courts, patios, or other exterior paved areas except to alleviate a condition inimical to the public health or safety.	All stages – 2010 Water Conservation Resolution
The use of water for decorative fountain/pools, except for water approved for such use, and that is recycled.	All stages – 2010 Water Conservation Resolution
Using a hose without an automatic shutoff nozzle	All stages – 2010 Water Conservation Resolution
Outside watering with City-furnished water that results in excessive flooding or runoff into a gutter, drain, walkway or street	All stages – 2010 Water Conservation Resolution

5.3.4 Priorities for Use

Priorities for use of available potable water during shortages were based on input from the water shortage response team, citizens, and legal requirements set forth in the California Water Code, Sections 350-358. Water allocations are established for all customers according to the following ranking system:

1. Minimum health and safety allocations for interior residential needs (includes single family, multi-family, hospitals and convalescent facilities, retirement and mobile home communities, and student housing, and firefighting and public safety)
2. Commercial, industrial, institutional/governmental operations (where water is used for manufacturing and for minimum health and safety allocations for employees and visitors), to maintain jobs and economic base of the community (not for landscape uses)
3. Existing landscaping
4. New customers, proposed projects without permits when shortage declared.

5.3.5 Consumption Reduction Methods

The City’s contingency planning for a water shortage includes prohibitions on various wasteful and nonessential water uses such as lawn watering during mid-day hours, washing sidewalks and driveways with potable water, and allowing plumbing leaks to go uncorrected. **Table 5-8** outlines the reduction methods for the water shortage stages.

Table 5-8: Water Shortage Contingency – Consumption Reduction Methods (Guidebook Table 37)

Examples of Consumption Reduction Methods	Stage When Method Takes Effect	Projected Reduction ¹ (%)
Demand reduction program	All stages	--
Education Program	All stages	--
Use prohibitions	All stages	--
Voluntary rationing	I, II	--
Percentage reduction by customer type	II, III, IV	--
Water shortage pricing	II, III, IV	--
Restrict building permits	III, IV	--
Mandatory rationing	III, IV	--
Per capita allotment by customer type	IV	--
Flow restriction	IV	--
Restrictions only for priority uses	IV	--

¹The percent reduction attributable to individual consumption reduction methods is difficult to quantify. A combination of reduction methods would be employed to achieve the desired reductions based on water shortage stage (see Table 5-6 for percentage reduction goals associated with each rationing stage).

Under normal water supply conditions, potable water production figures are recorded daily at the Water Treatment Plant. Totals are reported monthly to the Finance Department and the Water Utility Director and incorporated into a water supply report.

During a Stage II water shortage, daily production figures are reported to the Water Treatment Plant Supervisor. He/she would compare the weekly production to the target weekly production to verify that the reduction goal is being met. Weekly reports would be forwarded to the Water Shortage Response Team (currently consisting of Water Utility Director, Chair and representatives from the Water Treatment Plant, Water Line maintenance, and Community Development and Finance Departments). Monthly reports are sent to the City Manager. If reduction goals are not met, the City Manager would be notified so that additional actions may be considered by the City Council to address the water shortage.

During a Stage III or Stage IV water shortage, the procedure listed above would be followed, if necessary, with the addition of a daily production report to the City Manager.

During emergency shortages, production figures are reported to the Chair hourly and to the Water Shortage Response Team daily. Daily reports would also be provided to the City Manager.

5.3.6 Penalties and Charges

Any customer violating the regulations and restrictions on water use, under conditions of mandatory rationing, shall receive a written warning for the first such violation. A second violation, and each one thereafter shall constitute a misdemeanor and may be referred to the Contra Costa County District Attorney’s office for prosecution pursuant.

In 2009, in response to drought conditions throughout the State, the City adopted Resolution No. 09-11195 (**Appendix D**), establishing a water conservation program and necessary restrictions including penalties for excessive use. The penalties include punitive action for single family residential customers that use more than 1,000 gallons per day [which is 40 hundred cubic feet (units) per billing period] to be charged an excessive use penalty of \$3.00/hundred cubic feet (HCF or “units”) effective with water billing cycles starting on or after June 1, 2009. This excessive use charge was deemed unnecessary in 2010 and rescinded by Resolution No. 10-11401

Table 5-9: Water Shortage Contingency – Penalties and Charges (Guidebook Table 38)

Penalties or Charges	Stage When Penalty Takes Effect
Fine of \$100.00 for first violation of Municipal Code Water Conservation restrictions	All stages
Fine of \$200.00 for second violation of Municipal Code Water Conservation restrictions within one year	All stages
Fine of \$500.00 for third violation of Municipal Code Water Conservation restrictions within one year	All stages
Charge for excess use - \$3.00 per hundred cubic feet for single family residential customers that use more than 1,000 gallons per day	Enacted in 2009 in response to drought conditions; rescinded in 2010.

5.3.7 Revenue Impacts of Reduced Sales During Shortages

The City has procedures outlined for the raising of water rates, depending on the City’s available reserve fund, as a disincentive against the overuse of water when the water shortage represents a Stage II event. Additional consideration concerning the establishment of water rates to address the revenue shortfall of diminished use will be addressed by the City Council as necessary to meet any continuing water shortage emergency.

5.3.8 Mechanism for Determining Actual Reductions in Water Use

Section 10632 (h,i) of the California Water Code requires that the Urban Water Shortage Contingency Plan include a mechanism for determining actual reductions in water use.

The City maintains close to 100% metered accounts; reductions in water use for each user can be determined based on meter readings. In the event of a water shortage, the City will monitor its

production meters more frequently for changes in the volumes of water produced at the City's wells and surface water treatment plant. The City will also monitor water delivered to individual metered service connections for changes in delivered water.

5.3.9 Water Shortage Contingency Resolution

Section 10632(h) of the California Water Code requires the inclusion of a draft water shortage contingency resolution. The City has recently passed two water shortage contingency resolutions. In 2009, the City passed Resolution 09-11195 "Establishing a Water Conservation Program and Necessary Restrictions" in response to water shortage conditions and a request by CCWD to reduce City water use by 15%. In 2010, the City passed Resolution 10-11401 "Amending Resolution 09-11195 Establishing a Water Conservation Program and Necessary Restrictions" because drought conditions had improved. In the event of a water shortage emergency, the City would amend Resolution 10-11401 as appropriate given the water shortage conditions encountered at that time. Both the 2009 and 2010 resolutions are included in **Appendix D**.

Chapter 6 Demand Management Measures

This chapter presents a detailed analysis of the Demand Management Measures (DMMs) contained in the UWMP Act. A DMM, also known as a Best Management Practice, is a program designed to maximize the efficient use of water and minimize water waste. This section includes a comprehensive description of each DMM identified in the UWMP Guidelines. Also for each DMM, implementation steps and schedule, effectiveness and estimates of water savings (when available) are discussed. The City has, in good faith, tried to address and comply with all of the DMMs listed in the UWMP Guidelines.

Overview

The City of Pittsburg is a signatory to the Memorandum of Understanding regarding Urban Water Conservation in California (MOU) and is therefore a member of the California Urban Water Conservation Council (CUWCC). As a member of the CUWCC, the City files Best Management Practice Reports (BMP reports) with the CUWCC. The City is in the process of preparing its 2009-2010 BMP report and expects reporting to satisfy CUWCC requirements.

The City collaborates with CCWD in providing various water conservation programs to the Pittsburg community. As a wholesaler, CCWD develops and implements a regional conservation program on behalf of its retail water agencies and their customers. This regional approach enables economies of scale, ensures a consistent message to the public, and assists in the acquisition of grant funding for program implementation.

CCWD's Water Conservation Program is designed to achieve reductions in long-term water demand in an environmentally responsible and cost-effective manner. The long-term water savings goal for the Conservation Program is to reduce CCWD-wide demand by approximately 8,000 acre-feet in the year 2040, which is consistent with CCWD's Future Water Supply Study. This amount is in addition to expected conservation savings from natural fixture replacement and other conservation activities not associated with CCWD directly. Total savings resulting from CCWD's conservation activities across its entire service area (which includes the City of Pittsburg) are estimated to be 23,700 acre-feet per year by 2035.

Since CCWD started its Water Conservation Program in 1988, the program has evolved considerably. In its early years, the program consisted of single-family surveys and showerhead distribution. Starting in 1994, CCWD provided rebates for Ultra Low Flow Toilets (ULFTs) which use 1.6 gallons per flush, and then in 2007, the program was replaced with a High Efficiency Toilet (HET) Rebate Program for toilets that use 1.28 gallons per flush. In the year 2000, CCWD initiated a successful High Efficiency Clothes Washer Rebate program. The Conservation Program now includes surveys for all customer classes and incentive programs for numerous devices. Both surveys and rebate programs have changed over the years to increase the effectiveness of the program and the sustainability of water savings and are available throughout the CCWD wholesale and retail service areas.

The City's BMP reports and conservation efforts, in collaboration with CCWD, are summarized below for each DMM. A summary of the City's current water conservation policies and programs as they relate to the fourteen DMMs included in the UWMP Act is presented in **Table 6-1**.

Table 6-1: Summary Demand Management Measure Compliance

DMM	Demand Management Measure Description	Conservation Program	Compliance with BMPs
A	Water Survey Programs for Single Family and Multi-Family Residential Customers	In partnership with CCWD, the City has conducted single-family and multi-family surveys.	In Progress
B	Residential Plumbing Retrofit	The City is providing water conserving shower heads, in conjunction with CCWD, to over 80% of its residential service area.	Yes
C	System Water Audits, Leak Detection and Repair	The City has developed a water system audit program with the ultimate goal of auditing over 90% of the residential users in the service area.	Yes
D	Metering with Commodity Rates for all New Connections and Retrofit of Existing Connections	The City is implementing new and retrofitted metering connections.	Yes
E	Large Landscape Conservation Programs and Incentives	The City has implemented a number of projects as part of a large landscape conservation program including: Installation of a CIMIS-controlled irrigation system for 32 landscaped sites that use potable water. Conversion of the City Golf Course and City-owned parks and landscaped areas from potable to recycled water. Conversion of sports fields from grass to artificial turf. Participation in CCWD's Cash for Grass program. In addition, CCWD continues to offer large landscape conservation programs and incentives.	In Progress
F	High Efficiency-Washing Machine Rebate Programs	The City, in collaboration with CCWD, has implemented a High Efficiency-Washing Machine Rebate Program which has been periodically updated to provide the most cost-effective service to water users.	Yes
G	Public Information Programs	The City participates with CCWD's Public Affairs Department and Water Conservation Office, promoting water conservation through a variety of media.	Yes

DMM	Demand Management Measure Description	Conservation Program	Compliance with BMPs
H	School Education Programs	The City is involved with the Water Education Program (WEP) in collaboration with CCWD to educate students regarding drinking water conservation and environmental responsibility.	Yes
I	Conservation Programs for Commercial, Industrial, and Institutional (CII) Accounts	The City offers a CII survey program, in conjunction with CCWD, to provide rebates and incentives for water conservation.	In Progress
J	Wholesale Agency Programs	<i>Not Applicable</i>	<i>Not applicable</i>
K	Conservation Pricing	The City has implemented conservation pricing.	Yes
L	Water Conservation Coordinator	The City has currently filled the position.	Yes
M	Water Waste Prohibitions	The City has restrictions and penalties in place.	Yes ^a
N	Residential High Efficiency Toilet (HET) Replacement Program	The City currently offers rebates in collaboration with CCWD, at the time of purchase for HET replacement.	Yes

Footnotes:

The City has selected an “at least as effective as” option.

6.1 Demand Management Measures

6.1.1 DMM A: Water Survey Programs for Single Family and Multi-Family Residential Customers

Implementation Schedule:

The City and CCWD developed and implemented a targeting strategy in 2004 for multi-family and single family residential water use surveys. The City has met the coverage requirement for the multi-family units and is still working toward meeting the requirements for single family units. The City initiated a supplemental single family residential water and energy survey program in 2009. This effort increased the number of surveys provided.

Implementation Description:

The Conservation Survey Program was done in partnership with CCWD. Description of the survey for single family and multi-family follow.

The Single Family Residential Survey Program offers free on-site evaluations of home water use. The survey takes approximately one to two hours to complete, and includes a thorough review of both interior and landscape water uses; however, the primary focus of the survey is landscape water use. The water conservation technician inspects each irrigation station and notes specific problems and suggested repairs or improvements, and a site-specific monthly irrigation schedule is prepared. The schedule is programmed into the controller and the customer is taught how to adjust the timer. Customers are shown how to read their water meter and how to use the meter as a water management tool. In addition, customers are provided free high-efficiency showerheads, aerators and a report listing the survey findings. After participating in the program, customers are sent post cards each year to remind them to adjust their watering schedules and to check their irrigation system.

The Multi-Family Residential Survey Program targets apartment complexes and other multi-family customers. During the Multi-Family survey, a trained CCWD water conservation technician conducts flow tests on showerheads and kitchen and faucet aerators. For those fixtures that have a flow rate greater than 2.5 gallons per minute (gpm), CCWD will install or provide fixtures that flow at 2.0 gpm. In addition, the CCWD technician tests the toilets for leaks and determines the flush volume of the toilet. A report is provided to the customer that lists the number and location that showerheads were installed and where faucet aerators are needed. The report also lists the flush volumes of each of the toilets and the location of each toilet that was leaking. Finally, the customer is provided with pre-approval to participate in the HET rebate program for those toilets that have a flush volume of 3.5 gallons or greater. In addition, for multi-family properties that have common laundry facilities, the washers are inspected and if they are below efficiency standards, the customer is provided pre-approval to participate in the commercial clothes washer rebate program.

Methods to Evaluate Effectiveness:

The effectiveness of the survey program is measured by tracking of the total survey coverage in the service area. In 2008, the survey coverage was 1.24% and 43.25% for single and multi-family residential units, respectively, as seen in **Table 6-2**. The City has already met the 10 year coverage requirement (13.5%) for multi-family units and is progressing toward that goal for single family units.

Table 6-2: Implementation of DMM A

	Single Family	Multi-Family
Total Completed Surveys through 2008	158	1,966
Residential units survey coverage ^a	1.24%	43.25%

Footnotes:

^aAs % of Base year residential accounts which were 12,771 and 4,546 units for single and multi-family houses, respectively.

Estimated Conservation Savings:

Included in the CCWD water conservation program savings shown in **Table 6-6**.

6.1.2 DMM B: Residential Plumbing Retrofit

Implementation Schedule:

The City’s residential plumbing retrofit program is on-going.

Implementation Description:

The City’s program for residential plumbing retrofits has been established in partnership with CCWD. Since 1988, CCWD has been distributing and installing 2.5 gpm showerheads to single family and multi-family customers. In 2005, CCWD increased the water savings by providing 2.0 gpm showerheads. CCWD has met the requirements of this BMP by providing more than 80% coverage for all single family and multi-family sites surveyed during the past two years. CCWD continues to test the flow rate of all showerheads at residential surveys and provides 2.0 gpm showerheads as necessary.

Methods to Evaluate Effectiveness:

The effectiveness of this program is based upon the number of rebates issued for water conservation devices and the percentage of customers that install the equipment after purchasing the devices. The City currently tracks the number of rebates distributed. The estimated percentage of single and multi-family households with low-flow showerheads is over 80%, as mentioned above.

Estimated Conservation Savings:

The estimated conservation savings are included in **Table 6-6**.

6.1.3 DMM C: System, Water Audits, Leak Detection, and Repair

Implementation Schedule:

The City is currently implementing a Water Audits program and plans on continuing this program in the future.

Implementation Description:

The City has implemented a water system audit program, with the ultimate goal of auditing over 90% of the water distribution network. The components of the water system audit program include a pre-screening system audit and an active replacement program for leak-prone polybutylene water pipes.

Methods to Evaluate Effectiveness:

To evaluate the effectiveness of the prescreening audit, the City looks at the percentage of the distribution network that has audited each year. The City has met the coverage requirements since 2001 (see **Table 6-3**), with over 90% coverage every year except for 2006, which reached a total of 89.9%.

Table 6-3: Coverage results for DMM C between 2001-2008

Report Year	Report Period	Pre-Screen Completed	Pre-Screen Result	Full Audit Indicated	Full Audit Completed
2001	01-02	Yes	92.3%	No	No
2002	01-02	Yes	90.3%	No	No
2003	03-04	Yes	91.3%	No	No
2004	03-04	Yes	95.6%	No	No
2005	05-06	Yes	91.8%	No	No
2006	05-06	Yes	89.9%	Yes	No
2007	07-08	Yes	93.1%	No	No
2008	07-08	Yes	90.1%	No	No

Estimated Conservation Savings

Exact savings attributable to this DMM are difficult to quantify. The reduction in unaccounted for water provides some indication of its success. In 2005, unaccounted for water and losses were approximately

2,000 AF and represented 18% of water treatment plant production. In 2010, unaccounted for water and losses were approximately 1,000 AF and represented 12% of water treatment plant production.

6.1.4 DMM D: Metering with Commodity Rates for all New Connections and Retrofit of Existing Connections

Implementation Schedule:

The City's metering program for new and existing connections is on-going.

Implementation Description:

The City has continued to meter all new connections and maintains a high percentage of metered accounts throughout the service area. The City's new service connections are billed volumetrically with meters. The City also maintains a retrofit program to increase the coverage of metered accounts to older connections.

Methods to Evaluate Effectiveness:

One way to evaluate the effectiveness of metering is a periodic review of customer water use. The City is nearly fully metered, making comparison of metered and unmetered water use difficult.

Estimated Conservation Savings:

Estimating the conservation attributable to metering is difficult. Various studies have estimated water savings as a result of metering and commodity pricing with a wide range of results. CUWCC has estimated that metered accounts may result in a 20 percent reduction in demand compared to non-metered accounts (CUWCC 2003).

6.1.5 DMM E: Large Landscape Conservation Programs and Incentives

Implementation Schedule:

The City's Large Landscape Conservation Program is on-going.

Implementation Description:

In 2008 the City initiated the installation of a CIMIS-controlled irrigation system for 32 landscaped sites that use potable water. These sites represent 67.6 acres (45%) of the 148.8 acres that are still irrigated by the City using potable water, and over 10% of the irrigation accounts in the City. A preliminary estimate projected at least a 15% water saving (53 AFY).

In 2009 the City converted three City owned parks and landscaped areas from potable water to recycled water. This was done for City Park, City Hall landscaping and Stoneman North Park (21 acres total). The expected reduction of potable water use for these sites is at least 80 AFY.

In 2010 the City's Golf Course was converted from potable water to recycled water. Total water use for the Golf Course in 2007-08 was 477 AF.

The City is converting soccer fields from grass to artificial turf. One site is being completed in 2011. The City also participated in CCWD's Cash for Grass program and participated in the funding of the conversion of turf landscape areas from grass to non-grass landscaping (0.7 acres).

As a result of these programs, water use for irrigation is projected to be reduced by over 30%.

In addition, CCWD continues to offer large landscape conservation programs and incentives. The CCWD program is directed at those commercial and multi-family sites with dedicated irrigation water accounts.

There are approximately 216 such accounts in the City's service area and approximately 1,300 accounts in CCWD's Treated Water Service Area. Water Budgets are prepared using real-time local evapotranspiration (ETo) data and actual landscape area measurements obtained through an aerial photograph. The data are integrated into a detailed water budget equation, which integrates monthly landscape coefficients, irrigation efficiency, and real-time ETo. Water Budget site reports are prepared comparing the water budget to actual water use. The program provides participating customers with water budget site reports tailored specifically to their properties. These reports enable the customer to adjust their water use to reflect seasonal weather changes and, therefore, control the costs of their water bills.

Methods to Evaluate Effectiveness:

There are several ways the effectiveness of the City's Large Landscape Program can be evaluated. One metric is how much turf landscape has been converted to non-grass landscaping or artificial surface. Another is comparing current water use to historical use of large landscaping. CCWD also can track participation of its irrigation water accounts in its water budget program.

Estimated Conservation Savings:

The City's installation of CIMIS-controlled irrigation systems for 32 landscaped sites is estimated to result in a 15% water use reduction at those sites. The conversion of the golf course and parks and other City landscaped areas to recycled water is expected to result in a reduction in potable water use of more than 500 AFY. Collectively, the City's large scale landscape efforts are projected to reduce water use for irrigation by over 30%.

Savings from CCWD's Program are included in the CCWD water conservation program savings shown in **Table 6-6**.

6.1.6 DMM F: High-Efficiency Washing Machine Rebate Programs

Implementation Schedule:

The City's High-Efficiency Washing Machine Rebate Program is on-going.

Implementation Description:

The City's program for high-efficiency washing machine rebates has been established in partnership with CCWD. CCWD initiated a rebate program in 1999 by providing a \$75 rebate for high-efficiency clothes washers. Three years later in 2002, CCWD coordinated with other Bay Area water agencies to implement a Bay Area Regional Clothes Washer Rebate Program and hired Electric Gas Industries Association (EGIA) to administer the program, which provided a rebate of up to \$100 until 2007. Appliance dealers throughout the Bay Area provided the same rebate application, making the program easier for salespeople and customers to understand. Then in 2008, the Bay Area water agencies contracted with Pacific Gas & Electric to administer the rebates. This had the added benefit of allowing customers to fill out a single application and to receive both the water agency and PG&E rebate in a single rebate check. CCWD customers received a combined rebate of up to \$200. In 2010, the combined rebate was reduced to \$100. This change had little effect on participation, improving the overall program cost effectiveness.

Methods to Evaluate Effectiveness:

Tracking the total coverage of the rebate program provides a method to evaluate the effectiveness of the DMM. The City's coverage goal for the rebate program is 1,476 residential units. In 2008, the City's coverage was 2,589, or 175.4% of the total coverage goal.

Estimated Conservation Savings:

Included in the CCWD water conservation program savings shown in **Table 6-6** (last line).

6.1.7 DMM G: Public Information Programs

Implementation Schedule:

The City's Public Information Program is on-going.

Implementation Description:

The City has developed their Public Information Program in partnership with their wholesale water supplier, CCWD. The CCWD Public Affairs Department coordinates with the Water Utilities Department to promote water conservation messages and programs through a variety of media. Publications, website pages, presentations, booths at community events, direct mail pieces, newsletters, newspaper ads, and water education programs are all tools used to promote water conservation.

Methods to Evaluate Effectiveness:

Evaluating the effectiveness of public information programs on consumer water use and behavior is difficult. The amount of information available to the community is the primary method by which the City can evaluate the effectiveness of this DMM. The City also tracks customer response and any commentary regarding the information provided.

Estimated Conservation Savings:

Included in the CCWD water conservation program savings shown in **Table 6-6**.

6.1.8 DMM H: School Education Programs

Implementation Schedule:

The School Education Program is on-going.

Implementation Description:

The City has developed their School Education Programs in partnership with CCWD's Water Education Program (WEP). The goal of WEP is to teach children the importance of water in our lives. CCWD's WEP educates service-area school students about CCWD's mission to deliver clean, safe water in an environmentally responsible manner. Each year, the CCWD's WEP reaches more than 30,000 service-area students and teachers. All of the programs promote and reinforce the following goals: recognizing activities that could affect water quality; understanding the connection between health and water quality; understanding the biodiversity of a watershed; and the importance of water conservation.

Methods to Evaluate Effectiveness:

The effectiveness of this program is measured by the number of students and schools that participate which is tracked by CCWD.

Estimated Conservation Savings:

Included in the CCWD water conservation program savings shown in **Table 6-6** as part of Public Information Program activities.

6.1.9 DMM I: Conservation Programs for Commercial, Industrial and Institutional Accounts

Implementation Schedule:

The City's Conservation Program for Commercial, Industrial and Institutional (CII) accounts is on-going.

Implementation Description:

The City has developed their Conservation Program for CII's in partnership with CCWD. The CII survey program targets a variety of commercial, institutional and industrial customers. Individual water-using devices are inspected, and customers receive a detailed report listing improvements that can be made to the equipment and to the maintenance of that equipment. Rebates are offered as an incentive to upgrade to more efficient equipment. For those devices that CCWD does not have a specific rebate, they will evaluate the savings and provide rebates on a case by case basis.

Methods to Evaluate Effectiveness:

The City is currently in the process of meeting the requirements in the BMP report which track the coverage in the City's service area.

Estimated Conservation Savings:

Included in the CCWD water conservation program savings shown in **Table 6-6** under CII surveys.

6.1.10 DMM J: Wholesale Agency Programs

This DMM applies to wholesale agencies only and is therefore not applicable to the City. The City's wholesale supplier is CCWD.

6.1.11 DMM K: Conservation Pricing

Implementation Schedule:

The City has implemented conservation pricing.

Implementation Description:

The City has a tiered rate structure for single residential customers.

Methods to Evaluate Effectiveness:

The City has met the BMP Report coverage requirements regarding conservation pricing.

Estimated Conservation Savings:

An estimate of conservation savings for this DMM is currently unavailable.

6.1.12 DMM L: Water Conservation Coordinator

Implementation Schedule:

The City's Water Conservation Coordinator Program is on-going.

Implementation Description:

The Water Conservation Coordinator program is provided by the CCWD Regional Conservation Program. The coordinator's position has been active at the City since 1995, as a part-time responsibility. The majority of the funding for these duties is through CCWD's program and is included in the raw water rates.

Methods to Evaluate Effectiveness:

The effectiveness of this DMM is determined by the work performed by the Water Conservation Coordinator. Staffing levels for this program are included in **Table 6-4**.

Table 6-4: Implementation of DMM L

	2005	2006	2007	2008
Total Staff on Team	0.1	0.1	0.1	0.1

Estimated Conservation Savings:

Included in the CCWD water conservation program savings **Table 6-6**.

6.1.13 DMM M: Water Waste Prohibition

Implementation Schedule:

The City’s Water Waste Prohibition program is on-going.

Implementation Description:

The City has implemented a water waste prohibition ordinance to promote conservation throughout the service area. The following is a summary of the provisions contained within the ordinance:

- a. No person shall waste any water provided by the city.
- b. Waste of water shall include without limitation:
 - Permitting water to flow onto a sidewalk, driveway or street, or escape down a gutter, ditch or other service drain
 - Irrigating landscaped areas with water in excess of that minimal amount required to sustain plant life, as determined by a staff water audit
 - Failing to repair a controllable leak of water

Methods to Evaluate Effectiveness:

Tracking the number of annual violations and citations provides a metric to evaluate the effectiveness of this DMM.

Estimated Conservation Savings:

An estimated conservation savings for this DMM is not available.

6.1.14 DMM N: Residential High-Efficiency Toilet (HET) Replacement Programs

Implementation Schedule:

The City’s HET Replacement Program is on-going.

Implementation Description:

The City has developed its HET Replacement Program in partnership with CCWD. CCWD offers customers two ways to receive a rebate for purchasing a qualified WaterSense Certified HET. Customers can apply for a voucher that will enable them to receive an *instant* rebate of up to \$175 when they purchase a qualifying HET at one of CCWD’s participating vendors. Alternatively, customers can apply for a *traditional* rebate application which allows them to purchase a qualifying HET at any plumbing supplier and then mail in their rebate application to be processed by CCWD. Rebates are provided for all customer classes.

From 1994 until 2007, CCWD provided rebates for 1.6 gallon per flush toilets (ULFTs). In 2007, CCWD discontinued the ULFT rebates and switched to providing rebates for 1.28 gallon per flush toilets (HETs).

Methods to evaluate effectiveness:

Effectiveness of this DMM is based on the number of toilets replaced and an estimate of the water savings achieved, as seen in **Table 6-5**.

Table 6-5: Toilet Replacement Program Water Savings

Coverage Year	Toilet Replacement Program Water Savings (AF)
1999	311
2000	411
2001	522
2002	634
2003	755
2004	877
2005	1,006
2006	1,138
2007	1,274
2008	1,413

Estimated Conservation Savings:

Estimated water savings are shown in **Table 6-5** above and included in **Table 6-6** below.

6.2 Estimated Conservation Savings

CCWD provides its retailers with estimated conservation savings on a regional basis. The table below (**Table 6-6**) lists the water conservation programs and saving estimates for each of the conservation activities and incorporates savings within the City of Pittsburg. The Annual Savings are savings that are projected to occur during one year (FY 11) as a result of all previous years activities that still have residual savings in that year, after depreciation. The cumulative savings are the sums of each year’s annual savings.

Table 6-6: CCWD – Water Conservation Programs Water Savings

Conservation Activity	Pre-FY06	FY06	FY07	FY08	FY09	FY10	Total	Annual Savings (AF in FY11)
SF Surveys	11,590	630	653	668	888	1,028	15,457	196
MF Surveys	29,457	844	1,954	611	508	1,301	34,675	71
CII Surveys	1,723	115	85	87	59	119	2,188	187
Landscape Surveys	1,441	97	104	66	29	58	1,795	297
Showerheads (2.0-2.5 gpm)	20,479	130	748	571	5,699	3,185	30,812	195
Faucet Aerators (2.0-2.5 gpm)		137		857	6,586	3,321	10,901	18
Toilets (ULFTs @1.6 gpf)	35,388	3,169	0	0	0	0	38,557	1168
Toilets (HETs at 1.28 gpf)		1	1,935	1,873	2,881	3,994	10,684	410
Residential Clothes Washers	7,530	2,115	1,898	2,239	3,614	4,191	21,587	652
Commercial Clothes Washers	283	61	1	3	20	71	439	24
Pre-Rinse Nozzles	582	102	2	1	4	0	691	59
High Efficiency Urinals	119	42	1	8	104	20	294	5
Smart Sprinkler Timers	41	32	51	54	87	106	371	168
Drip Retrofit (# stations)	80	1	0	0	92	110	283	14
Rain Sensors	80	6	1	0	0	0	87	0
Sprinklers and/ or Nozzles Replaced	2,907	30	55	485	789	2,447	6,713	5
Water Budgets		653	650	800	560	83	2,746	42
Water-Wise CD Rom/ Web hits		1,523	1,000	1,000	652	4,292	8,467	1
Meters Installed for untreated landscape customers	27	15	16	0			58	200
Cooling Tower Conductivity Meter (tons of cooling)	500		500				1,000	5
Lawn Conversions (sq. ft)						180,000	180,000	18
Fall Back Marketing Program				1	1	1		128
Public Information Program	1,523,770	107,974	107,974	107,974	107,974	107,974		449
Total								4,312

^aThe activities listed in Table 6-6 reflect the total activities conducted in CCWD's retail and wholesale service areas. Therefore, the savings for the City of Pittsburg are incorporated in these numbers.

Chapter 7 Completed UWMP Checklist

Table 7-1: Urban Water Management Plan checklist, organized by subject

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
PLAN PREPARATION				
4	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	10620(d)(2)		Section 1.2.3
6	Notify, at least 60 days prior to the public hearing on the plan required by Section 10642, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. Any city or county receiving the notice may be consulted and provide comments.	10621(b)		Section 1.2.2
7	Provide supporting documentation that the UWMP or any amendments to, or changes in, have been adopted as described in Section 10640 et seq.	10621(c)		Appendix B
54	Provide supporting documentation that the urban water management plan has been or will be provided to any city or county within which it provides water, no later than 60 days after the submission of this urban water management plan.	10635(b)		Appendix C
55	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	10642		Section 1.2.1
56	Provide supporting documentation that the urban water supplier made the plan available for public inspection and held a public hearing about the plan. For public agencies, the hearing notice is to be provided pursuant to Section 6066 of the Government Code. The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water. Privately-owned water suppliers shall provide an equivalent notice within its service area.	10642		Appendix B
57	Provide supporting documentation that the plan has been adopted as prepared or modified.	10642		Appendix C
58	Provide supporting documentation as to how the water supplier plans to implement its plan.	10643		Section 1.4

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
59	Provide supporting documentation that, in addition to submittal to DWR, the urban water supplier has submitted this UWMP to the California State Library and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. This also includes amendments or changes.	10644(a)		To be provided
60	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the urban water supplier has or will make the plan available for public review during normal business hours	10645		To be provided
SYSTEM DESCRIPTION				
8	Describe the water supplier service area.	10631(a)		Section 2.1
9	Describe the climate and other demographic factors of the service area of the supplier	10631(a)		Section 2.3
10	Indicate the current population of the service area	10631(a)	Provide the most recent population data possible. Use the method described in "Baseline Daily Per Capita Water Use." See Section M.	Section 2.4
11	Provide population projections for 2015, 2020, 2025, and 2030, based on data from State, regional, or local service area population projections.	10631(a)	2035 and 2040 can also be provided to support consistency with Water Supply Assessments and Written Verification of Water Supply documents.	Section 2.4
12	Describe other demographic factors affecting the supplier's water management planning.	10631(a)		None
SYSTEM DEMANDS				
1	Provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance with daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	10608.20(e)		Section 3.2
2	<i>Wholesalers:</i> Include an assessment of present and proposed future measures, programs, and policies to help achieve the water use reductions. <i>Retailers:</i> Conduct at least one public hearing that includes general discussion of the urban retail water supplier's implementation plan for complying with the Water Conservation Bill of 2009.	10608.36 10608.26(a)	Retailers and wholesalers have slightly different requirements	Section 1.2.1

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
3	Report progress in meeting urban water use targets using the standardized form.	10608.40		
25	Quantify past, current, and projected water use, identifying the uses among water use sectors, for the following: (A) single-family residential, (B) multifamily, (C) commercial, (D) industrial, (E) institutional and governmental, (F) landscape, (G) sales to other agencies, (H) saline water intrusion barriers, groundwater recharge, conjunctive use, and (I) agriculture.	10631(e)(1)	Consider 'past' to be 2005, present to be 2010, and projected to be 2015, 2020, 2025, and 2030. Provide numbers for each category for each of these years.	Section 3.3
33	Provide documentation that either the retail agency provided the wholesale agency with water use projections for at least 20 years, if the UWMP agency is a retail agency, OR, if a wholesale agency, it provided its urban retail customers with future planned and existing water source available to it from the wholesale agency during the required water-year types	10631(k)	Average year, single dry year, multiple dry years for 2015, 2020, 2025, and 2030.	Section 3.4
34	Include projected water use for single-family and multifamily residential housing needed for lower income households, as identified in the housing element of any city, county, or city and county in the service area of the supplier.	10631.1(a)		Section 3.3.1
SYSTEM SUPPLIES				
13	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, and 2030.	10631(b)	The 'existing' water sources should be for the same year as the "current population" in line 10. 2035 and 2040 can also be provided.	Section 4.1
14	Indicate whether groundwater is an existing or planned source of water available to the supplier. If yes, then complete 15 through 21 of the UWMP Checklist. If no, then indicate "not applicable" in lines 15 through 21 under the UWMP location column.	10631(b)	Source classifications are: surface water, groundwater, recycled water, storm water, desalinated sea water, desalinated brackish groundwater, and other.	Yes, Section 4.3
15	Indicate whether a groundwater management plan been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	10631(b)(1)		No, Section 4.3.1
16	Describe the groundwater basin.	10631(b)(2)		Section 4.3.1

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
17	Indicate whether the groundwater basin is adjudicated? Include a copy of the court order or decree.	10631(b)(2)		No, Section 4.3.1
18	Describe the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. If the basin is not adjudicated, indicate "not applicable" in the UWMP location column.	10631(b)(2)		not applicable
19	For groundwater basins that are not adjudicated, provide information as to whether DWR has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition. If the basin is adjudicated, indicate "not applicable" in the UWMP location column.	10631(b)(2)		Section 4.3.1
20	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	10631(b)(3)		Section 4.3.2
21	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	10631(b)(4)	Provide projections for 2015, 2020, 2025, and 2030.	Section 4.3.2
24	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	10631(d)		Section 4.4
30	Include a detailed description of all water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years, excluding demand management programs addressed in (f)(1). Include specific projects, describe water supply impacts, and provide a timeline for each project.	10631(h)		Section 4.5
31	Describe desalinated water project opportunities for long-term supply, including, but not limited to, ocean water, brackish water, and groundwater.	10631(i)		Section 4.6.3
44	Provide information on recycled water and its potential for use as a water source in the service area of the urban water supplier. Coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	10633		Section 4.5
45	Describe the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	10633(a)		Section 4.5.1

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
46	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	10633(b)		Section 4.5.1
47	Describe the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.	10633(c)		Section 4.5.3
48	Describe and quantify the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.	10633(d)		Section 4.5.4
49	The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	10633(e)		Section 4.5.4
50	Describe the actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.	10633(f)		Section 4.5.5
51	Provide a plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.	10633(g)		Section 4.5.5
WATER SHORTAGE RELIABILITY AND WATER SHORTAGE CONTINGENCY PLANNING ^b				
5	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	10620(f)		Section 5.1.5
22	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage and provide data for (A) an average water year, (B) a single dry water year, and (C) multiple dry water years.	10631(c)(1)		Section 5.2.1
23	For any water source that may not be available at a consistent level of use - given specific legal, environmental, water quality, or climatic factors - describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.	10631(c)(2)		Section 5.1 Table 5-2
35	Provide an urban water shortage contingency analysis that specifies stages of action, including up to a 50-percent water supply reduction, and an outline of specific water supply conditions at each stage	10632(a)		Section 5.3

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
36	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.	10632(b)		Section 5.2.2
37	Identify actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.	10632(c)		Section 5.3.1
38	Identify additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.	10632(d)		Section 5.3.3
39	Specify consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.	10632(e)		Section 5.3.5
40	Indicated penalties or charges for excessive use, where applicable.	10632(f)		Section 5.3.6
41	Provide an analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.	10632(g)		Section 5.3.7
42	Provide a draft water shortage contingency resolution or ordinance.	10632(h)		Section 5.3.9
43	Indicate a mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.	10632(i)		Section 5.3.8
52	Provide information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments, and the manner in which water quality affects water management strategies and supply reliability	10634	For years 2010, 2015, 2020, 2025, and 2030	Section 5.1

No.	UWMP requirement ^a	Calif. Water Code reference	Additional clarification	UWMP location
53	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. Base the assessment on the information compiled under Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.	10635(a)		Section 5.1.4
DEMAND MANAGEMENT MEASURES				
26	Describe how each water demand management measures is being implemented or scheduled for implementation. Use the list provided.	10631(f)(1)	Discuss each DMM, even if it is not currently or planned for implementation. Provide any appropriate schedules.	Section 6
27	Describe the methods the supplier uses to evaluate the effectiveness of DMMs implemented or described in the UWMP.	10631(f)(3)		Section 6.1
28	Provide an estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the ability to further reduce demand.	10631(f)(4)		Section 6.2
29	Evaluate each water demand management measure that is not currently being implemented or scheduled for implementation. The evaluation should include economic and non-economic factors, cost-benefit analysis, available funding, and the water suppliers' legal authority to implement the work.	10631(g)	See 10631(g) for additional wording.	not applicable
32	Include the annual reports submitted to meet the Section 6.2 requirements, if a member of the CUWCC and signer of the December 10, 2008 MOU.	10631(j)	Signers of the MOU that submit the annual reports are deemed compliant with Items 28 and 29.	2010 Report not completed at time of preparation of UWMP

a The UWMP Requirement descriptions are general summaries of what is provided in the legislation. Urban water suppliers should review the exact legislative wording prior to submitting its UWMP.

b The Subject classification is provided for clarification only. It is aligned with the organization presented in Part I of this guidebook. A water supplier is free to address the UWMP Requirement anywhere with its UWMP, but is urged to provide clarification to DWR to facilitate review.

References

California Department of Finance. 2010. 2010 City of Pittsburg Population.

California Department of Water Resources. 2011. "Guidebook to Assist Water Suppliers in the Preparation of a 2010 Urban Water Management Plan," March.

California Department of Water Resources Bulletin 118 "San Francisco Bay Hydrologic Region: Pittsburg Plain Groundwater Basin," February 2004

California Urban Water Conservation Council. 2003. "AB 514 (Kehoe): Water Meters – Support, Hearing: Senate Agriculture and Water Resources – July 1, 2003." Letter from Mary Ann Dickinson to Senator Michael Machado, June 24.

City of Pittsburg, "2010 Water System Master Plan," October 2010

City of Pittsburg, "2007-2014 City of Pittsburg Housing Element," adopted by City Council June 1 2009.

City of Pittsburg, "2005 Urban Water Management Plan," March 2006

Contra Costa Water District, "Urban Water Management Plan – Supply Reliability Analysis and SBx7-7 Requirements," February 2011

Contra Costa Water District, "Future Water Supply Study Update," 2002

HDR Inc., "Technical Memorandum: Delta Diablo Sanitation District Treatment Plant Master Plan Update, Recycled Water Demand Projections." April 2010

California Urban Water Conservation Council "City of Pittsburg Best Management Practices Report," 2008

Appendix A - Public Outreach



WATER CONSERVATION

While water conservation is not required at this time, we ask all of our customers to not waste water. As summer time approaches, one way to reduce your summer water bills is to take advantage of the various free conservation programs, and rebates available.

Water Conservation Programs

For a list of all Contra Costa Water District (CCWD) water conservation programs available to the City of Pittsburg Water System customers, visit the CCWD Water Conservation website at www.ccwater.com/consERVE. Programs, rebates and helpful water use tips are available for single-family, multi-family and commercial customers.

Toilet Rebates

CCWD is currently offering customers two ways to receive a rebate of up to \$175 for replacing their old water-guzzling toilet with new *EPA WaterSense* labeled High-Efficiency Toilet (HET).

1. **Instant Rebate Voucher:** Eligible customers can receive an Instant Rebate of up to \$175 toward the purchase of qualifying HET at the point of purchase at participating plumbing supply stores. Customers must first request an application by calling 688-8320.
2. **Mail-In Rebate:** Eligible customers can receive a rebate of up to \$175 when they purchase a qualifying HET at any retail plumbing supplier. Customers must first request an application by calling 688-8320.



Note: Don't delay. The amount of the HET Rebate will decrease beginning July 1, 2011. For more information on this and other rebate programs visit the CCWD conservation website at www.ccwater.com/consERVE

Gardening in Contra Costa County



Discover the new complete web-resource that will help you choose plants and plan drought tolerant gardens. The site is free and is tailored to Contra Costa County conditions. Make your own plant lists, see photos of drought tolerant gardens, get tips on being water wise and more. Visit the CCWD Water Conservation website at www.ccwater.com/consERVE and click on the link for "Gardening in Contra Costa County."

Home Water Use Survey

City of Pittsburg residents can receive a free **Home Water Use Survey** by the Contra Costa Water District. A trained conservation technician will visit your home and evaluate your landscape water use. They will provide you with recommendations for improving your water use efficiency. During the survey, the conservation technician will:

- Provide useful conservation tips to help you manage your water use.
- Inspect irrigation stations, and provide a checklist of suggested improvements.
- Provide irrigation scheduling information to assist you with programming your timer.
- Check for signs of leaks
- Demonstrate how to read your water meter and use it to monitor your use.
- Provide high-efficiency showerheads and kitchen faucet aerators, if needed.

For more information on the survey program, visit the CCWD Conservation website at www.ccwater.com/conserve. To schedule a survey, call the CCWD Water Conservation office at 688-8320.

2011 Sewer System Capital Improvement Program

The City of Pittsburg owns and operates a 130-mile wastewater collection system within its 15 square mile service area. The City is responsible for the gravity sewer mains, the 77 miles of lower lateral serving each building, and two small pump stations. In January 2002, the City also assumed maintenance responsibilities for the portion of the lower sewer laterals located in the public right-of-way (usually up to the edge of the sidewalk) for its 16,000 customers. Responsibility for replacing these lower laterals has increased the City's total cost for replacing sewer lines by about 50%.

The City is currently designing the replacement of 12,500 feet of sewer lines for a cost estimated at about \$7,600,000. For this reason it will be done in phases beginning this year. The amount of pipe replaced in the first phase will be dependent on bid prices.

2011 and 2012 Water System Capital Improvement Programs

The water system will be replacing water lines in various locations this year and next year. The first project will install a new line to serve the Birchwood Drive - Ackerman Drive service area to improve fire flow and reliability of that portion of the water system. A new water line will also be installed in Railroad Avenue north of Buchanan Road before the pavement project planned later this year. Other water lines needing replacement are being identified and prioritized. Project areas selected for construction will be designed in 2012. Funding for the water system projects comes from Water Operations Funds.

Urban Water Management Plan Update

The City of Pittsburg is currently preparing the 2010 Urban Water Management Plan update. The City is required to update its Urban Water Management Plan (UWMP) every five years to document the City's plans to ensure adequate water supplies to meet current and future demand under a range of water supply conditions, including water shortages. The 2010 UWMP will also include plans for compliance with SBx7-7, which is a new state legislation that sets a goal of reducing urban per capita water use by 20 percent statewide by the year 2020.

For more information, please contact Walter Pease, Water Utilities Director, at (925) 252-6966 or at WPease@ci.pittsburg.ca.us



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2010 Urban Water Management Plan Update

Posted Date: 5/23/2011

The City of Pittsburg is currently preparing the 2010 Urban Water Management Plan Update. The City is required to update its Urban Water Management Plan (UWMP) every five years per State law. The UWMP documents the City's plans to ensure adequate water supplies to meet existing and future demands for water under a range of water supply conditions, including water shortages. The 2010 UWMP will also include plans for compliance with SBx7-7, which sets a goal of achieving a statewide 20 percent reduction in urban per capita water use by the year 2020.

For more information, please contact Walter Pease, Water Utilities Director, at 925-252-6966.

Free viewers are required for some of the attached documents.
They can be downloaded by clicking on the icons below.



East County Times

1700 Cavallo Road
Antioch, CA 94509
(925) 779-7115

Pittsburg, City of
Finance Dept-A/P, 65 Civic Avenue
Pittsburg CA 94565-3814

PROOF OF PUBLICATION

FILE NO. **Walter Pease**

In the matter of

East County Times

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above-entitled matter.

I am the Principal Legal Clerk of the East County Times, a newspaper of general circulation, printed and published at 2640 Shadelands Drive in the City of Walnut Creek, County of Contra Costa, 94598

And which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Contra Costa, State of California, under the date of January 6, 1919. Case Number 8268.

The notice, of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

6/23/2011, 6/30/2011

I certify (or declare) under the penalty of perjury that the foregoing is true and correct.

Executed at Walnut Creek, California.
On this 30th day of June, 2011.



Signature

Legal No.

0004049325

CITY OF PITTSBURG NOTICE OF PUBLIC HEARING TO CONSIDER

City of Pittsburg 2010 Urban Water Management Plan

NOTICE IS HEREBY GIVEN:

The Pittsburg City Council will hold a public hearing to receive comments on its 2010 Urban Water Management Plan (UWMP). The hearing will be held in the City of Pittsburg Council Chambers at 65 Civic Avenue, Pittsburg, California on Monday, July 15, 2011 at 7:00 p.m. or as soon thereafter as it can be heard.

California state law requires each urban water supplier to prepare and adopt an urban water management plan every five years. The UWMP documents the City's plans to ensure adequate water supplies to meet existing and future demands for water under a range of water supply conditions, including water shortages. This year, the UWMP also includes information related to the 20 percent by 2020 conservation requirement of the Water Conservation Bill of 2009. A summary of the UWMP, including the City's plans to achieve the 2020 conservation targets, will be presented at the public hearing.

A hard copy is also available for review at the City Clerk's office, located at 65 Civic Avenue, Pittsburg, CA and the Pittsburg Public Library, located at 80 Power Avenue, Pittsburg, CA.

Proponents, opponents and any interested persons may be heard on this matter at this time. The City welcomes your input on the draft plan. The draft 2010 UWMP is available for public review and written comments will be accepted from June 6, 2011 to July 6, 2011. The 2010 Urban Water Management Plan (UWMP) is available at the City's website: <http://www.ci.pittsburg.ca.us/Modules/ShowDocument.aspx?documentid=4199>

Further information may be obtained by contacting Walter C. Pease, Director of Water Utilities, at telephone 252-6996. Please send written comments to Walter Pease at wpease@ci.pittsburg.ca.us or mail to: Water Utilities Department, 65 Civic Avenue, Pittsburg, CA 94565 by July 6, 2011. Comments can also be provided at the public hearing.

**ECT#4049325
June 23, 30, 2011**

Appendix B - Notification Letters and Notice of Intention to Adopt



CITY OF PITTSBURG
WATER UTILITIES DEPARTMENT
65 Civic Ave., Pittsburg, California 94565

January 31, 2011

Ms. Catherine Kutsuris
Contra Costa County Development Department
651 Pine Street, 4th Floor, North Wing
Martinez, CA 94553

Subject: City of Pittsburg Urban Water Management Plan Update

Existing state law requires each urban water supplier to prepare and adopt an urban water management plan at least once every 5 years. The City of Pittsburg (City) is currently preparing an update to its Urban Water Management Plan (UWMP). A copy of the 2005 UWMP is available upon request. The UWMP documents the City's plans to ensure adequate water supplies to meet existing and future demands for water under a range of water supply conditions, including water shortages.

In conformance with California Water Code Division 6, Part 2.6, Section 10621, the City is notifying the county within which the City provides water supplies that the UWMP is being reviewed and updated.

We anticipate having a draft plan available for public review in May 2010. The final plan will be submitted to the California Department of Water Resources by July 1, 2011. Please contact me at (925) 252-6966 if you have any questions about the City's UWMP update.

Sincerely,

A handwritten signature in cursive script that reads "Walter C. Pease".

Walter C. Pease
Director of Water Utilities
City of Pittsburg



CITY OF PITTSBURG
WATER UTILITIES DEPARTMENT
65 Civic Ave., Pittsburg, California 94565

February 16, 2011

Ms. Caroline Quinn
Engineering Services Director
Delta Diablo Sanitation District
2500 Pittsburg-Antioch Highway
Antioch, CA 94509-1373

Subject: City of Pittsburg Urban Water Management Plan Update

Existing state law requires each urban water supplier to prepare and adopt an urban water management plan at least once every 5 years. The City of Pittsburg (City) is currently preparing an update to its Urban Water Management Plan (UWMP). A copy of the 2005 UWMP is available upon request. The UWMP documents the City's plans to ensure adequate water supplies to meet existing and future demands for water under a range of water supply conditions, including water shortages.

The UWMP will include a description of the wastewater collection and treatment systems in the City's service area, recycled water currently being used, quantification of the potential uses of recycled water, and the projected use of recycled water in the City's service area.

We anticipate having a draft plan available for public review in May 2010. The final plan will be submitted to the California Department of Water Resources by July 1, 2011. Please contact me at (925) 252-6966 if you have any questions about the City's UWMP update.

Sincerely,

A handwritten signature in cursive script that reads "Walter C Pease".

Walter C. Pease
Director of Water Utilities
City of Pittsburg

Appendix C - Resolution of Adoption of UWMP

BEFORE THE CITY COUNCIL OF THE CITY OF PITTSBURG

In the Matter of:

Adopt Resolution Approving the _____)
2010 Urban Water Management Plan _____)

RESOLUTION NO. 11-11705

The PITTSBURG City Council DOES RESOLVE as follows:

WHEREAS, the city of Pittsburg operates and maintains a potable water system for Pittsburg water customers; and

WHEREAS as a municipal water service provider to more than 3,000 customers, the city of Pittsburg is required by the Water Code of the State of California (Water Code section 10610 et seq., known as the Urban Water Management Planning Act) to develop an Urban Water Management Plan every five (5) years.

NOW, THEREFORE, the City Council finds and determines as follows:

Section 1. Findings

- A. The recitals set forth above are true and correct statements and are hereby incorporated.
- B. The 2010 Urban Water Management Plan (Plan) for the city of Pittsburg was prepared following applicable standards developed by the California Department of Water Resources and represents the City's effort to meet applicable standards under the Water Planning Act.
- C. The Plan was developed by RMC Water and Environment, Consulting Engineers, and City staff in coordination with water supply information provided by Contra Costa Water District and information provided by other applicable sources.
- D. That the Plan was considered at a Public Hearing on July 18, 2011 as required by provisions of the Water Planning Act.
- E. That the City of Pittsburg 2010 Urban Water Management Plan be approved.

Section 2. Authorization

- A. The Director of Water Utilities is authorized and directed to submit the Plan to the California Department of Water Resources, the California State Library and Contra Costa County within 30 days of adoption.

PASSED AND ADOPTED by the City Council of the City of PITTSBURG at a regular meeting on the 15th day of August 2011, by the following vote:

AYES: Evola, Johnson, Longmire, Parent, Casey

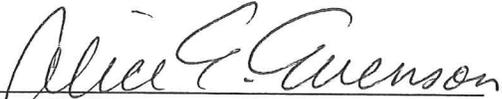
NOES: None

ABSTAINED: None

ABSENT: None


Will Casey, Mayor

ATTEST:


Alice E. Evenson, City Clerk



OFFICE OF THE CITY MANAGER/EXECUTIVE DIRECTOR
65 Civic Avenue
Pittsburg, CA 94565

DATE: 8/2/2011
TO: Mayor and Council Members
FROM: Joe Sbranti, City Manager
SUBJECT: Adopt Resolution Approving the 2010 Urban Water Management Plan
MEETING DATE: 8/15/2011

EXECUTIVE SUMMARY

The Urban Water Management Planning Act requires every urban water supplier providing water to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually to prepare and adopt an Urban Water Management Plan every five years. Staff prepared a draft 2010 Urban Water Management Plan for the City Council's consideration, and held a Public Hearing to receive comments on July 18, 2011.

FISCAL IMPACT

The only fiscal impact is from not adopting the Plan. An urban water supplier that does not prepare, adopt, and submit its urban water management plan to the California Department of Water Resources as required is ineligible to receive funding or drought assistance from the state.

RECOMMENDATION

Adopt a Resolution approving the 2010 Urban Water Management Plan.

BACKGROUND

Enacted in 1983, the Urban Water Management Planning Act (the Act) requires every qualifying urban water supplier to prepare and adopt an Urban Water Management Plan every five years. The City of Pittsburg Water System, a water retailer, fits the criteria and has prepared this Urban Water Management Plan (Plan) to address all the requirements set forth in the State of California Water Code Section 10610 through 10657.

Since its passage in 1983, 18 amendments have been added to the Act. These changes are intended to encourage increased regional planning and the cooperative management of California's water. As a result, Urban Water Management Plans have evolved to become

foundation documents and sources of information for Water Supply Assessments (California Water Code Section 10613) and Written Verifications of Water Supply (California Water Code Section 66473.7) as well as long-range planning documents for water supply. These plans also provide source data for the development of regional water plans and for cities and counties preparing their General Plans, and have become key components of Integrated Regional Water Management Plans. A current Urban Water Management Plan is also often a condition to qualify for receipt of certain State grant funds.

The attached document is the draft edition of the City's 2010 Urban Water Management Plan. The document will be finalized and will include the resolution adopted by the City. There were no comments received at the public hearing on July 18, 2011, or by any other method, that will need to be incorporated into the final document.

SUBCOMMITTEE FINDINGS

n/a

STAFF ANALYSIS

The City's 2010 Urban Water Management Plan is an update to the 2005 Plan adopted by the Pittsburg City Council in February 2006. The 2010 Plan documents the City's planning activities to ensure adequate water supplies to meet existing and future demands for water.

For the City, the benefits of updating the Plan extend beyond legislative compliance. The regional approach to documenting water-service planning allows the City to evaluate supply reliability goals and water use efficiency, identify opportunities and challenges to maximize the beneficial use of water, and provide an additional public forum for discussion of water resources issues.

The Plan presents forecasted water supplies and demand, and describes the City's water demand management and recycled water opportunities to the year 2035. Population numbers are generalized and estimated based on a projected City growth rate of 1.7%. This yields a projected population of 76,896 in 2020.

This five-year update of the Plan incorporates the recommendations of the City's principal water supplier, the Contra Costa Water District (CCWD), as detailed in its Future Water Supply Study adopted August 1996, the Future Water Supply Implementation Environmental Impact Report certified February 1999, and CCWD's 2010 Urban Water Management Plan.

Staff coordinated closely with CCWD and Delta Diablo Sanitation District (DDSD) in preparing this Plan. DDSD provided data on wastewater treatment and current and projected water recycling. DDSD staff also reviewed portions of the administrative draft UWMP. CCWD, as the City's wholesaler, provided information on water supply reliability and shared a draft 2010 Plan for the City's use in developing its own Plan.

The Water Conservation Bill of 2009 requires individual retail water suppliers to set water conservation targets for 2015 and 2020 to support an overall state goal of reducing urban potable per capita water use by 20% by 2020. Individual supplier conservation targets must be calculated using specific DWR guidelines.

Chapter 3 of the attached draft Plan discusses the City's plan to achieve water use reductions to meet its Water Use Target (see Table 3-4). The interim 2015 target is 153 gallons per capita per day (gpcd) and the 2020 target is 136 gpcd. The actual usage in 2010 was 122 gpcd, meeting the interim 2015 target and 2020 target.

The City has already taken various measures to help ensure that urban water use continues to meet the 2020 target. These efforts include: (1) the 2008 installation of a CIMIS-controlled irrigation system for 32 landscaped sites that use potable water. These sites represent 67.6 acres (45%) of the 148.8 acres that are still irrigated by the City using potable water, and over 10% of the irrigation accounts in the City – with a projected 15% water saving per year of 53 acre feet per year (AFY); (2) the extension of the recycled water system to four additional landscaped areas with a projected savings of 557 AFY; and (3) Ordinance 10-1341 adopted on December 20, 2010 to Amending Chapter 18.84, Article VII of the Pittsburg Municipal Code, "Landscaping, Irrigation and Hydroseeding," to incorporate water-efficient landscaping provisions mandated by the State of California.

The City encouraged public participation in development and review of this Plan. Staff included an announcement of the Plan update in its May 2011 Water Utilities Newsletter, posted a notice on the City website with a contact for more information, and held a Public Hearing on July 18, 2011.

ATTACHMENTS: Resolution

Report Prepared By: Walter C. Pease, Director of Water Utilities

**Appendix D - City's 2009 and 2010 Water Conservation
Resolutions**

BEFORE THE CITY COUNCIL OF THE CITY OF PITTSBURG

In the Matter of:

Establishing a Water Conservation)
Program and Necessary Restrictions)

RESOLUTION NO. 09-11195

The City Council of the City of Pittsburg DOES RESOLVE as follows:

WHEREAS, the City of Pittsburg Municipal Code Section 13.18.050 provides provisions for adopting Water Conservation rules and regulation; and

WHEREAS, the State of California has experienced three years of drought conditions which have resulted in the existence of a critical water supply shortage; and

WHEREAS, the City of Pittsburg (City) was requested by Contra Costa Water District (District) that the City's reduce its water use by 15% effective May 1, 2009 to allow for stored water to be carried over for next year; and

WHEREAS, the City must implement rules and regulations to reduce water use by its Water System customers; and

WHEREAS, there is a need to increase the Public Works Department – Water Lines budget to cover the costs of the staffing and contractual services necessary for the Water Conservation Program; and

WHEREAS, consistent with the District's allocation to the City, it is the intent of the City of Pittsburg to reduce the total amount of water used in the city by at least fifteen percent (15%) which requires steps to eliminate waste and nonessential use of water.

NOW, THEREFORE, the City Council finds and determines as follows:

Section 1. Findings

1. Notification

All customers shall be notified of:

- A. The Water Conservation Plan adopted by the City Council.
- B. Rules for non-essential use of water.

2. Nonessential use of water prohibited.

- A. No person shall use any water provided by the city for a nonessential purpose.
- B. For purposes of this chapter, each of the following is declared a nonessential use of water:

1. Washing sidewalks, driveways, parking areas, tennis courts, patios or other exterior paved areas except to alleviate a condition inimical to the public health or safety;
2. The use of water for decorative fountains/pools, except for recycled water approved for such use;
3. Using a hose without an automatic shutoff nozzle.
4. Outside watering with City-furnished water that results in excessive flooding or runoff into a gutter, drain, walkway or street.
5. Irrigation between 11 am and 6 pm.

3. Penalties

- A. Single family residential customers that use more than 1,000 gallons per day (gpd) shall be charged an excessive use penalty of \$3.00/hundred cubic feet (HCF or "units") effective with water billing cycles starting on or after June 1, 2009.

4. Allocation adjustments

- A. No additional allocation will be given for outside use.
- B. Allocation adjustments will be made for the following upon providing adequate documentation supporting the request when average winter use is above 400 gallons per day (January to March utility bills):
 - An additional allocation of 200 gallons per day will be given for families of more than 6 people or for verified Medical requirements, upon application.
 - An additional allocation of 200 gallons per day will be given for other reasons not identified, upon approval of the City Manager or his designee.

Section 2. Authorizations

- A. The City Manager is hereby authorized and directed to implement this Resolution on behalf of the City of Pittsburg including delegation of various responsibilities to implement this Resolution as appropriate.
- B. The Finance Director is authorized and directed to increase the FY 08-09 Public Works Department – Water Lines budget by \$25,000 by transferring \$15,000 from the Water Enterprise Fund Reserves for temporary staffing (501-44101-1131) and \$10,000 for Contractual Services (501-44101-2199).

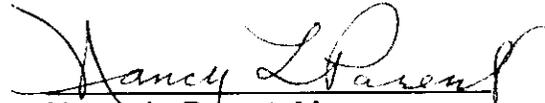
PASSED AND ADOPTED by the City Council of the City of Pittsburg at a regular meeting on the 20th day of April 2009, by the following vote:

AYES: Members Casey, Evola, Johnson, Kee and Mayor Parent.

NOES: None.

ABSTAINED: None.

ABSENT: None.


Nancy L. Parent, Mayor

ATTEST:


Rhonda K. Basore, Deputy City Clerk

BEFORE THE CITY COUNCIL OF THE CITY OF PITTSBURG

In the Matter Of:

Amending Resolution 09-11195)
Establishing a Water Conservation)
Program and Necessary Restrictions)

RESOLUTION NO. 10-11401

The Pittsburg City Council DOES RESOLVE as follows:

WHEREAS, the City of Pittsburg Municipal Code Section 13.18.050 provides provisions for adopting Water Conservation rules and regulation; and

WHEREAS, the state of California had experienced three years of drought conditions which have resulted in the existence of a critical water supply shortage; and

WHEREAS, the City of Pittsburg Water System was requested by Contra Costa Water District to reduce its water use by 15% effective May 1, 2009 to allow for stored water to be carried over for next year; and

WHEREAS, the City of Pittsburg Water System's customers responded by reducing water use by 19% in 2009; and

WHEREAS, the water supply for calendar year 2010 will meet the needs of the City of Pittsburg, without restrictions; and

WHEREAS, the need for the City to implement penalties to reduce water use by its Water System customers are not necessary for calendar year 2010.

NOW, THEREFORE, the City Council finds and determines as follows:

Section 1. Findings

Resolution 09-11195 Establishing a Water Conservation Program and Necessary Restrictions is hereby amended as follows.

Nonessential use of water prohibited.

A. No person shall use any water provided by the city for a nonessential purpose.

B. For purposes of this chapter, each of the following is declared a nonessential use of water:

1. Washing sidewalks, driveways, parking areas, tennis courts, patios or other exterior paved areas except to alleviate a condition inimical to the public health or safety;
2. The use of water for decorative fountains/pools, except for water approved for such use, and that is recycled;
3. Using a hose without an automatic shutoff nozzle.

4. Outside watering with City-furnished water that results in excessive flooding or runoff into a gutter, drain, walkway or street.

C. Irrigation between 11 am and 6 pm is strongly discouraged.

Section 2. Authorization

A. The City of Pittsburg Water Conservation Program's amendments are hereby approved and adopted.

B. This resolution shall take effect immediately upon its adoption.

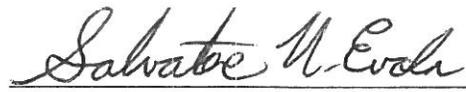
PASSED AND ADOPTED by the City Council of the City of Pittsburg at a regular meeting on the 5th day of April 2010, by the following vote:

AYES: Casey, Johnson, Kee, Parent, Evola

NOES: None

ABSTAINED: None

ABSENT: None



Salvatore N. Evola, Mayor

ATTEST:



Alice E. Evenson, City Clerk

Appendix E - CCWD Supply Reliability Analysis



1331 Concord Avenue
P.O. Box H2O
Concord, CA 94524
(925) 688-8000 FAX (925) 688-8122
www.ccwater.com

February 7, 2011

Directors

Joseph L. Campbell
President

Karl L. Wandry
Vice President

Bette Boatman
Lisa M. Borba
John A. Burgh

Jerry Brown
General Manager

Mr. Walter Pease
Director of Water Utilities
City of Pittsburg
65 Civic Avenue
Pittsburg, CA 94565

Subject: Urban Water Management Plan – Supply Reliability Analysis and SBx7-7 Requirements

Dear Mr. Pease:

The Contra Costa Water District (District) is currently preparing an update to its Urban Water Management Plan (UWMP). In conformance with California Water Code Division 5, Part 2.6, Section 10635, the District has prepared an assessment of its water supply reliability. This analysis is being provided to all wholesale municipal customers of the District for use in the preparation of their UWMPs.

Enclosed are two tables that include water supply reliability information. Table 1 presents the existing sources of supply and their expected availability under various supply conditions over the next 25 years.

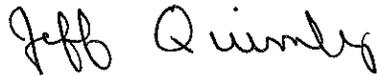
Table 2 provides a comparison between projected water supply and demand over the next 25 years. The water supply reliability goal approved by the District's Board of Directors is to meet 100 percent of demand in normal years and at least 85 percent of demand during drought conditions. The remaining 15 percent would be met by a combination of short-term water purchases and a voluntary short-term conservation program.

Additionally, the District and its wholesale municipal customers are required to comply with SBx7-7, which sets a goal of achieving a 20 percent statewide reduction in urban per capita water use and requires water suppliers to report interim and 2020 water use targets in their 2010 UWMPs. Water suppliers can comply with SBx7-7 individually and/or through a regional alliance. As discussed during our meeting in July 2010, the District is preparing a "20 by 2020" analysis for our regional alliance, which consists of the District and its wholesale municipal customers (Cities of Martinez, Antioch, and Pittsburg, Diablo Water District, and Golden State Water

Company). Each agency is required to report its individual water use target in its 2010 UWMP, and include a statement that the agency is a member of the District's regional alliance. This allows the agency to comply with SBx7-7 on an individual or regional basis. The District will submit a letter to DWR stating that a regional alliance has been formed along with a list of members. We will contact you prior to sending the letter to DWR.

We will follow up this letter with a phone call to you to discuss any questions or concerns you may have about the enclosed information. If you have any questions prior to hearing from our office, please feel free to contact me at (925) 688-8310.

Sincerely,

A handwritten signature in cursive script that reads "Jeff Quimby".

Jeff Quimby
Principal Engineer

KL/JQ/rlr

Enclosures

TABLE 1. PROJECTED WATER SUPPLY

Condition ^(a)	CVP ^(b)	Industrial Diversions	Mallard Slough ^(c)	Antioch Diversions ^(d)	Groundwater ^(e)	ECCID Purchases	Los Vaqueros Supply ^(f)	Recycled Water	Conservation Savings ^(g)	Total Firm Supply
	(af/yr)	(af/yr)	(af/yr)	(af/yr)	(af/yr)	(af/yr)	(af/yr)	(af/yr)	(af/yr)	(af/yr)
Near-Term										
Normal	170,000	10,000	3,100	6,400	3,000	6,000	-	8,500	11,900	218,900
Single-Year Drought	127,500	0	0	0	3,000	10,000	10,000	8,500	11,900	170,900
Multi-Year Drought (yr 1)	144,500	0	0	0	3,000	10,000	10,000	8,500	11,900	187,900
Multi-Year Drought (yr 2)	127,500	0	0	0	3,000	10,000	10,000	8,500	11,900	170,900
Multi-Year Drought (yr 3)	110,500	0	0	0	3,000	10,000	10,000	8,500	11,900	153,900
2015										
Normal	183,000	10,000	3,100	6,400	3,000	7,100	-	10,500	14,500	237,600
Single-Year Drought	137,250	0	0	0	3,000	11,100	10,000	10,500	14,500	186,400
Multi-Year Drought (yr 1)	155,550	0	0	0	3,000	11,100	10,000	10,500	14,500	204,700
Multi-Year Drought (yr 2)	137,250	0	0	0	3,000	11,100	10,000	10,500	14,500	186,400
Multi-Year Drought (yr 3)	118,950	0	0	0	3,000	11,100	10,000	10,500	14,500	168,100
2020										
Normal	195,000	10,000	3,100	6,400	3,000	8,200	-	12,500	17,200	255,400
Single-Year Drought	146,250	0	0	0	3,000	12,200	10,000	12,500	17,200	201,200
Multi-Year Drought (yr 1)	165,750	0	0	0	3,000	12,200	10,000	12,500	17,200	220,700
Multi-Year Drought (yr 2)	146,250	0	0	0	3,000	12,200	10,000	12,500	17,200	201,200
Multi-Year Drought (yr 3)	126,750	0	0	0	3,000	12,200	10,000	12,500	17,200	181,700
2025										
Normal	195,000	10,000	3,100	6,400	3,000	8,200	-	13,300	19,500	258,500
Single-Year Drought	146,250	0	0	0	3,000	12,200	10,000	13,300	19,500	204,300
Multi-Year Drought (yr 1)	165,750	0	0	0	3,000	12,200	10,000	13,300	19,500	223,800
Multi-Year Drought (yr 2)	146,250	0	0	0	3,000	12,200	10,000	13,300	19,500	204,300
Multi-Year Drought (yr 3)	126,750	0	0	0	3,000	12,200	10,000	13,300	19,500	184,800
2030										
Normal	195,000	10,000	3,100	6,400	3,000	8,200	-	14,100	21,700	261,500
Single-Year Drought	146,250	0	0	0	3,000	12,200	10,000	14,100	21,700	207,300
Multi-Year Drought (yr 1)	165,750	0	0	0	3,000	12,200	10,000	14,100	21,700	226,800
Multi-Year Drought (yr 2)	146,250	0	0	0	3,000	12,200	10,000	14,100	21,700	207,300
Multi-Year Drought (yr 3)	126,750	0	0	0	3,000	12,200	10,000	14,100	21,700	187,800
2035										
Normal	195,000	10,000	3,100	6,400	3,000	8,200	-	14,800	23,700	264,200
Single-Year Drought	146,250	0	0	0	3,000	12,200	10,000	14,800	23,700	210,000
Multi-Year Drought (yr 1)	165,750	0	0	0	3,000	12,200	10,000	14,800	23,700	229,500
Multi-Year Drought (yr 2)	146,250	0	0	0	3,000	12,200	10,000	14,800	23,700	210,000
Multi-Year Drought (yr 3)	126,750	0	0	0	3,000	12,200	10,000	14,800	23,700	190,500

- a) Basis of water year data is as follows: Normal (Average) represents a below normal or wetter year on the Sacramento River Hydrologic Region 40-30-30 Water Supply Index. Single-Year drought represents 1977 conditions. Multiple-Year drought sequence represents 1987-1992 conditions.
- b) The CVP conditions used for supply planning are defined as follows: Normal is Adjusted Historical Use. Single Year Drought supply is 75 percent of Historical Use. Multi-year drought (year 1) supply is 85 percent of Historical Use. Multi-Year Drought (year 2) is 75 percent of Historical Use. Multi-Year Drought (year 3) is 65 percent of Historical Use.
- c) Mallard Slough average annual diversion over 15 year period (1995 - 2009).
- d) Antioch Diversions is average annual diversion over 11 year period since pumping plant improvements (1999-2009).
- e) Groundwater represents production from Mallard Wells, municipal customer owned wells, and miscellaneous other wells in the District's service area.
- f) Anticipated water supply reliability benefit resulting from expansion of Los Vaqueros Reservoir.
- g) Anticipated conservation savings, including both active and passive conservation.

TABLE 2. PROJECTED SUPPLY AND DEMAND COMPARISON						
Condition	TOTAL CCWD Demand	NET CCWD Demand^(a)	Adjusted Available Supply^(a)	Planned Purchases^(b)	Supply Deficit	% of Demand^(c)
	(af/yr)	(af/yr)	(af/yr)	(af/yr)	(af/yr)	
Near-Term						
Normal	166,460	146,060	198,500	-	-	0%
Single-Year Drought	166,460	146,060	150,500	-	-	0%
Multi-Year Drought (yr 1)	166,460	146,060	167,500	-	-	0%
Multi-Year Drought (yr 2)	166,460	146,060	150,500	-	-	0%
Multi-Year Drought (yr 3)	166,460	146,060	133,500	-	12,560	9%
2015						
Normal	180,610	155,610	212,600	-	-	0%
Single-Year Drought	180,610	155,610	161,350	-	-	0%
Multi-Year Drought (yr 1)	180,610	155,610	179,650	-	-	0%
Multi-Year Drought (yr 2)	180,610	155,610	161,350	-	-	0%
Multi-Year Drought (yr 3)	180,610	155,610	143,050	-	12,560	8%
2020						
Normal	194,550	164,850	225,700	-	-	0%
Single-Year Drought	194,550	164,850	171,450	-	-	0%
Multi-Year Drought (yr 1)	194,550	164,850	190,950	-	-	0%
Multi-Year Drought (yr 2)	194,550	164,850	171,450	-	-	0%
Multi-Year Drought (yr 3)	194,550	164,850	151,950	-	12,900	8%
2025						
Normal	206,010	173,210	225,700	-	-	0%
Single-Year Drought	206,010	173,210	171,450	-	1,760	1%
Multi-Year Drought (yr 1)	206,010	173,210	190,950	-	-	0%
Multi-Year Drought (yr 2)	206,010	173,210	171,450	-	1,760	1%
Multi-Year Drought (yr 3)	206,010	173,210	151,950	-	21,260	12%
2030						
Normal	218,160	182,360	225,700	3,100	-	0%
Single-Year Drought	218,160	182,360	171,450	3,100	7,810	4%
Multi-Year Drought (yr 1)	218,160	182,360	190,950	3,100	-	0%
Multi-Year Drought (yr 2)	218,160	182,360	171,450	3,100	7,810	4%
Multi-Year Drought (yr 3)	218,160	182,360	151,950	3,100	27,310	15%
2035						
Normal	225,890	187,390	225,700	7,300	-	0%
Single-Year Drought	225,890	187,390	171,450	7,300	8,640	5%
Multi-Year Drought (yr 1)	225,890	187,390	190,950	7,300	-	0%
Multi-Year Drought (yr 2)	225,890	187,390	171,450	7,300	8,640	5%
Multi-Year Drought (yr 3)	225,890	187,390	151,950	7,300	28,140	15%

a) Net CCWD demand and Adjusted Available Supply excludes recycled water and conservation savings.
 b) Planned purchases consistent with the District's Future Water Supply Implementation Program. The water supply reliability goal adopted by the Board of Directors is to meet at least 85 percent of demand during drought conditions and 100 percent of demand in normal years. The remaining 15 percent would be met by a combination of short-term water purchases and a voluntary short-term conservation program.