Draft Report

2010 Urban Water Management Plan
City of Santa Maria

Prepared for

City of Santa Maria
2065 East Main Street
Santa Maria, CA 93454

Prepared by

CH2MHILL

May 2011

Public Review Draft Report

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Abbreviations and Acronyms

µg/L	microgram per liter
ac-ft	acre-feet
ac-ft/yr	acre-feet per year
AB1420	California Assembly Bill 1420
Act	Urban Water Management Planning Act
BASIN	Santa Maria Groundwater Basin
BMPs	best management practices
CCWA	Central Coast Water Authority
CDPH	California Department of Public Health
CIMIS	California Irrigation Management Information System
City	City of Santa Maria
Council	California Urban Water Conservation Council
CPE	comprehensive performance evaluation
CSM	City of Santa Maria
CT	concentration time
CUWA	California Urban Water Agencies
CWC	California Water Code
CWSs	community water systems
DAC	Disadvantaged community
DMM	demand management measure
DOF	Department of Finance
DWR Guidebook	Guidebook to Assist Water Suppliers in the Preparation of 2010 Urban Water Management Plan
DWR	Department of Water Resources (California)
ETo	evapotranspiration
gpcd	gallons per capita per day
gpd	gallons per day

gpm	gallons per minute
GSWC	Golden State Water Company
GWR	Groundwater Rule
IRWM	Integrated Regional Water Management
MCL	maximum contaminant level
mgd	million gallons per day
MOU	memorandum of understanding (regarding urban water conservation in California)
MRDLs	maximum residual disinfectant levels
N/A	not available
NAICS	North American Industry Classification System
NCSD	Nipomo Community Services District
NPV	net present value
OEHHA	Office of Environmental Health Hazard Assessment
ppm	parts per million
RHNA	Regional Housing Needs Allocation
SBCAG	Santa Barbara County Association of Governments
SCADA	Supervisory Control and Data Acquisition
SMVMA	Santa Maria Valley Management Area
SUVA	source-water-specific ultraviolet absorbance
SWP	State Water Project
SWTR	Surface Water Treatment Rule
TBD	to be determined
TCR	Total Coliform Rule
TDS	total dissolved solids
TOC	total organic carbon
ULF	ultra low flush
ULFT	ultra-low-flush-toilet
UWMP	Urban Water Management Plan
WDR	waste discharge requirements

WRCC	Western Regional Climate Center
WWTP	Wastewater Treatment Plant
WY	water year

Definitions

Chapter 2, Part 2.6, Division 6 of the California Water Code provides for definitions for the construction of the Urban Water Management Plans. Appendix A contains the full text of the Urban Water Management Planning Act.

CHAPTER 2. DEFINITIONS

10611. Unless the context otherwise requires, the definitions of this chapter govern the construction of this part.

10611.5. "Demand management" means those water conservation measures, programs, and incentives that prevent the waste of water and promote the reasonable and efficient use and reuse of available supplies.

10612. "Customer" means a purchaser of water from a water supplier who uses the water for municipal purposes, including residential, commercial, governmental, and industrial uses.

10613. "Efficient use" means those management measures that result in the most effective use of water so as to prevent its waste or unreasonable use or unreasonable method of use.

10614. "Person" means any individual, firm, association, organization, partnership, business, trust, corporation, company, public agency, or any agency of such an entity.

10615. "Plan" means an urban water management plan prepared pursuant to this part. A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities. The components of the plan may vary according to an individual community or area's characteristics and its capabilities to efficiently use and conserve water. The plan shall address measures for residential, commercial, governmental, and industrial water demand management as set forth in Article 2 (commencing with Section 10630) of Chapter 3. In addition, a strategy and time schedule for implementation shall be included in the plan.

10616. "Public agency" means any board, commission, county, city and county, city, regional agency, district, or other public entity.

10616.5. "Recycled water" means the reclamation and reuse of wastewater for beneficial use.

10617. "Urban water supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems subject to Chapter 4 (commencing with Section 116275) of Part 12 of Division 104 of the Health and Safety Code.

Section 1. Plan Preparation

Background

The Urban Water Management Plan (UWMP) for the City of Santa Maria (City) is prepared in compliance with Division 6, Part 2.6, of the California Water Code (CWC), Sections 10610 through 10657 as last amended by Senate Bill (SB) 318, the Urban Water Management Planning Act (Act). The original bill, requiring a UWMP, was initially enacted in 1983. Increased emphasis on drought contingency planning, water demand management, reclamation, and groundwater resources has been provided through the updates to the original bill.

In addition to some changes in the Act since the last UWMPs were submitted in 2005, Governor Schwarzenegger determined that for California to continue to have enough water to support its growing population, it needs to reduce the amount of water each person uses per day (Per Capita Daily Consumption). This reduction of 20 percent per capita use by the year 2020, called the 20x2020 plan, is supported by legislation passed in November 2009 SBx7-7 (Steinberg). SBx7-7 has amended and repealed some sections of the Water Code and affected reporting requirements for 2010 UWMP under the Act and other government codes.

Under the current law, urban water suppliers with more than 3,000 service connections or water use of more than 3,000 acre-feet per year (ac-ft/yr) are required to submit a UWMP every 5 years to the California Department of Water Resources (DWR). The reports must be submitted by December 31. The deadline for adoption of a water supplier's 2010 UWMP is July 1, 2011 (CWC §10608.20 (j)). This date is extended from the normal requirement of December 31 in years ending in five and zero (CWC §10621 (a)) to allow additional time for water suppliers to address the UWMP requirements in the Water Conservation Bill of 2009.

The law, as it is now, finds and declares the following:

Section 10610.2.

(a) The Legislature finds and declares all of the following:

(1) The waters of the state are a limited and renewable resource subject to ever-increasing demands.

(2) The conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level.

(3) A long-term, reliable supply of water is essential to protect the productivity of California's businesses and economic climate.

(4) As part of its long-range planning activities, every urban water supplier should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry water years.

(5) *Public health issues have been raised over a number of contaminants that have been identified in certain local and imported water supplies.*

(6) *Implementing effective water management strategies, including groundwater storage projects and recycled water projects, may require specific water quality and salinity targets for meeting groundwater basins water quality objectives and promoting beneficial use of recycled water.*

(7) *Water quality regulations are becoming an increasingly important factor in water agencies' selection of raw water sources, treatment alternatives, and modifications to existing treatment facilities.*

(8) *Changes in drinking water quality standards may also impact the usefulness of water supplies and may ultimately impact supply reliability.*

(9) *The quality of source supplies can have a significant impact on water management strategies and supply reliability.*

(b) *This part is intended to provide assistance to water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies to meet existing and future demands for water.*

Section 10610.4. The Legislature finds and declares that it is the policy of the state as follows:

(a) *The management of urban water demands and efficient use of water shall be actively pursued to protect both the people of the state and their water resources.*

(b) *The management of urban water demands and efficient use of urban water supplies shall be a guiding criterion in public decisions.*

(c) *Urban water suppliers shall be required to develop water management plans to actively pursue the efficient use of available supplies.*

The required elements for this Section (UWMP Plan Preparation) include the following (item numbers are from the 2010 UWMP guidebook outline checklist):

#4. Each urban water supplier shall 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)).

#6. Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days prior to the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision (10621(b)).

#54. The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan (10635(b)).

#55. Each urban water supplier shall encourage the 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).

#56. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water

supplies. A privately owned water supplier shall provide an equivalent notice within its service area (10642).

#7. The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640) (10621(c)).

#57. After the hearing, the plan shall be adopted as prepared or as modified after the hearing (10642).

#58. An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan (10643).

#59. An urban water supplier shall submit to the department, 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. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption (10644(a)).

#60. Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours. (10645).

This section includes specific information on how the UWMP for the City was prepared, coordinated with other agencies and the public, and adopted. It includes background information and system overview as well.

2010 UWMP Organization

The 2010 UWMP (this document) is an update to the 2005 Plan. The 2005 UWMP was restructured following the DWR Final Guidebook (DWR, 2011) and new elements required for the 2010 UWMP have been included.

Each section in this UWMP follows the 2010 UWMP guidebook outline. Required elements from the 2010 Act are presented in italicized text in the beginning of each section. The original checklist numbers are also retained and are included in front of the italicized text.

System Overview

The City of Santa Maria is located in the Santa Maria Valley about 180 miles north of Los Angeles. The City provides water distribution and wastewater collection, treatment, and disposal services to the City and to nearby areas outside the City limits.

Historically, the City has pumped water from the Santa Maria Valley Groundwater Basin as its primary water supply. The City began receiving State Water Project (SWP) water from the Central Coast Water Authority (CCWA) via the Coastal Branch Aqueduct in 1997. The SWP water augments local groundwater supplies and is generally higher-quality water. Currently, the City is operating under a court-ordered Stipulation, which is described in Section 4. Under this Stipulation, the City derives its water supply from local groundwater, purchased water from the SWP and the associated return flows that may be recaptured from the Basin, and a share of the yield of the Twitchell Reservoir operations.

The service area is primarily characterized by residential and commercial land use. Figure 1-1 illustrates the location of the City's system.

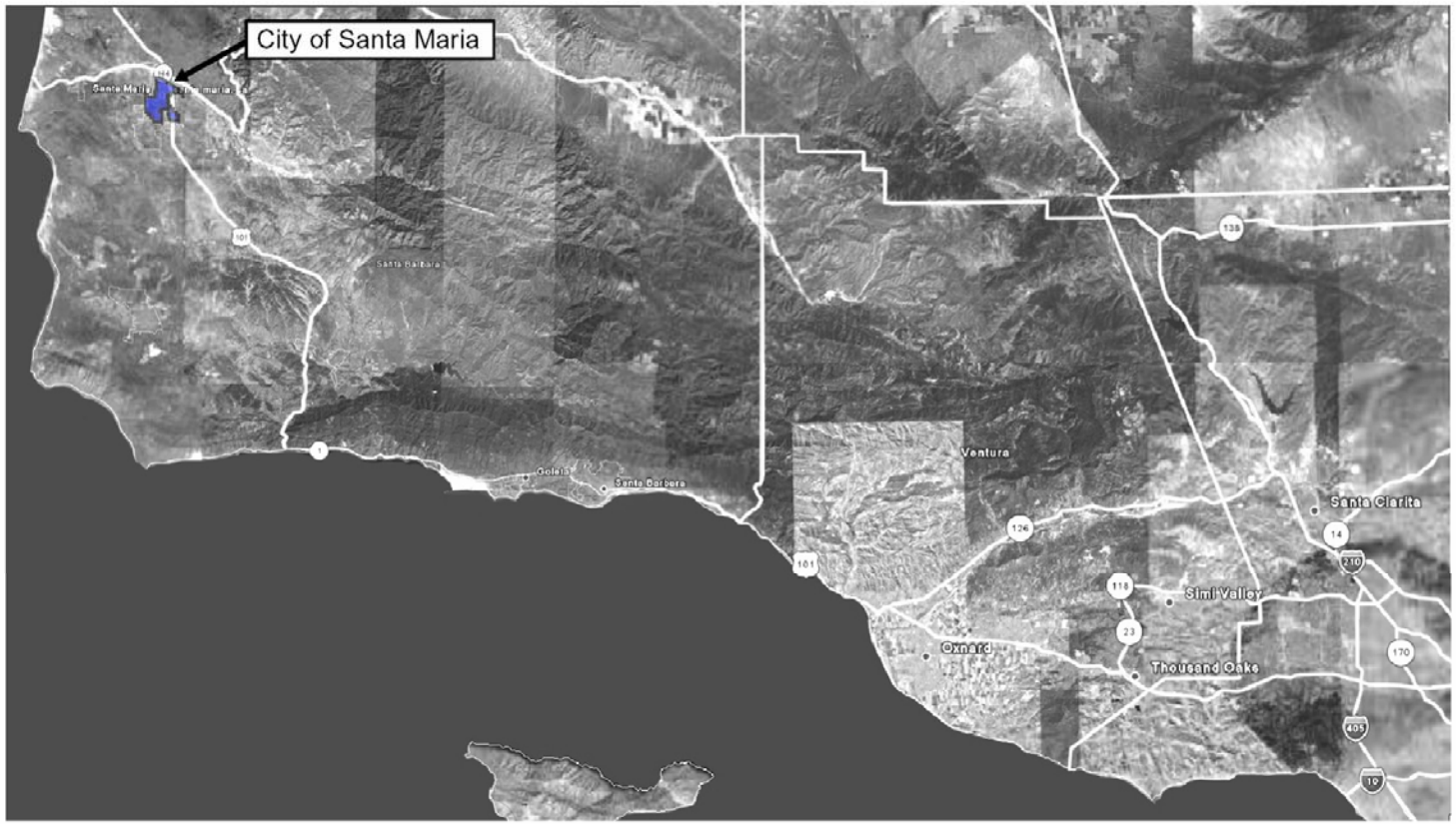

Figure 1-1 City of Santa Maria System Location Map

California Urban Water Conservation Council

The City is a signatory to the Memorandum of Understanding Regarding Urban Water Conservation in California (MOU) administered by the California Urban Water Conservation Council (Council). The Council had its beginnings as an independent entity housed under California Urban Water Agencies (CUWA). Currently, the Council is a fully independent non-profit organization.

The objective of the Council is to implement the MOU. The MOU was signed into existence in 1991 by nearly 100 urban water agencies and environmental groups. Current membership of the Council is 389 members from various groups such as: water suppliers, public advocacy organizations, and other interested groups (Council, 2011).

The MOU is a document by which the signatories obligate themselves to implement the urban water conservation practices identified in the MOU. The goal of the practices in the MOU is to reduce long-term urban water demands and to provide practices that may be implemented during occasional water supply shortages (Council, 2004). The urban water conservation practices identified in the MOU are called the best management practices (BMPs) and range from water audits to toilet replacements. There are 14 practices that also coincide with the 14 demands management measures (DMMs) identified in the Act.

Each agency that is a signatory to the MOU is required to file reports on the implementation of the BMPs identified in the MOU. For the purposes of the UWMP, the reports filed to the Council on the BMPs that are implemented or under implementation can be substituted for the reporting requirements of Section 10631 (f) (1). The UWMP uses the reports filed to the Council in addition to any necessary analysis as described in Section 10631.

Coordination

The City initiated agency coordination with a mailing of letters to cities and counties within its service area, wholesale water agencies, wastewater agencies, and agencies with which the City has emergency connections. The initial letters notified the agencies of the City's intent and requested data for the preparation of the UWMP. All identified agencies were followed up with a telephone call. In addition, the City conducted a workshop (on March 21, 2011) with these agencies to get their input during the UWMP development process. A copy of the agenda and a list of the workshop participants are included in Appendix B.

Table 1-1 list the agencies contacted during the preparation of this UWMP.

Table 1-1
Coordination with Appropriate Agencies

Coordinating Agencies	Participated in UWMP Development	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
County of Santa Barbara				✓			
Central Coast Water Authority (CCWA)	✓			✓			
Golden State Water Company				✓			
Laguna County Sanitation District				✓			
City of Guadalupe				✓			
Nipomo Community Services District (NCSD)	✓			✓			
Santa Maria Valley Water Conservation District							
San Luis Obispo County Flood Control and Water Conservation District							
Rural Water Company							
General public	✓						

Notes
1. Table format based on DWR Guidance Document Table 1

Notification Requirement – 60 Days Prior to Review/Adoption Hearing

Pursuant to the new requirement (for the 2010 UWMP) in Section 10642 of the Act, the City of Santa Maria notified the City of Guadalupe and the County of Santa Barbara (within which it provides water supplies) that the 2010 UWMP was being reviewed and changes were being considered. The notification was sent 60 days prior to the UWMP public hearing. Appendix C contains a copy of the notification.

Plan Adoption, Submittal, and Implementation

Plan adoption requirements are detailed in Section 10642 of the Act.

For this update of the UWMP, a public workshop and a public hearing will be held. This public session will be held for review and comment on the draft Plan before the approval by the City. Legal public notices for the public hearing will be published in the local newspapers in accordance with Government Code Section 6066. Copies of the draft Plan will be made available to the public at the Santa Maria City Clerk's Office, the Utilities Administration Office, and the City's Web site.

Appendix D contains a copy of the hearing notice from a local newspaper and the meeting minutes from the public pertaining to the UWMP. Appendix E contains comments received and comment resolution.

The final UWMP, as adopted by the City, will be submitted to the DWR, the California State Library, and any city or county within which the City supplies water within 30 days of adoption. This Plan includes all information necessary to meet the requirements of CWC Division 6, Part 2.6 (Urban Water Management Planning). Adopted copies of this Plan will be available to the public at the Utilities Department.

The City is committed to the implementation of this UWMP as required by Section 10643 of the Act. The City has implemented many DMMs via the City's participation in the Council's MOU.

UWMP Preparation

The City prepared this UWMP with the assistance of its consultant, CH2M HILL, as permitted by Section 10620 (e) of the Act.

During the preparation of the UWMP, documents that have been prepared over the years by the City and other entities were reviewed and results of those documents incorporated, as applicable, into this UWMP. The list of the documents is provided in the reference section, Section 7.

The adopted plans are available for public review at the City of Santa Maria Office of the City Clerk and the Santa Maria Public Library. Copies of the plan were submitted to DWR, cities and counties within the service area, the State Library, and other applicable institutions within 30 days as required by Section 10644 and 10645.

Content of the UWMP

This UWMP addresses all subjects required by Section 10631 of the Act as defined by Section 10630, which permits "levels of water management planning commensurate with the numbers of customers served and the volume of water supplied." All applicable sections of the Act are discussed in this UWMP. Table 1-2 lists the sections of this UWMP and the corresponding provisions of the Act.

Table 1-2
Summary of UWMP Chapters and Corresponding Provisions of the California Water Code

Section	Corresponding Provisions of the Water Code	
1. Introduction and Plan Preparation	10642	Public Participation
	10643	Plan Implementation
	10644	Plan Filing
	10645	Public Review Availability
	10620 (a) – (e)	Coordination with Other Agencies; Document Preparation
	10621 (a) – (c)	City and County Notification; Due Date; Review
	10620 (f)	Resource Optimization
	10630	Level of Planning
	10641	Coordination
	10644(a)	UWMP Distribution
	10621(b)	Notification
2. System Description	10631 (a)	Demographics and Climate
3. System Demands	10631 (e), (k)	Water Use, Data Sharing
	10631.1	Lower Income Housing Water Use Projections
4. System Supplies	10631 (b) – (d), (h), (k)	Water Sources, Reliability of Supply, Transfers and Exchanges, Supply Projects, Data Sharing
	10633	Recycled Water
	10633(d)	Potential Recycled Water Uses
	10631 (i)	Desalination
5. Water Supply Reliability and Water Shortage Contingency Plan	10632	Water Shortage Contingency Plan
	10635	Water Service Reliability
	10634	Water Quality Impacts on Reliability
6. Demand Management Measures	10631 (f) – (g), (j)	Demand Management Measures
	10631.5	DMM Implementation Status
	10631.5(b)	DMM Compliance

Section 2. System Description

A detailed description of the City's service area is requested by the Act. Section 10631 (a) of the act requires that (item numbers are from the 2010 UWMP guidebook outline checklist):

#8. Describe the service area of the supplier (10631(a)).

#9. (Describe the service area) climate (10631(a)).

#10. (Describe the service area) current and projected population . . . The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier . . . (10631(a)).

#11. . . . (population projections) shall be in five-year increments to 20 years or as far as data is available (10631(a)).

#12. Describe . . . other demographic factors affecting the supplier's water management planning (10631(a)).

This section summarizes the City's system service area and presents an analysis of available demographics, population growth projections, and climate data to provide a basis for estimating future water requirements.

Service Area Physical Description

The City of Santa Maria is located in the Santa Maria Valley of Santa Barbara County, about 180 miles north of Los Angeles. The City is bounded on the north by the Santa Maria River and San Luis Obispo County line. Figure 2-1 illustrates the City's service area and currently planned expansion areas. The service area is primarily characterized by residential and commercial land use. The service area boundary also includes developed and underdeveloped land area to the west, south, and east of the City's center. A portion of the City's service area lies outside the city limits, within unincorporated areas of Santa Barbara County.

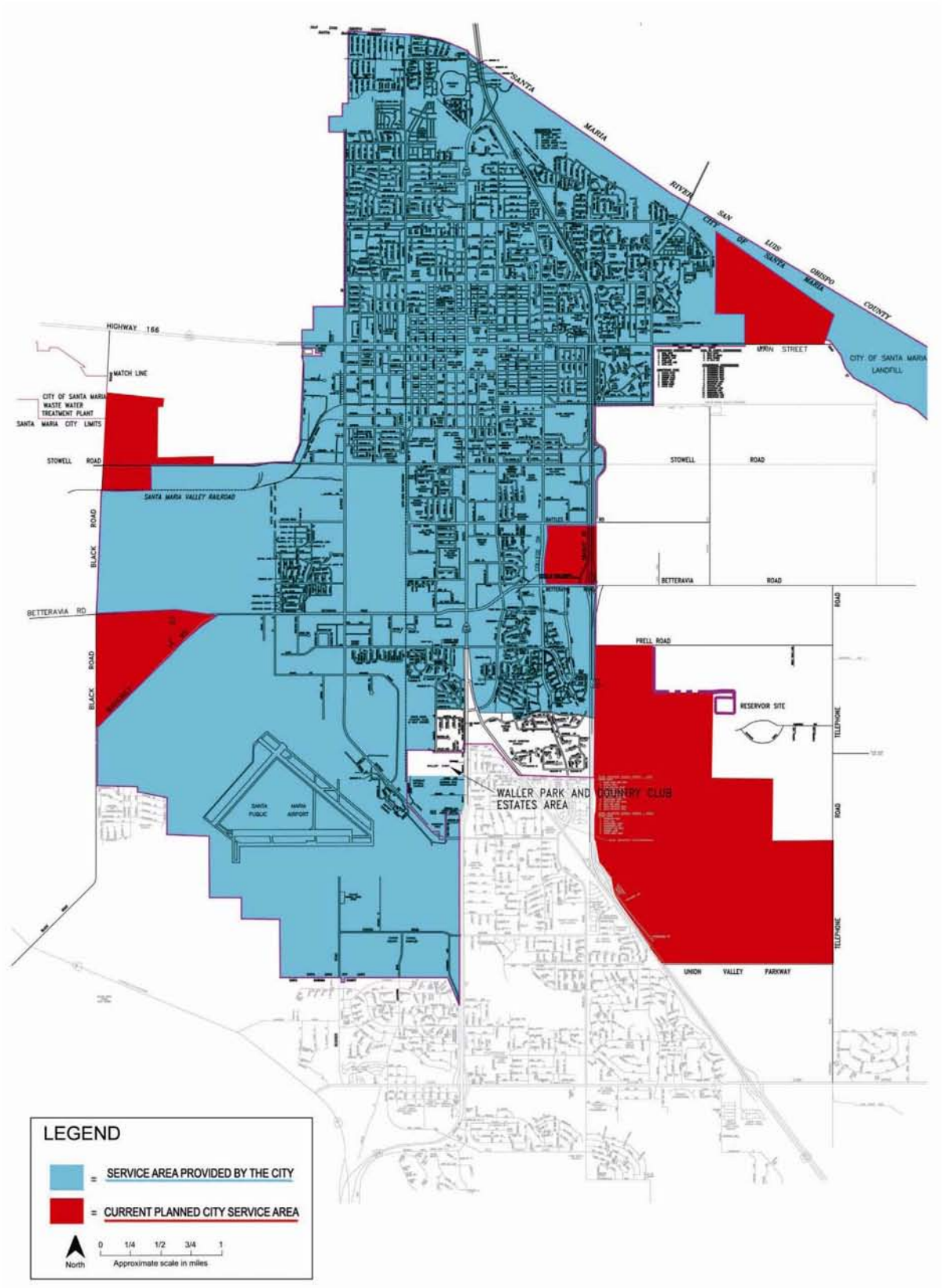

Figure 2-1 City of Santa Maria Service Area

Demographics

At the time of preparation of this UWMP, population data for the 2010 Census are available. However, demographics data for 2010 are not available. Therefore, for the description of the demographics 2000 Census data are used.

Although the City's service area currently includes some small portions of the County that are outside city limits, the City was chosen to be demographically representative of the City's service area. According to 2000 US census data, the median age of Santa Maria's residents is 29.2 years. Santa Maria has an average household size of 3.40 people and a median household income of approximately $36,541.

The City has determined that it is a Disadvantaged Community (DAC). A DAC is defined as a community with an annual median household income that is less than 80% of the statewide annual median household income. The estimated median household income for Santa Maria from the 2000 Census was $36,541 in 1999 dollars. The Median Household income for California was $47,493 in 1999 dollars. (http://factfinder.census.gov). Therefore, the median household income for Santa Maria was 77 percent of the statewide annual median household income.

Per the US Census data, the City had 22,111 housing units. Per the census data, the City had approximately 48 percent of households in the low income group. Figure 2-2 illustrates the City's service area showing the location of low income groups.

Residential development and open space represent the predominant land use in Santa Maria with 33 percent and 25 percent of the City's total area, respectively. The remaining portion of the City's land use is divided among industrial and commercial uses. Of the residential developments, 66 percent of the existing housing falls into the single family category and 28 percent falls into the multi-family category (http://factfinder.census.gov). This preference for single family housing is expected to continue; however, in the future, new development of affordable multi-family housing units may potentially be implemented within the Santa Maria existing service area and planned expansion areas. The Santa Maria area experienced average annual population growth of 2.45 percent between 1992 and 2010. During the last decade, the City's population grew at a rate of 28.6 percent, climbing from 77,423 in 2000 to 99,553 in 2010. It is expected to experience average annual population growth of 1.2 percent from 2010 through 2030.

According to 2010 Census data available at this time, during the decade from 2000 to 2010, the number of total housing units in the City of Santa Maria increased by 5,447 and the community gained 22,130 residents.

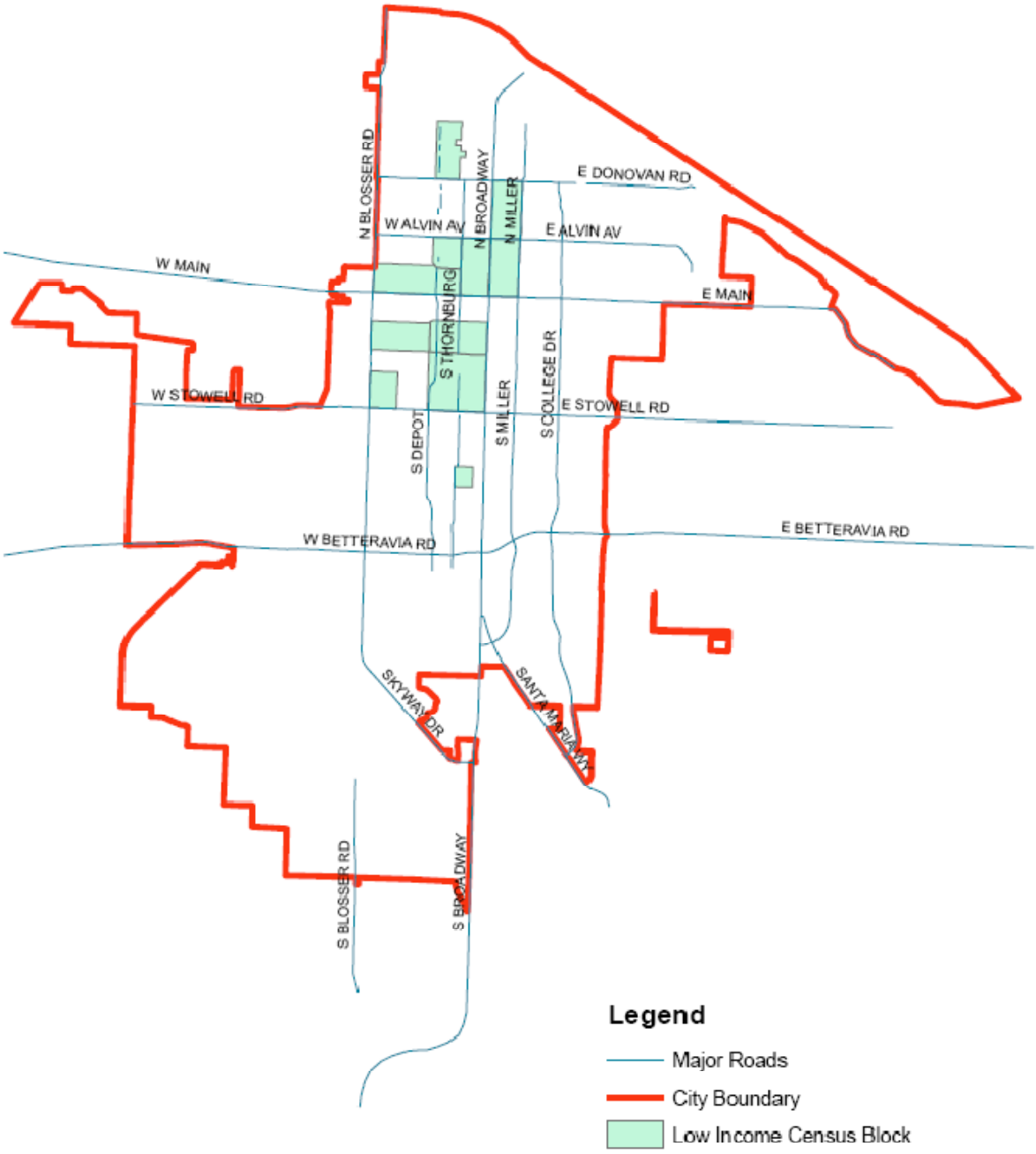

Figure 2-2 City of Santa Maria Low Income Census Blocks Based on the 2000 Census Data

Service Area Population

Figure 2-3 shows the City's service area. A portion of the City's service area lies outside the city limits. The City provides water to these unincorporated areas which is approximately 595 acres of land. On the other hand, a small portion (about 346 acres) within the city limits is served by Golden State Water Company (Figure 2-3). Overall the city's service area is more than 95 percent of the city boundary.

The service area population was estimated following Technical Methodology 2 described in Section M of the Methodologies for Calculating Baseline and Compliance Urban per Capita Water Use document (DWR, 2011a). The City of Santa Maria is a retail water supplier that falls into the Category 1 supplier, which means that the actual distribution area of the City overlaps substantially (≥ 95%) with the City boundary during baseline and compliance years. The population data published by the California Department of Finance (DOF) and the U.S. Census Bureau serve as the foundational building block for population estimates for the City.

The past population data (from 1990s to 2009) provided by DOF were used to calculate historic trends in population dynamics. Those data were also used for developing baseline and target water demands for the City's water conservation plan. DOF population projections for future years are not available for the City of Santa Maria. The Santa Barbara County Association of Governments (SBCAG) data were used to develop estimates of future population within the City (SBCAG, 2007). Water demand projections presented in Section 3 are based on population projections provided by SBCAG.

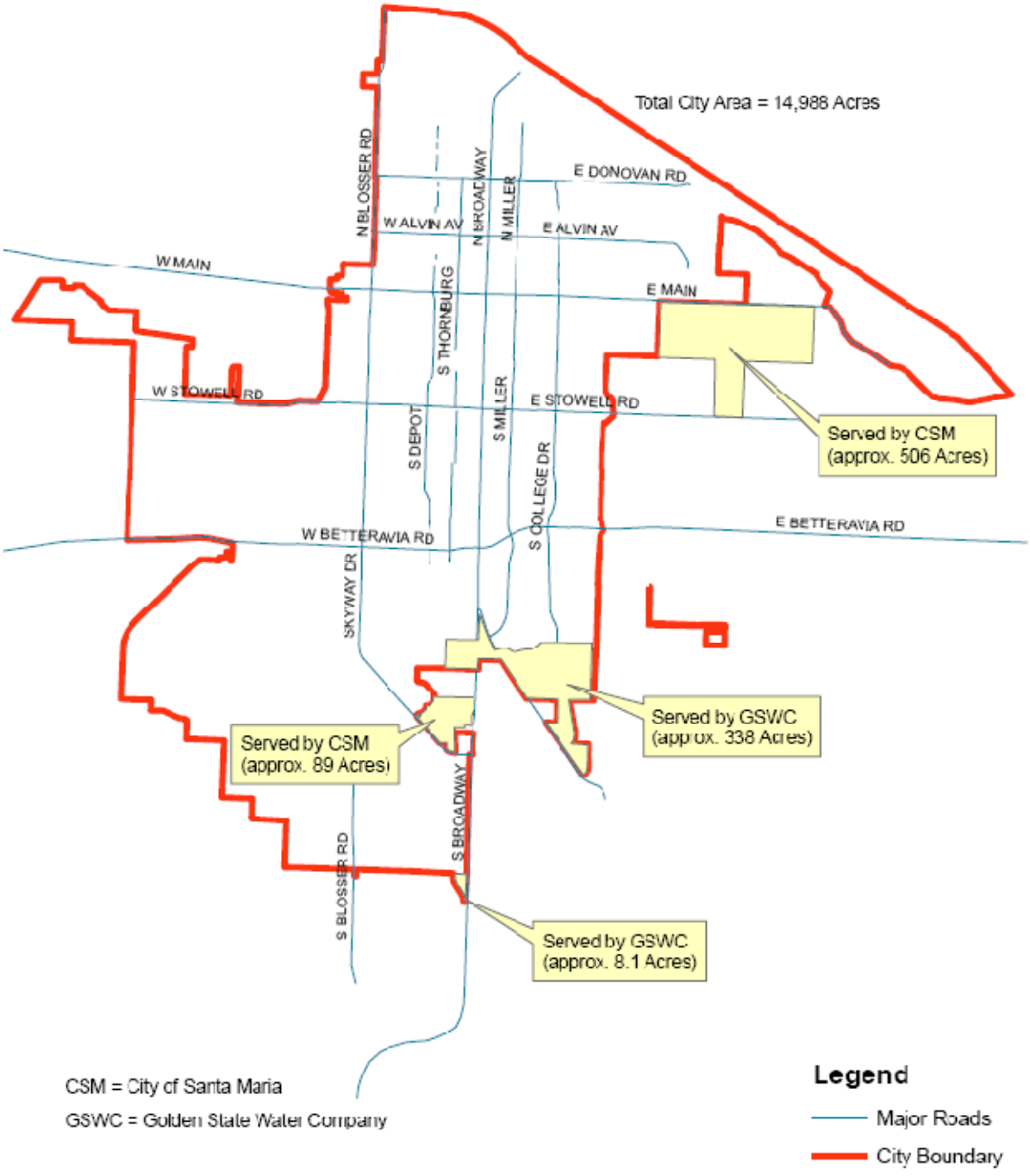

Figure 2-3 City of Santa Maria Service Area

SBCAG Population Projection Methodology

The 2000 population data are derived from the 2000 U.S. Census, which form a baseline for local data projections. SBCAG applies a forecast model which is disaggregated into three submodels (SBCAG, 2007): 1) population, 2) employment, and 3) development potential/constraints.

The population model provides population forecasts for each of five subregions in Santa Barbara County and eight cities within the county. The model uses the 2000 Census data as a baseline, and is calibrated using 2005 population, housing and demographic estimates from DOF, and other sources such as the State Department of Heath for birth and mortality rates. For each of the 5 year forecast periods during 2005-2040 and geographic regions, the model forecasts male and female populations by five-year age groups. The population model considers increases in population (births and relocation into the region) and decreases in population (deaths and relocation out of the region). One of the variables of the population model is net migration which is a result of in-migrants and out-migrants due to housing, education and employment. The population model adds new births and subtracts out deaths to the population by applying age specific birth and mortality rates.

The employment model forecasts the number and type of jobs for each subregion by five-year increments. However, the employment model does not forecast for individual cities and unincorporated areas. As a result, the employment projections cannot be broken down to the City's service area and are not included in this UWMP.

The development potential model or the constraints model limits the potential rate and buildout of residential development and may therefore limit new housing available for the in-migrants. The development model places a limit on the rate at which new housing is developed and a ceiling on the "ultimate" buildout of each jurisdiction based on their land-use plans. The constraints model balances the available housing units, with the workers (using a workers per household density), and population (using a household size density).

SBCAG's demographic forecasting section works closely with DOF, the State Department of Health, and members from local jurisdictions to refine the projections for population, housing, and employment. The SBCAG's projections were completed with data provided by these agencies. As local jurisdictions modify and revise land use plans and growth management policies the long-range forecasts are impacted. The detailed explanation of the population projection process employed by SBCAG is provided in the Regional Growth Forecast 2005 - 2040 (SBCAG, 2007).

City of Santa Maria System Population Projections

The City of Santa Maria's population that is served within the City's boundaries was 99,553 people in 2010. This population served within the City's boundaries is expected to reach 118,900 by 2035. A summary of historic and projected population within the Santa Maria's service boundaries is presented in Table 2-1 and illustrated in Figure 2-4.

The 2005 Urban Water Management Plan (UWMP, 2005) predicted population in 2010 to reach approximately 96,800 and 2020 population to reach 110,800 people. The population in 2010 and 2020, as presented in this report, are 99,553 and projected to be 109,500 people, respectively. The population for year 2010 in the current study is more than the estimates in

the previous 2005 report, whereas the population for year 2020 in the current study is less than the estimated in the previous 2005 report. 2005 UWMP population projections assumed average population growth rates of 2.13 percent between 2005 and 2010. However, actual average annual population growth rate was 2.61 percent. A significant increase in population growth was observed between 2005 and 2010. Per this plan and based on the SBCAG population data, average annual growth rates between 2010 to 2020 and 2020 to 2030 are assumed as 1.81 percent and 0.83 percent, respectively.

As mentioned earlier, the historic population data provided by DOF were used for the City of Santa Maria for 2005 and 2010. The future population projections between 2015 and 2035 are provided by SBCAG, which are based on the 2000 census data (SBCAG, 2007).

Table 2-1
Population – Current and Projected

Year	Service Area Population[3]	Data Source
2005	88,439	DOF
2010[5]	99,553	DOF
2015	102,300	SBCAG
2020	109,500	SBCAG
2025	116,700	SBCAG
2030	118,300	SBCAG
2035	118,900	SBCAG

Notes

1. This table is based on the DWR Guidebook Table 2.
2. Based on calendar year (January 1 – December 31).
3. Service area population is defined as the population served by the City of Santa Maria's distribution system. The population projected per Technical Methodology 2: Service Area Population (2010 UWMP Guidebook, Section M)
4. Historic service area population data are based on Department of Finance (DOF)
5. 2010 Census data are reported for 2010 (DOF, 2011)
6. Service area population projections are based on SBCAG Regional Growth Forecast 2010 – 2035 (SBCAG, 2007)

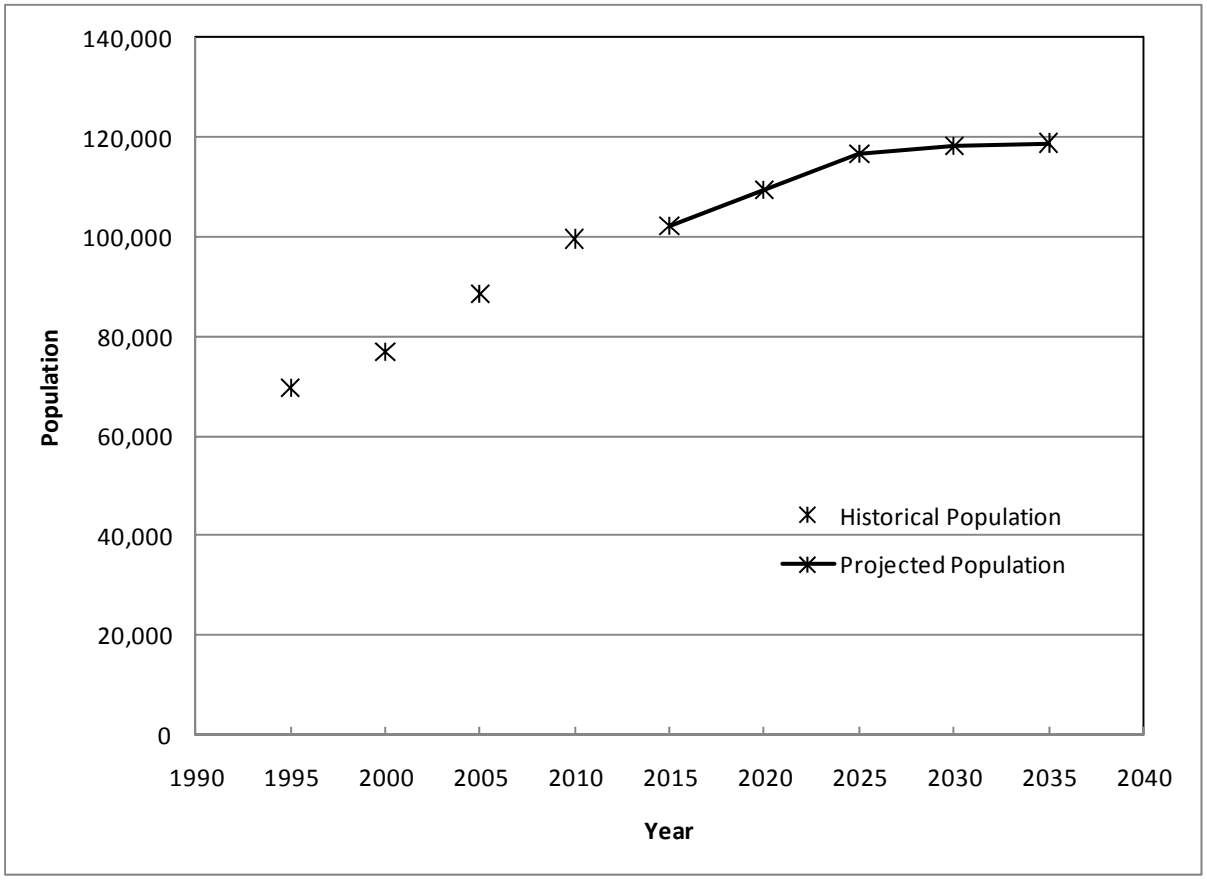

Figure 2-4 Population Growth Projections

Service Area Climate

The Western Regional Climate Center web site (www.wrcc.dri.edu) maintains historical climate records for the past 62 years (7/1/1948 to 9/30/2010) for Santa Maria. Table 2-2 presents the monthly average climate summary based on 62 years of historical data for Santa Maria. In winter, the lowest average monthly temperature is approximately 39 degrees Fahrenheit while the highest average monthly temperature reaches approximately 74 degrees Fahrenheit in the summer (Figure 2-5). Figure 2-6 presents the monthly average precipitation based on 62 years of historical data (7/1/1948 to 9/30/2010). The rainy season is from November to March. Monthly precipitation during the winter months ranges from 1 to 2 inches. Average annual rainfall is about 13 inches. Low humidity occurs in the summer months from May to October. The moderately hot and dry weather during the summer months typically results in moderately high water demand.

Similar to the Western Regional Climate Center in the Santa Maria area, the California Irrigation Management Information System (CIMIS) web site (http://www.cimis.water.ca.gov) tracks and maintains records of evapotranspiration (ETo) for few cities. ETo statistics used for this system are available from a Santa Maria CIMIS station that was active from 1983-1999. ETo is a standard measurement of environmental parameters that affect the water use of plants. ETo is given in inches per day, month, or year

and is an estimate of the evapotranspiration of a large field of well-watered, cool-season grass that is four- to seven-inches tall. The monthly average ETo is presented in inches in Table 2-2. As the table indicates, a greater quantity of water evaporates from May through August, which may result in higher water demands than in winter months.

Table 2-2
Monthly Average Climate Data Summary for Santa Maria

Month	Standard Monthly Average ETo[1] (inches)	Average Total Rainfall[2] (inches)	Average Temperature[2] (degrees Fahrenheit) Max	Min
January	1.8	2.57	63.2	39.0
February	2.3	2.76	64.3	40.9
March	3.7	2.25	64.8	42.0
April	5.1	1.05	66.9	43.4
May	5.7	0.28	68.3	46.9
June	5.8	0.04	70.6	50.1
July	5.6	0.03	72.8	53.1
August	5.3	0.03	73.3	53.6
September	4.2	0.19	74.4	52.2
October	3.5	0.52	73.4	48.0
November	2.4	1.32	69.2	42.6
December	1.9	1.99	64.3	38.7

Notes

1. Evapotranspiration Overview (ETo) from http://wwwcimis.water.ca.gov/cimis/monthlyEToReport.do

2. Rainfall and Temperature data from: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7946

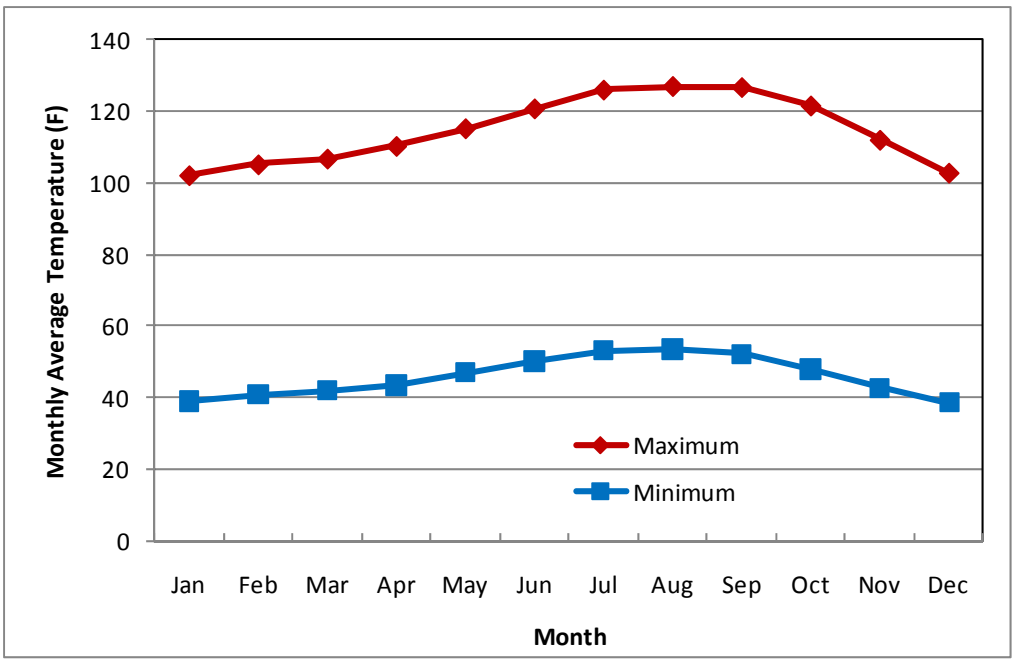

Figure 2-5 Monthly Average Temperature Range in Santa Maria based on 62 Years Historical Data

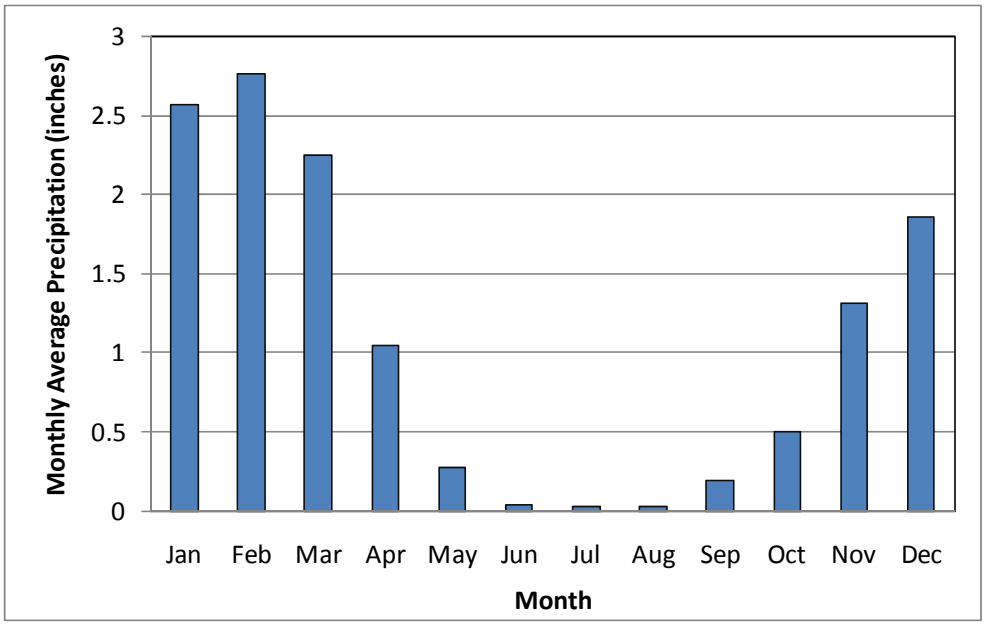

Figure 2-6 Monthly Average Precipitation in Santa Maria based on 62 Years Historical Data

Section 3. System Demands

The Act requires that an evaluation of baseline (base daily per capita) water use and interim and urban water use be performed for the City of Santa Maria. The Act states the following (item numbers are from the 2010 UWMP guidebook outline checklist):

#1. An urban retail water supplier shall include in its urban water management plan…due in 2010 the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

#2. Urban wholesale water suppliers shall include in the urban water management plans . . . an assessment of their present and proposed future measures, programs, and policies to help achieve the water use reductions required by this part (10608.36). Urban retail water suppliers are to prepare a plan for implementing the Water Conservation Bill of 2009 requirements and conduct a public meeting which includes consideration of economic impacts (CWC §10608.26).

#25. Quantify, to the extent records are available, past and current water use, and projected water use (over the same five-year increments described in subdivision (a)), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses: (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, or conjunctive use, or any combination thereof; (I) Agricultural (10631(e)(1) and (2)).

#33. Urban water suppliers that rely upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c) (10631(k)).

#34. The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier (10631.1(a)).

As part of the Urban Water Management Plan, California regulation requires water suppliers to quantify past and current water use and to project the total water demand for the water system, including calculations of its baseline (base daily per capita) water use and interim and urban water use targets. Projections of future water demand allow a water supplier to analyze if future water supplies are adequate, as well as help the agency when sizing and staging future water facilities to meet water use targets. Projected water use,

combined with population projections, provide the basis for estimating future water requirements.

Baseline and Targets

This section presents an analysis of water use data and resulting projections for future water needs for the City of Santa Maria, including a 2020 water use target and a 2015 interim target water use.

Baseline Water Use

Baseline and target water use values are determined for the City of Santa Maria individually per DWR methodologies based on Method 1 (Part II, Section M) and Guidebook Part II, Section D per the Water Conservation Bill of 2009 (DWR 2011). Following requirements provided in the guideline, the City has calculated baseline per capita water use, an urban water use target for 2020, and an interim water use target for 2015. The 2020 target is based on a 20 percent reduction of the base per capita water use. The baseline and targets are developed based on the recent past water use for the City of Santa Maria.

The City's 2008 recycled water use is less than 10 percent of total annual water use; therefore, the base period is considered as a continuous 10-year period (DWR, 2011). Table 3-1 presents a summary of base period ranges for the City of Santa Maria. The table also provides information on 2008 water deliveries. The 10-year baseline period used for estimating a gallon per capita per day (gpcd) value begins with January 1, 1995, and ends on December 31, 2004. A 5-year base period range starting from January 1, 2003, through December 31, 2007, was used to determine a minimum required reduction in water use by 2020.

Table 3-1
Summary of Base Period Ranges of the City of Santa Maria

Base	Parameter	Value	Units
10- to 15-year Base Period	2008 Total Water Deliveries	13,413	ac-ft
	2008 Total Volume of Delivered Recycled Water	0	
	2008 Recycled Water as a percent of Total Deliveries	0	
	Number of Years in Base Period[2]	10	years
	Year beginning Base Period Range	1995	
	Year-ending Base Period Range[2]	2004	
5-year Base Period	Number of Years in Base Period	5	years
	Year beginning Base Period Range	2003	
	Year ending Base Period Range[3]	2007	

Notes:

1. Table format is based on DWR Guidance Document Table 13.
2. The 2008 recycled water percent is less than 10 percent; therefore, the first base period is a continuous 10-year period. The ending year is December 31, 2004.
3. The ending year is December 31, 2007.

Water Use Targets

The City of Santa Maria adopted Method 1 described in the DWR guidance document (DWR, 2011) to set its 2015 interim and 2020 water use targets. This method uses 80 percent of the City of Santa Maria's baseline per capita water use to calculate the 2020 water use target.

Table 3-2 lists historic population and per capita water use for the 10-year base period (1995 to 2004). The base per capita water use estimate (as an average for 10 base years) is 148.3 gpcd. The 2020 target based on Method 1 is 0.8 x 148.3 gpcd = 118.6 gpcd.

Table 3-2
Base Daily Per Capita Water Use (10- to 15-year Range) of the City of Santa Maria

Base Period Year		Distribution System Population	Daily System Gross Water Use (ac-ft)	Annual Daily Per Capita Water Use (gpcd)
Sequence Year	Calendar Year			
Year 1	1995	69,720	13,050	167.1
Year 2	1996	71,127	12,773	159.9
Year 3	1997	72,283	12,515	154.6
Year 4	1998	73,891	11,079	133.8
Year 5	1999	75,379	11,852	140.4
Year 6	2000	76,913	12,714	147.2
Year 7	2001	78,583	12,606	143.2
Year 8	2002	80,485	13,340	148.0
Year 9	2003	82,216	13,496	146.5
Year 10	2004	85,430	13,650	142.2
Year 11	NA	NA	NA	NA
Year 12	NA	NA	NA	NA
Year 13	NA	NA	NA	NA
Year 14	NA	NA	NA	NA
Year 15	NA	NA	NA	NA
			Base daily per capita water use[2]	148.3

Notes:
1. Table format is based on DWR Guidance Document Table 14.
2 The 10-year average is based on the calendar year ending on December 31, 2004.

Table 3-3 presents historic population and gpcd water use for the 5-year period (2003 to 2007). This table indicates the population served and water supplied for each of those years within the 5-year range and gross water use for each of the 5 years. The average base per capita water use estimated for 5 base years is 142.1 gpcd. Those data are used to determine whether the 2020 per capita water use target meets the legislation's minimum water reduction requirement per Section 10688.22.

Table 3-3
Base Daily per Capita Water Use (5-year Range) of the City of Santa Maria

Base Period Year		Distribution System Population	Daily System Gross Water Use (ac-ft)	Annual Daily Per Capita Water Use (gpcd)
Sequence Year	Calendar Year			
Year 1	2003	82,216	13,496	146.5
Year 2	2004	85,430	13,650	142.2
Year 3	2005	88,439	13,857	139.7
Year 4	2006	89,904	13,671	135.2
Year 5	2007	90,108	14,902	147.1
			Base daily per capita water use	142.1

Notes:
1. Table format is based on DWR Guidance Document Table 15.
2 The 5-year average is based on the calendar year ending on December 31, 2007.

Minimum Water Use Reduction Requirements

Since the 5-year baseline per capita water use per Section 10608.12 (b)(3) is greater than 100 gpcd, the following calculations are used to determine whether the City of Santa Maria's 2015 and 2020 per capita water use targets meet the legislation's minimum water use reduction requirement per Section 10608.22. Those calculations entail the following three steps:

1. Calculated base daily per capita water use of 142.1 gpcd using a continuous 5-year period ending in December 31, 2007, as presented in Table 3-3.
2. Multiply the 142.1-gpcd value by 0.95. The resulting value is 135.0 gpcd. This is the maximum allowable gpcd target in 2020.
3. The 2020 target under Method 1 is 0.8 x 148.3 = 118.6 gpcd.
4. Because Method 1 target of 118.6 gpcd is less than 135.0 gpcd, no further adjustment to 2020 target is required.
5. Set 2020 target of 118.6 gpcd and 2015 (interim) target as the midpoint of 148.3 and 118.6 gpcd which is 133.5 gpcd.

Note that the 2020 target for the City of Santa Maria meets the legislation's minimum water use reduction requirement.

Historical and Projected Water Use

Historical water use data from 2005 to 2010 were analyzed to estimate the City's future water demands. Projections for the number of service connections and future water use were calculated for the years 2015 through 2035 in 5-year increments. Future water demands were estimated using a population-based approach. Detailed descriptions of how the population-based projections were calculated are provided later in this section. Figure 3-1 shows the historical and projected number of metered service connections for the City of

Santa Maria's system from 2010 through 2035. Figure 3-2 shows the historical and projected water use for the City of Santa Maria from 2010 through 2035. As shown in this figure, the water demand varies from year to year and can be influenced by a number of factors such as population growth, weather, water conservation, drought, and economic activities.

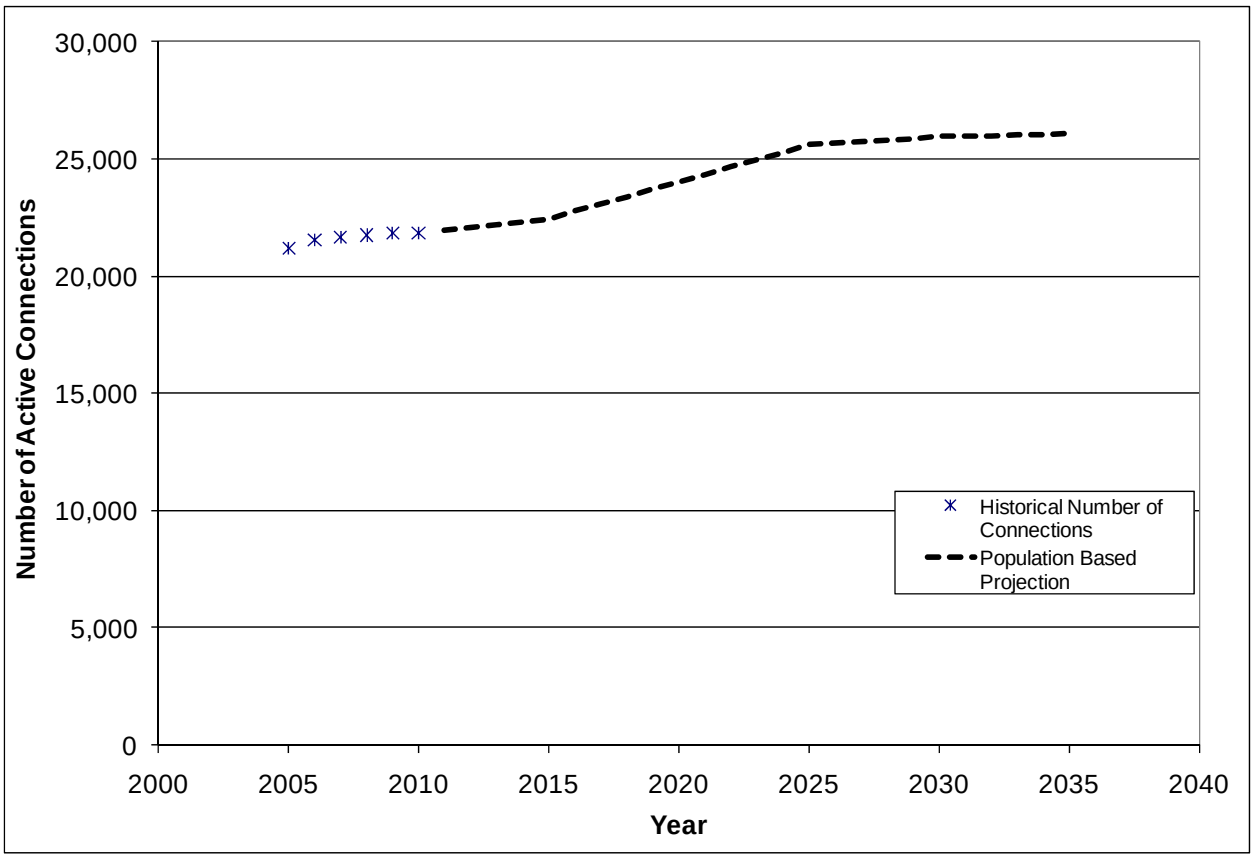

Figure 3-1 Historical and Projected Number of Metered Service Connections

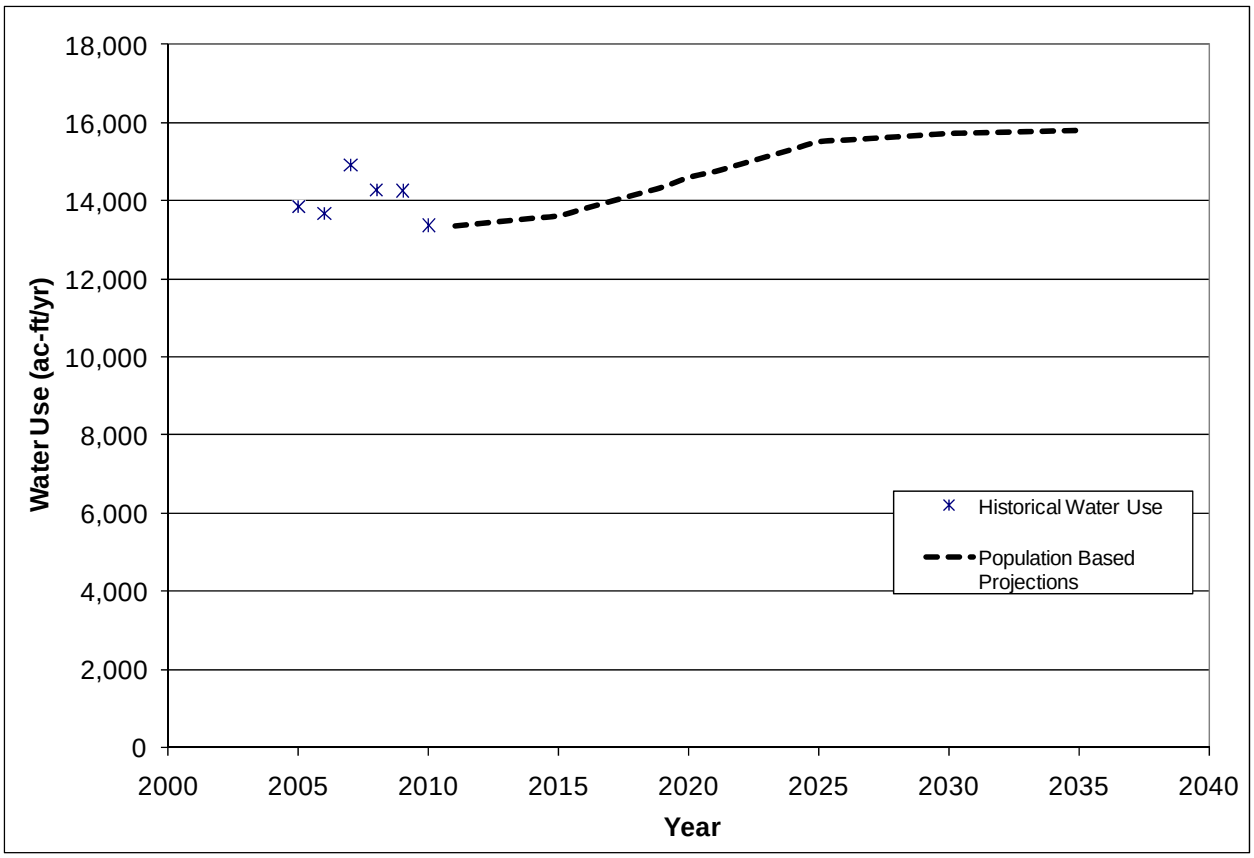

Figure 3-2 Historical Water Use and Future Water Use Projections (excluding exports or sales to other agencies)

Historical water use records from 2005 through 2010 were analyzed to estimate future water demands. These water use data were sorted by customer type using North American Industry Classification System (NAICS) codes into the following categories: single-family, multi-family, industrial, commercial, institutional, and others. Tables 3-4 and 3-5 show the historical (actual) water use data for the City of Santa Maria for various categories (e.g., single-family, multi-family, industrial, institutional, and others) for 2005 and 2010, respectively. Tables 3-6 through 3-8 show projected water demands for those years 2015 through 2035.

Water demand in the City of Santa Maria has gradually increased as population has increased. However, as a result of conservation measures taken by the City, per capita water use has dropped considerably over time. Per capita water use dropped from over 200 gpcd before 1990 to under 140 gpcd in 2009 (Figure 3-3).

Table 3-4
Water Deliveries – Actual, 2005

Water use sectors	2005				Total Volume (ac-ft)
	Metered		Not metered		
	# of Accounts	Volume (ac-ft)	# of Accounts	Volume (ac-ft)	
Single-family	18,121	6,994	0	0	6,994
Multi-family	817	2,105	0	0	2,105
Commercial	1,311	1,970	0	0	1,970
Industrial	96	383	0	0	383
Institutional/governmental	562	843	0	0	843
Landscape	48	47	0	0	47
Agriculture	0	0	0	0	0
Other	249	10	0	0	10
Total	21,204	12,352	0	0	12,352

Notes:
1. Table format is based on DWR Guidance Document Table 3.
2. Water use sector – Sales to other agencies/saline water intrusion barriers/groundwater recharge/conjunctive use/any combination thereof is provided in Table 3-11.

Table 3-5
Water Deliveries – Actual, 2010

Water use sectors	2010				Total Volume (ac-ft)
	Metered		Not metered		
	# of Accounts	Deliveries (ac-ft)	# of Accounts	Deliveries (ac-ft)	
Single-family	18,436	6,605	0	0	6,605
Multi-family	787	2,231	0	0	2,231
Commercial	1,337	1,768	0	0	1,768
Industrial	89	337	0	0	337
Institutional/ governmental	557	737	0	0	737
Landscape	355	1,054	0	0	1,054
Agriculture	0	0	0	0	0
Other	275	340	0	0	340
Total	21,836	13,072	0	0	13,072

Notes:
1. Table format is based on DWR Guidance Document Table 4.
2. Water use sector - Sales to other agencies/saline water intrusion barriers/groundwater recharge/conjunctive use/any combination thereof is provided in Table 3-11.

These water use projections are based on population projections provided by the SBCAG for the period of 2015 through 2035. Until 2010, these population data provided by the Department of Finance was used. The methodology used in the derivation of population projections for the City of Santa Maria is discussed in more detail in Section 2. During the period of 2000 to 2005, water use in the City of Santa Maria averaged 144.5 gpcd. During 2005 to 2010, water use in the City decreased to an average of 136.2 gpcd. This value incorporates total water use within the City, including water used for industrial, commercial, institutional, and other uses. During the 10-year period from 1995 through 2004 (baseline period), water use in the City of Santa Maria averaged 148.3 gpcd. The population-based projections of total water use from 2010 through 2020 were calculated by multiplying the annual projected population in such a way that a 20 percent reduction of per capita use of the baseline (i.e., 148.3 gpcd) could be achieved in the target year 2020.

The Governor's 20x2020 initiative includes a per capita water use target for 2020 of 118.6 gpcd (i.e., 80 percent of 148.3 gpcd) with an interim goal of 133.5 gpcd by the year 2015. This initiative is a major driver in the potable water demand for the City. Using the anticipated population growth for the City and the 20 by 2020 target per capita water use, an anticipated water use has been determined for the City of Santa Maria. Figure 3-3 shows the historical and anticipated per capita water use.

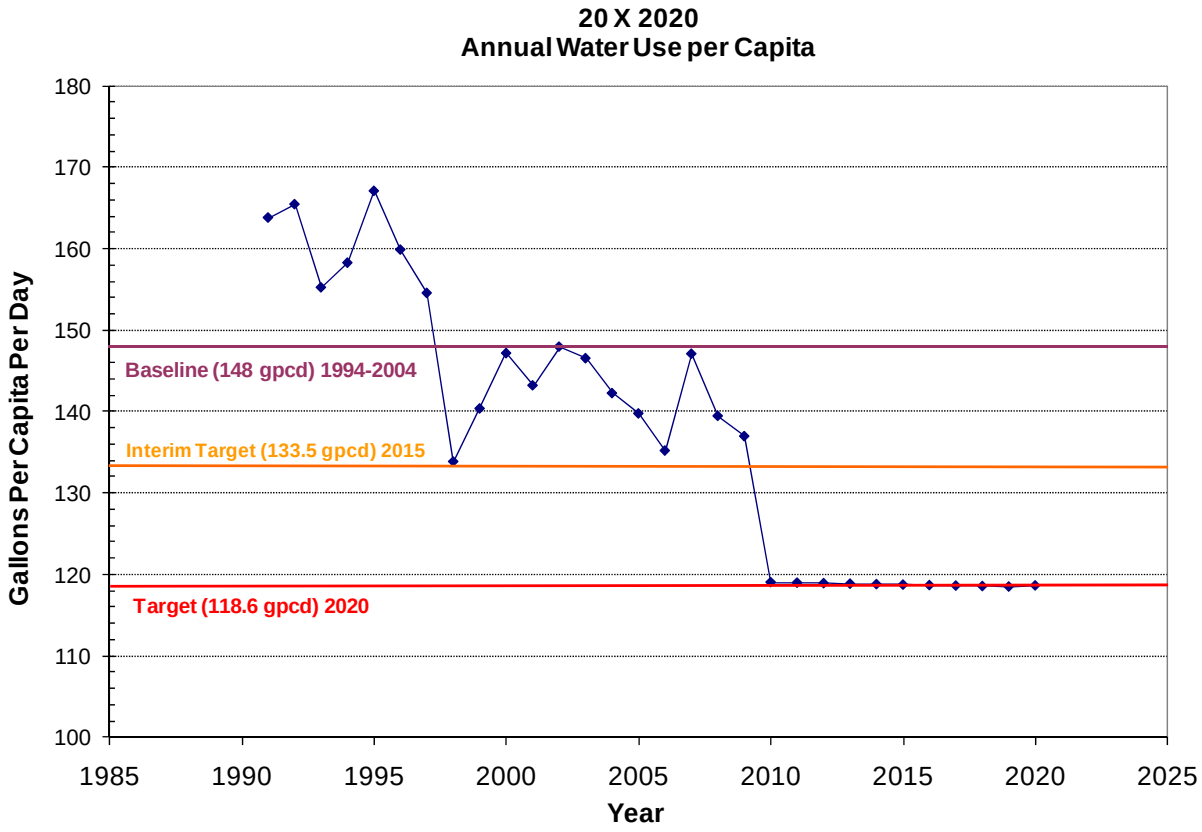

Figure 3-3 Historical Water Use and Future Water Use Projections (excluding exports or sales to other agencies)

The annual water use by connection type was also projected for the years 2011 through 2035. These projections are based on the ratio of annual water use for each connection type to the total annual water use from 2005 through 2010. This factor of water use for each connection type was calculated by dividing the total water use by the water use of each connection type. The percentage of the total annual water use was averaged for the period 2005 through 2010 and applied to the projected water demands for 2011 through 2035.

The number of metered service connections was also projected on an annual basis from 2011 through 2035. These projections are based on the water use ratio of each connection type in the City of Santa Maria for 2010. The percentage of total annual water use for each connection type was calculated by dividing the total water use by the water use of each connection type.

For each category, a water use factor was calculated to quantify the average water used per metered connection. For a given customer type, the unit water use factor is calculated as the total water sales for the category divided by the number of active service connections for that category. The unit water use factors for each customer type (except landscape) were averaged over the data range from 2005 through 2010 to obtain a representative water use factor that were used for water demand projections by customer type. For the landscape sector, the unit water use factor was calculated based on the data from 2008 through 2010 to capture the recent changes in water deliveries to this sector.

Figure 3-4 shows the population-based water use projections by customer type, unaccounted for water, and projected sales to other agencies. The population-based projections of the number of service connections, and the resulting water demand from 2015, 2020, and 2025 to 2035, are provided in Tables 3-6, 3-7, and 3-8, respectively.

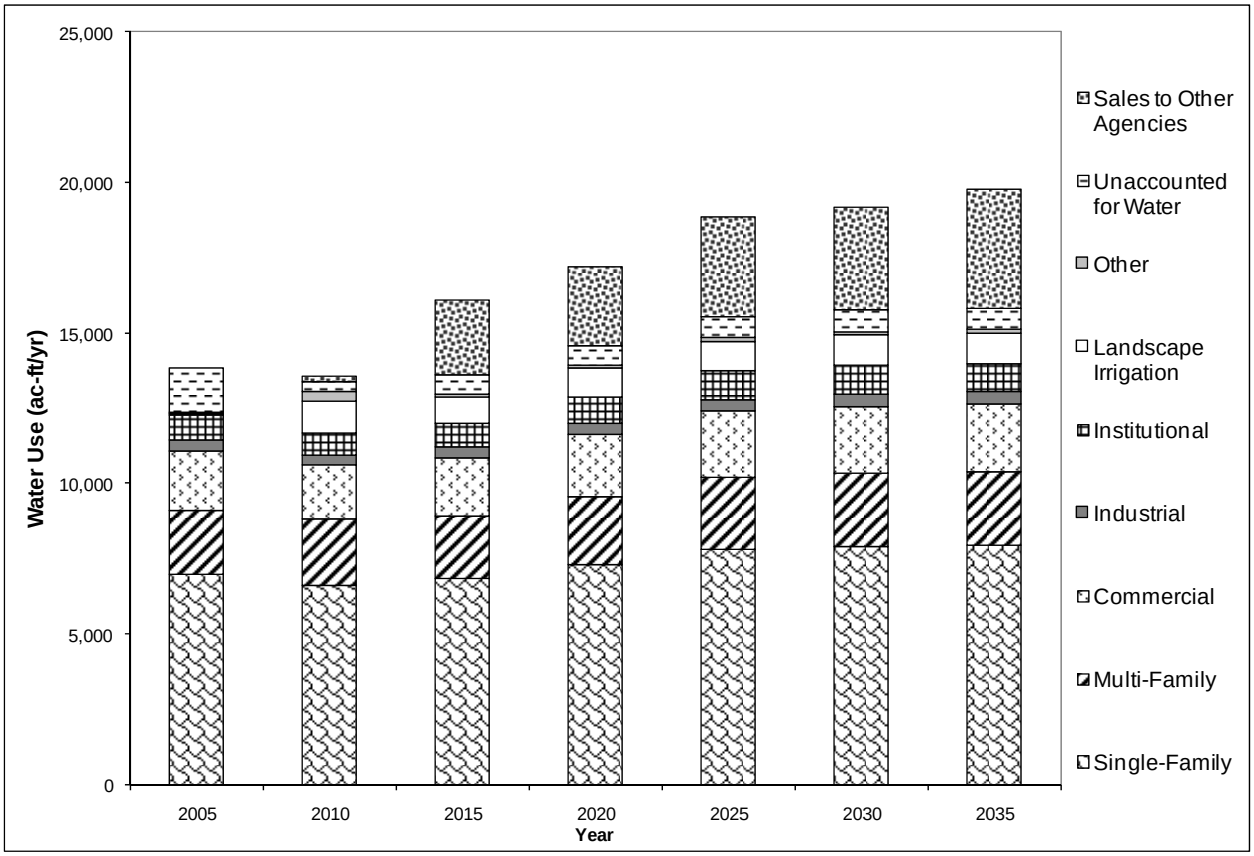

Figure 3-4 Water Use by Customer Type

Table 3-6
Water Deliveries – Projected, 2015

Water use sectors	2015				Total Volume (ac-ft)
	Metered		Not metered		
	# of Accounts	Deliveries (ac-ft)	# of Accounts	Deliveries (ac-ft)	
Single-family	18,945	6,837	0	0	6,837
Multi-family	809	2,096	0	0	2,096
Commercial	1,374	1,922	0	0	1,922
Industrial	91	348	0	0	348
Institutional/ governmental	572	816	0	0	816
Landscape	365	872	0	0	872
Agriculture	0	0	0	0	0
Other	283	91	0	0	91
Total	22,439	12,983	0	0	12,983

Notes:
1. Table format is based on DWR Guidance Document Table 5.
2. Water use sector - Sales to other agencies/saline water intrusion barriers/groundwater recharge/conjunctive use/any combination thereof is provided in Table 3-11.

Table 3-7
Water Deliveries – Projected, 2020

Water use sectors	2020				Total Volume (ac-ft)
	Metered		Not metered		
	# of Accounts	Deliveries (ac-ft)	# of Accounts	Deliveries (ac-ft)	
Single-family	20,278	7,331	0	0	7,331
Multi-family	866	2,247	0	0	2,247
Commercial	1,471	2,061	0	0	2,061
Industrial	98	374	0	0	374
Institutional/ governmental	613	875	0	0	875
Landscape	390	935	0	0	935
Agriculture	0	0	0	0	0
Other	302	98	0	0	98
Total	24,018	13,922	0	0	13,922

Notes:
1. Table format is based on DWR Guidance Document Table 6.
2. Water use sector - Sales to other agencies/saline water intrusion barriers/groundwater recharge/conjunctive use/any combination thereof is provided in Table 3-11.

Table 3-8
Water Deliveries – Projected 2025, 2030, and 2035

Water use sectors	2025		2030		2035	
	Metered		Metered		Metered	
	# of Accounts	Deliveries (ac-ft)	# of Accounts	Deliveries (ac-ft)	# of Accounts	Deliveries (ac-ft)
Single-family	21,611	7,813	21,908	7,921	22,019	7,961
Multi-family	923	2,395	935	2,428	940	2,440
Commercial	1,567	2,197	1,589	2,227	1,597	2,238
Industrial	104	398	106	404	106	406
Institutional/ governmental	653	933	662	946	665	950
Landscape	416	997	422	1,010	424	1,016
Agriculture	0	0	0	0	0	0
Other	322	104	327	106	328	106
Total	25,597	14,837	25,948	15,041	26,080	15,117

Notes:
1. Table format is based on DWR Guidance Document Table 7.
2. Water use sector - Sales to other agencies/saline water intrusion barriers/groundwater recharge/conjunctive use/any combination thereof is provided in Table 3-11.

Low Income Projected Water Demands

The estimated lower income water use projections for single-family and multi-family housing units are presented in Table 3-9. The lower income water use projections are included in the overall water use projections provided in Tables 3-4 through 3-8. Per 2000 Census data, about 20 percent of households belong to the low-income group (less than $29,233, which is less than 80 percent of the household median income in 2000).

The low income family water use is estimated based on the following:

- 66 percent of the total water demand is residential
- 75 percent and 25 percent of the residential demand is for single-family and multi-family residential water use, respectively
- Low income single-family water use in the future is estimated at 54 percent of single-family residential water use (Regional Housing Needs Allocation, RHNA, 2007)
- Low income multi-family water used in the future is estimated at 54 percent of multi-family residential water use(RHNA, 2007)

Table 3-9
Low-Income Projected Water Demands (ac-ft) for City of Santa Maria

Low-Income Water Demands	2015	2020	2025	2030	2035
Single-family residential	3,240	3,501	3,756	3,812	3,834
Multi-family residential	1,080	1,187	1,292	1,315	1,324
Total	4,320	4,688	5,048	5,127	5,157

Notes:

1. Table format is based on DWR Guidance Document Table 8.

Sales to Other Water Agencies

Table 3-10 provides a summary of the projected sales of water to other agencies from the City of Santa Maria's system. These projected water sales include amounts that the City has agreed to supply to other agencies. The City's water portfolio includes groundwater sales to the Orcutt area, interagency potable water exchanges with Golden State Water Company (GSWC), and water sales to the Nipomo Community Services District (NCSD).

Orcutt groundwater sales are a sale of groundwater rights and are not impacted by the City's water supply infrastructure. Except for the first 20 ac-ft/yr, GSWC's potable water exchanges involve an exchange of GSWC's State Water allocation for the City's potable water supply.

Water sales to NCSD, however, involve potable water delivery and use the City's water supply infrastructure. The agreement between NCSD and the City requires that the City deliver and NCSD pay for a minimum 2,000 ac-ft for the first 10 years of delivery, 2,500 ac-ft for years 11 through 19, and 3,000 ac-ft for deliveries from year 20 through the end of the

agreement (which is June 30, 2085). As shown in Table 3-10, the City's projected sales to other agencies are included as a portion of the City's total demands.

Table 3-10
Sales to Other Water Agencies

	Water Sales						
Water Distributed	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**
GSWC[4]	0	20	20	20	20	20	20
NCSD[5]	0	0	2,000	2,000	2,500	2,500	3,000
Orcutt	0	166	473	600	800	900	900
Total	0	186	2,493	2,620	3,320	3,420	3,920

Notes:
1. Table format is based on DWR Guidance Document Table 9.
2. Unit of measure: ac-ft/yr
3. Based on calendar year
4. The City of Santa Maria has agreements in place to transfer 20 ac-ft/yr to GSWC.
5. The existing Memorandum of Understanding (MOU) with NCSD describes supplies of up to 2,000 ac-ft/yr supplemental water for the first 10 years and 2,500 ac-ft for years 11 through 19. Future annexations to NCSD's service area will require additional supplemental water and the MOU has the option for future deliveries up to 3,000 ac-ft/yr from year 20 through the end of the agreement (which is June 30, 2085).

In addition, the City has identified a number of potential projects and areas in the Santa Maria area that may purchase excess water supplies from the City in the future. These may include, but are not limited to, the areas shown in Figure 3-5. The areas shown with a yellow boundary are potential areas for expansion and the pink area represents the potential locations for increased sales of return flows (return flows are discussed in Section 4). Future sales by the City to these areas would be met by the available supply that exceeds the City's demand. As the demands for future projects are determined, a water supply assessment would be completed to describe the City's ability to meet these potential demands.

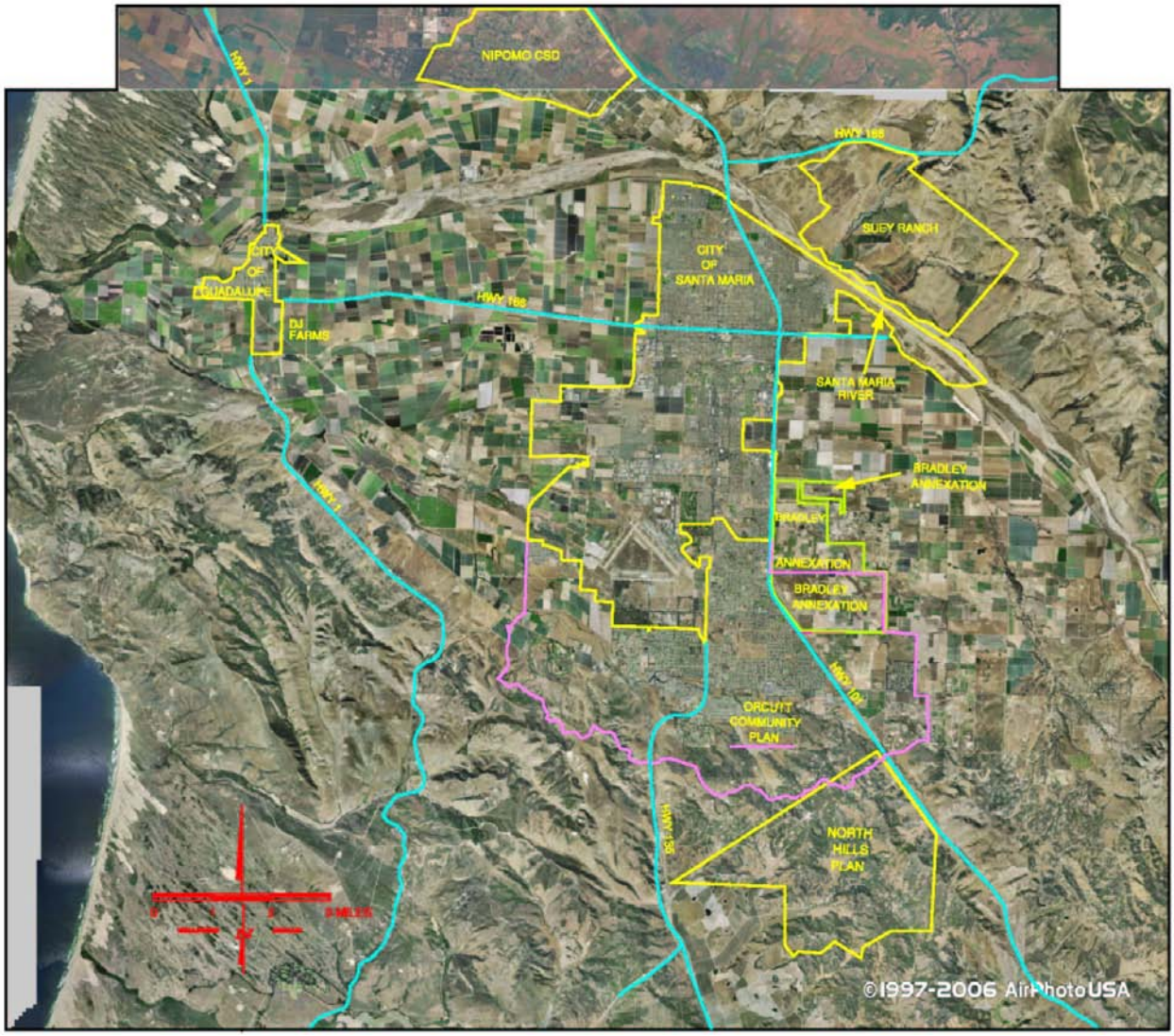

Figure 3-5 Potential Projects and Areas that May Purchase Excess Water Supplies from the City

Additional Water Uses and Losses

To accurately predict total water demand, other water uses, as well as any water lost during conveyance, must be added to the customer demand. California regulation requires water suppliers to quantify any additional water uses not included as a part of water use by customer type. There are no other water uses in the City's system in addition to those already reported above.

Unaccounted-for water must be incorporated when projecting total water demand. Unaccounted-for water is defined as the difference between annual production and supply and annual sales. Included in the unaccounted-for water are system losses (due to leaks, reservoir overflows, or inaccurate meters) and water used in operations. In the City of Santa Maria's system, from 2005 through 2010, unaccounted-for water has averaged seven percent of the total production varying from two to eleven percent. Unaccounted-for water averaged approximately 5 percent in the last three years (2008 through 2010) and two

percent in 2010. Table 3-11 provides a summary of unaccounted-for water in the City's system.

Table 3-11
Additional Water Uses and Loses

	Water Uses and Loses						
Water Use Type	**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
Raw Water	0	0	0	0	0	0	0
Recycled Water	0	0	0	0	0	0	0
Other (define)	0	0	0	0	0	0	0
Unaccounted-for System Losses	1,505	294	623	668	712	722	725
Total	1,505	294	623	668	712	722	725

Notes:
1. Table format is based on DWR Guidance Document Table 10.
2. Based on calendar year
3. Unaccounted-for water includes system losses due to leaks, reservoir overflows, and inaccurate meters, as well as water used in operations - a value of seven percent is used to make the future projections based on data between 2005 and 2010.
4. Unit of measure: ac-ft/yr

Total Water Use

As mentioned previously, other water uses, as well as any water lost during conveyance, must be added to the customer demand to project the City's water demand. In addition to the City's sales to other agencies, unaccounted-for water must be incorporated to the total water demand (refer to the previous section for a definition of unaccounted-for water). Table 3-12 summarizes the projections of water sales to other agencies, demand within the City, unaccounted-for water, and total water demand of the population-based projections through the year 2035.

Table 3-12
Total Water Uses and Loses

Water Use	Total Water Use						
	2005	2010	2015	2020	2025	2030	2035
Total water deliveries (from Table 3-4 to 3-8)	12,352	13,072	12,983	13,922	14,437	15,041	15,117
Sales to other water agencies (from Table 3-10)	0	186	2,493	2,620	3,320	3,420	3,920
Additional water uses and losses (from Table 3-11)	1,505	294	623	668	712	722	725
Total	13,857	13,552	16,099	17,210	18,469	19,183	19,762

Notes:
1. Table format is based on DWR Guidance Document Table 11.
2. Based on calendar year
3. Unit of measure: ac-ft/yr

Santa Maria City's Production Facilities

Figure 3-6 shows the City's water production facilities. The City measures flow at each of its production facilities using Water Specialties brand water meters. The City field calibrates production meters once a year. Flow is measured continuously through the City's supervisory control and data acquisition (SCADA) system and stored in a database. Production is calculated by averaging flow every five minutes. During the baseline period, the flow measurements were conducted using similar instrumentation. Flow measuring methodologies have been refined as technologies have improved. Flow measurement of purchased water is provided by the wholesale agency, Central Coast Water Authority (CCWA). The City began receiving State Water Project (SWP) water from the CCWA via the Coastal Branch Aqueduct in 1997. The State Water Turnout production facility (in Figure 3.6) did not exist during the first few years of the 10-year base period.

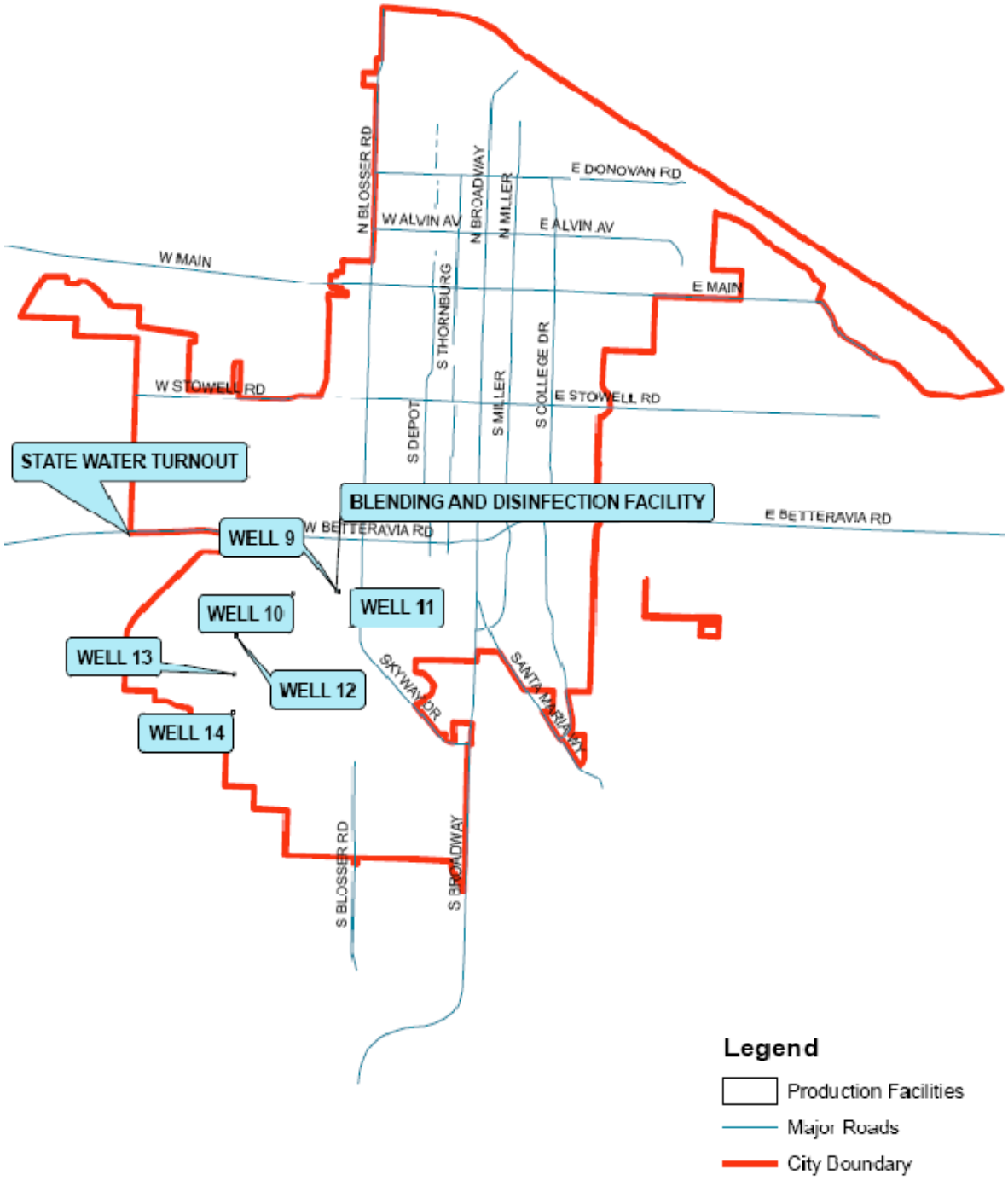

Figure 3-6 The City of Santa Maria's Production Facilities

Data Provided to Wholesale Agency

The City provided the following water use projections data to CCWA, its wholesale water supplier for the State Water Project. The requested amounts from CCWA in Table 3-13 reflect the water use demands for the City of Santa Maria from 2015 through 2035. Starting from year 2025, the City's water demands as projected are above the contracted volume from CCWA. It is anticipated that the contracted amount from CCWA will increase in the future; however, the City's water supplies for the future period can be met with a combination of supplies such as purchased water, groundwater, and return flows. The details of these water supplies are provided in Section 4.

Table 3-13
Retail Agency Demand Projections Provided to Wholesale Suppliers

		Year					
Wholesaler	**Contracted volume (ac-ft)**	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**
CCWA	17,820	13,552	16,099	17,210	18,869	19,183	19,762

Notes:
1. Table format is based on DWR Guidance Document Table 12.
2. Based on calendar year
3. Unit of measure: ac-ft/yr

Water Use Reduction Plan

The City of Santa Maria has been investing in a water conservation program since 1990. The City's water conservation program is established to promote the efficient use of local and state water supplies through information and assistance to residential, commercial, and institutional customers. The program provides information regarding technology, monitoring, and legislation concerning efficient water use.

The conservation program includes education and public outreach, water audits, water surveys, residential plumbing retrofits, and landscape conservation. In an effort to quantify its water conservation efforts, the City of Santa Maria adopted a water conservation plan and became a signatory to the California Urban Water Conservation Council's (Council's) MOU. The City's water conservation program is intended to fulfill the water purveyor's obligations to educate customers and implement best management practices (BMPs) outlined in the statewide MOU that is administered by the Council. In 2005, the City of Santa Maria began BMP reporting with the Council. In addition, the City of Santa Maria has met AB 1420 requirements with the California Department of Water Resources Division of Water Efficiency. The details of the BMP status and the status of the coverage for the BMPs are presented in Section 6 of this plan. Appendix F includes the City of Santa Maria's water conservation program details.

The City of Santa Maria has long recognized water conservation as a major goal toward achieving independence in managing its water portfolio. As seen from Figure 3-3, the water demand or the per capita use for the City of Santa Maria has decreased over the last few years. The reduction in demand could be due to a combination of factors such as water

conservation, weather, drought, and economic activities. From 1998 through 2009, per capita water use varied between 148 and 133 gpcd. In 2009 and 2010, per capita water use further declined, which is attributed to conservation and a severe economic recession. Due to recent water use reduction plans, per capita water demand dropped dramatically between 2009 and 2010 from 137 gpcd to 119 gpcd. Future water demand is expected to increase due to an increase in population and an expansion of service area, but per capita use is expected to decrease as a result of the continued conservation measures implemented by the City.

Some of the recent activities of the City toward achieving reduction of water use include the following:

- Regularly monitor and analyze demand through updates of the City's water conservation plan
- Continue to implement all required BMPs through the Council
- Continue regional partnerships with the Santa Barbara County Water Efficiency Group
- Continue efforts in providing the public with general information regarding water conservation issues
- Provide ongoing class presentations, workshops, and participate in annual events
- Provide water audits to city residents
- Continue conversion to fixed base meters for hourly readings to help with early identification of customer side leaks
- Enforce the Uniform Plumbing Code for new development
- Implement low-impact development, such as bioswales, which helps reduce onsite irrigation by redirecting drainage from the storm drain system to onsite vegetation
- Maintain existing programs and practices to achieve water conservation

Proper protection and wise use of the water resources, along with maintenance of the City's water supply system, will help sustain the City's water distribution system so that the residents can continue to have clean and reliable water supplies.

The City is committed to the implementation of the conservation plan as required by the Act. The City will conduct at least one public hearing that includes a general discussion of the City's implementation plan for complying with the Water Conservation Bill of 2009. The City does not anticipate any potential economic impacts that may result from the water use reduction program to comply with the Water Conservation Bill of 2009.

With continued implementation of conservation efforts, the City has emphasized the policies/programs that avoid placing a disproportionate burden on any customer sector. The City has actively been pursuing outside sources of funding to complement the City's resources. As an example, the City pursued Proposition 84 planning and implementation grant with the Santa Barbara County Integrated Regional Water Management (IRWM) Planning for the following projects:

1. **Untreated Water Landscape Irrigation Project (Project 1):** The goal of Project 1 is to match water quality to water use so as to reserve higher quality sources for potable uses and minimize the need for water treatment. This water use efficiency project extends an existing groundwater-sourced landscape irrigation system from the City Civic Center

area to local public facilities with large irrigated areas (Figure 3-7). The project replaces the use of imported potable water with untreated groundwater.

Groundwater in the area, although abundant in supply, is high in nitrates. An additional water quality benefit of the project is the reduction of nitrates in the groundwater supply. By applying the groundwater directly to turf, the nitrates are exposed to the plant root zone, providing an opportunity for plant uptake and removal of the contaminant from the groundwater supply. As a result, this project will (1) replace the use of imported potable water on landscaping with water that is less suitable for drinking, (2) improve groundwater quality, and (3) more efficiently manage the City's water supply system.

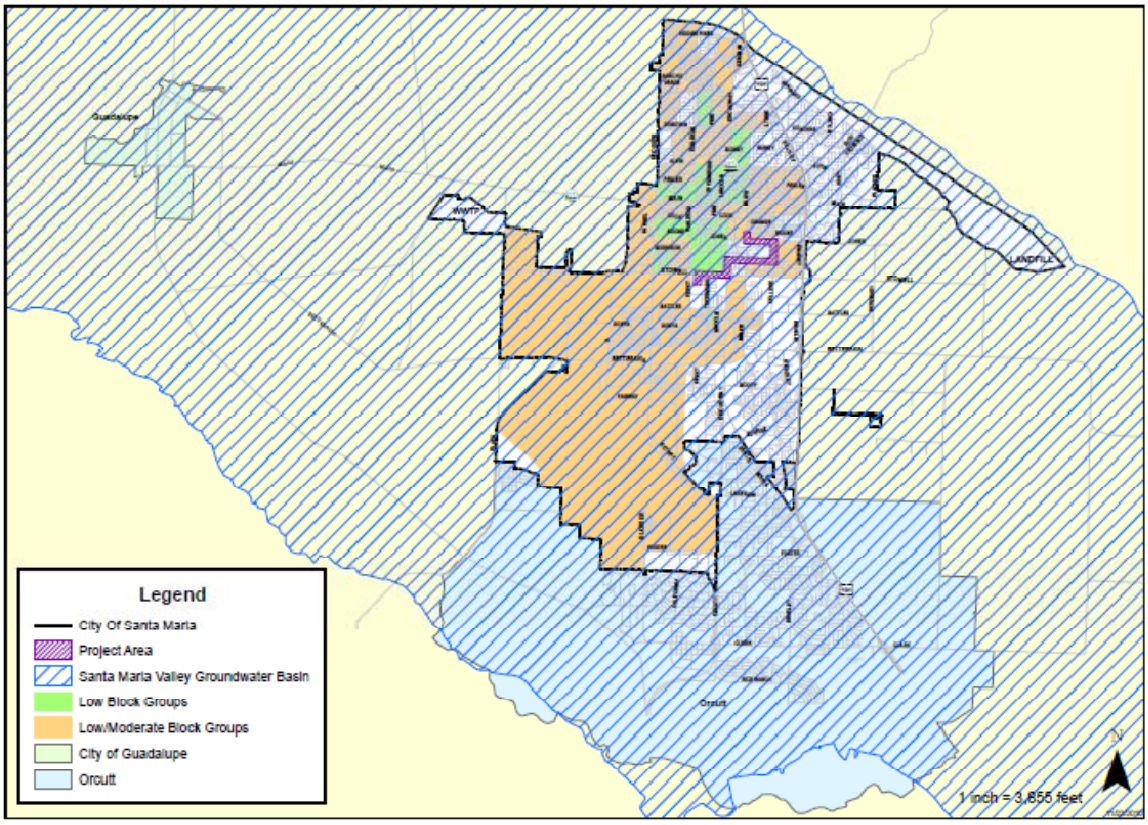

Figure 3-7 The City of Santa Maria's Untreated Water Landscape Irrigation Project

2. **LeakWatch Project (Project 2):** The primary goals of Project 2 are to save water through early detection of leaks and reduce energy use. The objective of the project is to provide real-time, site-specific monitoring of water use to identify and control leaks in the City's water system. The project will install a residential water meter reading system to monitor water use on a near-real-time basis (Figure 3-8). All meters in the LeakWatch project will send data via radio signals to a central location where data will be read on an hourly basis. With this system, leaks or overuse can be detected in near real-time, and customers can be notified prior to billing. Currently, existing meters in the project area can only be analyzed manually on a monthly basis. This project is the third phase of a four-phased program. Phases 1 and 2, which have been completed, have demonstrated the effectiveness of this system.

The project addresses regional issues, including the need for conservation projects to control demand and the need to secure funding for water use efficiency projects. It achieves the regional objectives to increase water conservation to increase or extend existing supplies; improve operational efficiency, transfers, and supply reliability; and increase water supply in the least costly, most-efficient, and most-reliable manner.

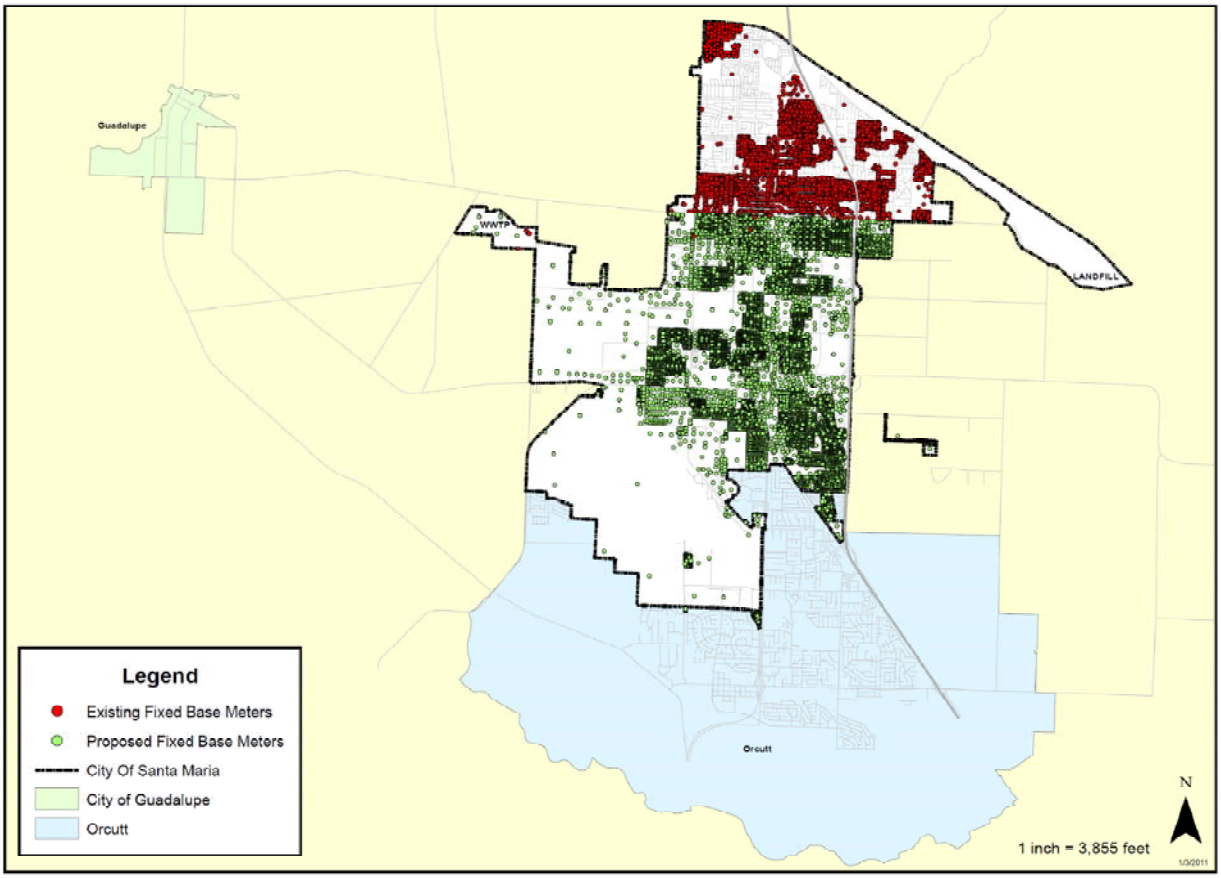

Figure 3-8 The City of Santa Maria's LeakWatch Project

3. **Groundwater Basin Assessment in Support of Salt and Nutrient Management Plan Project (Project 3):** The primary goal of Project 3 is to develop a Salt and Nutrient Management Plan to manage salts, nutrients, and other significant chemical compounds found in recycled water on a watershed or sub-watershed basis. The development of a Salt and Nutrient Management Plan for groundwater basins is a requirement of the State Water Resources Control Board's Recycled Water Policy that was adopted in 2009. The project will help meet various water management objectives including water quality improvement within the basin and address the various requirements in effect.

The Santa Barbara County IRWM program has been selected to receive planning grant funding from the State under Proposition 84, which includes Project 3. The decision on the Proposition 84 implementation grant funding is pending, which includes Projects 1 and 2.

Section 4. System Supplies

A detailed evaluation of water supplies is requested by the Act. Sections 10631 (a) through (d) require that (item numbers are from the 2010 UWMP guidebook outline checklist):

#13. Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a) (10631(b)).

#14. (Is) groundwater . . . identified as an existing or planned source of water available to the supplier . . . (10631(b))?

#15. (Provide a) copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management (10631(b)(1)).

#16. (Provide a) description of any groundwater basin or basins from which the urban water supplier pumps groundwater (10631(b)(2)).

#17. For those basins for which a court or the board has adjudicated the rights to pump groundwater, (provide) a copy of the order or decree adopted by the court or the board (10631(b)(2)).

#18. (Provide) a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree (10631(b)(2)).

#19. For basins that have not been adjudicated, (provide) information as to whether the department 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 (10631(b)(2)).

#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. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records (10631(b)(3)).

#21. (Provide a) detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records 10631(b)(4)).

#24. Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis (10631(d)).

#31. Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply (10631(i)).

#44. Provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area (10633).

#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)).

#46. (Describe) the quantity of treated wastewater that meets recycled water standards, being discharged, and is otherwise available for use in a recycled water project (10633(b)).

#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)).

#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)).

#49. (Describe) 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 pursuant to this subdivision (10633(e)).

#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)).

#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)).

#30. (Describe) all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program (10631(h)).

This Section addresses the water supply sources available to the City of Santa Maria. It includes a description of each water source, source limitations (physical or political), water quality, and water exchange opportunities. The section presents a complete water portfolio for the City of Santa Maria. The following sections provide details in response to those requirements of this portion of the Act.

Water Sources

The City's water portfolio is comprised of the following available water supply sources: local groundwater, purchased water from the SWP and the associated return flows that may be recaptured from the Basin, assigned rights to water from the Santa Maria Groundwater Basin (Basin), and assigned rights to augmented yield from the Twitchell Reservoir. The imported water supplies for the City are obtained from the SWP via a water supply agreement with CCWA.

Currently, groundwater is pumped from a total of seven active groundwater wells in the Basin. The City's wells have a current total normal year active capacity of 23,426 ac-ft/yr. Over the period from 2005 through 2010, the groundwater extracted averaged 3,378 ac-ft/yr.

The City's rights to rely on Basin water resources (for both pumping and storage) are governed by a settlement agreement ("Stipulation"), finalized on June 30, 2005 before the Santa Clara County Superior Court (*Santa Maria Valley Water Conservation District vs City of Santa Maria, et al.*, Case no. 770214), as further described below.

Table 4-1 summarizes current and planned water supplies available to the City between 2010 and 2035. This water supply information, and this UWMP, are based on the Stipulation signed by a majority of the parties in *Santa Maria Valley Water Conservation District vs. City of Santa Maria, et al.,* commonly known as the "Santa Maria Groundwater Adjudication," and data provided by CCWA. The City expects the Court to incorporate the Stipulation as part of its final judgment in the action. The Court rendered a final judgment on January 25, 2008. This judgment is currently under appeal by the non-stipulating landowners.

The City's water supply is expected to reliably meet projected water demands through 2035. There is no direct recycled water supply planned for this system, although percolation of treated wastewater at the City's WWTP is an indirect use of recycled water which, in effect, improves the overall reliability of the City's groundwater supplies.

It should be noted that the water supply available to the City is much greater than the supply needed to meet projected demand. A detailed description of available supply and demands is presented in Section 5.

Table 4-1
Current and Projected Water Supplies for the City of Santa Maria

Source		2010	2015	2020	2025	2030	2035
Water Purchased from	Wholesaler supplied volume (yes/no)						
Purchased Water from SWP[2]	yes	13,366	11,227	10,048	10,870	10,870	10,692
Groundwater[3]		12,795	12,795	12,795	12,795	12,795	12,795
Twitchell Yield/Commingled Groundwater[4]		14,300	14,300	14,300	14,300	14,300	14,300
Return Flows from SWP Water[5]		8,705	7,297	7,181	7,066	7,066	6,950
Transfers In		0	0	0	0	0	0
Exchange In[6]		0	5,000	5,000	5,000	5,000	5,000
Recycled Water		0	0	0	0	0	0
Desalination Water		0	0	0	0	0	0
Other		0	0	0	0	0	0
Total[7]		49,149	50,619	50,325	50,031	50,031	49,737

Notes
1. Unit of measure: ac-ft/yr
2. Volume of water in 2010 presents actual water purchased in 2010; Volumes shown in 2015, 2020, 2025, 2030, and 2035 are based on the long term reliability factor of 63 percent,62 percent, 61 percent, and 60 percent, respectively from the State Water Project Delivery Reliability 2009 Report. The contracted quantities are shown in Table 4-2.
3. Groundwater supplies are based on appropriative rights in Santa Maria Groundwater Basin as defined in the Stipulation. Pursuant to the Court's Phase 5 Tentative Decision, the City has been assigned 5,100 ac-ft/yr of prescriptive rights, which are included in this data.
4. Further details can be found in Exhibit F of the Groundwater Stipulation.
5. Pursuant to the Stipulation, the City is entitled to recapture 65% of its SWP use in the Basin.
6. Additional SWP water exchanges to serve Nipomo agreement can be from these sources: suspended Table A amount, surplus exchanges from San Luis Obispo county, and surplus Table A amount from the Santa Barbara County.
7. See Reliability section for details on these supplies.
8. Table format based on DWR Guidance Document Table 16

The City's water supply is projected to remain relatively constant from 2015 to 2035 to meet the associated projected water demands, with the majority of this demand being met by imported surface water. The City is expected to have an available supply in excess of the projected demands through 2035 (presented in Section 3). Details of the imported water, return flows, Twitchell Yield, and native groundwater supplies are presented in the following section.

Wholesale Supplies

Santa Maria has a Water Supply Agreement with CCWA for 17,280 ac-ft/yr of Table A imported SWP water. Pursuant to the Stipulation, Santa Maria agreed to import and use

within the Basin no less than 10,000 ac-ft/yr of available SWP water, or the full amount of available SWP water if the amount available is less than 10,000 ac-ft in a given year. Both Golden State Water Company (GSWC) and the City of Guadalupe import and use their available SWP water within the Basin. Table 4-2 presents the contracted volumes available from CCWA to the City. Note that the average long-term reliability factor is used to determine available purchased water from CCWA. Appendix G contains the CCWA future projections of the volume of water to be delivered to the City of Santa Maria.

SWP water originates within the Feather River watershed, is captured in Lake Oroville, and flows via the Sacramento-San Joaquin Delta, the California Aqueduct and the Coastal Branch Extension into CCWA's treatment and conveyance facilities.

Table 4-2
Wholesale Supplies – Existing and Planned Sources of Water

Wholesale Sources[2,3]	Contracted Volume[3]	2015	2020	2025	2030	2035
Purchased Water from SWP[(2)]	17,820	11,227	11,048	10,870	10,870	10,692

Notes
1. Unit of measure: ac-ft/yr
2. Water volumes presented here are accounted for in Table 4-1
3. Indicates the full contracted amount of water
4. Table format based on DWR Guidance Document Table 17.

Return Flows

Under the Stipulation, the City is entitled to a fixed percentage of the annual amount of SWP water it uses within the Basin. The fixed percentage for the City is 65 percent, based on a rolling average of the prior 5 years of imported water use. These "return flows" augment the yield in the Basin through recharge that occurs when wastewater is percolated back into the Basin.

Groundwater

Groundwater for the City is supplied by seven active wells in the Santa Maria Groundwater Basin. The Basin has a surface area of approximately 184,000 acres (287.5 square miles). The Basin is bounded by the San Luis and Santa Lucia Ranges on the north, by the San Rafael Mountains on the east, by the Solomon Hills on the south, by the Casmalia Hills on the southwest, and by the Pacific Ocean on the west.

The water-bearing units are alluvium, dune sands, and the Orcutt, Paso Robles, Pismo, and Careaga Formations. The alluvium consists of unconsolidated lenticular bodies of gravel, sand, silt, and clay (DWR, 2003). The dune sands consist of well-rounded, fine- to coarse-grained sand. The Orcutt Formation consists of sand interbedded with coarse gravel with minor amounts of silt and clay restricted to the upper parts of the unit (DWR, 2003). The Paso Robles formation consists of unconsolidated to poorly consolidated gravel, sand, silt, and clay (DWR, 2003). The Careaga Formation consists of unconsolidated fine- to medium-grained marine sand with some silt and unconsolidated to well consolidated coarse- to fine-

grained sand, gravel, silty sand, silt, and clay (DWR, 2003). The Pismo formation consists of coarse- to fine-grained sand interbedded with discontinuous layers of silt and clay (DWR, 2003). Groundwater is generally unconfined, except in the coastal portions where it is confined (DWR, 2003).

Sources of recharge water to the groundwater basin include the following: infiltration of precipitation, inflow from adjacent areas, return flows from applied water (irrigation), percolation of water from streams flowing across the Basin, especially the Arroyo Grande on the north and Santa Maria and Sisquoc Rivers in the south. In addition, two reservoirs, Lopez Reservoir on the Arroyo Grande in the north and the Twitchell Reservoir on the Cuyama River, a tributary to the Santa Maria River in the south, provide storage of storm water for recharge of the Basin. Water from the Lopez Reservoir is used directly by the coastal communities of Arroyo Grande, Pismo Beach, Grover Beach, and Oceano Community Services District, so some return flows from local irrigation recharges the groundwater basin locally. Reservoir releases from Lopez are made to provide for groundwater recharge through the bed of the Arroyo Grande Creek into the groundwater basin underlying the Arroyo Grande area. The Twitchell Reservoir is operated as a flood control and water conservation reservoir. Releases are controlled from Twitchell Reservoir to maximize recharge of the Basin through percolation of the Santa Maria River bed.

Groundwater discharges from the Basin include: consumptive use of groundwater by agricultural users and, municipal and industrial users (e.g., cities and oil industry for secondary recovery of oil), and groundwater discharge to the ocean. Groundwater discharge to the ocean is required to prevent seawater intrusion into the Basin.

The total groundwater storage capacity of the Basin is approximately 4,000,000 acre-feet (DWR, 2003). The large volume of groundwater in storage in the basin provides a buffer to drought conditions in the Basin.

Developed Basin Supplies

In addition to the recharge of the Basin as described above, two reservoirs, the Lopez Reservoir on Arroyo Grande Creek in the north and the Twitchell Reservoir on the Cuyama River, a tributary to the Santa Maria River in the south, provide additional, developed supplies to the Basin.

Water from the Lopez Reservoir is used directly by the coastal communities of Arroyo Grande, Pismo Beach, Grover Beach, and Oceano Community Services District. Some return flow from local irrigation of these supplies also augments the groundwater recharge locally. Also, reservoir releases are made to provide for groundwater recharge through the bed of the Arroyo Grande Creek into the groundwater basin underlying the Arroyo Grande area.

The Twitchell Reservoir is operated as a flood control and water conservation reservoir. Releases are controlled from Twitchell Reservoir to maximize recharge of the Basin through percolation along the Santa Maria River bed. The Stipulation sets the developed yield at 32,000 ac-ft/yr.

Since 1997, State Water Project water has been imported to the Basin by Oceano Community Services District and Pismo Beach in the north, and City of Guadalupe, City of Santa Maria, and GSWC in the south. The importation of this water has reduced the stress on the Basin

through a reduction in pumping by some parties. Groundwater recharge is increased by the return flows of imported applied waters through irrigation and wastewater discharges to percolation ponds.

Stipulated Judgment and Water Rights

In 1997, the Santa Maria Valley Water Conservation District filed a lawsuit to adjudicate water rights in the Basin. (*Santa Maria Valley Water Conservation District vs City of Santa Maria, et al.,* (Superior Court, County of Santa Clara, Case no. 770214). The court divided the trial of the case into phases. In January 2001, the Court issued the Phase 1 Order, which established the Outermost Boundaries of the Basin. In December 2001, the Court issued the Phase 2 Order, which established the area constituting the Basin for purposes of the adjudication. In May 2004, the Court issued a Partial Statement of Decision on Phase 3 issue regarding the hydrologic conditions in the Basin. As part of its Phase 3 Partial Statement of Decision, the court reserved jurisdiction over remaining water rights issues and management of the Basin.

Subsequent to the Phase 3 trial, the majority of the parties to the lawsuit, including the original plaintiff, the Santa Maria Valley Water Conservation District, negotiated a Settlement Agreement ("Stipulation") that set forth terms and conditions for a physical solution concerning the overall management of Basin water resources, including rights to use groundwater, SWP water and associated return flows, the developed groundwater yield resulting from the operation of Twitchell and Lopez reservoirs, use of Basin storage space, and the ongoing monitoring and management of these resources, consistent with common law water rights priorities and Article 10, Section 2 of the California Constitution. The Stipulation has been signed by a majority of overlying land owners in the Santa Maria Basin.

The Stipulation also subdivides the Basin into three Management Areas: the Northern Cities Management Area, Nipomo Mesa Management Area, and the Santa Maria Valley Management Area. The delineation of these areas was based on historical development and use of Basin water resources, as further delineated in the Stipulation and the court record. This Stipulation is provided in Appendix H.

As noted above, the Stipulation provides the City certain rights to water in the Basin. These rights include: a recognition of the City's highest historical use of groundwater from the Basin; the right to recapture a preset portion of the return flows from the City's use of SWP in the Basin; and a 14,300 ac-ft/yr share of the developed groundwater yield resulting from Twitchell Reservoir operations.

In addition, the City may access additional supply through the transfer of Twitchell Yield. Also, return flows from SWP water are assignable in whole or in part, subject to accounting.

The Stipulation also establishes certain preset water shortage response measures in anticipation of reduced availability of groundwater.

Although the court has approved the Stipulation as between those who have signed it, not all parties to the adjudication have agreed to it. Phase 4 proceeded to trial in early 2006 as between the public water suppliers, including the City, and a small number of landowners who opposed the Stipulation. The Phase 4 statement of decision issued by the Court stated that the City and GSWC met the burden of showing a prescriptive right during various time

periods prior to the time the Twitchell Project began recharging the Basin. Phase 5 occurred in July of 2006. The scope of the Phase 5 trial was to allow the remaining landowners to show that they had engaged in self-help during the applicable prescriptive periods and to determine whether, and in what form, the Court should impose a physical solution on the parties' collective future use of the Basin. The Phase 5 statement of decision re-affirms the prescriptive rights obtained by the City and GSWC, states that those rights are correlative to the rights of the overlying landowners, and provides that the City and GSWC are entitled to those specific quantities of water in the Basin, the same as any overlying landowner, so long as there is a surplus of water in the Basin. The statement of decision also states that the monitoring program contained in the Stipulation will be incorporated into the Court's final judgment and will be binding on all parties to the litigation. Further, the Phase 5 statement of decision provides that the Court will retain jurisdiction to enforce the judgment and to implement the physical solution as necessary. The Phase 5 statement of decision further confirms the ability of the Santa Maria Valley Water Conservation District to allocate Twitchell Yield in the manner provided in the Stipulation. The Court held a hearing on the Phases 4 and 5 tentative decisions in January 2007 and instructed the public water supplier parties to prepare the final judgment. A final judgment was entered on January 25, 2008.

The Santa Maria Basin Monitoring and Management Program was prepared in 2008 to provide the fundamental data for ongoing annual assessments of groundwater conditions, water requirements, water supplies, and water disposition in the Santa Maria Valley Management Area - SMVMA (SMVMA, 2010) to ensure that the Santa Maria Groundwater Basin is protected and managed as a source of water for beneficial uses.

Existing and Projected Groundwater Use

As described above, the Stipulated Agreement provides the City of Santa Maria certain water rights within the Basin including, but not limited to, appropriative rights to Native Groundwater and the right to New Developed Water. In addition, the City has rights to Twitchell Development Water and return flows of its imported water. Table 4-3 presents the City's water rights of Twitchell Development Water and return flows of its imported water. The available return flow to the City is calculated on the average quantity the City imports in the previous five years. The return flow quantity in Table 4-3 is based on the reliable amount of SWP supplies as described in CCWA's 2010 UWMP (CCWA, 2010).

Table 4-3
Groundwater Pumping Rights

Basin Name	Pumping Rights
Twitchell Yield[2]	14,300
Native Groundwater/Appropriative Rights in Times of Surplus[3]	12,795
Return Flows of Imported Water[4]	Varies between 8,688 – 6,950

Notes
1. Unit of measure: ac-ft/yr
2. Further details can be found in Exhibit F of the Stipulation.
3. Groundwater supplies are based on appropriative rights in Santa Maria Groundwater Basin as defined in the Stipulation. Pursuant to the Court's Phase 5 Tentative Decision, the City has been assigned 5,100 ac-ft/yr of prescriptive rights.
4. Return flows from 2015 through 2035 are based on the projected supply of imported water based on long-term reliability as presented in Table 4-2. Available return flows may be less if the total amount of imported water is not available.

Table 4-4 shows the City's wells and current well capacities. The City's current well system has a total production capability of 14,550 gpm (23,426 ac-ft/yr).

Table 4-4
Wells and Well Capacity in the City of Santa Maria System

Well Name	Nominal Well Capacity (gpm)	Nominal Well Capacity (ac-ft/yr)	Status
5H	600	966	Active
9S	1,800	2,898	Active
10S	2,500	4,025	Active
11S	2,150	3,462	Active
12S	2,500	4,025	Active
13S	2,500	4,025	Active
14S	2,500	4,025	Active
Total Capacity	14,550	23,426	

Table 4-5 shows the City's groundwater pumping history for calendar years (January 1 – December 31) 2006 to 2010. Groundwater was pumped from seven active wells located in the Santa Maria Groundwater Basin. The City's use of groundwater since 1997 is greatly reduced as the City maximized its use of SWP water.

Table 4-5
Groundwater Pumping History by the City of Santa Maria (2006 to 2010)

Basin Name	Metered or Unmetered[4]	2006	2007	2008	2009	2010
Santa Maria River Valley	Metered	543	2,550	6,626	6,610	3,044
Groundwater as Percent of Total Water Supply	Metered	4	17	46	46	19

Notes
1. Table format based on DWR Guidance Document Table 18
2. All values are in ac-ft/yr
3. Years are reported in calendar years (January 1 – December 31)
4. Indicates whether volume is based on volumetric meter data or another method

Table 4-6 shows projected groundwater pumping amounts for the City. Groundwater will be pumped from the City's seven active wells or from new or replacement wells as may be required in the future to meet existing and projected demands. Groundwater pumping amounts presented in Table 4-6 include water sources described in the Stipulation. These sources consist of Twitchell Yield, groundwater, and return flows from imported SWP water. The City's projected total water demands are presented in Section 3.

Table 4-6
Projected Groundwater Pumping Amounts by the City of Santa Maria from 2015 to 2035

Basin Name	2015	2020	2025	2030	2035
Santa Maria River Valley	4,872	6,162	7,999	8,312	9,070
Percent of Total Water Supply	11	14	18	18	20

Notes
1. Table format based on DWR Guidance Document Table 19
2. All values are in ac-ft/yr
3. Years are reported in calendar years (January 1 – December 31)
4. Groundwater pumped from the Santa Maria River Valley Groundwater Basin consists of Twitchell Yield, groundwater, and return flows from imported SWP water.

Transfers and Exchanges

The Stipulation provides the City with quantifiable and certain water rights. Prior to the groundwater adjudication, these rights were not quantifiable. The Stipulation also establishes a framework for both permanent and temporary transfers of water rights within the Basin. Because the City has obtained quantifiable water rights, the City has greater flexibility in facilitating transfers and exchanges. The Stipulation allows permanent or temporary transfer of the developed groundwater yield associated with the operation of the Twitchell Project. The Stipulation also allows temporary transfers of agricultural pumping rights (fallowing programs) during Severe Water Shortage Conditions as defined in the Stipulation (Appendix H). These assignments are summarized in Table 4-7.

As described above, there are mechanisms that could augment the reliability of City water supplies during a dry period. For example, water available through exchanges with other

contractors, purchases of water through DWR dry-year water purchase programs, short-term water transfers through DWR's Turnback Pool programs and groundwater recharge programs operated by some CCWA project participants. In any given year, additional water can be made available through the SWP system for the incremental cost of purchasing or exchanging the water from others in the SWP.

Table 4-7
Transfer and Exchange Opportunities

Transfer Agency	Transfer or Exchange	Short Term or Long term	Proposed Volume (ac-ft/yr)
Twitchell Management Authority	TBD[(2)]	TBD	TBD
CCWA	TBD[(2)]	TBD	TBD
Nipomo	EXCHANGE	LONG-TERM	5,000

Notes
1. Table format based on DWR Guidance Document Table 20
2. Transfers and exchanges under these programs will occur on an as needed basis.
3. Additional SWP water exchanges to serve Nipomo agreement can be from these sources: suspended Table A amount, surplus exchanges from San Luis Obispo county, and surplus Table A amount from Santa Barbara.
4. TBD – To be determined

Desalinated Water Opportunities

This sub-section presents opportunities to use desalinated water as a future water supply source for the City of Santa Maria per requirements of California Water Code section 10631(i). The reliability of water supply for the City could be further augmented by the desalination of brackish water and seawater plans of the CCWA. The following discussion summarizes the brackish water and seawater desalination plans of CCWA.

Brackish or Groundwater Desalination. As mentioned in the CCWA's 2010 UWMP, neither CCWA's mission nor the route of its pipeline and facilities lend themselves to brackish or groundwater desalination projects. However CCWA and its project participants could team up with other SWP Contractors and provide financial assistance in construction of other regional groundwater desalination facilities. A list summarizing the groundwater desalination plans of other SWP Contractors is not available; however, CCWA would begin this planning effort should the need arise.

Seawater Desalination. CCWA's mission is to import SWP water (CCWA, 2010). At this time, its Board of Directors does not consider desalination to be a cost-effective method of increasing the reliability of imported water. Two CCWA project participants, however, have constructed desalination facilities. The City of Morro Bay intermittently operates an 830,000 gpd desalination facility and the City of Santa Barbara maintains a decommissioned desalination facility for emergency use.

Similar to the brackish water and groundwater desalination opportunities described above, CCWA and its project participants could provide financial assistance to its project participants or to other SWP Contractors in the use and/or construction of their seawater desalination facilities. CCWA has been following the existing and proposed seawater

desalination projects along California's Coast. The "Seawater Desalination and the California Coastal Act" provides a summary and status of the existing and proposed seawater desalination plants along the California's Coast. Currently, most of those existing and proposed seawater desalination facilities are/would be operated by agencies that are not SWP Contractors.

There are no specific opportunities identified for using desalinated water as a source of water supply for the City.

Recycled Water Opportunities

Although the City does not currently use or have any plans to directly use recycled water in the near future, the City's treated wastewater that is discharged to disposal ponds does percolate into the subsurface and recharge the groundwater basin as return flows. These return flows and recharge to the groundwater basin help protect against seawater intrusion and improve groundwater quality by lowering total dissolved solids (TDS) concentrations.

Wastewater Quantity, Quality, and Current Uses

A per capita wastewater generation factor was used to calculate the volume of wastewater generated by the customers in the City's wastewater system. The per capita wastewater generation for the City service area is assumed to be approximately 78 gallons per day (gpd) which is calculated based on the wastewater collected and treated at the City's wastewater treatment plant in 2010. This per capita wastewater generation factor is used to estimate existing and projected volumes of wastewater collected and treated in the City (refer to Table 4-8). The City does not currently directly supply recycled water to its customers. However, under the Stipulation discussed in the groundwater section, the City receives credit for the return flows of water imported through the SWP. These return flows recharge the groundwater basin and help to protect against seawater intrusion. The return flows also improve groundwater quality by lowering TDS concentrations.

Table 4-8
Recycled Water – Estimates of Existing and Projected Wastewater Collection and Treatment for the City

	Volume						
Type of Wastewater	**2005[2]**	**2010[3]**	**2015**	**2020**	**2025**	**2030**	**2035**
Projected population in service area	88,439	99,553	102,300	109,500	116,700	118,300	118,900
Wastewater collected & treated in service area (ac-ft/yr)	9,517 (8.5 mgd)	8,721 (7.78 mgd)	8,962 (7.99 mgd)	9,593 (8.56 mgd)	10,224 (9.12 mgd)	10,364 (9.25 mgd)	10,416 (9.29 mgd)
Volume that meets recycled water standard	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes:
1. Table format based on DWR Guidance Document Table 21
2. Assumed 96 gpd based on the wastewater collected and treated in 2005 at the City's wastewater treatment plant
3. Based on the wastewater collected and treated in 2010 at the City's wastewater treatment plant

Currently, the City disposes of all of its treated wastewater through percolation ponds under a WDR permit. Table 4-9 has been completed with projected wastewater treatment amounts through 2035. The City plans to continue with its current method of wastewater treatment that will allow for the use of return flows of imported water. As noted above, the return flows help to protect the groundwater basin from seawater intrusion and improve groundwater quality by lowering TDS concentrations.

Table 4-9
Recycled Water – Estimates of Existing and Projected Disposal of Non-recycled Wastewater for the City of Santa Maria

Method of disposal	Treatment level	Volume (ac-ft/yr)					
		2010	2015	2020	2025	2030	2035
Percolation	Secondary	8,721 (7.78 mgd)	8,962 (7.99 mgd)	9,593 (8.56 mgd)	10,224 (9.12 mgd)	10,364 (9.25 mgd)	10,416 (9.29 mgd)

Notes:
1. Table format based on DWR Guidance Document Table 22

Potential Use

There are no existing recycled water customers in the City of Santa Maria System. Therefore, Table 4-10 has been intentionally left blank. At this time, no potential future recycled water uses have been identified within the City's service area. However, under the Stipulation, the City receives credit for the return flows of imported water into the Basin. This imported water is indirectly recycled, as the City is able to pump a portion of the imported water as return flows. The City may reconsider traditional uses of recycled water in the future.

Table 4-10
Potential Future Recycled Water Uses

User type	Description	Feasibility	2015	2020	2025	2030	2035
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes
1. This table is based on the DWR Guidebook Table 23.

In the UWMP for the City of Santa Maria (2005), projections of recycled water within the City by the year 2010 were not included. The City does not have any current or planned potential future uses of recycled water above the use of return flows from imported water. Therefore, Table 4-11 is not applicable for this system and has been intentionally left blank. However, the City's treated waste water that is discharged to disposal ponds does percolate into the subsurface and recharge the groundwater basin as return flows. These return flows and recharge to the groundwater basin help protect against seawater intrusion and improve groundwater quality by lowering TDS concentrations.

Table 4-11
Comparison of Recycled Water Uses—Year 2005 Projections versus 2010 Actual

Type of Use	2010 Actual Use	2005 Projection for 2010
N/A	N/A	N/A

Notes
1. This table is based on the DWR Guidebook Table 24.

Optimization and Incentives for Recycled Water Use

Although the City maximizes the use of return flows from imported water, the City does not have any plans in place to provide traditional uses of recycled water. Therefore, Table 4-12 is not applicable for this system and has been intentionally left blank. The City may update this table in the future if the City considers traditional uses of recycled water. However, the City's treated waste water that is discharged to disposal ponds does percolate into the subsurface and recharge the groundwater basin as return flows. The return flows and recharge to the groundwater basin helps protect against seawater intrusion and improves groundwater quality by lowering TDS concentrations.

Table 4-12
Methods to Encourage Recycled Water Use

	Projected Results					
Actions	2010	2015	2020	2025	2030	2035
N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes
1. This table is based on the DWR Guidebook Table 25.

Future Water Projects

The City will construct new wells, pipelines, and treatment systems, as needed, as a part of its ongoing operations to maintain its supply and meet distribution system requirements. The City's plan is to maximize supplies from the SWP to provide increased reliability for water quality reasons, then to provide treatment to groundwater supplies to meet water quality objectives during peak-use and during shortages in the SWP, and to lessen the reliance on SWP long-term.

As described above, the City has a number of planned water supply projects and programs intended to increase the City's water supply. Table 4-13 presents potential water supply projects and programs that are being pursued by the City, which are as follows:

- The City has proposed to acquire additional SWP Table A water. Currently, the County of Santa Barbara has approximately 12,000 ac-ft/yr of additional water. This water would be used to provide additional water supplies to the Santa Maria area.
- As part of the Stipulation, the City, Guadalupe, and GSWC received 80 percent of the Twitchell yield of 32,000 ac-ft/yr. The balance of the water shall be made available to the stipulating landowners within the district. The Stipulation provides for the City to purchase this supply should the landowners wish to relinquish this supply. Because the

majority of the stipulating landowners have an overlying right and first priority to the native water it is likely that some or all of the stipulating landowners may choose to sell their Twitchell water amounts rather that incur the expense of the Twitchell management authority. If the landowners choose to keep their Twitchell water supplies they will be subject to their portion of the Twitchell management authority assessments.

Table 4-13
Future Water Supply Projects

Project Name[1a]	Projected start	Projected	Potential project constraints[2]	Normal year supply	Single-dry year supply	Multiple-dry year Supply		
						Year1	Year2	Year3
SWP Table A Water Purchases	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Purchases of Twitchell Yield	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes
1. Table format based on DWR Guidance Document Table 26
2. N/A – Not Available

Section 5. Water Supply Reliability and Water Shortage Contingency Plan

A detailed evaluation of water supply reliability and water shortage contingency planning are requested by the Act. Sections 10631 (a) through (d) require that (item numbers are from the 2010 UWMP guidebook outline checklist):

#5. An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions (10620(f)).

#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)).

#37. 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)).

#38. 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)).

#39. 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)).

#40. Penalties or charges for excessive use, where applicable (10632(f)).

#41. 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)).

#42. A draft water shortage contingency resolution or ordinance (10632(h)).

#52. The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability (10634).

#22. Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following: (A) an average water year, (B) a single-dry water year, (C) multiple-dry water years (10631(c)(1)).

#35. Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage (10632(a)).

#36. 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)).

#43. A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis 10632(i).

#53. Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple- dry water years. This water supply and demand assessment shall compare 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. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier (10635(a)).

A comparison of the water supplies and demands for the City of Santa Maria is presented in this section. This section also presents an assessment of overall reliability of future supplies regardless of drought or emergency conditions. It includes discussion of City's planned responses in emergency situations that can affect water supplies. This section presents a drought contingency plan in which the City has laid out the responses in an event of shortage in water supplies.

The City has taken guidance from the following documents/information while preparing this section:

- DWRs Urban Drought Guidebook 2008 Updated Edition (DWR, 2008)
- DWRs California Drought Contingency Plan (DWR, 2010)
- DWRs State Water Project Delivery Reliability Report (DWR, 2009)
- Reliability of Water Supply Data Provided by CCWA (DWR, 2011)

Water Supply Reliability and Drought Planning

Currently, the City has the available water supply (discussed in Section 4) to meet projected demands. Groundwater, including the City's historic appropriative rights, as well as the City's prescriptive rights under the Stipulation and Twitchell Yield, is pumped from the Basin and imported supplies from the SWP are obtained via CCWA. In addition, the City can pump a percentage of its imported water supply as return flows. These return flows are pumped from the City's wells and are in addition to City's groundwater supplies. Because the City's supplies are derived both from local groundwater and the SWP, the conditions in local and distant areas can impact the reliability of supplies. The following discussion summarizes the reliability of the City's water supply sources. The City's total supply is expected to exceed demands through 2035. This reliability is a result of the projected reliability of imported water and associated return flows and reliable groundwater in the Basin. Following is a summary of the basis of this reliability.

CCWA's Water Supply Reliability

CCWA's sole water supply is imported water from the SWP. The actual amount of water available to be delivered by the SWP varies from year to year based on a combination of hydrologic conditions, water available in SWP storage reservoirs, and environmental regulations in the San Francisco Bay/Sacramento-San Joaquin River Delta. SWP water deliveries are subject to reduction when dry conditions occur in northern California or as a result of regulation.

CCWA is a SWP contractor (through Santa Barbara County Flood Control and Water Conservation District) with an annual contractual amount of 45,486 ac-ft. Each Contractor annually submits a request to DWR by October 1 of each year for water delivery in the following calendar year, in any amount up to the Contractor's full amount. However, some contractors have never requested delivery of their allotted amounts as a result of factors such as less-than-planned water demand, availability of other water supplies, and water conservation efforts that have held below initial demand projections for full contract amounts (CCWA, 2010).

The State Water Project Delivery Reliability report (DWR, 2009) concluded that the SWP, using existing facilities operated under current regulatory conditions, and with all contractors asking for their full allotted amount, could deliver 60 percent of total allotted amounts on a long-term average basis. The analysis also projected that SWP deliveries during multiple-dry year periods would be about 35 percent (4-year drought) of the allotted amounts, and possibly as low as 11 percent of the allotted amounts during an unusually dry single year.

Per CCWA (CCWA, 2011), water supply deliveries to the City are expected to be 63, 62, 61, and 60 percent reliable (based on a long-term average basis) during normal years for 2015, 2020, 2025 through 2030, and 2035, respectively. However, deliveries during multiple-dry year periods could be between 34 and 36 percent of the allotted amounts between 2015 and 2035 and possibly 7 through 11 percent of the allotted amount during an unusually dry single year for the period of 2015 through 2035.

Reliability of Return Flows

The City derives its return flows to the local groundwater basin from a percentage of the amount of imported water delivered to the City each year. The available return flows are based on a five-year rolling average of the amount of SWP water imported by the City. The City may then pump 65 percent of the five-year average of imported water as return flows through their groundwater wells. Based on projected demands, the City plans to import the required imported water to meet its demands. Under the Stipulation, the City is required to import a minimum of 10,000 ac-ft/yr of SWP water, if it is available. As mentioned previously, the return flow water will also be impacted by the reliability of SWP water delivered by CCWA. In normal years, return flows are expected to be about 63 to 60 percent reliable; however, during single-dry years and multiple-dry years, reliabilities are expected to be about 7 through 11 and 34 through 36 percent, respectively (CCWA, 2011).

City of Santa Maria's Groundwater Supply Reliability

The Santa Maria Groundwater Basin, especially the SMVMA, is a reliable source of water for the City. This reliability is based on City's water rights in the Santa Maria Groundwater Basin and the availability to extract return flows from imported State Water Project water. In addition, the Santa Maria Groundwater Basin has a large volume of groundwater in storage to buffer drought conditions, as has been demonstrated historically.

As a part of the Stipulation, the City of Santa Maria, along with GSWC and City of Guadalupe, has preferential appropriative rights to surplus native groundwater. Therefore, these parties may pump groundwater without limitation unless a Severe Water Shortage Condition exists, as defined and provided in the Stipulation. The four conditions that serve

as the basis for determination of the existence of a Severe Water Shortage Condition are described in the following paragraph. In the event of a Severe Water Shortage Condition, the Court may order GSWC, along with Santa Maria and Guadalupe, to limit their pumping to their respective shares of groundwater derived from the Twitchell Yield, return flows, and any assigned rights. The Court granted the City 5,100 ac-ft/yr of prescriptive rights in the Basin.

The Stipulation has requirements for monitoring and management to ensure that water supplies continue to be sufficient to support water uses in the Basin. Annual monitoring has been implemented to report on water demands and water supplies. The Stipulation includes provisions to avoid Severe Water Shortage Conditions and a procedure to deal with Severe Water Shortage Conditions. Given the historic reliability of Basin supplies, Severe Water Shortage Conditions shall be found to exist only when the Management Area Engineer, based on ongoing monitoring, finds the following:

1. Groundwater levels in the Management Area are in a condition of chronic decline over a period of not less than five years
2. The groundwater decline has not been caused by drought
3. There has been material increase in groundwater use during the five-year period
4. Monitoring wells indicated that groundwater levels in the Santa Maria Valley Management Area are below the lowest recorded levels

The procedure for addressing Severe Water Shortage Conditions is described in the Stipulation, which may include limitations on groundwater use. The Stipulation also has provisions for the management and administration of the Twitchell Project. These provisions are designed to provide for funding and operation of the Twitchell Project so as to maintain this water supply to the Basin.

As noted, the City has rights to rely on its highest historical use of groundwater in times of surplus, plus 14,300 ac-ft/yr of groundwater derived from the Twitchell Project, its SWP return flows, and its prescriptive rights.

In conclusion, the City has firm access to groundwater, the additional 14,300 ac-ft/yr of groundwater derived from the Twitchell Project, SWP entitlement, plus the five-year average of SWP water return flows to meet its water demands. This reliability could be reduced in the event that the initial court response to a Severe Water Shortage Condition requires imposition of limitations on groundwater use. However, there are many options available to the City to avoid such limitations, such as temporary transfers of rights to pump groundwater or other actions that might be approved by the court.

City of Santa Maria's Water Supply Reliability

Reliability for the City depends upon the reliability of imported water, groundwater production, and maintenance of the Twitchell Project, as discussed previously. The City's total water supplies and demands are presented in Section 4 and Section 3, respectively. Comparison of water supply (Table 4-1) with water demand (Table 3-12) shows that sufficient water supply is available to meet the projected water demands. It should also be noted that available supplies exceed water needed to meet the projected demands (Table 3-

12). This supply buffer (available supply in excess of demand) serves to assure reliability of supplies.

Purchased water supplies from SWP are estimated by incorporating the average supply reliability of CCWA supplies to the City. Based on long-term reliability data provided by CCWA, these available supplies will contribute to reliability to meet projected demands.

The return flows are calculated by multiplying the imported water by the return flow factors in the Stipulated Agreement. The City may extract 65 percent of their imported water supply as return flows. Based on long-term reliability data provided by CCWA, these estimated return flow supplies will contribute to reliability to meet the demands.

Table 5-1 presents water supply projections from purchased water, groundwater, and return flows during a normal year, single-dry year and multiple-dry years for the City for 2035. To analyze the effect of drought conditions on the water supply, the year with the highest water demands (i.e., 2035) was selected. The normal year supply represents the expected supply under average hydrologic conditions, the dry year supply represents the expected supply under the single driest hydrologic year, and the multiple-dry year supply represents the expected supply during a period of four consecutive dry years. CCWA's water supplies are estimated using 60, 36, and 11 percent for the normal, multiple-dry and a single-dry water year demands, respectively. The City's total water supplies are expected to be 100 percent reliable. Any water demands, which cannot be met with imported SWP water, are expected to be met by groundwater supplies, including return flows of SWP water, in accordance with the Stipulated Agreement. As presented in the Stipulated Agreement, the Management Area Engineer is responsible for monitoring water conditions and recommending water supply projects and programs to help ensure that water supplies are available to each Management Area under all hydrologic conditions.

Table 5-1
Supply Reliability for the City of Santa Maria for Year 2035 (Based on Historic Conditions)

Source	Normal Water Year	Single-Dry Water Year	Multiple-Dry Water Years			
			Year 1	Year 2	Year 3	Year 4
Imported Water from SWP[2]	10,692	1,960	6,415	6,415	6,415	6,415
Groundwater Available from Twitchell Yield[3]	14,300	14,300	14,300	14,300	14,300	14,300
Groundwater[6]	12,795	12,795	12,795	12,795	12,795	12,795
Return flows from SWP water[4,5]	6,950	1,274	4,170	4,170	4,170	4,170
Exchanges In	5,000	5,000	5,000	5,000	5,000	5,000
Total	49,737	35,329	42,680	42,680	42,680	42,680
Percent of Normal/Average		71	86	86	86	86

Notes
1. Unit of measure: ac-ft/yr
2. Single-dry year and multiple-dry year reliability for imported water is 11 and 36 percent, respectively, of contracted amount.
3. Granted under the Stipulation, subject to and adjustments that could be ordered by the Court
4. Return flows are based on five-year rolling average of imported water. Single-dry year impacts will not affect availability of return flows for previous five-year average.
5. Multiple-dry year reliability of return flows considers the previous five-year rolling average of SWP imports. These projections assume five years of normal water years before the beginning of the multiple-dry year period.
6. Long-term operation of the groundwater basin under the Stipulation and storage of imported water from the SWP will allow increased groundwater production in years where actual imported water supplies are limited.
7. Table format based on DWR Guidance Document Table 28.

Although the single-dry year and multiple-dry year supplies are less than the normal water year supplies, these available supplies under these hydrological conditions still exceed supplies needed to meet the projected demands (Table 3-12).

Table 5-2 lists single-dry year and multiple-dry year periods for both groundwater and purchased water supplies. The single-dry year and multiple-dry year periods are based on CCWA's (which are based on SWP) analysis of the lowest average precipitation for a single year and the lowest average precipitation for a consecutive multiple-year period, respectively.

Based on the historical records of SWP water and reliability data specific to Santa Barbara County, CCWA has indicated that 1977 is the single-dry year and the years of 1929 through 1932 are representative of driest four consecutive years (CCWA, 2011). A normal water year is based on the long-term average basis.

Table 5-2
Basis of Water Year Data

Water Year Type	Base Year(s)
CCWA[1]	
Normal Water Year	N/A [2]
Single-Dry Water Year	1977
Multiple-Dry Water Years	1929 -1932
Groundwater[3]	
Normal Water Year[4]	1988
Single-Dry Water Year	1972
Multiple-Dry Water Years	1970 through 1972

Notes
1. Delivery reliability data provided by CCWA
2. N/A = Not Applicable. Average of the entire hydrologic period
3. Record of precipitation from Western Regional Climate Center (WRCC) at Santa Maria, CA.
4. Normal water year calculated from median precipitation from water year 1949 through water year 2010
5. Table format based on DWR Guidance Document Table 27

CCWA has determined that they can meet their projected water demands for imported water for these years, so the available water supply is expected to meet the demand. In addition, there are other mechanisms that can augment the reliability of supplies during a dry period. For example, water available through exchanges with other contractors, purchases of water through DWR dry year water purchase programs, short-term water transfers through DWR's Turnback Pool programs and groundwater recharge programs operated by some CCWA project participants. The water demands from several CCWA project participants may not be critical because they have invested in water reclamation (recycling) projects, desalination, water transfers, exchanges, conservation measures, and conjunctive use projects to increase the reliability of their overall water portfolios. In any given year, additional water can be made available through the SWP system for the incremental cost of purchasing or exchanging the water from others in the SWP delivery system.

For the groundwater reliability analysis, precipitation data from 1949 through 2010 were reviewed. Data were obtained from the Western Regional Climate Center (WRCC) for Santa Maria, California. Precipitation data was evaluated from Water Year (WY) 1948 to 1949 (October 1, 1948 through September 30, 1949) through water year 2009 to 2010 (October 1, 2009 through September 30, 2010). 1971 to 1972 was the single driest year with 4.26-inches of precipitation. The normal water year was based on DWR's description of the median water year over the period of record. The median annual precipitation between water year 1949 and water year 2010 at Santa Maria was 12.07 inches. Based on the median precipitation, the normal water year was 1988. The multiple-dry year period of water years 1970 through water year 1972 recorded the lowest 3-year total of precipitation. The groundwater stipulation addresses wet and dry periods to maintain groundwater resources. Thus the effect of precipitation is considered in the stipulation. Per Stipulated Agreement, the Management Area Engineer is responsible for monitoring water conditions and

recommending water supply projects and programs to help ensure that water supplies are available to each Management Area under all hydrologic conditions.

The following sections present the current water sources, normal water year, single-dry year, multiple-dry year water supply, and demand assessments.

Current Water Sources Analysis

The Act requires an estimate of the minimum water supply available during each of the next three water years (2011 through 2013) based on the driest three-year historic sequence for the City of Santa Maria's water supply. Table 5-3 summarizes the minimum volume of water available from each source during the next three years based on multiple-dry water years and normal/average water year. The water supply quantities for 2011 through 2013 are based on the Stipulation and data provided by CCWA. The return flows under multiple-dry year conditions are calculated based on the quantities available to the City under the Stipulation and the percentage that yields reliable supplies. See Section 4 for details.

The City of Santa Maria's supply is expected to be 100 percent reliable from 2011 to 2013. This reliability is a result of (1) the projected reliability of imported water and associated return flows and (2) reliable groundwater in the Santa Maria Groundwater Basin.

Table 5-3
Three-Year Estimated Minimum Water Supply

Water Supply Sources	Multiple-Dry Water Year			
	2011	2012	2013	2010 Average year
Purchased Water from SWP[(1)]	6,059	6,059	6,059	13,366
Groundwater Available from Twitchell Yield[(3)]	14,300	14,300	14,300	14,300
Groundwater[(5)]	12,795	12,795	12,795	12,795
Return Flows from SWP Water[(4)]	3,938	3,938	3,938	8,688
Exchanges In	0	0	0	0
Total	37,092	37,092	37,092	49,149

Notes
1. Reliability of purchased water is calculated based on the 34 percent reliability of contracted amount under the multiple-dry year conditions.
2. Unit of measure: ac-ft/yr
3. Granted under the Stipulation
4. Return flows based on average SWP imports of previous five years as described in the Stipulation: 65 percent of imported water
5. This table is based on the DWR Guidebook Table 31.

Normal Water Year Analysis

Table 5-4 summarizes the service reliability assessment for a normal water year based on water supply and water demand projections. Note that the water supply presented in this table is the supply needed to meet projected demand. However, the City's projected total water supply is higher than the supply needed to meet the demand. The demands presented in Table 5-4 include projected water use within the City, sales to other agencies, and unaccounted for water. As discussed previously and in Section 4, local groundwater from the Santa Maria Groundwater Basin and the total purchased water are expected to be reliable to meet the projected demands through 2035. Any demands that cannot be met with SWP water (and associated return flows) are expected to be met by native groundwater supplies and Twitchell Yield in accordance with the Stipulation.

Table 5-4

Comparison of Projected Normal Year Supply and Demand for Normal Water Year

	2015	2020	2025	2030	2035
Water Demand Total (ac-ft/yr)	16,099	17,210	18,869	19,183	19,762
Water Supply Total[(2)] (ac-ft/yr)	16,099	17,210	18,869	19,183	19,762
Difference (supply minus demand)	0	0	0	0	0
Difference as Percent of Supply	0	0	0	0	0
Difference as Percent of Demand	0	0	0	0	0

Notes

1. Table format based on DWR Guidance Document Table 32
2. The water supplies needed to meet the demands are shown in this table. However, the City's supplies exceed the amount needed to meet the projected demands. Table 4-1 provides details of available total water supplies.

Single-Dry Year Analysis

As noted earlier, the single-dry year reliable supplies for imported water delivered by CCWA may be significantly reduced to about 7 through 11 percent from 2015 through 2035. Any water demand that cannot be met with the SWP water (and the associated return flows) will be met by groundwater supplies in accordance with the Stipulation.

Table 5-5 demonstrates the reliability of water supplies to meet projected annual water demands for the City of Santa Maria in a single-dry year. It is assumed that the single-dry year supplies will meet or exceed projected demands through 2035 because local groundwater supply will offset the deficit in imported water supply in a single-dry year.

Table 5-5
Comparison of Projected Supply and Demand for Single-Dry Year

	2015	2020	2025	2030	2035
Demand Total (ac-ft/yr)	16,099	17,210	18,869	19,183	19,762
Supply Total[(2)] (ac-ft/yr)	16,099	17,210	18,869	19,183	19,762
Difference (supply minus demand)	0	0	0	0	0
Difference as Percent of Supply	0	0	0	0	0
Difference as Percent of Demand	0	0	0	0	0

Notes
1. Table format based on DWR Guidance Document Table 33
2. The water supplies needed to meet the demands are shown in this table. However, the City's supplies exceed the amount needed to meet the projected demands. Table 4-1 provides details of available total water supplies.

Multiple-Dry Year Analysis

Table 5-6 presents the projected multiple-dry year water supply and demand assessment. As noted earlier, the multiple-dry year supplies (from CCWA) for imported water are estimated at 34 to 36 percent of available supplies from 2015 through 2035. Any water demands that cannot be met with the SWP water (and the associated return flows) are expected to be met by groundwater supplies in accordance with the Stipulated Agreement. The third year of the multiple-dry year water supply projection represents the end of each 3-year multiple-dry year period as required for the multiple-dry year analysis. It is assumed that the water demand for the preceding two years (of the 3-year multiple-dry year period) will be the same as those in the third year.

The multiple-dry year water supplies are less than the normal years; however, the projected total water supplies are much higher than the projected demands. A combination of groundwater and purchased water will meet projected water demands under multiple-dry years. Table 5-6 demonstrates that the water supplies are sufficient to meet the projected water demand for each multiple-dry year period because groundwater and purchased water can supply water reliably through 2035. As a result, the total water supplies are expected to be 100 percent reliable under multiple-dry years.

In summary, water supplies from local groundwater and purchased water along with the supply from return flows ensure that the total water demands can be met under normal, single-dry year, and multiple-dry years.

Table 5-6
Projected Multiple-Dry Year Water Supply and Demand Assessment

Year	Demand (ac-ft/yr)	Supply[3] (ac-ft/yr)	Difference	Difference as Percent of Supply	Difference as Percent of Demand
2015 (Multiple-Dry Year First Year Supply)	16,099	16,099	0	0	0
2015 (Multiple-Dry Year Second Year Supply)	16,099	16,099	0	0	0
2015 (Multiple-Dry Year Third Year Supply)	16,099	16,099	0	0	0
2020 (Multiple-Dry Year First Year Supply)	17,210	17,210	0	0	0
2020 (Multiple-Dry Year Second Year Supply)	17,210	17,210	0	0	0
2020 (Multiple-Dry Year Third Year Supply)	17,210	17,210	0	0	0
2025 (Multiple-Dry Year First Year Supply)	18,869	18,869	0	0	0
2025 (Multiple-Dry Year Second Year Supply)	18,869	18,869	0	0	0
2025 (Multiple-Dry Year Third Year Supply)	18,869	18,869	0	0	0
2030 (Multiple-Dry Year First Year Supply)	19,183	19,183	0	0	0
2030 (Multiple-Dry Year Second Year Supply)	19,183	19,183	0	0	0
2030 (Multiple-Dry Year Third Year Supply)	19,183	19,183	0	0	0
2035 (Multiple-Dry Year First Year Supply)	19,762	19,762	0	0	0
2035 (Multiple-Dry Year Second Year Supply)	19,762	19,762	0	0	0
2035 (Multiple-Dry Year Third Year Supply)	19,762	19,762	0	0	0

Notes
1. Table format based on DWR Guidance Document Tables 34
2. Total Water Supply includes projected demand within Santa Maria and sales to other agencies
3. The water supplies needed to meet the demands are shown in this table. However, the City's supplies exceed the amount needed to meet the projected demands. Table 4-1 provides details of available total water supplies.

Resource Optimization

Section 10620 (f) asks urban water suppliers to evaluate water management tools and options to maximize water resources and minimize the need for imported water from other regions.

The City is committed to optimize its available water resources, including groundwater, and to implement water conservation programs throughout its service area. In an effort to expand the breadth of offered programs, the City partners with wholesale suppliers, local retailers, and other agencies that support water conservation programs.

The City understands the great importance of water conservation to California's future. The City has water conservation programs to reduce the water demand that are in effect at all times within the City. The conservation programs include the following:

- **Irrigation System.** The City Recreation and Parks Department initiated a program to improve the efficiency of irrigation programs of the City's landscaped areas. Under this program, a systematic upgrade of the irrigation system is conducted by replacing antiquated lines, heads, and valves. Concurrently, a state-of-the-art computerized control system was installed at many sites to improve irrigation efficiency. In addition to the irrigation system, a self-guided garden is available to the public which offers a variety of plants suggested for planting to reduce water irrigation demand.
- **Public Information Programs.** The City also practices a comprehensive public education program that has led to lower water usage.
- **Residential and System Water Audit Program.** A comprehensive water audit program is practiced by the City in order to increase conservation. The residential audits include inspections of residential plumbing fixtures and irrigation systems. The system audit program includes a thorough water meter inspection plan and a "notice of high water use" policy.
- **Fixed Base Meter Reading System.** The City has begun installing a fixed base meter reading system. This new meter reading system reduces water demand by identifying customer side leaks.
- **Voluntary Water Conservation Activities.** The City continues to work with the community to encourage water conservation on a voluntary basis. Water conservation activities include bus ads, water conservation kits, soil moisture meters, shower timers, toilet tank banks, and other promotional items.

The City has taken several steps in recent years to bolster its ability to supply local groundwater. Well 11S was previously not connected to the well header that delivers groundwater to the City's Blending and Disinfection Facility. As a result, Well 11S was not considered available for normal daily supply because its water did not receive the benefit of blending and chemical addition that would make its supply consistent with the remainder of the potable water supply. In 2008, a pipeline was constructed to connect Well 11S to the well header, and now Well 11S supply can be blended and chemically treated through the blender. Well 11S is now considered equivalent to the other major production wells in terms of its availability for normal water supply.

The City has rehabilitated and reactivated Well 5H, which was an old production well that was removed from service because of high nitrate and hardness. The well has been repurposed as an untreated groundwater supply to irrigate large landscaped areas in the vicinity of the Civic Center. Although this water supply is not available for domestic purposes, it helps to alleviate the demand for potable supply, particularly in the high-demand summer months, when irrigation demands peak. Work is underway to extend this secondary water system to additional large irrigation areas at schools and parks to further alleviate demand on the potable water supply.

These projects and programs increase the number of wells available for groundwater production, maximize groundwater production to its best use, reduce reliance on any one pipeline, electrical system, or well, and assist in allowing the City of Santa Maria to successfully meet municipal water needs in acute or chronic water shortage conditions.

By optimizing groundwater and using innovative actions that use water information systems to conserve and use water efficiently, the City aims to reduce dependence on imported water. The City is seeking DWR Proposition 84 funding to implement water conservation and applying low-quality groundwater for landscape irrigation instead of drinking water. The conservation and water use efficiency projects helps to increase the reliability of City's overall water portfolio and reduces reliance on imported water.

Factors Resulting in Inconsistency of Supply

Table 5-7 presents factors resulting in inconsistency of supply for the City of Santa Maria.

Table 5-7
Factors Resulting in Inconsistency of Supply

Water Supply Sources	Specific source name, if any	Limitation Quantification	Legal	Environmental	Water Quality	Climatic
Ground water	Santa Maria Ground water Basin	N/A	The Court retains jurisdiction over management of the Basin and may limit pumping under Severe Water Shortage Conditions as presented in the Stipulation. The Management Area Engineer will monitor groundwater conditions and report to the Court.	N/A[2]	None	See Legal Column in this Table.
Purchased Water	SWP and Associated Return Flows	N/A	N/A	SWP supply may vary (based on fish species in the Delta) under the state and federal endangered species Act	None	Reliability of imported water supply may vary based on SWP annual water supply

Notes
1. Table format based on DWR Guidance Document Table 29
2. A study to identify the release flows necessary to establish and maintain steelhead migration is in the initial stages. The objective of the study is to determine flow releases from Twitchell Reservoir that would be required to maintain sufficient water in the lower Santa Maria River to allow adult Steelhead Trout to migrate from the estuary upstream to access suitable spawning and rearing habitat upstream to the confluence of the Cuyama and Sisquoc Rivers. The potential outcome of this study can result in actions that could impact the quantity and quality of water available in the Basin.
3. N/A = Not applicable or not available

Water Quality

Water Quality Issues

The quality of the City's water supply depends on the blending proportion of the imported surface water and local groundwater in addition to water quality of imported water and groundwater. In general, imported surface water has a lower total dissolved solids (TDS) concentration than local groundwater. The quality of these two sources is described later in this document.

Local groundwater produced by the City's groundwater wells generally has a TDS concentration ranging from 590 parts per million (ppm) to 1,200 ppm, with an average of 859 ppm (Santa Maria, 2009). The City's surface water supply imported through the SWP generally has a TDS concentration range of 131 to 493 ppm, with an average of 362 ppm (Santa Maria, 2009).

Local groundwater is blended with SWP water resulting in water quality that complies with all state and federal drinking water requirements. There are currently no water quality issues affecting the City's blended water supply. Annually, the City publishes a Water Quality report which details the water quality sampling results for the City's wells and SWP water. The annual water quality report for 2010 is provided in Appendix I.

Surface Water Quality

The City of Santa Maria purchases water from CCWA. CCWA obtains its water supply from the coastal reach of the SWP California Aqueduct. The State Water Project water originates in northern California's mountains, rivers and streams, and flows through the Sacramento-San Joaquin Delta before entering the State Water Project's 444-mile California Aqueduct.

The coastal reach of the SWP consists of a 101-mile-long aqueduct from Kern County to Vandenberg Air Force Base in Santa Barbara County and a 42-mile-long CCWA pipeline from Vandenberg AFB to Lake Cachuma. Water is pumped from the West Branch of the SWP through a series of four pumping stations and ultimately delivered to the Polonio Pass Filtration Plant where the water is treated by conventional surface water filtration techniques. The Polonio Plant is located in the Cholame Hills at an elevation of approximately 1,400 feet. This elevation allows the plant to distribute water from the plant to the Santa Ynez Pumping Facility in Santa Barbara County, which is approximately 120 miles away. Typically, there is no other treatment of the purchased surface water, other than the treatment received at the Polonio Pass Plant. The interconnection, thorough which Santa Maria accepts water from CCWA, is located downstream of Polonio Pass Plant and upstream of the Santa Ynez Pumping Plant.

The main water quality concerns for the surface water purchased from CCWA are related to the water supply source. The water quality is generally excellent; however, it is affected by seawater intrusion and agricultural drainage from peat soil islands in the Bay Delta area. The water quality parameters that are of particular importance include total organic carbon (TOC) and bromide. An increase in TOC and bromide concentrations may result in an increased production of disinfection byproducts. The City currently blends the high quality surface water with local groundwater which serves to mitigate any potential disinfectant byproduct issues when surface water is introduced into the system.

Two actions that are implemented to protect Bay-Delta Fisheries have made controlling TOC and bromide levels difficult. SWP diversions for fishery protection are now scheduled for the fall season, instead of spring. The fall season is the time of year when TOC and bromide levels are at their highest. In addition, selected cross Delta Channels are closed at certain times of the year to protect migrating fish. This degrades the overall quality of water that enters the SWP California Aqueduct because the closure of the Cross Delta Channel reduces the volume of higher quality water from the Sacramento River entering the SWP system.

Groundwater Quality

The City operates seven active groundwater wells, which extract groundwater from the Santa Maria Valley Groundwater Basin. This basin primarily underlies the Santa Maria Valley but also underlies the Nipomo and Tri-Cities Mesas, Arroyo Grande Plain and the Nipomo, Arroyo Grande, and Pismo Creek Valleys. The Basin is triangularly shaped and opens toward the west and extends offshore into the Pacific Ocean. The San Rafael Mountains bound the Basin to the north and the Santa Ynez Mountains of the Coastal Traverse Range bound the Basin to the south. The Basin is an alluvial basin and is bounded by consolidated rock formations that outcrop along the inland periphery of the basin. The unconsolidated water bearing deposits can range in thickness up to 2,800 feet and average 1,000 feet in thickness. The water bearing formations of the basin include alluvium, dune sands and the Orcutt, Paso Robles, Pismo, and Careaga formations.

TDS and hardness levels in groundwater wells do not present a drinking water concern to the City of Santa Maria. However, ongoing delivery of high TDS water can result in wastewater discharges in excess of permitted amounts. In addition, hard water delivery leads to the use of softeners, which can impact the City's ability to meet sodium and chloride limits for wastewater discharges. Both TDS and hardness issues are addressed by blending groundwater with available imported supplies.

Nitrate concentrations have been found to increase in production wells that rely heavily on the shallower levels of the groundwater basin, or that have not been in regular production. The City has addressed the first issue by blocking production from the upper sections of screens in its highest producing wells. The City has addressed the second issue by maintaining a small amount of production from the basin using its production wells, even when more than adequate imported supplies are available. As a result of these efforts, all but one well has a nitrate concentration below the maximum contaminant level (MCL) for nitrate. Well 9S, which is the only active drinking water production well above the MCL, is scheduled for rehabilitation to address its high nitrate concentration within the next two years.

The City currently blends high quality surface water with local groundwater which serves to mitigate any groundwater quality issues.

Projected Impact of Water Quality

Table 5-8 summarizes the current and projected impact on water supply due to water quality of wells in the City of Santa Maria. There are no projected impacts on the City's water supply resulting from water quality issues through 2035. Although water quality of

Well 9S has water quality issues, due to the blending of groundwater with imported water there is no impact on the overall supply.

Table 5-8
Water Quality – Current and Projected Water Supply Impacts

Water Sources	Description of Condition	2010	2015	2020	2025	2030	2035
Groundwater							
Well 5H	None	0	0	0	0	0	0
Well 9S	TDS/nitrate concentration	0	0	0	0	0	0
Well 10S	None	0	0	0	0	0	0
Well 11S	None	0	0	0	0	0	0
Well 12S	None	0	0	0	0	0	0
Well 13S	None	0	0	0	0	0	0
Well 14S	None	0	0	0	0	0	0
Imported Water	None	0	0	0	0	0	0

Notes
1. Table format is based on DWR Guidance Document Table 30.

Distribution System Water Quality

The City has implemented a number of monitoring programs to ensure that water quality remains within acceptable ranges. The water quality parameters that are monitored, pursuant to plans approved by the California Department of Public Health (CDPH), include general physical parameters, presence of coliform bacteria, disinfectant and disinfection byproduct levels, and corrosivity of water by monitoring lead and copper levels at customers' water taps. All monitoring parameters and levels currently meet drinking water standards. The ability to continue to meet these standards is not expected to change in the foreseeable future.

In addition to the monitoring programs, the City has implemented a number of operational programs that are designed to maintain water quality within acceptable criteria. The City actively flushes its distribution system on a routine basis as a means to remove built up of sediment within the mains as well as to ensure that aged water is removed from the system. The system also has an active backflow and cross connection prevention program in place to reduce the risk of backflow conditions from a service connection into the distribution system. Also, security measures are in place to protect the distribution system from tampering by unauthorized personnel. All of these programs are designed to assist with maintaining the water quality within the distribution system and provide some of the tools needed to respond to a water quality emergency.

Emerging Water Quality Issues

In 2000, there was significant interest in the detection and possible health effects of chromium 6 in drinking water supplies throughout the state. In 2001, the Office of Environmental Health Hazard Assessment (OEHHA) withdrew their previously established Public Health Goal (risk assessment level) of 2.5 µg/L for total chromium. The current MCL enforced by CDPH is 50 µg/L for total chromium, and OEHHA is in the process of establishing a specific Public Health Goal for chromium 6. Currently, total chromium in the City's water is 1.0 µg/L to 2.0 µg/L and chromium 6 is 1.6 µg/L (Santa Maria, 2009).

Water Shortage Contingency Planning

The City developed a draft Water Shortage Contingency Plan in 2005 and updated that plan over time to reflect the latest water supply and demand conditions. That plan has been developed in collaboration with a Water Shortage Response Team that consists of City staff from the Utilities and Finance Departments, along with assistance from the City Attorney's Office. Appendix J contains the complete draft water shortage contingency plan and a draft resolution.

This section fulfills the requirements of the Act and provides a concrete mechanism for dealing with acute or chronic water shortages, regardless of the cause. The Urban Drought Guidebook, 2008 updated edition, prepared by DWR, Office of Water Use Efficiency and Transfers was used as a resource in preparing this plan. City's draft water shortage contingency plan was used to develop this section.

The City's policy is to maximize use of all of its water resources, each to its best application, to maintain water supply under varying levels of availability, with a focus on ensuring public health and safety.

Defining a Shortage

Chronic Shortages

Chronic shortages can be determined by calculating the difference between anticipated demand and available supply, as shown in Table 5-9, using water supply and demand data in 2015. For the supply demand analysis, year 2015 was selected as it represents the first year in the planning horizon with a 5-year interval. Groundwater rights and Twitchell yield are considered to be 100 percent available in years when the annual report of hydrogeologic conditions indicates that there is no water shortage in the Santa Maria Valley management area. In years when the annual report indicates a shortage, a percentage available will be determined based on the report findings. Anticipated demand will be determined, to demonstrate the necessary level of reduction to ensure sufficient supply for the demand. If the total demand is less than the available supply, then no chronic shortage exists, and no demand reduction is necessary. Otherwise, the City Council will announce a chronic water shortage, and implementation of the appropriate stage of the Water Shortage Contingency portion of this plan.

Table 5-9
Water Supply and Demand in 2015 for the City of Santa Maria

Water Supply	SWP[1]	Return Flow[2]	Appropriative[3]	Twitchell[4]	Exchanges-In	Total
Available	11,227	7,297	12,795	14,300	5,000	50,619
	City[5]	**Nipomo[6]**	**GSWC[7]**	**Orcutt[8]**	**Other[9]**	**Total**
Demand	12,983	2,000	20	473	623	16,099

Notes
1. State Water availability is the sum of the current year's allocation plus any carryover from the previous year
2. Return flows are calculated as 65 percent of last five years' average State Water delivered
3. In years with no groundwater shortage, the total is 12,795 ac-ft/yr
4. In years with no groundwater shortage, the total is 14,300 ac-ft/yr
5. For City's anticipated demand and supplies, see Section 3 and Section 4 for details
6. Nipomo Community Services District.
7. The Water Exchange Agreement between the City of Santa Maria and Golden State Water Company allows for 20 ac-ft/yr of the City's State Water supply to be delivered through the interconnection before the exchange arrangement takes place.
8. Orcutt water sales are documented through Business Services
9. Includes additional water uses and unaccounted for system losses (Table 3-11)

The City does not anticipate chronic shortages, even in what is defined as the anticipated driest three-year period. The DWR 2009 State Water Reliability report indicates a multiyear drought would have a water supply reliability of about 34 to 36 percent of maximum State Water Project Table A amounts for a four-year drought. This is based on the driest four-year period occurring from 1929 to 1932.

Assuming that the driest three-year conditions occur again in the next three years, Table 5-3 shows the minimum water supply available for the next three years.

Short-term Shortages

Short-term shortages occur when the water supplies cannot be delivered to meet demand, either because of electrical or mechanical failures of production or delivery equipment, excess demand such as fire flows or because of water quality issues. These can be caused by equipment failure, or as a result of a catastrophic event, such as an earthquake, wind or rain storm, terrorist activity, or water quality issues. Short-term shortages exist if the capacity of the available production facilities are less than the latest water demand figures available, after compensating for the blended water nitrate concentration, available reservoir storage, and anticipated equipment outages. If a short-term shortage exists, the Summary of Actions for Catastrophic contains actions to be considered to address the situation.

Action Stages

The City of Santa Maria has developed actions to be undertaken during chronic water supply shortages. Table 5-10 describes the water supply shortage stages and conditions. The stages will be implemented during water supply shortages according to shortage level, ranging from 51 to 60 percent shortage in Stage 1 up to 80 percent shortage in Stage 3. The stage determination and declaration during a water supply shortage are made by the City,

as discussed in the section, Defining a Shortage. The City continues to implement conservation programs that are applicable at all stages.

Table 5-10
Water Shortage Contingency – Rationing Stages to Address Water Supply Shortages

Stage No.	Water Shortage Supply Conditions	% Shortage
0	No Risk (Adequate supplies available)	0 to 50
1	Minimum Risk (Defined severe water shortage condition in groundwater basin, plus low or no State Water allocation)	51 to 60
2	Moderate (Defined severe water shortage condition in groundwater basin, plus low or no State Water allocation)	61 to 70
3	Critical (Defined severe water shortage condition in groundwater basin with restrictions on developed water use, plus no State Water Allocation)	71 to 80

Notes:
1. Table format is based on DWR Guidance Document Table 35.

Stage 0

Under Stage 0, no additional conservation action is required due to availability of adequate supplies to meet the demand. The resulting supply at Stage 0 with 50 percent shortage in supply in 2035 (normal year) would result in supply of 24,868 ac-ft/yr (Table 4-1) which is above the anticipated demand in 2035 of 19,762 ac-ft/yr (Table 3-12). As a result, it is not anticipated that the City of Santa Maria will reach the point at which action stages will need to be implemented to address long term drought conditions. However, in the event that a short term or catastrophic failure occurs that limits the City's ability to deliver water, the action stages are available for implementation.

Stage 1

Options for addressing a 51 to 60 percent shortfall of supply include increasing enforcement of the water waste ordinance, increasing the public media campaign informing the public of the Stage 1 condition, and making water audits available to customers, especially those whose water use is well outside the normal range for its customer class. In addition, the City will continue to use the reporting options available in its Fixed Base Meter Reading database to identify customers with apparent customer side leaks, and inform them of the potential leak. This combination of steps will help ensure that sufficient supply is available to meet needs with a comfortable margin of safety. Stage 1 conditions do not significantly negatively affect revenues.

Stage 2

At Stage 2, water supply very closely matches water demand, with very little to no margin of safety. Options for addressing a 61 to 70 percent supply reduction include all of the steps in Stage 1, including establishing an allotment for single family residences, and reducing landscape meter use by half. The Stage 2 allotment is based on the average water use from the previous January through July time period. Households and those responsible for landscape meters that exceed their allotments in a given week will be notified. If the account exceeds the allotment a second week, a flow restricting orifice will be installed in the meter

to reduce the pressure and restrict flow, both of which aid in water use reduction. Since residential meters account for 67 percent of all water use, and 50 percent of residential water use is landscape, Stage 2 actions are expected to reduce water demand by at least 10 percent. In addition, a dry year water fund has been established to purchase additional water supplies from other SWP contractors to help augment supply and reduce the negative impact on revenue. Revenue impacts that do occur will be addressed using water fund reserves or deferring non-critical capital projects.

Stage 3

Twitchell Yield and Return Flows are two water supplies that are protected in all except the worst of severe water shortage conditions in the Santa Maria Valley. In the Stipulation, these two developed supplies are given priority in severe water shortage years. Stage 3 conditions can occur only if State Water is unavailable for multiple years and no water is released from Twitchell Reservoir for groundwater recharge, both of which are unprecedented conditions by themselves, and highly unlikely to occur simultaneously.

Options for addressing an unlikely 71 to 80 percent shortfall include all of the steps in Stages 1 and 2, except that the Stage 3 allotment is based on the average water use from the previous January through May time period. Accounts that exceed their allotment will have the same notification and flow restricting devices installed as listed in Stage 2. Stage 3 actions are expected to reduce water demand by about an additional 5 percent and additional water supplies will be purchased to augment supplies by 5 percent. Stage 3 conditions can negatively affect revenue and will be addressed using water fund reserves and deferring non-critical capital projects.

Catastrophic Supply Interruption Plan

A catastrophic supply interruption can occur when the City loses one or both of its main water supplies. The likelihood of experiencing a simultaneous loss of both supplies is low. For instance, local power outages may limit use of groundwater, but will not affect imported water delivery.

If the available supply is insufficient to meet the demand and water quality requirements, an emergency notification will be sent to all water customers, using the City's Connect CTY phone system, to inform them of the condition. The message will include the expected duration of the condition, and restrictions on water use for the duration of the condition. For instance, a wind storm that disrupts power for two days may include a request to forego landscape irrigation until power is restored.

Power Outage

The City can continue to supply State Water to its distribution system in the event of a power outage. Even if State Water is not available, the City can supply water from its three largest wells using generator power, for a total production of 10.8 MGD, which is sufficient to meet essential water demand. Depending on the expected length of the outage, the City will evaluate the amount of storage available, the production with available supplies, and the projected demand to determine whether existing demands can be met while the outage persists. If not, the City can contact the largest water users, including the City's Recreation and Parks Department, to determine if demand on large meters, such as for large irrigated

landscapes like parks and schools, can be reduced sufficiently to last through the expected outage. If not, the City will attempt to call all residences using its Connect CTY system to request that non-essential water use be curtailed until the outage is addressed. As most power outages tend to be localized, the City can request mutual aid from adjacent water agencies for use of portable generators to power two additional production wells to meet higher demands.

Earthquakes

Earthquakes present the greatest threat to the ability to supply water. An earthquake can cause structural or mechanical failure or chemical release at a treatment facility due to containment failure or a rupture of a pipeline in the distribution system with a subsequent drop in system pressure, and the potential for severe localized flooding or contamination. While isolating severed pipelines minimizes the flooding risk, water supply is a critical element of earthquake response, both for maintaining positive pressure to control contamination, and for fire control.

To the extent possible, water production will be maintained. State Water supply may not be impacted by the earthquake, and can remain operational unless damage to facilities prevents its delivery. The City owns three portable emergency power generators to operate three production wells to provide essential water supply to the City.

Distribution system integrity will be checked, starting with the largest transmission lines. Water main breaks will be isolated to the smallest area as soon as possible. Breaks on lines that feed larger areas will be prioritized. Isolations will be mapped, along with known fires, to track how to best maintain operation.

To the greatest extent possible, alternate water supply will be available to customers in affected regions. Water can be pumped from one location and delivered to central areas for distribution by container if the distribution system has failed or is contaminated.

Regular communication with the community on the status of its water supply will be necessary to ensure that essential water needs are met.

Prohibitions, Penalties, and Consumption Reduction Methods

The Act requires an analysis of mandatory prohibitions, penalties, and consumption reduction methods against specific water use practices, which may be considered excessive during water shortages.

The City can set forth water use violation fines, charges for removal of flow restrictors, as well as establish the period during which mandatory conservation and rationing measures will be in effect. In addition to the restrictions placed on metered water use, other water use practices that will be prohibited during water shortages include the City's systematic water main flushing. In addition, street sweeping will be prohibited from using the City's domestic supply. Table 5-11 summarizes the various prohibitions and the stages during which the prohibition becomes mandatory.

Table 5-11
Water Shortage Contingency – Mandatory Prohibition

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
Using potable water for street washing	3
Using "landscape only" meters	3
Allowing customer side leaks to go unfixed	2
Systematic flushing to clean pipelines	3

Notes:
1. Table format is based on DWR Guidance Document Table 36.

Based on the requirements of the Act, Table 5-12 summarizes the methods that can be used by the City to enforce a reduction in consumption, where necessary. As mentioned earlier, various water conservation programs have been initiated the City and the County to reduce the water demand. Additional measures can be phased in to provide additional demand reductions and increase public awareness of the need to conserve water. Conservation is a permanent and long-term application used within the City at all times. Moreover, the County adopted the Regional Program in 1990 to promote water conservation within Santa Barbara County.

Table 5-12
Water Shortage Contingency – Consumption Reduction Methods

Consumption Reduction Method	Stage when Method Takes Effect	Projected Reduction (%)
Fix customer side leaks	1	1
Water use audits	1	2
Restrict landscape watering based on January-July use	2	10
Restrict landscape watering based on January-May use	3	5
Upgrade irrigation systems	All Stages	10
Reduce irrigation requirements by converting traditional landscape to a water-conserving one	All Stages	15
Public education/information programs	All Stages	N/A
Demand reduction program	All Stages	N/A
Water conservation kits	All Stages	N/A
Plumbing fixture replacement	All Stages	4
Install high-efficiency retrofit kits	All Stages	N/A
Conduct audits	All Stages	N/A
Replace antiquated lines, heads, and valves	All Stages	N/A

Notes:
1. Table format is based on DWR Guidance Document Table 37.

The City sets forth penalties for violations of prohibited uses mentioned previously. Table 5-13 summarizes the penalties and charges and the stage during which they take effect. The penalties consist of a written warning and a surcharge for the violation. A flow-restrictor or possible shutoff may be imposed after three violations.

Table 5-13
Water Shortage Contingency – Penalties and Charges

Penalties or Charges	Stage When Penalty Takes Effect
Flow restriction orifices for customers not meeting Stage 2 allocations	2
Flow restriction orifices for customers not meeting Stage 3 allocations	3

Notes:
1. Table format is based on DWR Guidance Document Table 38.

Revenue Impacts

Revenue reduction due to reduced water usage will cut into reserves during the shortage, and will be reflected in future rate setting discussions to re-establish acceptable fund reserve levels after the water shortage period is over. The City's existing pro forma already reflects the resulting revenue drop associated with past conservation and therefore is already accounted for in establishing future rate adjustments. In addition, the Water Resources annual budget includes a minimum $200,000 fund for purchasing additional water supplies in dry years. Funds not spent are carried over into future years to build up a reserve for purchasing more water or to help offset the impacts of loss of revenue.

Since additional water supplies are either purchased or pumped and require only disinfection and fluoridation, there are little additional operations and maintenance costs to augment water supplies.

Monitoring Plan Effectiveness

Fixed base meter reading facilitates monitoring water use. Hourly meter readings for each account are stored in a database. Reports can be produced with ease and reviewed as often as once a day to observe trends and identify problem accounts. Electronic notification of accounts using the City's Blackboard Connect phone system allows for a cost-effective and labor-efficient mechanism for informing the customer about their water usage.

Section 6. Demand Management Measures

The evaluation of DMMs occupies a significant portion of the Act. The required elements for this section include (item numbers are from the 2010 UWMP guidebook outline checklist):

#26. (Describe and provide a schedule of implementation for) each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following: (A) water survey programs for single-family residential and multifamily residential customers; (B) residential plumbing retrofit; (C) system water audits, leak detection, and repair; (D) metering with commodity rates for all new connections and retrofit of existing connections; (E) large landscape conservation programs and incentives; (F) high-efficiency washing machine rebate programs; (G) public information programs; (H) school education programs; (I) conservation programs for commercial, industrial, and institutional accounts; (J) wholesale agency programs; (K) conservation pricing;(L) water conservation coordinator; (M) water waste prohibition; (N) residential ultra-lowflush toilet replacement programs (10631(f)(1) and (2).

#27. A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan (10631(f)(3)).

#28. 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 supplier's ability to further reduce demand (10631(f)(4)).

#29. An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following: (1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors; (2) Include a cost-benefit analysis, identifying total benefits and total costs; (3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost; (4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation (10631(g)).

This section presents a comprehensive description of the City's past, current and future water conservation activities for the Santa Maria System in compliance with the above listed sections of the Act. The water conservation practices, as defined by the Act, are comprised of 14 DMMs. The DMMs are functionally equivalent to urban water conservation best management practices (BMPs) administered by the California Urban Water Conservation Council (Council). Table 6-1 lists the BMPs.

The Council was formed as part of an effort by the DWR working jointly with water utilities, environmental organizations, and other interested groups to develop and administer urban BMPs for conserving water. In 1991, the Council issued a Memorandum of Understanding Regarding Urban Water Conservation in California (MOU) which

formalized the agreement to implement BMPs to reduce the consumption of California's water resources. The MOU was amended on June 9, 2010. Changes to the MOU reflect the BMPs broken down into two categories: Foundational & Programmatic. The Foundational BMPs are BMP 1 through 5 including utility operations and education programs and are quantifiable. The Programmatic BMPs are 6 through 14 focusing residential, commercial and industrial efforts and are non-quantifiable. As a signatory of the MOU, the City has agreed to implement the BMPs that are determined to be cost beneficial to its ratepayers and to complete such implementation in accordance with the schedule assigned to each BMP. The City files bi-annual reports with the Council on BMP implementation progress. Currently, the City is preparing the 2009-2010 reports. Appendix K includes completed pdf forms provided by the Council for 2009-2010.

Table 6-1
Water Conservation Best Management Practices

1	Water Survey Programs for Single-Family Residential and Multifamily Residential Customers
2	Residential Plumbing Retrofits
3	System Water Audits, Leak Detection, and Repair
4	Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections
5	Large-Landscape-Conservation Programs and Incentives
6	High-Efficiency-Washing-Machine Rebate Programs
7	Public Information Programs (1)
8	School Education Programs (1)
9	Conservation Program for Commercial, Industrial, Institutional (CII) Accounts
10	Wholesale-Agency Assistance Programs (1)
11	Conservation Pricing (1)
12	Water Conservation Coordinator (1)
13	Water Waste Prohibition (1)
14	Residential Ultra-Low-Flush-Toilet (ULFT) Replacement Programs

Notes
1. Economic benefits of these BMPs are considered nonquantifiable.

BMP Implementation Status

The BMP implementation status was assessed based on information provided in BMP activity reports for the years 2005 to 2010 that were filed with the Council. In addition, the BMP coverage reports were used to assess whether the target implementation schedule, as defined by the Council, for each BMP is met. The 2009 and 2010 Activity Report and Coverage Report are included in Appendix K.

Based on Section 10631 (j) the Council reports meet the requirements of Water Code Section 10631 (f) and (g). A summary of these reports is presented in Table 6-2 and Table 6-3.

Table 6-2 presents a summary of the water conservation activities within the City from 2005 through 2010. For BMP 1, the City offered 115,443 surveys to single-family and multi-family units and 4,089 surveys were completed. For BMP 2, the number of distributed/installed

low flow devices includes low-flow showerheads, toilet-displacement devices, toilet flappers, and faucet aerators.

Table 6-2
Summary of Water Conservation Activities

Year	BMP 1: Residential Surveys	BMP 2: Residential Retrofits	BMP 7: Public Information Programs	BMP 8: School Programs Students Reached
2005 through 2010 (number)	4,089	13,442	Yes	6,772
Meeting Coverage Requirements	Yes	Yes	Yes	Yes

Table 6-3 presents a summary of the offered programs and implementation status for all BMPs. The City is currently meeting coverage requirements as defined by the Council for BMPs.

Table 6-3
Summary of Best Management Practice Implementation

BMPs	Summary of Activities	Coverage Implementation[2] Status
1. Residential Water Surveys	Santa Maria has developed and implemented a targeting/marketing strategy for Single- and Multi-Family residential water use surveys.	Coverage requirements are being met.
2. Residential Plumbing Retrofits	Santa Maria utilizes City events for distributing low-flow devices and uses city webpage to provide information on low-flow kits.	Coverage requirements are met.
3. System Water Audits, Leak Detection, and Repair	City software highlights high water usage that results in city personnel conducting onsite leak detection. Leaks in city equipment are fixed. Leaks in customer equipment are identified and customer is advised to retain plumber. The implementation of a Fixed-Base near-real time meter reading program has enhanced these efforts.	Coverage requirements are being met.
4. Metering	All accounts in the Santa Maria service area are metered and are billed by volume.	Fully implemented.
5. Large-Landscape-Conservation Program	Information regarding the efficient use of landscape water is provided to new customers and upon request	Coverage requirements are met based on approved exempt status – not cost effective.
6. High-Efficiency-Washing-Machine Rebate Program	Rebates for high-efficiency washers are not offered by energy utility providers. Santa Maria partners with Santa Barbara County Water Agency to offer rebate programs to Santa Maria customers.	Coverage requirements are being met based on approved exempt status – not cost effective.
7. Public Information Program (1)	Santa Maria has a public information program. Santa Maria issues press releases, publishes newsletters and uses bill inserts to notify the public of various conservation programs.	Coverage requirements are being met. Fully implementing.
8. School Education Program (1)	Santa Maria has implemented a school information program to promote water conservation.	Coverage requirements are being met. Fully implementing.
9. Conservation Program CII Accounts	City partners with Santa Barbara County Water Agency to offer rebate programs to Santa Maria CII customers to promote the replacement of toilets with ULFT.	Coverage requirements are met.
10. Wholesale-Agency Program (1)	Not applicable.	Not applicable
11. Conservation Pricing (1)	Santa Maria has adopted conservation pricing, including using water rates that are developed to recover the cost of providing service and billing customers for metered water use.	Fully implemented.
12. Water Conservation Coordinator (1)	Santa Maria has a water conservation coordinator on staff to develop and implement conservation programs.	Coverage requirements are being met.
13. Water Waste Prohibition (1)	There is a water waste prohibition ordinance in effect for Santa Maria that includes a number of water uses.	Coverage requirements are met.
14. Residential-Ultra-Low-Flush-Toilet-Replacement Program	Santa Maria does not have a ULFT replacement program for single-and multi-family residences.	Coverage requirements are met based on approved exempt status – not cost effective.

Notes
1. Benefits of these DMMs are considered nonquantifiable.
2. "Implementation" means achieving and maintaining the staffing, funding, and priority levels necessary to achieve the level of activity required to satisfy the target commitment as described in the MOU.

Appendix L includes a document that the City is in compliance with the MOU. The City has been implementing BMPs consistent with the AB 1420 requirements. As a result, the City is eligible to receive water management grant or loan funds based on the DWR review of AB 1420 status. Appendix M includes a copy of the letter from DWR stating the AB 1420 compliance. Compliance Tables of AB 1420 are also included in Appendix N.

Cost Benefit Analysis

A benefit-cost economic analysis was completed for the quantifiable BMPs that are not currently implemented (BMPs 5, 6 and 14). The benefit-cost analysis was completed with the consideration of economic factors. Non-economic factors, including environmental, social, health, customer impacts, and new technology, are not believed to be significant and were not considered in the analysis.

The basis and assumptions used in the economic analysis of each BMP, as well as detailed calculations are included in Appendix O. Common assumption for all BMPs is the real discount rate of 6.0 percent and $246 per ac-ft for the value of conserved water. The value of conserved water provided by the City is estimated based on the cost incurred for the next increment of purchased or developed water. The real discount rate is based on the DWR's economics guidelines. Other assumptions with supporting references are described in Table O-1 (Appendix O).

The economic analysis was performed using a spreadsheet program developed by the Council. A separate, customized worksheet for each BMP is presented in Table O-2 (Appendix O). Each BMP economic analysis spreadsheet projects on an annual basis the number of interventions and the dollar values of the benefits and costs that would result from fully implementing a particular BMP. The definition of terms and formulas that are common to all worksheets are presented in Table O-3 (Appendix O).

Table 6-4 summarizes the results of the economic analysis. The table presents the total discounted costs and benefits, the benefit-cost ratio, the simple pay-back period, the discounted cost per ac-ft of water saved, and the net present value (NPV) per ac-ft of water saved for each BMP.

The economic analysis shows that these three BMPs yield benefit-cost ratios less than one, which indicates that the costs of conservation are in excess of the benefits and implementation of these conservation measures is not cost effective.

Table 6-4
Results of Economic Analysis for BMPs Currently not Meeting Coverage Requirements

	BMP Description	Total Discounted Cost [1]	Total Discounted Benefits [2]	Total Water Saved (ac-ft) [3]	Benefit /Cost Ratio [4]	Simple Payback Analysis (years) [5]	Discounted Cost / Water Saved ($/c-ft) [6]	Net Present Value / Water Saved ($/ac-ft) [7]
5	Large Landscape Conservation Programs and Incentives	$214,624	$200,882	974	0.9	21	$220	-$14
6	High-Efficiency-Washing-Machine Rebate Program	$509,888	$37,470	303	0.1	272	$1,684	-$1,560
14	Residential ULFT Replacement Program	$934,791	$575,360	4,850	0.6	32	$2,156	-$829

Notes

1. Present value of the sum of financial incentives and operating expenses - using discount rate of 6.0 percent.
2. Present value of the sum of avoided purchased water costs - using discount rate of 6.0 percent.
3. Achieved water savings for the implemented BMP.
4. Total discounted benefits divided by total discounted costs.
5. Time horizon in years required for benefits to pay back costs of the BMP.
6. Total discounted costs divided by total water saved.
7. Total of discounted benefits less discounted costs divided by total water saved.

Recommended Conservation Program

The results of the economic analysis show all BMPs yielding benefit-cost ratios less than one, which indicates that the costs of conservation are in excess of the benefits and implementation of these conservation measures is not cost effective. Signatories of the MOU are not required to implement BMPs that are not cost beneficial. Therefore, the City is not required to continue implementation of these BMPs, and may pursue an exemption from implementing these measures with the Council.

BMPs 7, 8, 10, 11, 12, and 13 were not included in the proposed implementation program because they are considered non-quantifiable. These BMPs have no specific level of effort defined in the MOU, therefore water savings and costs associated with these BMPs were not included in the analysis. The cost for BMP 12 is contained in the City's overhead. BMP 4 has been already implemented, and, therefore, has no additional cost associated with it. BMP 13 has no associated cost unless initiated by a water shortage condition.

When implementing water conservation programs, the City is subject to economic and legal constraints that need to be considered as they may affect the cost effectiveness of each BMP.

Economic Considerations

The cost of water is an important economic factor that needs to be considered when implementing conservation programs. Higher cost of water increases the economic viability of BMP implementation. Currently, there are no water projects planned in the City that would result in higher unit costs of water, thus increasing the economic feasibility of water conservation measures.

Legal Considerations

The City has the legal authority to implement cost beneficial BMPs in its capital/operating budget. When developing programs that advance water conservation, the City can offer financial incentives, information or educational programs in its service area and has legal authority to enforce urban codes or plumbing codes for new or existing connections that pertain to implementation of efficient devices, or reduction of water use.

Cost Share Partners

The City partners with other agencies that support conservation programs to expand the breadth of offered programs. Joint participation offers opportunity for cost sharing and development of more effective conservation strategies.

To avoid placing a disproportionate burden on any customer sector, the City has actively been pursuing outside sources of funding to complement the City's resources. As an example, the City pursued Proposition 84 planning and implementation grant with the Santa Barbara County IRWM program for two projects: untreated water landscape irrigation and leakwatch. Details of these projects are provided in Section 3.

Section 7. References

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