



Urban Water Management Plan December 2005



Prepared for the City of Soledad by:



December 2005

Conformed for Council Action December 21, 2005

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City of Soledad

2005 Urban Water Management Plan

Contact Sheet

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The Water supplier is a: **Municipality**

Utility services provided by the water supplier include: **Water**

Is This Agency a Bureau of Reclamation Contractor? **No**

Is This Agency a State Water Project Contractor? **No**

Section 1 Introduction

A. Introduction

This Plan provides information and analyses specific to the City, and describes the regional context in which it operates. The City's current and projected water demands are considered over the next 20 years to ensure there will be sufficient water supply to meet these demands. Water shortage contingencies are discussed, as well as reliability of the water supply against various unexpected situations. Additionally, the Plan reviews proposed projects and programs that will aim to protect the water supply and increase conservation efforts throughout the City.

This Plan meets all requirements of the Water Code as described in the Department of Water Resources (DWR) Guidebook and as detailed in the DWR's 2005 Urban Water Management Plan Review for Completeness" Form.

This section describes the requirements, purpose and contents of the Urban Water Management Planning Act (Act). This section also outlines the development and review process for this document, both internally and interactively with affiliated regional agencies and the public.

B. The Urban Water Management Planning Act

This Urban Water Management Plan (Plan) has been prepared in response to the Urban Water Management Planning Act (Act), Water Code Division 6, Part 2.6, Sections 10610 through 10656. This Act, which became effective in 1984 and has since had several amendments, requires that, "Every urban water supplier shall prepare and adopt an Urban Water Management Plan." An urban water supplier is defined by the Act as 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."

The City of Soledad's (City) water system currently provides water to more than 3,000 customers, and by 2010 will supply more than 3,000 acre-feet annually. Having just met one of the two threshold criteria, this 2005 Plan will serve as the City's first. Updated Plans will then be submitted each year ending in a 5 or 0, or every five years. It should be noted that no regional or basin-wide plan has been developed to date.

C. Plan Adoption Process

This Plan has been prepared by the City with the assistance of Harris & Associates. A list of City contacts is included at the front of this document.

C.1 Public Participation

Law

10642. 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. 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 ... After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

The City of Soledad has actively encouraged community participation in its urban water management planning efforts. Notice of a public hearing was given on November 23, 2005, with the draft Plan posted to the City's website and made available at Public Works for advance review and consideration on November 30, 2005. The public hearing was held on December 7, 2005 to solicit comments and feedback from the community. Revisions were made to the Plan as necessary and appropriate as a result of the public hearing, at which time the final Plan was reposted to the City's website.

C.2 Agency Coordination

Law

10620 (d) (2) 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.

➤ **Coordination Within the City**

The City's Public Works Department has worked closely with the City's Finance and Planning Departments, Assistant City Manager, and City Manager in the preparation of this Urban Water Management Plan. Additional coordination with outside City representatives (consultants) who have prepared and/or are preparing affiliated plans and studies has also been instrumental in preparing the Plan. In addition, City Council has heard and reviewed the necessary Plan components to ensure the Plan is consistent with the City's ultimate local and regional goals.

➤ **Interagency Coordination**

Affiliated agencies contacted and utilized as resources for the preparation of this Plan include the Monterey County Water Resources Agency (MCWRA), the Regional Water Quality Control Board (RWQCB), the California Department of Health Services (DHS), and United States Geological Surveys (USGS). The MCWRA manages the groundwater basin serving the region, while the other resources listed provided regional and/or general information utilized in developing the Plan. The MCWRA not only participated in compiling certain data for this Plan, but has also had the opportunity to review and provide comments on it. The MCWRA will utilize this Plan (among others) in preparing their Integrated Water Resources Management Plan (IWRMP), scheduled for completion in December, 2006. The IWRMP would ultimately be adopted by the Monterey County Board of Supervisors.

C.3 Plan Adoption

The Urban Water Management Plan was adopted by City Council on December 21, 2005 and submitted to the California Department of Water Resources by December 31, 2005. The adopted Resolution may be found in Appendix B of this Plan.

Section 2 Supplier Service Area

Law

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

10631. (a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. 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 and shall be in five-year increments to 20 years or as far as data is available.

A. Geography

The City of Soledad is located in southern Monterey County approximately 25 miles south of Salinas in the highly agricultural Salinas Valley (See Figure 1). It has no common boundaries with other municipalities, and is surrounded completely by unincorporated areas of Monterey County. The City's nearest neighbors are Greenfield, approximately eight miles to the south, and Gonzales, approximately 8 miles to the north. Two California State Prisons are located north of the City of Soledad. The main conduit of surface water within the region is the Salinas River, flowing to the northwest and discharging into Monterey Bay. The unconfined flow of water within the underlying groundwater basin exhibits the same general flow characteristics as the Salinas River, with flow primarily in the northwesterly direction.

Figure 1: Vicinity Map of City



B. Climate

Soledad has a Mediterranean climate, exhibiting dry, warm summers and cool, wet winters. Nearly all of its 11.5 inches of annual rainfall occur between November and April, with virtually no rainfall in the summer months. Average monthly values for rainfall, evapotranspiration (ETo), and temperature are shown in the tables below.

Table 1: Climate

Climate						
	January	February	March	April	May	June
Standard Average ETo (in)	1.48	1.69	3.21	4.63	5.83	6.98
Average Rainfall (in)	2.00	2.10	2.10	0.80	0.20	0.00
Average Temperature (°F)	51	53	54	57	59	62

(continued) Climate							
	July	August	Sept.	Oct.	Nov.	Dec.	Annual
Average ETo (in)	7.23	6.36	4.61	3.29	1.77	1.46	48.54
Average Rainfall (in)	0.00	0.10	0.30	0.50	1.50	1.80	11.50
Average Temperature (°F)	63	64	65	62	56	51	58.10

Source: King City Oct 2004-Sept 2005 Eto Data, WorldClimate.com for City of Soledad Rainfall Data, Weather.com for City of Gonzales Temperature Data

C. Regional Water System Overview

The water supply for the Central Salinas Valley is derived almost exclusively from groundwater. The existence of groundwater is the result of water percolating into alluvial materials and porous geologic structures.

Infiltration in the Salinas River channel is the principal source of groundwater recharge for the Salinas Valley groundwater basin. The recharge area is generally believed to end at a point between Chualar and Salinas. Both natural runoff and conservation releases from Nacimiento and San Antonio Reservoirs contribute to the flow in the Salinas River. Infiltration from other smaller tributaries that drain the highland areas also provides recharge to the groundwater basin. The down-valley movement of this subsurface water is essential to the containment of saltwater intrusion into the Pressure sub-area. Higher elevations tend to have little potential for groundwater recharge due to either shallow or non-existent soils and steep slopes. These same characteristics pose problems for septic suitability and limit water availability.

Groundwater consumption in the Salinas Valley has increased over time as the amount of croplands under irrigation has continued to increase annually. Continued residential, commercial and industrial development has also increased groundwater consumption. Agriculture continues to dominate, representing at least 90% of the area's water consumption. In some parts of the basin, agricultural and urban consumers are now using more water than is recharged annually, resulting in a groundwater overdraft.

D. Other Demographic Factors

Through the early 20th century, Soledad was primarily an agricultural community. The landscape of Soledad changed substantially in the 1940's when the State of California Department of Corrections Training Facility was built approximately 3 miles north of the City. This facility was annexed by the City in 1992, and a state prison was added

to the facility in 1996. The corrections facility continues to be an important component of the city, with a population of approximately 10,000 in comparison with a residential population of 15,563.¹

In recent years, Soledad has been becoming a "bedroom" community in which residential development accounts for a disproportionately large portion of the local economy. Average population growth in the 1990's was 4.7%, but since 1997 the pace of growth has accelerated to include 200 new dwelling units every year. Soledad currently exhibits 8% growth, making it the fastest growing city in California. Residential (non-prison) population is expected to increase 50% in the next 5 years, and is projected to potentially reach 57,000 in 2025.²

Within the next five years more than 1,000 homes are expected to be built. The Soledad Mission Shopping Center will be completed and fully occupied. The Los Coches Industrial Park will be completed and will include light/heavy industrial businesses, with some commercial establishments. The Downtown revitalization project will have been completed with an intermodal center and retail opportunities. The older sections of the City will be landscaped and additional parks will be built.

Upcoming developments slated for construction around 2010 and beyond include the Miravale projects, wherein development will be phased over time. The first phase will add 1,014 single and multi-family units, and the second phase will add a total 2,890 of units. Another 5,174 dwelling units are expected to be built by 2025.

Table 2: Population Projections

Population Projections					
	2005	2010	2015	2020	2025
Service Area Population (City only)	16,500	26,625	36,750	46,875	57,000

Source: *Water Master Plan*

¹ State of California Finance Department

² Water Master Plan

Section 3 Water Sources (Supply)

Law

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

10631 (b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments [to 20 years or as far as data is available.]

A. Water Supply Sources

The City currently utilizes groundwater from the Salinas Valley Groundwater Basin as its sole water supply source. Currently, three wells containing line-shaft vertical turbine pumps remove groundwater and deliver it to the water system. Chlorine solution is injected into the pumped water at each well to provide residual disinfection. All existing City wells are shown in Table 3. Only wells 6, 7, and 9 are currently operational.

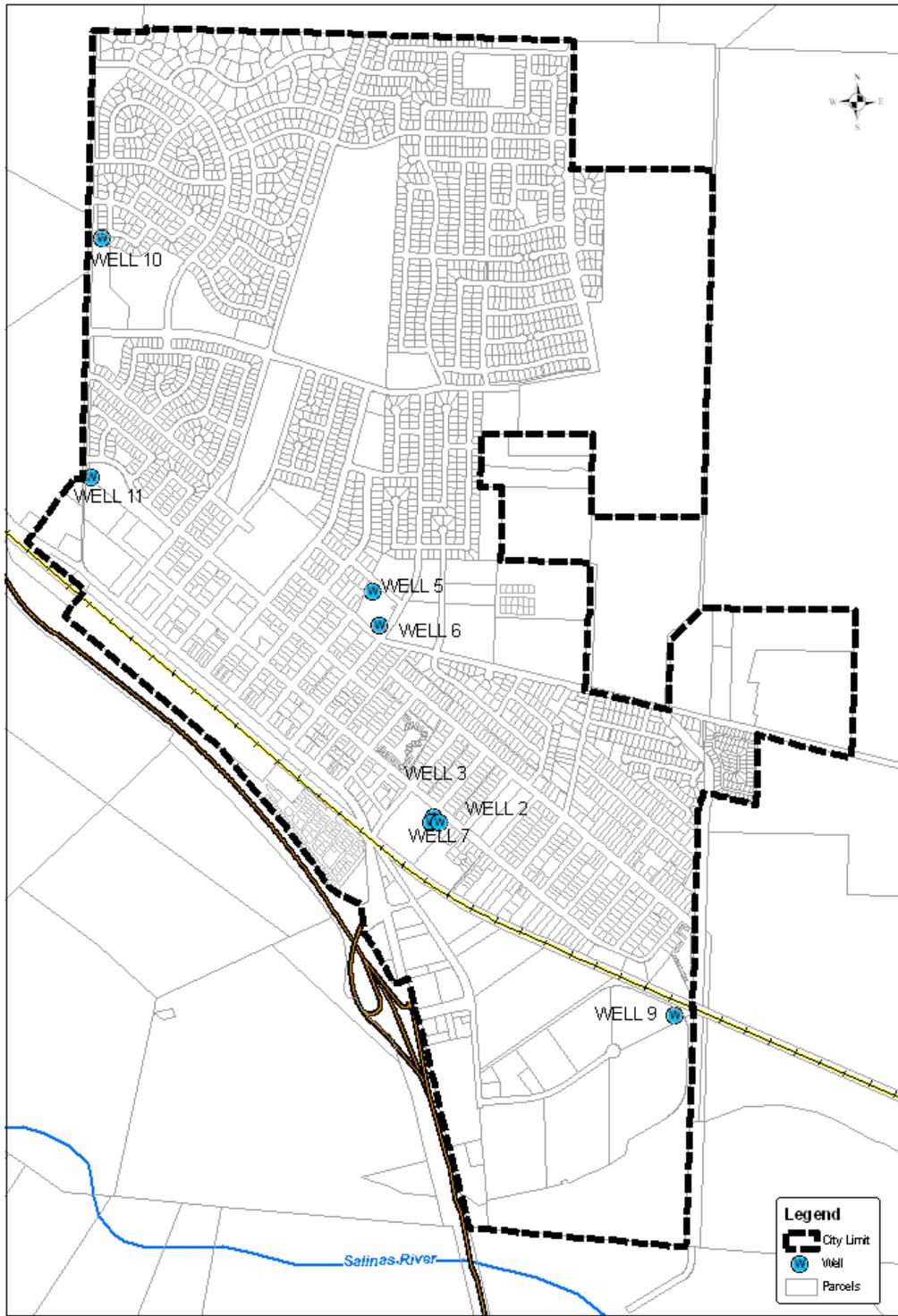
Table 3: Existing Wells

Well #	Capacity (GPM)	Capacity (MGD)
2	N/A	N/A
3	N/A	N/A
5	N/A	N/A
6	550	0.8
7	1,400	2
9	1,100	1.6
10	N/A	N/A
11	N/A	N/A
TOTAL	3,050	4.4

Wells #2 and #3 have not supplied water to the City for over 9 years, and will be abandoned when additional wells are added to the system. Water from these wells has been high in nitrate and has shown low levels of bromobenzene, an unregulated chemical. Wells #2 and #3 can be used as emergency back-up wells in case of an emergency. Well #5 is currently inactive; it will either be abandoned or restored in the future. In addition, well #10 is not in service due to mechanical problems, it will be online as soon as restored. Well #11 is under construction, and will be fully operational by 2006.

The City operates its wells to meet system demands based on the water level in the 100,000 gallon elevated storage tank at Vosti Park. When the tank level requires refilling, the control system starts two paired wells simultaneously. If the level of the tank continues to drop, additional wells are started individually until all four primary production wells are running. The wells pump directly into the Base Pressure Zone of the distribution system. Water not used to meet demands goes to fill reservoirs. The primary wells are far enough apart that they do not influence each other when pumping simultaneously. Any well can be used to meet demand anywhere in the City and to fill the reservoirs. The City rotates the use of the wells, with Well # 6 paired with either Well # 7 or Well # 9. Wells # 6, # 7, and # 9 are each equipped with emergency engine generators to provide electrical power should the PG&E electrical system become inoperative (a frequent occurrence in Soledad).

Figure 2: Well Locations



1 inch equals 1,347.124218 feet

City of Soledad

There are currently no restrictions on how much water the City of Soledad can pump, nor are any such restrictions expected in the future. The Salinas River Groundwater Basin (and all of the agencies within it), however, sat on the edge of adjudication in 1996-97 due to substantial saltwater intrusion near the coast. Ultimately local agencies were able to convince the State Water Resources Control Board that the local solution was the best option. This local solution eventually materialized as the Salinas Valley Water Project.

In addition to groundwater, the City of Soledad intends to utilize reclaimed wastewater for some uses. The details of these plans can be found in the Recycled Water Section.

Table 4: Current and Projected Water Supplies

Current and Projected Water Supplies					
Water Supply Sources	2005	2010	2015	2020	2025
Groundwater available to City ³	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000
City produced surface water	0	0	0	0	0
Recycled Water	0	0	1,040	1,040	1,040
Recycled Water used for ground water recharge (adds to gw supply)	1,920	3,830	0*	0*	0*
Recycled Water used for agriculture	0	0	0	5000*	6000*
Total	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000
Units of Measure: Acre-feet/Year					

B. Groundwater

Soledad falls within the Salinas Valley Groundwater Basin. The Basin follows the Salinas River, varying from 3 miles to 10 miles across and stretching through most of Monterey County. A map of the basin and its regions is shown in Figure 3. The basin is divided into four subareas: East Side, Pressure, Forebay, and Upper Valley. The City of Soledad is in the Forebay Subarea, which has a total surface area of 94,000 acres. Soledad draws its water from the unconfined shallow aquifer zone, and overdraft has not historically been a problem in the Forebay Subarea. Groundwater production for the City has steadily increased over time, and is projected to further increase in coming years as a result of new developments. Past and future production values are shown in Tables 5 and 6, respectively.

Table 5: Amount of Groundwater Pumped – Past

Amount of Groundwater Pumped (AFY)					
Basin Area Name	2000	2001	2002	2003	2004
Forebay	1,716	1,749	1,878	2,322	2,363
% of Total Water Supply	.11	.12	.13	.15	.16

Source: Public Works well data

³ Groundwater Bulletin 118

Table 6: Amount of Groundwater Pumped – Current and Future Projections

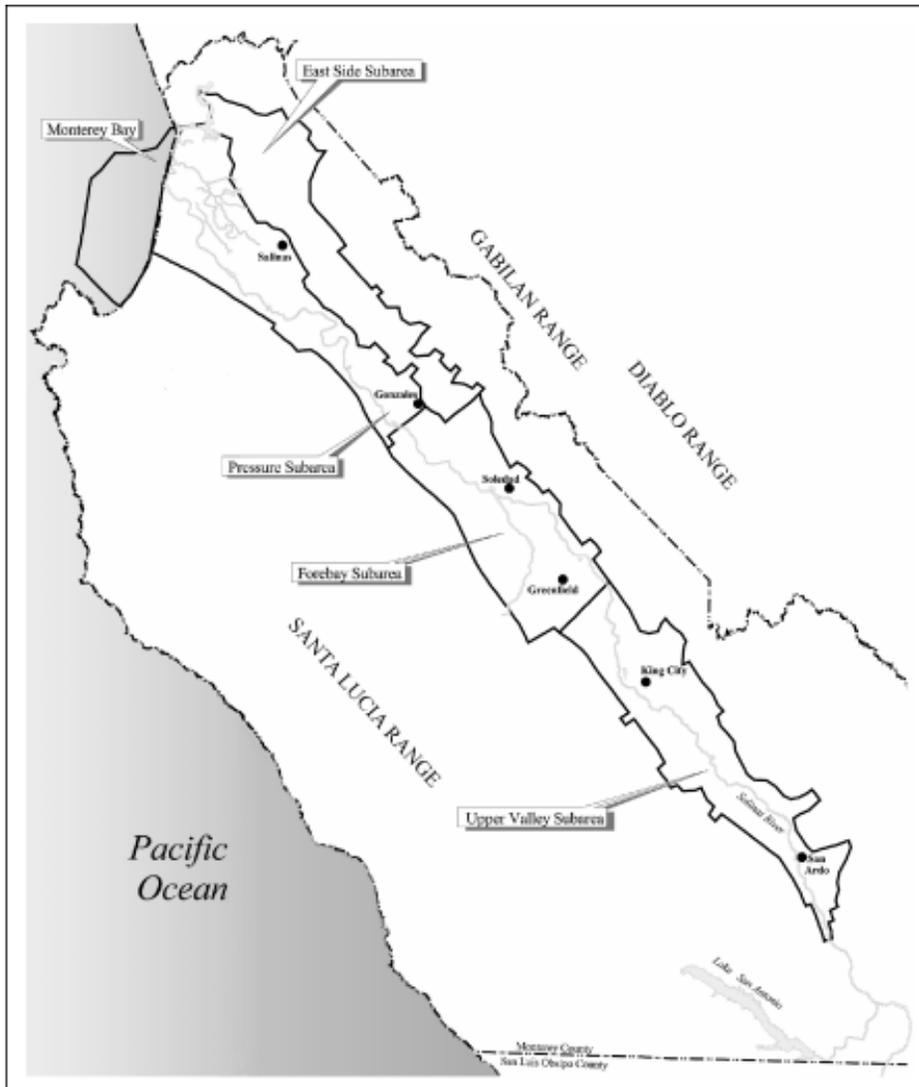
Basin Area Name	Amount of Groundwater Projected to be Pumped (AFY)				
	2005	2010	2015	2020	2025
Forebay	2,337	5,592	6,531	7,506	8,457
% of Total Water Supply	.16	.37	.44	.50	.56

Source: *Water Master Plan*

Note: The values above do not consider the effect that recycled water use may have on amount of water pumped.

In addition to the City of Soledad, the City of Greenfield and local farmers also draw from the Forebay Subarea. To date, there have been no attempts to quantify the total amount of water available to Soledad, and data on the subject is limited. For this analysis, it is assumed that the water supply of Soledad includes the portion of the Forebay Subarea within two miles of the ultimate buildout of Soledad. This is done to note the fact that some water from the prison, several miles away, passes through the City’s treatment system. In addition, local farmers may partially enter the system in the long term, as the city intends to sell reclaimed water to them in the future, thus decreasing their current amount of pumping. The Department of Water Resources estimates a total Forebay volume of 5,720,000 acre-feet covering 94,000 acres. The area of the ultimate buildout plus a two mile offset is 24,600 acres, or 26% of the total Forebay Subarea, giving 1,500,000 acre-feet of water within reach of Soledad.

Figure 3: Salinas Valley Groundwater Basin



Source: Monterey County Water Resources Agency, 1997.

Figure 3-2
Salinas Valley Ground Water
Basin SVIGSM Subareas

5/2001

Salinas Valley Water Project EIR/EIS

Source: Salinas Valley Water Project EIR/EIS

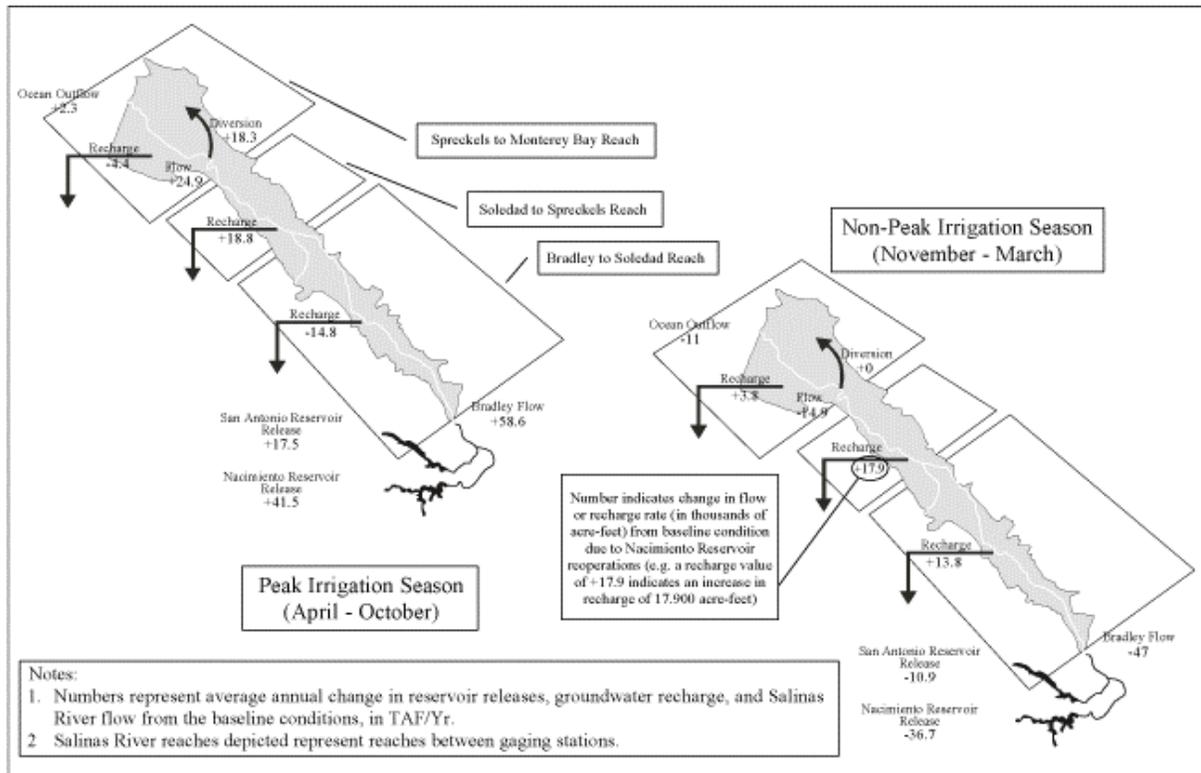
Infiltration in the Salinas River channel is the principal source of groundwater for the Salinas Valley Groundwater Basin. Flows from the Salinas River channel and its tributaries percolate through alluvial materials and porous geological structures, recharging the local aquifers. Overdraft in the basin has caused saltwater intrusion in areas closer to the coast, but has never been identified as a problem in the Forebay Subarea. While seawater intrusion does not directly affect the City of Soledad, it is an issue for the Monterey County Water Resources Agency (MCWRA), which manages water resources throughout the county.

In order to best manage the groundwater basin, the MCWRA owns and operates the Nacimiento and San Antonio reservoirs, both on tributaries of the Salinas River upstream of Soledad. These reservoirs serve several purposes, one of which is to ensure that farms throughout the valley can have water year-round, particularly in the summertime

when most crops are grown but rain is scarce. To do this, the reservoirs store excess winter flows and release them in the summer so that the Salinas River can recharge the groundwater basin throughout the year.

Construction on the Salinas Valley Water Project is slated to begin in 2006, which will further affect the releases from the Nacimiento and San Antonio Reservoirs. This project consists of a modification of the Nacimiento spillway to allow for increased flow in the Salinas River throughout the summer. It also includes a rubber inflatable dam near the City of Marina that will be operational during summer months to increase groundwater recharge near the coast and mitigate saltwater intrusion. While the inflatable dam will be downstream from Soledad, the altered reservoir releases are expected to increase recharge in the Forebay Subarea by approximately eighteen thousand acre-feet per year as shown in Figure 4.

Figure 4: Expected effects of the Salinas Valley Water Project on groundwater recharge



Source: WRIME Inc., 2001.

Figure 5.3-34

Effects of Reoperation:

Future Baseline (2030) Compared to Future Plus Alternative A

4/2001

Salinas Valley Water Project EIR/EIS

The MCWRA does not currently have a formal groundwater management plan, but much of the information regarding future plans can be found in the agency's Environmental Impact Report for the Salinas Valley Water Project.

C. Recycled Water

The City owns and operates a 3 MGD (3390AFY) wastewater treatment plant to the Southwest of the City. It also leases a 1.1 MGD (1240AFY) wastewater treatment plant from the State of California Department of Corrections, which it intends to purchase in 2006. Currently, the effluent from these treatment plants is discharged into percolation ponds adjacent to the plants, where it then seeps into the groundwater below. The City however, plans to upgrade these plants in the near future to tertiary treatment, at which time it would begin to recycle its water. The City also plans to build a satellite treatment plant for new residential development, the effluent of which will be used for a golf course and residential irrigation. Details of the City's water recycling plans are discussed in the section on water recycling.

Section 4 Reliability Planning

Law

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

10631 (c) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable.

10631 (c) 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 replace that source with alternative sources or water demand management measures, to the extent practicable.

10631 (c) Provide data for each of the following:

(1) An average water year, (2) A single dry water year, (3) Multiple dry water years.

10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:

10632 (b) 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.

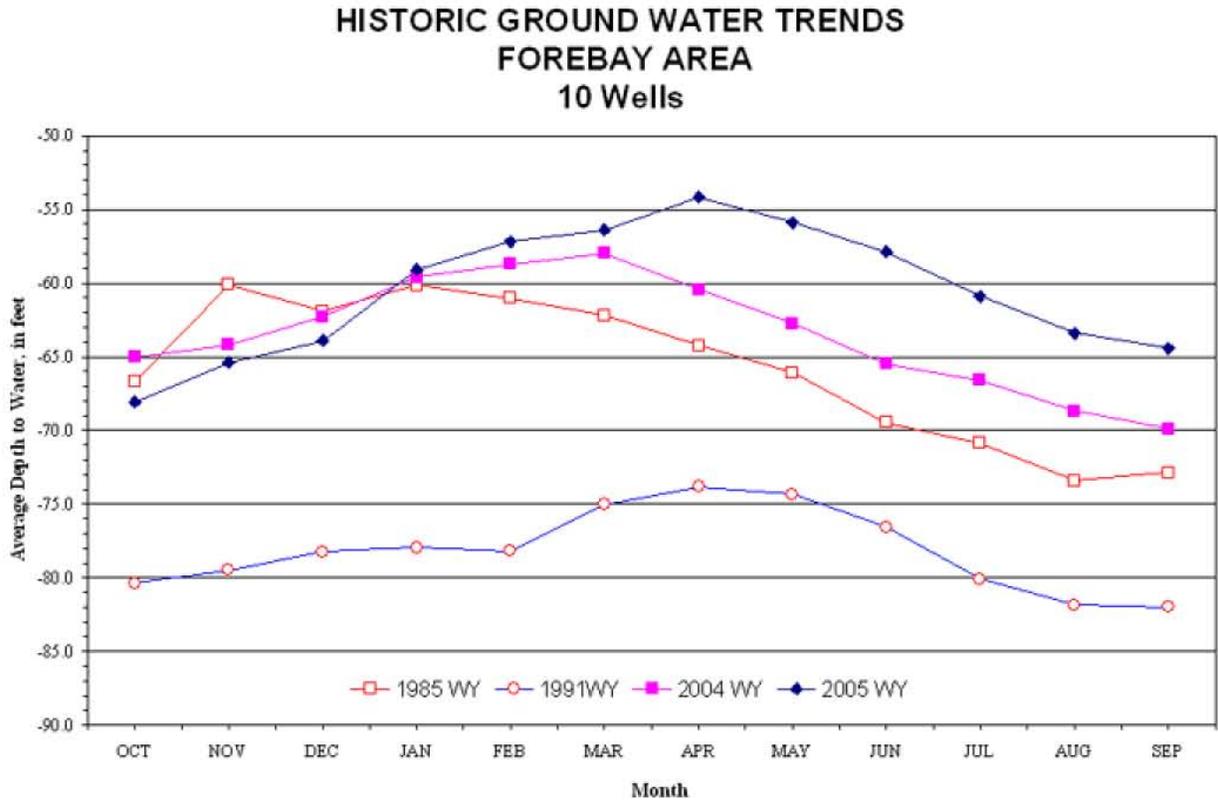
A. Supply Reliability

Soledad falls in the Forebay Subarea of the Salinas Valley Groundwater Basin. The MCWRA reports that in all its years of measurement (since the 1950's), there has never been an instance of overdraft in the Forebay Subarea. because Soledad falls just downstream of the confluence of the Salinas River and Arroyo Seco, its groundwater levels are particularly high and no overdraft is expected in the future. In fact, due to the above, no safe yield number has ever been calculated for the Forebay Subarea.

Figure 5 shows average depth to groundwater throughout the Forebay Subarea, where 1985 represents an average year and 1991 represents the final year of a three-year drought. While the groundwater table dropped between 90 and 100 feet in the areas near the coast, drawdown in the Forebay Subarea was generally between 15 and 20 feet. Since there is very little rainfall in the summer months, the groundwater table is generally ten feet lower during the summer than during the winter as can be seen in Figure 5. Regardless, Soledad's water supply has not proven vulnerable to seasonal changes.

There are several factors that could yield an inconsistency of supply. Earthquakes are common in coastal California, and could potentially disrupt water supply. Contamination is also possible. The City's responses to the above are discussed in the Emergency Response Plan. There are currently no legal threats to Soledad's access to its water supply.

Figure 5: Groundwater Trends



Source: MCWRA Website:

For the reliability analysis below, the total water supply was assumed to be the portion of the Forebay Aquifer within a two-mile radius of the ultimate buildout of Soledad, which totals 1,500,000 acre-feet. As the culmination of a three-year drought, 1991 is the driest year on record, with the groundwater table lowered by about 15 feet. The period of 1989-1991 was thus considered representative of three subsequent dry years, with the water table dropping five feet per year. To determine the total quantity lost in a dry year, the fall in groundwater was multiplied by the surface area in question (24,600 acres) and then by a porosity value of 0.4.

Table 7: Supply Reliability

Supply Reliability - AF Year				
		Multiple Dry Water Years		
Average / Normal Water Year	Single Dry Water Year	Year 1	Year 2	Year 3
1,500,000	1,450,800	1,450,800	1,401,600	1,352,400
% of Normal	97	97	93	90

Table 8: Basis of Water Year Data

Water Year Type	Base Year
Average Water Year	1985
Single-Dry Water Year	1991
Multiple-Dry Water Years	1989-1991

Source: *MCWRA Website:*

Table 9: Factors that could affect/impact consistency of Supply

Name of supply	Legal	Environmental	Water Quality	Climatic
Groundwater	None	Earthquake	Contamination	Drought

B. Plans to Assure a Reliable Water Supply

The City of Soledad is blessed by a fortunate geographic location just downstream of the confluence of the Salinas River and Arroyo Seco, and has never experienced overdraft. Regardless, the City of Soledad is taking part in several measures to make its supply more reliable. Soledad’s groundwater basin falls under the jurisdiction of the Monterey County Water Resources Agency, which is finalizing plans on the Salinas Valley Water Project. This project is expected to induce an extra 17,900 acre-feet of recharge throughout the Forebay Subarea in winter months (November-March) and an extra 18,800 acre-feet during peak irrigation season (April-October) in comparison to baseline data (Figure 4).

In addition, the city intends to upgrade its wastewater treatment plants to tertiary treatment and begin recycling the effluent as described in Section 10. This should further aid reliability of the water supply as well as provide 90 million gallons (280AF) of storage to last through the summer months.

C. No Unreliable Sources

Considering the historical performance of the groundwater supply beneath Soledad, the City believes that its supply is both reliable and consistent.

D. Transfer or Exchange Opportunities

Law

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

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

Currently, the City does not buy or sell water to other agencies. Once the City upgrades its existing Wastewater Treatment Plants to tertiary standards, however, it will run a pilot program in which 0.25MGD (280AFY) of reclaimed water will be used to irrigate 80 acres of food crops adjacent to the prison wastewater treatment plant and 0.18MGD (200AFY) will be used to irrigate 50 acres of grass crops adjacent to the city plant. The City is confident that these programs will be a success. Once these programs succeed, the City intends to sell the entire effluent from each of these plants to local farmers. This amount is expected to grow gradually along with the expansion of the City with a capacity of approximately 5.6MGD (6300AFY). The city intends to negotiate these transfers individually with farmers and no terms of agreement currently exist.

Section 5 Water Quality

Law

10634. 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.

City water quality data can be seen in Table 10 below. Contaminants of local concern are pesticides, Biochemical Oxygen Demand (BOD) and Total Dissolved Solids (TDS). The City also recognizes that pollutants of concern in common urban runoff may include sediments, non-sediment solids, nutrients, pathogens, BOD, petroleum hydrocarbons, heavy metals, floatables, polycyclic aromatic hydrocarbons (PAHs), trash, pesticides and herbicides. In addition, percolation ponds from the neighboring wastewater treatment plants often suffer limited treatment due to high groundwater tables, particularly in the winter. The effect this has on the city's drinking water supply is unknown, but this effect should be mitigated by upcoming upgrades in the city's wastewater facilities.

Table 10: Water Quality Data

Constituent	City Water Supply Oct. 2, 2004 (mg/l)
Total Dissolved Solids	476
Sodium	44.1
Chloride	55.3
Sulfate	133
Boron	0.3
Nitrate (as N)	0.2

The City routinely tests all its wells to ensure that the groundwater pumped meets EPA and DOHS drinking water standards. The water quality of the primary wells is good and meets all standards. As previously stated, emergency backup standby wells 2 and 3 have elevated nitrate concentrations and some organic chemical contamination. These wells are not used. Should an emergency require use of these two wells, they must be blended with well 7 and reported immediately to the DOHS. The City has several ways to prevent use of wells 2 and 3. New wells can be constructed and existing offline wells can also be renovated. Both of these are currently being done. Since the City has a solid monitoring program no water quality impacts are projected that cannot be handled at the beginning distribution end.

Section 6 Water Use Provisions

Law

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

10631 (e) (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, 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; and (I) Agricultural.

(2) The water use projections shall be in the same 5-year increments to 20 years or as far as data is available.

A. Past, Current and Projected Water Use

Table 11 illustrates Past, Current, and Projected Water Use by sector from 2000 - 2025 in acre-feet per year.

A.1 Residential Sector

The City of Soledad predicts rapid residential growth. The values for 2010 assume that the Miravale III developments are completed by that year. The 2025 values correspond to the ultimate build out described in the City's General Plan, and the years in between are interpolated. Although the City of Soledad plans to introduce conservation efforts, this analysis assumes constant per-capita water use to ensure a conservative estimate.

A.2 Commercial Sector

Commercial accounts are projected to grow gradually in the next 20 years with no substantial change in usage per square foot. These estimates are based on the City's General Plan.

A.3 Industrial Sector

The City expects substantial industrial growth in the near future, but this growth is not expected to be water intensive. As a result, the same demand factor (demand per acre) as that calculated for commercial development was used in calculating demand for new development. Net industrial water use, however, is still projected to grow substantially.

A.4 Institutional/Governmental Sector

New institutional development for the next 20 years includes several schools. These estimates are based on preliminary development plans for Miravale III.

A.5 Landscape/Recreational Sector

While the City does irrigate and meter landscaping on its current facilities, it does not record these amounts. Projected landscaping uses refer to a planned golf course and several parks which will most likely be fed by through a recycled water distribution system. This data does not include future residential landscaping, which may also be served by recycled water.

A.6 Agricultural Sector

The City does not provide water for agricultural uses.

A.7 Unmetered Water Use

Landscaping for older parks in the City is currently not metered, but it is current policy to meter all new parks and landscaping strips. The values for unmetered water use include these unmetered accounts as well as losses within the current distribution system.

Table 11: Water Deliveries by Sector

Water Use Sectors	Past, Current and Projected Water Deliveries			
	2000*		2005	
	# Of Accounts	Deliveries AFY	# Of Accounts	Deliveries AFY
Single-family residential	1995	Unknown	2,904	1,427
Multi-family residential	687	Unknown	597	220
Commercial	182**	Unknown	303	128
Industrial	1	Unknown	2	49
Institutional and Government	0**	Unknown	95	109
Landscape	0	Unknown	0	0
Agriculture	0	Unknown	0	0
Unmetered	9	Unknown	6	404
TOTAL	2864	1,716	3,907	2,337

*Water deliverie sbroken down by sector began in 200;. year 2000 data gives only number of accounts by sector and a grand troltal for deliveries

** Institutional deliveries not separated from commercial deliveries for this year

Continued Water Use Sectors	Past, Current and Projected Water Deliveries			
	2010		2015	
	# Of Accounts	Deliveries AFY	# Of Accounts	Deliveries AFY
Single-family residential	4,275	1,913	5,650	2,234
Multi-family residential	2,910	2,035	3,973	2,296
Commercial	342	210	654	294
Industrial	2	100	269	258
Institutional and Government	98	201	98	209
Landscape	3	729	3	836
Agriculture	0	0	0	0
Unmetered	6	404	6	404
TOTAL	7,636	5,592	10,653	6,531

Continued Water Use Sectors	Past, Current and Projected Water Deliveries			
	2020		2025	
	# Of Accounts	Deliveries AFY	# Of Accounts	Deliveries AFY
Single-family residential	7,025	2,560	8,400	2,871
Multi-family residential	5,037	2,538	6,100	2,741
Commercial	966	394	1,278	505
Industrial	535	458	802	698
Institutional and Government	99	210	99	201
Landscape	3	942	3	1,037
Agriculture	0	0	0	0
Unmetered	6	404	6	404
TOTAL	13,671	7,506	16,688	8,457

Source: *Water Master Plan*

B. Sales to Outside Agencies

The City does not wholesale water to other agencies.

C. Water Uses and Losses

The City currently does not have any additional water uses of its pumped groundwater such as saline barriers, groundwater recharge, or conjunctive use. The only losses that the City's water system experiences are shown in Table 11 as unmetered use.

Section 7 Planned Water Supply Projects and Programs

Law

10631 (h) Include a description of all 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 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.

A. Proposed Projects, Consistency with Goals and Objectives

The City does not plan to tap into any new sources of water, but it does intend to make upgrades and expansions to its current system to keep up with current development. This includes wells, generators, new distribution lines, pump stations and more, and can be found summarized in the table below.

Table 12: System Upgrades and Expansions for near future development

Category	Quantity	Description	Component Cost
Wells	2	1500 gpm Wells	\$1,502,0000
Storage	1	1,000,000 gallon Tanks	\$280,000
	1	400,000 gallon Tank	\$112,000
Transmission	4,040 LF	24" Service Line	\$824,200
	1,000 LF	18" Lines	\$199,900
	3,500 LF	20" Pump Station Feeder	\$1,050,000
	1,828 LF	12" Service Line	\$186,500
Pump Stations	4	Pump Stations	\$1,864,000
SCADA Installation	1	Main System	\$35,000
	8	Field Units	\$160,000
Subtotal			\$6,213,600
25% Contingency			\$1,553,400
40% A, E, & CS*			\$3,106,800

* - Administrative, Engineering, and Construction Support
 Source: Water Master Plan

A.1 Opportunities for Development of Desalinated Water

There are currently no opportunities for development of desalinated water. Since the City has an abundant source of groundwater the transport of desalinated water is not expected to be necessary. Furthermore, the length of transport line necessary to bring desalinated water to the City makes this option impractical.

B. Planned Programs

Planned programs are described in the Section herein on Demand Management Measures (DMM).

Section 8 Water Demand Management Measures

Law

10631 (f) Provide a description of the supplier’s water demand management measures. This description shall include all of the following:

(1) A description of 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:.....

The City is not a signatory of the California Urban Water Conservation Council, nor is the Monterey County Water Resources Agency (MCWRA), which manages the groundwater basin. Therefore, a formal Demand Management Measure (DMM) program has not yet fully been developed. The fourteen DMMs listed in the table below represent measures the City envisions considering, developing and/or implementing over time, with the associated schedule shown therein. Further, each DMM is discussed following the table.

Table 13: Demand Management Measures and Implementation Schedule

DMM #	DMM Name	Scheduled Implementation Start Date	Fully Implemented By Date
1.	Water Survey Program	April, 2008	April, 2009
2.	Plumbing Retrofit	December, 2009	- same -
3.	Water System Audits	January, 2007	TBD
4.	Metering w/ Commodity Rates	January, 2007	January, 2008
5.	Large Landscape Program	June, 2010	June 2015
6.	Washing Machine Program	January, 2007	December, 2007
7.	Public Information Program	April, 2005	December, 2006
8.	School Education Program	September, 2006	September, 2008
9.	Commercial, Industrial, Institutional Program	December, 2008	December, 2009
10.	Wholesaler Assistance	N/A	N/A
11.	Conservation Pricing	January, 1996	January, 1997
12.	Conservation Coordinator	January, 2007	January, 2008
13.	Water Waste Prohibition	January, 1994	December, 1994
14.	Residential ULFT Program	January, 2007	December, 2007

DMM 1 – Water Survey Program

No water survey programs for single-family and multifamily residential customers are currently conducted within the City. In an effort to develop such a survey program, the City will prepare a survey to residents soliciting information such as:

- Type and age of residence
- Number of household individuals
- Specific to landscaping, description of area(s) broken down by grass, hardscape, landscape, and

- garden, approximate slope, type of irrigation and sprinkler heads used, and amount of shade.
- Description of in-home toilets, faucets, showers (including flow rate and leaks)
- Quantification of frequency and duration of showers, baths, washer and dishwasher loads, and car washes.
- Description of pool or spa.
- Amount of utility bills for past 12 months
- Whether or not the residence is a working home such as a day care.

Development of the questionnaire will begin in April, 2008. The questionnaire will be posted to the City website by April, 2009, with participation encouraged through announcements included in two consecutive utility billings. Also by April 2009 will be developed a procedure for reviewing and following-up on the responses. The intended goal is to have 15% of each residential category return their surveys by December, 2009. Ultimately the surveys will be used to target households for outreach to receive conservation tips and suggestions specific to their household, resulting in lower overall water consumption. Effectiveness will be measured by comparing historic use with current use for those customers targeted. The following table represents water savings that may be achieved through this program:

Table 14: Typical Water Savings

	Pre-1980 Construction	Post-1980 Construction
Low-flow showerhead retrofit	7.2 gcd	2.9 gcd
Toilet retrofit (five year life)	1.3 gcd	0.0 gcd
Leak repair	0.5 gcd	0.5 gcd
Landscape survey (outdoor use reduction)	10%	10%

DMM 2 – Plumbing Retrofit

The City began developing their plumbing retrofit program in 1994 under Chapter 13.09 Municipal Code Requirements. Under code regulations, retrofitting of toilets and showerheads is required upon change of ownership or use for existing residential structures, while retrofitting of toilets is required upon change of ownership or use for existing commercial and industrial structures. Additionally, the City is currently beginning implementation of an ULFT program as described under DMM 14 – Residential ULFT.

Utilizing DMM 1, the City will be able to track which homes are lacking water saving devices so that it is flagged during the transfer of ownership and/or change of use process. Each year the number of homes without conserving fixtures will decrease.

Also utilizing DMM 1, the City will additionally target 5% of the pre-1994 single family homes and multi-family homes every two years for showerheads and ultra-low flush toilet replacements. This program may go into effect immediately once returned water surveys are processed, or beginning December, 2009. Water savings is expected in those residences where retrofits are implemented as shown in Table 14 under DMM 1.

DMM 3 – System Water Audits, Leak Detection and Repair

Per the requirements stipulated in the City Municipal Code Chapter 13.09, the Public Works Director shall maintain in effect a distribution system leakage detection and repair program. To initiate this program, the City will be developing a system wherein categorical metered and unmetered uses are tracked against well production. The City will track production against monthly use to be reviewed annually for determining whether the system exhibits significant losses. Significant losses will be a discrepancy between use and production that exceeds 6%.

Data accounting for system-wide use indicates that current losses exceed 12%. However, the City's pumping wells are currently in transition with some slated to go off-line in the next couple of years. Therefore, the amount of losses may decrease once the transition has been completed.

As part of this program, the City will appoint the Maintenance Department to handle and schedule physical audits and repairs. When losses exceed the 6% threshold, a system for implementing testing agents within the distribution pipelines will be put into place (once developed) to determine where specifically a leak exists. Discovered leaks would then be slated for repairs.

Documentation of each incidence and/or detected leak will be kept along with the date repairs are made. Once a repair is made, a minimum of two month's follow up of well production versus use data will be tracked to determine the total amount of water savings through said repair.

The auditing system will be automated to begin efficient tracking in January, 2007. Annual reviews will be conducted thereafter. Effectiveness will be evaluated by seeing a marked decrease in losses each year until losses fall below the threshold 6% value. The Public Works Director will submit annual reports to the City Council, per Code requirements. Ultimately the City will see an estimated savings of 150 AFY once the 6% threshold is reached.

DMM 4 – Metering with Commodity Rates

The City is fully metered for all customer sectors, including separate meters for single-family residential, commercial, large landscapes, and all institutional/governmental facilities. The City requires meters for all new connections. Water billing is based on volume of use with a minimum monthly fee of \$11.73 assessed to each multi-family dwelling unit.

Most existing City parks have no meters. The newer parks (Veterans Park and Lum Park) have meters, although they are not currently read. There are several unmetered connections within the City, including two mobile home parks where meters exist but are in need of replacement and therefore are also not currently being read. The City plans to develop a program for installing and/or retrofitting existing unmetered connections, including City parks. Further, the City will work to install or have the property owners install separate meters in those areas where a single meter currently serves multiple units, as stipulated under Chapter 13.40 Utility Charges of the Municipal Code. The program will also include physically reading all operational meters for water auditing purposes.

DMM 5 – Large Landscape Water Audits and Incentives

A large landscape water auditing and incentive program will be developed by the City that includes irrigation surveys solicited of the City's large landscape customers (to be defined as three acres or greater). The program will incorporate calculations of water budgets for the site based on the size of the landscape and the climate, and compared against the water allotment for that site. Any water use which exceeds the water budget will be billed at a higher rate. On-site follow-up evaluations will be recommended for customers whose annual water use exceeds their water budget.

This program will be initiated in June of 2010 and will be implemented over the following five years.

The City will also investigate the existence of a nearby California Irrigation Management Information System (CIMIS) weather station where daily climatological data (temperatures, relative humidity, wind velocity, and precipitation) are documented. This data may ultimately be used to develop irrigation schedules that will help to maximize water use by adjusting timing, quantity, and frequency of watering.

It is expected that large sized landscapes upgraded based on survey recommendations could result in a 15% reduction in water demand.⁴

⁴ CUWCC Memorandum

DMM 6 – Washing Machine Rebate

The City is evaluating developing their washing machine rebate program. The City recognizes that high-efficiency washers use approximately 25 gallons per load versus 40 to 50 gallons per load for top loader machines. The washing machine is the second biggest water-user in most households; only the toilet will use more water. The next washing machine you buy will have an enormous effect on the amount of water you'll use over the next 10 years. The City proposes to provide customers with a **\$100 rebate** on your water bill when a customer purchases a qualifying high-efficiency washing machine. Similar to the toilet rebate, a customer must complete a rebate form.

The City proposes to develop the rebate form and a list of washing machines that qualify under this program. The program should be developed by August 2006, pending Council approval.

DMM 7 -- Public Information

The City is currently implementing a public information program newly developed as a result of the amount of influent at the City's Wastewater Plant which is directly related to the amount of water usage and fixtures (gallons per flush) in each residence. It is anticipated that through education on water usage and saving tips that there would be a reduction in water used and influent to the wastewater plant. Public outreach includes the following:

Utility Bills

Monthly utility bills are sent to each customer in the City. Included as part of the billing process is the ability to include a short notice (less than 32 characters) on each bill. The City utilizes this space to include water conservation messages on each of the utility bills in both English and Spanish. Below is a listing of possible messages:

1. We need your help to conserve
2. Help conserve, use less water
3. Fix toilet leaks & save water
4. Less flushes reduces flow
5. Wash full loads of clothes
6. Install low flow devices
7. Quick showers, flush less
8. Don't waste, conserve water
9. Don't throw trash in toilets
10. Fix dripping water/shower faucets
11. Capture tap water/ reuse on plants

Articles in Soledad Bee

As part of the process to inform the public as to the City's situation the following is done:

1. Articles run in English and Spanish on the City Situation and its effects on the public and growth.
2. Monthly articles are run updating the public as to the City's situation.
3. Weekly factoids are run on tips to reduce flow to the Wastewater Treatment Plant.

Articles in Soledad Times

Another outreach effort is to inform the public as to the City's situation:

1. An article is run in English and Spanish with tips to reduce flow to the plant. (To be run each first quarter newsletter)
 - a. Installation of low flow equipment.
 - b. Installation of hot water recirculating unit
2. Quarterly articles are run each second quarter updating the public as to the City's situation and reiterating tips to reduce flow to the plant.

Public Outreach

Varied methods to inform the public on the Moratorium and methods they can take to help the situation are implemented, including:

1. A power point presentation on the City's situation. City Staff present to different non-profit organizations, businesses and schools each month.
2. Door hangers have been made with information on the City's situation and tips on how citizens can help reduce flow to the plant.
 - a. Use of High School Students to deliver
 - b. Use of CSUMB students to deliver
3. Tips are continuously posted to reduce flow to plant on Soledad's Local Channel.
 - a. To keep citizens interested the background color will be changed
 - b. Rather than having all tips Staff will create "Tip of the Week" and change the tip each week.
4. A poster has been developed to be distributed to children and businesses end 2005.
5. Information will be placed on the City's website with links on conservation measures.
6. Direct mailings to all citizens on conservation measures will be initiated end 2005.
7. Use of a celebrity as a spokesperson to get information out on the city's efforts is being investigated.

The City will track the commentary regarding the information provided, and effectiveness will be gauged by increased awareness.

DMM 8 -- School Education

The City is currently working on a school education program to promote water conservation and water conservation related benefits. The City is currently developing educational materials such as water conservation posters and classroom presentations. The City plans to put on water conservation programs for elementary school children beginning in 2006. They plan to visit 3rd to 5th grade classrooms on a quarterly basis. Once an elementary school water conservation program is established additional water conservation programs will be developed to include grade appropriate materials for middle and high school students. The City plans to have a complete school education program in place by the 2008 school year.

In order to evaluate the effectiveness of this program the City will survey the institutions and educators on the number of programs, materials and attendance at water conservation activities.

The City has no method to quantify the savings of this DMM but believes that this program is in the public's interest.

DMM 9 – Commercial, Industrial, and Institutional Water Conservation

The City is fully metered for all customer sectors, including commercial, industrial and institutional accounts. The City began developing their plumbing retrofit program in 1994 under Chapter 13.09 Municipal Code Requirements (Included in Appendix C). Under code regulations, retrofitting of toilets is required upon change of ownership or use for existing commercial and industrial structures. In order to accelerate this process the City will implement an Accelerated Fixture Replacement Program (AFRP).

The City will utilize the survey results from DMM 1 to identify and rank commercial, industrial, and institutional accounts that will be targeted to participate in the AFRP. The AFRP will accelerate replacement of existing high water using toilets with ultra low flush (1.6 gallons or less). The number of commercial, industrial and institutional accounts with water conserving fixtures is expected to increase annually. The City will begin implementing this DMM in 2006 with an annual target rate of 5% increase in use of water conserving fixtures for at least the next five years.

The City will evaluate the effectiveness of this DMM by annual review of customers' water use, and by offering on-site follow-up evaluations to customers whose total water use exceeds their total annual water budget.

DMM 11 -- Conservation Pricing

The City is fully metered for all customer sectors, including separate meters for single-family residential, commercial, large landscapes, and all institutional/governmental facilities.

The City has an tiered water use rate structure put into effect in 1996, with a minimum monthly fee of \$11.73 assessed to each multi-unit dwelling. The structure is as follows:

Table 15: Typical Water Rates

METERED USAGE	RATE
2,000	\$.63/100 CF
2,000 – 3,000	\$.95/100 CF
3,000 – 5,000	\$1.10/100 CF
Over 5,000	\$1.44/100 CF

Source: Finance Department

Water savings effectiveness is measured through periodic review of customer water use, comparing current water use per capita with historic data. It is estimated that metered accounts may result in a 20% reduction in demand compared to non-metered accounts.

DMM 12 – Conservation Coordinator

Conservation Coordination efforts will be overseen by the Public Works Department. The City has designated the Public Works Assistant Engineer as the Water Conservation Coordinator. The Assistant Engineer is currently Pat Argueta-Serrano, who has been with the City of Soledad for less than one year. Duties for the Conservation Coordinator position include, but are not limited to, the following:

- Coordination and oversight of conservation programs and BMP implementation.
- Keeping a log of conservation practices conducted throughout the City and point person(s) assigned to each area.
- Acting as the point of contact to the Public for general inquiries and requests for information.
- Preparation and submittal of the Council BMP Implementation Report
- Communication and promotion of water conservation issues to City senior management; coordination of City conservation programs with operations and planning staff; preparation of annual conservation budget; participation in the Council, including regular attendance at Council Meetings.

The Conservation Coordinator will spend 0.10 FTE working in this said capacity.

DMM 13 – Water Waste Prohibition

The City established mandatory restrictions on water waste in 1994 that require repair of plumbing, sprinkler, and irrigation systems within seventy-two hours after such the property owner first learns of the problem in their Municipal Code Chapter 13.09 (Appendix C). The regulations stipulated therein are actively enforced through issuance of warnings and penalties.

DMM 14 – Residential Ultra-low Flush Toilet Replacement

Please see DMM 2 discussing the regulations in place for replacing toilets to ULFT's upon change of ownership or use. In addition, the City is evaluating developing a residential ultra-low flush toilet replacement program wherein single family and multifamily owners are eligible to receive a rebate on their water bills, for replacement of a 3.0 gpf toilet with a ULFT (1.6 gpf), in an established amount per toilet. – To be eligible for a rebate the property owner is solely responsible for purchase of toilet, installation arrangements, and payment. A Rebate certification form must be completed and returned to the City by the proposed expiration date to be valid. As a condition of the rebate, customer agrees not to alter the toilets and/or showerheads in order to increase the flow of water through the fixtures. Customer must agree to allow City inspector access to verify installation if selected for random inspection. Lastly, customer agrees that rebate(s) will be through credit(s) on his/her water bill over a two billing cycle. In all cases, customer should ensure funds are available for a rebate by calling City Hall Public Works Department before replacing toilet(s).

The program will be developed by July 2006, pending Council approval. Information on the program will be advertised in the local newspaper, public access television, and the quarterly newsletter provided to all residences of the City.

Section 9 Water Shortage Contingency Plan

A. Preparation for Catastrophic Water Supply Interruption

Law

10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:

10632 (c) 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.

A.1 Water Shortage Emergency Response

The City of Soledad has prepared a Water System Emergency Response Plan (ERP).

The purpose of the ERP is to provide the City of Soledad with a standardized response and recovery protocol to prevent, minimize, and mitigate injury and damage resulting from emergencies or disasters of natural or man-made origin.

The goals of the ERP are:

- Rapidly restore water service after an emergency.
- Ensure adequate water supply for fire suppression.
- Minimize water system damage.
- Minimize impacts and loss to customers.
- Minimize negative impacts on public health and employee safety.
- Provide emergency public information concerning customer service.

The City of Soledad has considered the threats posed by natural events and weather related phenomena. Specific action plans AP(s) have been developed to guide a timely and prudent response should such threats be realized. These detailed APs are found in the attached Appendices. See Table 17 for considered catastrophes.

Table 16: Preparation Actions for Catastrophe

Preparation Actions for Catastrophe			
Possible Catastrophe	Check if Discussed	Primary AP No.	Secondary AP No.
Natural Disasters			
Earthquake	✓	8D	
Floods	✓	8A	
Winter Storm	✓	8B	
Hurricane	✓	8C	
Power Outage	✓	7	

The City of Soledad has developed specific AP documents, found in the appendices, to respond to the following man-made threats that were identified in the City's vulnerability analysis:

Continued Preparation Actions for Catastrophe			
Possible Catastrophe	Check if Discussed	Primary AP No.	Secondary AP No.
Man-made Threats			
Threat of contamination to water system	✓	1A	1B
Confirmed contamination to water system	✓	1C	1B
Structural Damage from explosive device	✓	2	1A
Employee Assaulted with weapon	✓	3	
SCADA System Intrusion	✓	4	5
IT System Intrusion	✓	5	4
Chemical Release	✓	6	
Water Supply Interruption	✓	9	
Bomb Threat	✓	10A	10B, 10C

A.2 Supplemental Water Supplies

The City of Soledad’s Water System ERP identifies alternate water resources, emergency water supply calculations and emergency equipment and supplies. The City of Soledad has two alternate and independent raw water sources in the event of the failure of all six City wells, which is highly unlikely:

- Water Source 1: Baraga Well off San Vicente Street
- Water Source 2: Salinas River

Each of these raw water services can supplement the water supply if the other sources are compromised. For additional information please refer to the City of Soledad’s Water System ERP.

B. Water Shortage Contingency Ordinance/Resolution

Law

10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:

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

B.1 City of Soledad Water Shortage Response

The City adopted Mandatory Water Conservation Regulations in 1994, which can be found in Chapter 13.09 of the City of Soledad’s Municipal Code and attached as Appendix C. The City of Soledad has not developed a formal water-rationing plan, except for that described herein. Additionally a model resolution is included as Appendix D that will be adopted in the case of an impending water shortage.

C. Stages of Action

Law

10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:

10632 (a) 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.

C.1 Rationing Stages and Reduction Goals

The City of Soledad proposes a five-stage rationing plan to invoke during declared water shortages. The rationing plan includes voluntary and mandatory rationing, depending on the causes, severity, and anticipated duration of the water supply shortage.

C.2 Water Shortage Stages

Table 17: Rationing Stages

Shortage	Stage when method takes effect	Projected Reduction (%)	Type of Program
5-10%	Stage 1	10%	Voluntary
10-20%	Stage 2	20%	Voluntary or Mandatory
20-30%	Stage 3	30%	Voluntary or Mandatory
30-40%	Stage 4	40%	Mandatory
40-50%	Stage 5	50%	Mandatory

Triggers

5-10% Shortage = Levels in wells reach 220 to 235 feet below surface

10-20% Shortage = Levels in wells reach 235 to 250 feet below surface

20-30% Shortage = Levels in wells reach 250 to 265 feet below surface

30-40% Shortage = Levels in wells reach 265 to 280 feet below surface

40-50% Shortage = Levels in wells reach 280 to 300 feet below surface

Levels in wells are recorded by the Distribution II Operator on a semi-annual basis. In case of a water shortage, the levels will be recorded weekly (Stages 3 and higher).

Stage 1

Soledad maintains an ongoing public information campaign consisting of distribution of literature, speaking engagements, monthly bill inserts, and conservation messages printed in the city’s local newspapers “Soledad Bee & Soledad Times.” The City of Soledad’s Mandatory Water Conservation Regulations are in place.

Stage 2

This stage is voluntary for high commercial and industrial uses of water and mandatory for water use within the City’s control, wherein a 50% reduction is required in all parks, medians, and public landscaped areas. In addition,

the public will be encouraged to participate in water conservation practices by changing their water use habits and installing water efficient devices in their homes. Outreach will primarily be through informational means including news media and water conservation literature. Per the residential health and safety water quantity calculations found below, habit changes alone result in a 26% reduction of total water consumption, while replacement of standard fixtures with conserving fixtures within the home can result in a 43% reduction. Therefore, expected reduction due to these efforts far exceeds the required reduction at this level.

Table 18: Residential Health and Safety Water Quantity Calculation

Fixture	Non-Conserving	Habit Changes	Conserving Fixtures
Toilets	4 flushes x 6gpf 24	3 flushes x 6gpf 18	4 flushes x 1.5gpf 6.0
Shower	6 min. x 4gpm 24	4 min. x 4gpm 16	6 min. x 2.5gpm 15
Laundry	11 gcd 11	9 gcd 9	10 gcd 10
Kitchen	9 gcd 9	7 gcd 7	8 gcd 8
Total gcd	68	50	39

Source: *Wastewater Rate Study* and *Municipal Code Chapter 13.09 (Conserving Fixture gpf/gpm data.)*

Stage 3

At this level, the City would eliminate its public water uses (City landscaping) entirely. The City would also notify schools, developers, and industrial water users of a water shortage, encouraging them to conserve. With continued public outreach, habit changes and fixture replacements, the demand reduction at this level will again far exceed the amount required.

Stage 4

In order to supplement actions taken at the previous level, the City may temporarily increase water rates. Water rate increases will discourage use of water and prevent or defer installation of new landscaping. Additionally, further water use prohibitions will be required

Stage 5

This level would represent a true critical water shortage. The City would pass their model resolution prescribing additional rate increases, prohibiting unmetered usage including fire hydrants, and placing a ban on water use for any and all irrigation.

D. Prohibitions, Consumption Reduction Methods and Penalties

Law

10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:

10632 (d) 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 (e) 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 (f) Penalties or charges for excessive use, where applicable.

D.1 Mandatory Prohibitions on Water Wasting

The City of Soledad’s Mandatory Water Conservation Regulations (see Appendix C) includes **current and ongoing** prohibitions on various wasteful water uses such as:

- Repair of Plumbing, Sprinkler and Irrigation Systems
- Washing of Vehicles
- Cleaning of Structures
- Cleaning of Surfaces
- Water Spillage
- Swimming Pools and Spas
- Fountains
- Visitor Serving Facilities
- Public & Quasi-Public Entities
- Commercial Car Washes
- Construction Activities
- Use of Hydrants
- Leakage and Repair Program
- New Construction
- Retrofitting Existing Hotels and Motels

Table 19: Mandatory Prohibitions by Stage

Mandatory Prohibitions	
Examples of prohibitions	Stage when Prohibition Becomes Mandatory
50% reduction required in all parks, medians and Public landscaped areas	Stage 2
Public water use (for example City landscaping)	Stage 3
Installation of new landscaping	Stage 4
Prohibit unmetered usage such as fire hydrants during construction	Stage 5

D.2 Warnings & Penalties

Current & Ongoing Procedures

- 1) In order to encourage cooperative efforts to achieve water conservation, it is the policy of the City of Soledad to issue a written warning notice when an alleged violation is first noted. Such warning shall include an explanation of the alleged violation. Any individual provided with such notice will then be given an opportunity to correct the identified problem.
- 2) Any violation that occurs or continues from one day to the next shall be deemed a separate violation, for each day during which such violation occurs or continues to occur.
- 3) The fine for the first violation of this chapter shall be fifty dollars.
- 4) The fine for second violation and each subsequent violation of Municipal Code Chapter 13.09 within a period of twelve months, regardless of the specific section or subsection violated shall be one hundred dollars.

Shortage Stage Procedures

- 1) Issue a written warning notice when an alleged violation is first noted. Such warning shall include an explanation of the alleged violation. Any individual provided with such notice will then be given an opportunity to correct the identified problem.
- 2) If the violation is not corrected after one written warning notice, the City shall install a flow restrictive device on the service line of any customer observed by Soledad’s personnel to be using water for any non-essential or unauthorized use.
- 3) Repeated violations of unauthorized water use will result in discontinuance of water service.

E. Revenue and Expenditure Impacts and Measures to Overcome Impacts

Law

10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:

10632 (g) 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...

10632 (g) [An analysis of the impacts of each of the] proposed measures to overcome those [revenue and expenditure] impacts, such as the development of reserves and rate adjustments.

Imposing water restrictions on customers would have an impact on City revenues. The following table shows the estimated impacts on revenues resulting from implementing various levels of restrictions.

Table 20: Revenue Impacts From Water Restrictions

Revenue Impacts From Water Restrictions		
Rationing Stage	Revenue Reduction	Percent of Total Annual Revenue
Stage 1 (5-10%)	\$40,781	3.33%
Stage 2 (10-20%)	\$81,562	6.66%
Stage 3 (20-30%)	\$122,343	9.99%
Stage 4 (30-40%)	\$163,125	13.33%
Stage 5 (40-50%)	\$203,906	16.66%

Revenue reduction = percent decrease times projected normal revenue for usage for June, July, August & September. Average normal revenue (for the specified time period) over the past three fiscal years was used.

Source: Finance Department

The City currently maintains an operating reserve amounting to \$450,000 in its water operations budget in case of emergencies.

Under long-term drought conditions, it may be necessary to institute temporary increases to rates to cover increased operating expenses. One option that the City could utilize would be to adopt a surcharge or flat rate increase over a specific time period to cover increased operating expenses while under water shortage. This measure would allow the City to implement various levels of rate increases after City Council, by resolution, has declared a threatened shortage of funds due to water shortage or other emergency.

Conditions of drought and the implementation of water restrictions would also impact expenditures. Reduced availability of groundwater would produce higher energy bills. The difference in groundwater elevation would lengthen the pumping time required to produce the same amount of groundwater. A complete study on how a drought would impact City expenditures has not been completed at this time.

F. Reduction Measuring Mechanism

Law

10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:

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

F.1 Mechanism to Determine Reductions in Water Use

Under normal water supply conditions, potable water production figures are recorded daily. Totals are reported weekly to the Water treatment Facility Supervisor. Totals are reported monthly to the Water Department Manager and incorporated into the water supply report.

During a Stage I or Stage II water shortage, daily production figures read from wellhead meters will be reported to the Utilities Department. The Supervisor compares the weekly production to the target weekly production to verify that the reduction goal is being met. Monthly reports will be sent to the City Council. If reduction goals are not met, the Manager will notify the City Council so that corrective action can be taken.

During a Stage III or Stage IV water shortage, the procedure listed above will be followed, with the addition of monitoring production figures by sector and furthermore by consumer.

During emergency shortages Stage V, production figures will be reported to the Supervisor hourly and to the Manager and the Water Shortage Response Team daily. Daily reports will also be provided to the City Council and the Monterey County Office of Emergency Services.

Section 10 Water Recycling

A. Wastewater System Description

Law

10633. The plan shall 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. To the extent practicable, the preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies and shall include all of the following:

10633 (a) A description of the wastewater collection and treatment systems in the supplier's service area...

A.1 Participation in a Regional Recycled Water Planning Program

The City's participation and involvement in the Regional Recycled Water Planning Program is consistent with the Salinas Valley Water Project, which is discussed in more detail herein under the section titled, "Water Sources Supply."

A.2 Wastewater Collection and Treatment in Soledad

The City of Soledad owns and operates a Wastewater Treatment Plant (City Plant) located one mile southwest of the City. The City also leases and intends to own and operate the former State Department of Corrections Wastewater Treatment Plant (Prison Plant), located five miles northwest of the City. Both facilities are shown in Figure 6. The City expects to be able to purchase the Prison Plant from the State during 2006.

The City Plant was designed to handle 3.1 million gallons per day (MGD). A November 2001 Carollo Engineers Capacity Evaluation rated the facility at 3.6 MGD, but the City's operation of the facility during 2004 indicates a more appropriate safe design capacity of 3.0 MGD. City consultants have evaluated the Prison Plant and are indicating a design treatment capacity of 1.1 MGD with disposal capacities .8 to 1.15 MGD during high groundwater conditions and 1.4 MGD during dry weather and low groundwater conditions.

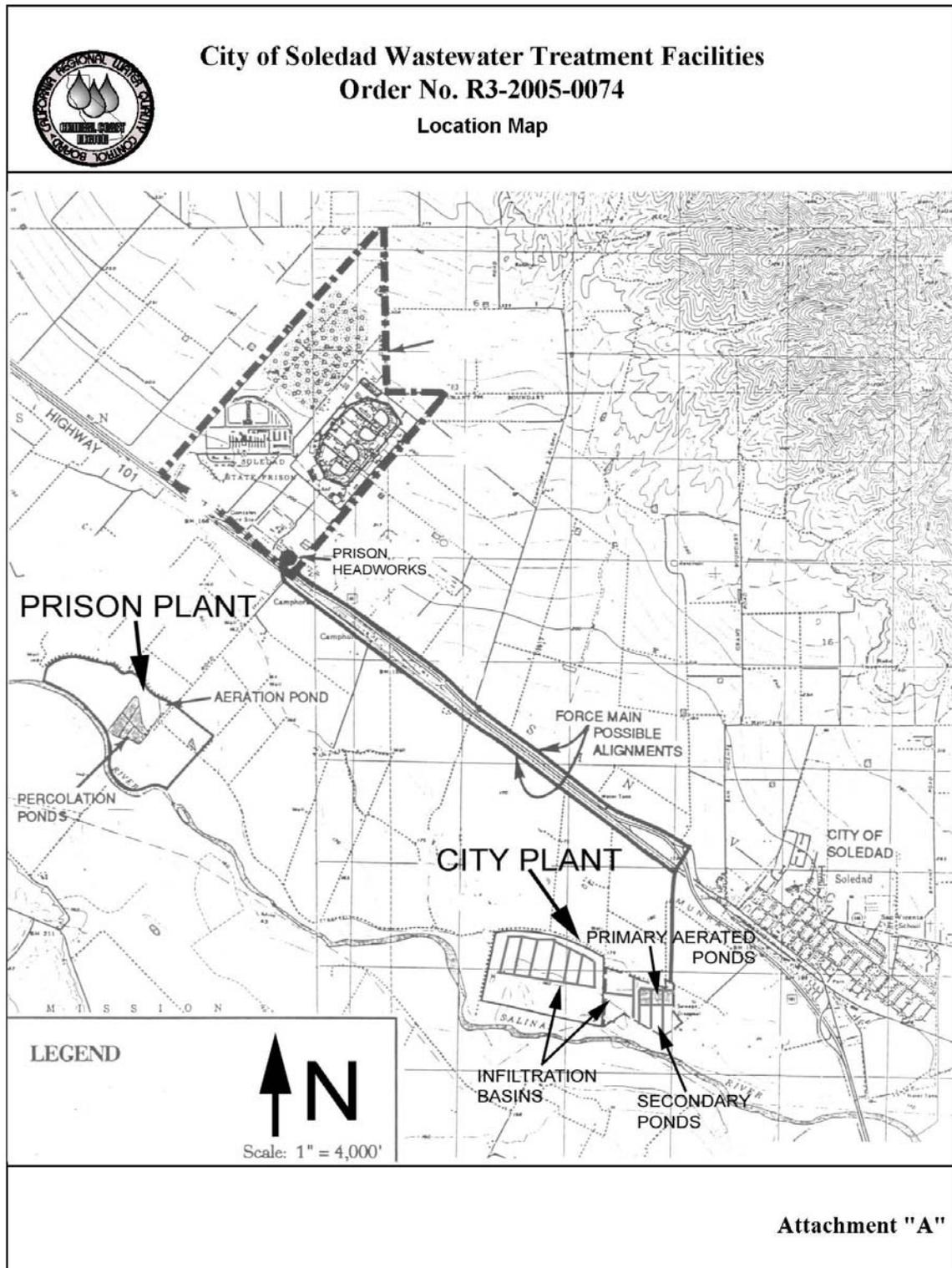
In the winter of 2005-2006, the City plant will be expanded to a capacity of 4.1MGD. Upon purchasing the prison plant, the City intends to re-rate the facility, expecting a new capacity of 1.47MGD. By 2010, the City intends to upgrade both facilities to meet tertiary treatment standards.

Table 21: Wastewater Collection & Treatment

Wastewater Collection and Treatment - AF Year						
Type of Wastewater	2000	2005	2010	2015	2020	2025
Wastewater collected & treated in service area	3700	3940	6900	7310	7730	8140
Volume that meets recycled water standard	3700	3940	6900	7310	7730	7040

Source: *Water Master Plan and Long-Term Waste Management Plan Workplan*

Figure 6: Wastewater Treatment Facilities Location Map



A.3 Wastewater Treatment Processes

Pretreatment occurs at the City headworks and consists of a vertical bar screen with comminutors. For safety and security concerns the prisons have their own headworks also consisting of screens and comminutors. Treatment at the City Plant consists of three lined, 10.5-acre aeration ponds, followed by three partially lined oxidation ponds. Disposal is with eight rapid-infiltration basins covering approximately 94 acres, as shown in Figure 6. Treatment at the Prison Plant consists of one 6.3-acre, lined aeration pond and five polishing disposal ponds covering approximately 19 acres, as shown in Figure 6.

Both facilities are located on relatively level topography consisting of sandy alluvial soils. Depth to shallow groundwater beneath the disposal areas of the City Plant generally exceeds 10 feet but is often reduced during the winter season due to elevated river flows and a mounding effect at the wastewater/groundwater interface. Depth to groundwater beneath disposal areas of the Prison Plant is expected to be greater than 5 feet but is believed to have similar quality to that found at City Plant.

B. Wastewater Disposal and Recycled Water Uses

Law

10633. The plan shall 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. To the extent practicable, the preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies and shall include all of the following:

10633 (a) A description of the [...] methods of wastewater disposal.

10633 (b) A description of 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) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

10633 (d) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years.

B.1 Recycled Water Currently Being Used

The City of Soledad currently disposes of its wastewater in disposal ponds adjacent to each of its treatment plants. This water then percolates back into the aquifer. The city does not currently re-use any of its treated wastewater.

B.2 Potential Uses of Recycled Water

On May 13th, 2005, the Regional Water Quality Control Board (RWQCB) issued order number WDR R3-2005-0074, stating new requirements for the effluent coming from the Wastewater Treatment Plants affecting Soledad. The treatment plant effluents are to meet secondary treatment standards in January, 2006, and to reach tertiary treatment standards by 2010. These requirements are shown below.

Table 22: Secondary Treatment Standards

Constituent	Units	Maximum
Total Dissolved Solids	mg/l	990
Sodium	mg/l	175
Chloride	mg/l	250
Sulfate	mg/l	205
Nitrate	mg/l	5

Source: Waste Discharge Requirements Order No R3-2005-0074

Table 23: Tertiary Treatment Standards

Constituent	Units	Maximum Jan. 2006	Maximum Jan. 2010
BOD ₅	mg/l	30	10
TSS	mg/l	30	10
Ammonia (as N)	mg/l	--	5

Source: Waste Discharge Requirements Order No R3-2005-0074

In addition, order number WDR R3-2005-0074 requires the City to monitor various contaminants, implement a Salt Management Program, and implement a Long-Term Waste Water Management Program.

By 2010, the city intends to upgrade its existing treatment plants to meet the tertiary treatment requirements outlined in WDR R3-2005-0074. Once the treatment plants are producing tertiary treated effluent, the City will begin a pilot agricultural program to test the water for reclamation purposes. This pilot program will include the use of 0.25MGD on 80 acres of food crops adjacent to the prison plant and 0.18MGD on 50 acres of grass crops next to the city plant. When these programs prove successful, the city will then use all treated wastewater from these plants for local agriculture.

In addition to the upgrades at the existing plants, current plans include a 1MGD satellite treatment plant for the Miravale III development. This plant will treat wastewater from Miravale III and store it at a local golf course. The water will then be recycled back through the development using a recycled water distribution system for outdoor uses only. The city intends to make this plant expandable to that it can service other new residential development as well.

To track the flow of recycled water, flowcharts were developed for the current scenario, the projected scenario in 2010, and the projected scenario in 2025. These flowcharts can be found in Appendix F. Tables describing the projected use of recycled water can be found in Table 24

Table 24: Wastewater Disposal and Recycled Water Use

Wastewater Disposal and Recycled Water Use							
Destination	Treatment Level	Time of use	2005	2010	2015	2020	2025
Agriculture	Tertiary	April – Nov	0	480	480	6630	7040
Landscape	Tertiary	April – Nov	0	0	1130	1130	1130
Groundwater Recharge	Secondary (to 2010) Tertiary (beyond 2010)	All year	3940	5320	5730	0	0
Total			3940	5800	7340	7760	8170
Units of Measure: Acre-feet/Year							

Source: Water Master Plan and Long-Term Waste Management Plan Workplan

C. Encouraging Recycled Water Use

Law

10633. The plan shall 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. To the extent practicable, the preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies and shall include all of the following:

10633 (e) A description of 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.

The City of Soledad intends to promote recycled water use by installing a reclaimed water distribution system in new residential developments, most notably Miravale III. This “purple pipe” will be used for all outdoor water uses within the development, ensuring that the reclaimed water will be used. There is more uncertainty concerning the reclaimed water that will be distributed for agricultural purposes from the existing treatment facilities. To encourage the use of recycled water for local agriculture, the City intends to offer the water at a negotiated cost, resulting in a discounted rate for the landowner relative to the cost of direct pumping.

Table 25: Methods to Encourage Recycled Water Use

Methods	Methods Used
Subsidized costs	✓
Grants	
Dual Plumbing Standards	
Regulatory Relief	✓
Regional Planning	✓
Incentive Program	
Long-Term Contracts (Price/Reliability)	
Rate Discounts	✓
Prohibit specific fresh water uses	
Low interest loans	
Public education	
Other (“guarantee” recycled water supply reliability)	

D. Recycled Water Optimization Plan

Law

10633. The plan shall 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. To the extent practicable, the preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies and shall include all of the following:

10633 (f) 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 and to promote recirculating uses.

D.1 Plan for Optimizing the Use of Recycled Water

The City’s plans for optimizing recycled water use are included in their Long-Term Waste Management Plan Workplan, completed in December 2005. The Long-Term Waste Management Plan itself will be adopted in 2006.

Section 11 Supply and Demand Comparison Provisions

Law

10635 (a) 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 the state, regional, or local agency population projections within the service area of the urban water supplier.

A. Supply and Demand Comparison

There have previously been no efforts to quantify Soledad's water supply quantity, so data is limited on the subject. For the following analysis, we assume the supply to be the portion of the Forebay Aquifer within a two mile radius of the ultimate buildout of Soledad. This was done to account for the fact that the water demand below includes prison uses (several miles away) plus the fact that recycled water from the city would ultimately offset local agriculture. The tables below show that an enormous quantity of water could potentially be utilized by Soledad, but it is important to note that data is limited and these numbers are relatively rough.

Table 26: Projected Supply and Demand Comparison

Projected Supply and Demand Comparison - AF Year					
	2005	2010	2015	2020	2025
Supply totals	1,500,000	1,500,000	1,500,000	1,500,000	1,500,000
Demand totals	2,337	5,592	6,531	7,506	8,458
Difference	1,497,663	1,494,408	1,493,469	1,492,494	1,491,542
Difference as % of Supply	99.84	99.63	99.56	99.50	99.44

Table 27: Projected single dry year Supply and Demand Comparison

Projected single dry year Supply and Demand Comparison - AF Year					
	2005	2010	2015	2020	2025
Supply totals	1,450,800	1,450,800	1,450,800	1,450,800	1,450,800
Demand totals	2,337	5,592	6,531	7,506	8,458
Difference	1,448,463	1,445,208	1,444,269	1,443,294	1,442,342
Difference as % of Supply	99.84	99.61	99.55	99.48	99.42

There is no documentation showing any long- term trends in water table levels of the Forebay Aquifer. As a result the quantity of water available for the next twenty years is expected to remain the same. While water use is expected to increase, water recycling will also increase, and the Salinas Valley Water Project is expected to deliver an extra 18TAF (thousand acre feet) to the Forebay Subarea every year (Figure 4). For the following analyses, a constant baseline groundwater level is assumed.

Table 28: Projected Supply and Demand Comparison during multiple dry year period 2006-2010

Projected Supply and Demand Comparison during multiple dry year period ending in 2010- AF Year					
	2006	2007	2008	2009	2010
Supply totals	1,500,000	1,450,800	1,401,600	1,352,400	1,303,200
Demand totals	2,988	3,639	4,290	4,941	5,592
Difference	1,497,012	1,447,161	1,397,310	1,347,459	1,297,608
Difference as % of Supply	99.80	99.75	99.69	99.63	99.57

Table 29: Projected Supply and Demand Comparison during multiple dry year period 2011-2015

Projected Supply and Demand Comparison during multiple dry year period ending in 2015- AF Year					
	2011	2012	2013	2014	2015
Supply totals	1,500,000	1,450,800	1,401,600	1,352,400	1,303,200
Demand totals	5,780	5,968	6,155	6,343	6,531
Difference	1,494,220	1,444,832	1,395,445	1,346,057	1,296,669
Difference as % of Supply	99.61	99.59	99.56	99.53	99.50

Table 30: Projected Supply and Demand Comparison during multiple dry year period 2016-2020

Projected Supply and Demand Comparison during multiple dry year period ending in 2020- AF Year					
	2016	2017	2018	2019	2020
Supply totals	1,500,000	1,450,800	1,401,600	1,352,400	1,303,200
Demand totals	6,726	6,921	7,116	7,311	7,506
Difference	1,493,274	1,443,879	1,394,484	1,345,089	1,295,694
Difference as % of Supply	99.55	99.52	99.49	99.46	99.42

Table 31: Projected Supply and Demand Comparison during multiple dry year period 2021-2025

Projected Supply and Demand Comparison during multiple dry year period ending in 2025- AF Year					
	2021	2022	2023	2024	2025
Supply totals	1,500,000	1,450,800	1,401,600	1,352,400	1,303,200
Demand totals	7,696	7,886	8,077	8,267	8,457
Difference	1,492,304	1,442,914	1,393,523	1,344,133	1,294,743
Difference as % of Supply	99.49	99.46	99.42	99.39	99.35

Source: Groundwater Bulletin 118, Water Master Plan

Note: Demand values do not account for recycled water from satellite plant

APPENDIX A

List of Resources Utilized in the Development of This Plan

(ALPHABETIZED PER TITLE)

City of Soledad Annual Water Quality Report, 2004

City of Soledad Website: <http://www.cityofsoledad.com>

City of Soledad Environmental Impact Report, prepared by Crawford Multari & Clark, September, 2005

General Plan, September 21, 2005

California's Groundwater Bulletin 118, Central Coast Hydrologic Region, Salinas Valley Groundwater Basin, February 27, 2004

City of Soledad Long-Term Waste Management Plan Workplan, prepared by Black and Veatch, December 2005

Monterey County Water Resources Agency (MCWRA) Draft Environmental Impact Report (EIR)/Environmental Impact Statement for the Salinas Valley Water Project, June 2001

Monterey County Water Resources Agency (MCWRA) Website: <http://www.mcwra.co.monterey.ca.us/>

City of Soledad Storm Water Management Plan, prepared by Harris & Associates, July 2004

City of Soledad Wastewater Rate Study, Final Report, prepared by Parsons & Associates, October 2005

City of Soledad Water Conservation Plan, 2005

City of Soledad Water Impact Fee Study, December 1999

City of Soledad Water Master Plan, prepared by Schaff and Wheeler, December, 2005

City of Soledad Water System Emergency Response Plan, 2005

California Urban Water Conservation Council (CUWCC) Memorandum: http://www.cuwcc.org/m_bmp.lasso

APPENDIX B

Resolution To Adopt The Urban Water Management Plan

**A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SOLEDAD ADOPTING
THE 2005 URBAN WATER MANAGEMENT PLAN**

WHEREAS, the California Legislature enacted Assembly Bill 797 (Water Code Section 10612 et seq., known as the Urban Water Management Planning Act) during the 1983-1984 Regular Session, and as amended subsequently, which mandates that every supplier providing water for municipal purposes to more than 3,000 acre-feet of water annually must prepare an Urban Water Management Plan, the primary objective of which is to plan for the conservation and efficient use of water; and

WHEREAS, the 2005 Soledad Urban Water Management Plan ("UWMP") is the first plan developed by the City; and

WHEREAS, the UWMP shall be periodically reviewed at least once every five years, and the City shall make any amendments or changes to the UWMP which are indicated by the review; and

WHEREAS, the UWMP must be adopted, after public review and hearing, and filed with the California Department of Water Resources by December 31, 2005 in order to comply with State requirements; and

WHEREAS, the City has therefore prepared and circulated for public review a draft UWMP, and a properly noticed public hearing regarding the UWMP was held by the City Council on December 7, 2005; and

WHEREAS, the subject report was reviewed and determined to be statutorily exempt pursuant to Sec. 15282 (w) of the California Environmental Quality Act (CEQA) guidelines; and

WHEREAS, the City of Soledad did prepare and shall file said UWMP with the California Department of Water Resources by December 31, 2005.

NOW, THEREFORE, BE IT HEREBY RESOLVED by the City Council of the City of Soledad as follows:

SECTION 1: The 2005 Urban Water Management Plan is hereby adopted and ordered filed with the City Clerk.

SECTION 2: The City Manager is hereby authorized and directed to file the 2005 Urban Water Management Plan with the California Department of Water Resources by December 31, 2005.

SECTION 3: The City Manager is hereby authorized and directed to implement the Water Conservation Program as set forth in the 2005 Urban Water Management Plan, which includes water shortage contingency analysis and recommendations to the City Council regarding necessary procedures, rules, and regulations to carry out effective and equitable water conservation and water recycling programs.

SECTION 4: In a water shortage, the City Manager is hereby authorized to declare a Water Shortage Emergency according to the Water Shortage Stages and Triggers indicated in the Plan, and implements necessary elements of the Plan.

SECTION 5: The City Manager shall recommend to the City Council additional regulations to carry out effective and equitable allocation of water resources.

PASSED AND ADOPTED by the City Council of the City of Soledad at a regular meeting duly held on the 21st day of December 2005, by the following vote:

AYES, and in favor thereof, Councilmembers: Christopher Bourke, Stefanie De La Rosa, Patricia Stephens, Mayor Pro Tem Juan Saavedra, Mayor Richard Ortiz

NOES, Councilmembers: None

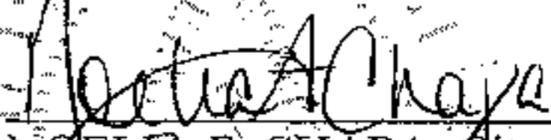
ABSENT, Councilmembers: None

ABSTAIN, Councilmembers: None



JUAN SAAVEDRA, Mayor Pro Tem

ATTEST:



NOELIA E. CHAPA, City Clerk



APPENDIX C

Municipal Code Chapter 13.09: Mandatory Water Conservation Regulations

Chapter 13.09

MANDATORY WATER
CONSERVATION REGULATIONS

Sections:

13.09.010	Purpose.
13.09.020	Definitions.
13.09.030	Enforcement.
13.09.040	Mandatory restrictions on water waste.
13.09.050	Warnings.
13.09.060	Penalties.
13.09.070	Nuisance.
13.09.080	Variances.
13.09.090	Revenues received from enforcement.
13.09.100	Severability.

13.09.010 Purpose.

The purpose of this chapter is to increase public awareness of the need for water conservation, and to provide regulations and restrictions on the delivery of water and the consumption within the city limits of water supplied for public use as will (1) conserve the water supply for the greatest public benefit with particular regard to domestic use, sanitation and fire protection, and (2) ensure compliance with water regulations of other governmental agencies of appropriate jurisdiction. (Ord. 534 § 2 (part), 1993)

13.09.020 Definitions.

A. Agency. "Agency" means the Monterey County Water Resources Agency.

B. "Automatic shutoff nozzle" means a water release mechanism securely affixed to the end of a water hose that requires the person using the hose to apply and maintain the flow of water, and that shuts off immediately when pressure is released.

C. "Change of ownership" means a transfer of the right to beneficial use thereof, regardless of whether such transfer is voluntary, involuntary, or by operation of law, court order, grant, gift, devise, inheritance, trust, contract of sale, addition or deletion of an owner, property settlement or by any other means.

D. "Change of use" means a change from one use of a structure to another use that is identified as a different use under the zoning ordinance, Title 17, of the Municipal Code of the city of Soledad.

E. "City manager" means the city manager of the city of Soledad.

F. "New construction" means a completely new structure, a new addition to a previously existing structure or the portion of a previously existing structure that is newly remodeled or renovated.

G. "Overdraft" means the condition of a groundwater basin where the amount of water withdrawn by pumping exceeds the amount of water replenishing the basin over an extended period of time, or where the amount of water withdrawn by pumping results in an unacceptable degradation of groundwater quality within the basin.

H. "Person" means any individual person and any firm, partnership, corporation, business entity, association, district, agency, city, county and any other entity or organization.

I. "Public works director" means the superintendent of public works of the city of Soledad.

J. A "shutoff nozzle" means a water release mechanism ("nozzle") securely affixed to the end of a water hose which enables the user of the hose to control the flow of water in the hose, including stopping the flow of water completely and se-

curely, by a lever or mechanical device in the nozzle.

K. "Superintendent of utilities" means the superintendent of utilities of the city of Soledad.

L. "Water recirculating system" means a system approved by the city that recirculates water between hot water and cold water lines, so that substantially all the cold water standing in the pipes will be returned to the water heater and reheated before the faucet is turned on. The system may be turned on and off by a manually operated switch, by a timer-operated switch, or otherwise, or may be left on permanently. (Ord. 534 § 2 (part), 1993)

13.09.030 Enforcement.

The city manager and all officers and employees of the city, including all ex officio officers and employees, shall enforce all the provisions of this chapter by the issuance of citations, including warning citations, and taking all other necessary action, including bringing civil action to abate a nuisance as set forth herein, through the city attorney's office. (Ord. 534 § 2 (part), 1993)

13.09.040 Mandatory restrictions on water waste.

A. **Repair of Plumbing, Sprinkler and Irrigation Systems.** Any person who is the owner, manager or person responsible for the day-to-day operation of any premises shall take caution to initiate steps to repair any leaking, broken or defective water pipes, faucets, plumbing fixtures, other water service appliances, sprinklers, water or irrigation systems, or distribution systems within a reasonable time after such person learns of such leaks, breaks or defects, and

shall thereafter diligently and promptly pursue such repair work to completion. In any event, such action initiating steps for repair shall take place within seventy-two hours after such person first learns of the problem, unless a variance is obtained from the city of Soledad.

B. **Washing of Vehicles.** No person shall use a water hose to wash any car, truck, boat, trailer, bus, recreational vehicle, camper, aircraft, tractor or any other vehicle, or any portion thereof, with potable water, unless the hose is equipped with an automatic shutoff nozzle.

C. **Cleaning of Structures.** No person shall use potable water through a hose to clean the exterior of any building or structure unless such hose is equipped with a shutoff nozzle.

D. **Cleaning of Surfaces.** No person shall use potable water through a hose to clean any sidewalk, driveway, roadway, parking lot, or any other outdoor paved or hard-surfaced area, except where necessary to protect public health and safety. The use of a bucket is not prohibited at any time for cleaning food, grease, oil, or other stains or spillage from surfaces.

E. **Water Spillage.** No person shall cause, suffer or permit water to spill into streets, curbs or gutters. No person shall use any water in any manner which results in runoff beyond the immediate area of use, unless the contour of the premises is such that avoidance of some minimum spillage is impossible.

F. **Swimming Pools and Spas.** No person shall empty and refill a swimming pool or spa except to prevent or repair structural damage or to comply with public health regulations.

G. Fountains. No person shall use water to operate or maintain fountains in decorative fountains, unless such water is recycled in the fountain.

H. Visitor-Serving Facilities. The owner and manager of each hotel, motel, restaurant, convention and other visitor-serving facility shall ensure that such facility displays, in places visible to all customers, placards or decals approved by the agency, promoting public awareness of the need for water conservation and/or advising the public that waste of water is prohibited.

I. Public and Quasi-Public Entities. All public and quasi-public entities shall display, in visible locations in all restrooms, kitchens and dining areas, placards or decals approved by the agency, promoting public awareness of the need for water conservation and/or advising the public that waste of water is prohibited. "Quasi-public entities" include educational institutions, churches, recreational facilities open to the public, and other such entities designated by the superintendent of utilities. Placement of placards or decals by a quasi-public entity of a type not specifically mentioned in this chapter shall not be required unless the superintendent of utilities gives written notice to the entity that this chapter is applicable to the entity so notified and that placement of placards or decals is required.

J. Commercial Car Washes. No person in charge of the operation of any commercial car wash facility shall suffer or permit the washing of any boat, trailer, recreational vehicle or other vehicle in such facility or on its premises, other than by the following methods:

1. Use of mechanical automatic car wash facilities utilizing water recycling equipment;

2. Use of a hose that operates on a timer for limited time periods and shuts off automatically at the expiration of the time period;

3. Use of a hose equipped with an automatic shutoff nozzle;

4. Use of bucket and hand washing.

K. Construction.

1. No potable water may be used for compaction or dust control purposes in construction activities where there is a reasonably available source of reclaimed or other subpotable water approved by Monterey County health department and appropriate for such use.

2. All hoses used in connection with any construction activity shall be equipped with a shutoff nozzle. When an automatic shutoff nozzle can be purchased or otherwise obtained for the size or type of hose in use, the nozzle shall be an automatic shutoff nozzle.

L. Use of Hydrants. No person, other than a member of the fire department of the city of Soledad, the fire department of any other jurisdiction giving assistance to the Soledad fire department in emergencies, the city of Soledad department of public works, or the city of Soledad water and sewer utilities department may use water from a fire hydrant, without first obtaining a permit from the planning department of the city of Soledad.

M. Leakage and Repair Program. The public works director shall maintain in effect a distribution system leakage detection and repair program. This program shall be reviewed on an annual basis and a report analyzing the results of the program shall be prepared by the director and submitted to the city council.

N. New Construction.

1. In all new construction, all toilets shall be ultra low-flow toilets with a maximum tank size or flush capacity of one and one-half gallons.

2. All shower heads shall have a maximum flow capacity of two and one-half gallons per minute.

3. All hot water faucets that have more than ten feet of pipe between the faucet and the hot water heater serving such faucet shall be equipped with a water recirculating system.

4. All new construction requiring a discretionary permit from the city of Soledad shall apply xeriscape principles throughout the exterior landscape development, associated with such new construction, including such techniques and materials as native or low water use plants and low precipitation sprinkler heads, bubblers, drip irrigation systems and timing devices.

O. Retrofitting Existing Hotels and Motels. All existing hotels and motels shall, within six months following the effective date of the ordinance codified in this chapter, be retrofitted with shower heads with a maximum flow capacity of two and one-half gallons per minute.

P. Retrofitting Upon Change of Ownership or Use.

1. All existing residential structures shall, at the time of change of ownership, be retrofitted, if not already so modified, with ultra low-flow toilets with a maximum tank size or flush capacity of one and one-half gallons, and shower heads with a maximum flow capacity of two and one-half gallons per minute.

2. All existing commercial and industrial structures shall, at the time of change of ownership or change of use, be retrofitted, if not already so modified, with ultra low-

flow toilets with a maximum tank size or flush capacity of two and one-half gallons per minute.

Q. Indiscriminate Use. No person shall cause, suffer or permit the indiscriminate running of water not otherwise prohibited by the provisions set forth above which is wasteful and without reasonable purpose.

R. Use in Excess of Eighty-Five Percent of 1991 Use. No person shall consume water in excess of eighty-five percent of 1991 use. Water fees charged by the city shall be reviewed November, 1994, and in November every other year thereafter to determine if rates need to be changed to:

1. Address excessive use by any person(s); and

2. Provide sufficient revenue for the city to meet obligations and provide water services consistent with its policies.

S. Use of Water to Irrigate. No person shall use water to irrigate lawns, landscape or other turf areas which is not in accordance with local city and county ordinances. (Ord. 534 § 2 (part), 1993)

13.09.050 Warnings.

In order to encourage cooperative efforts to achieve water conservation, it shall be the policy of the city of Soledad to issue a written warning notice when an alleged violation is first noted. Such warning shall include an explanation of the alleged violation. Any individual provided with such notice will then be given an opportunity to correct the identified problem. However, if an infraction citation is issued and a prosecution commenced for the alleged violation, in no case shall proof of a violation depend upon the showing that a warning was previously given, nor shall failure to give a

warning be a defense. (Ord. 534 § 2 (part), 1993)

13.09.060 Penalties.

A. Each violation of this chapter is an infraction.

B. Any violation that occurs or continues from one day to the next shall be deemed a separate violation, for each day during which such violation occurs or continues to occur.

C. The fine for a first violation of this chapter shall be fifty dollars. The fine for a second violation and each subsequent violation of this chapter within a period of twelve months, regardless of the specific section or subsection violated, shall be one hundred dollars. (Ord. 534 § 2 (part), 1993)

13.09.070 Nuisance.

A. Any violation of this chapter is declared to be a public nuisance.

B. In accordance with the provisions of Chapter 9.04 of the Soledad Municipal Code, the city may, upon order of the city council, abate an identified public nuisance and/or bring civil action to enjoin or abate the nuisance and make the costs of nuisance abatement a special assessment against the parcel of land on which the nuisance is located or originates.

C. Nothing contained in this section limits the city to the prescribed remedy, or prevents the city from initiating and prosecuting any other remedy available to it for the abatement of a public nuisance, or for recovery of the cost of abatement, under the civil or criminal statutes of the state or under other ordinances of the city. (Ord. 534 § 2 (part), 1993)

13.09.080 Variances.

A. Any person may, at any time, apply in writing for a variance from strict application of this chapter. The application for the variance shall be filed with the city of Soledad.

The planning director may, in his discretion, temporarily dispense with the requirement to file a written application, if he finds that an emergency condition exists requiring immediate action on the variance request.

B. The city manager may grant a temporary variance of up to one year to come into compliance with the terms of this chapter upon making both of the following findings:

1. The strict application of the chapter would create an undue hardship, or an emergency condition exists which requires that the variance be granted; and
2. Granting the variance will not cause a significant adverse effect on the water supply or on service to other water consumers.

C. In granting a variance, the city manager may impose any conditions in order to ensure that the variance is consistent with the overall goal of water conservation. The granting of a variance and any conditions imposed upon such variance shall be set forth in writing.

D. Any decision of the city manager with respect to an application for a variance may be appealed in writing to the city council. The city council shall schedule the matter for hearing within thirty days of receipt. The city council may confirm, modify or rescind any decision of the city manager in this regard. The city council's decision on all variance appeals shall be final. (Ord. 534 § 2 (part), 1993)

13.09.090 Revenues received from enforcement.

A. All revenues received by the city from enforcement of this chapter shall be used exclusively for city water conservation programs, including but not limited to administrative, monitoring and enforcement costs of mandatory water conservation. (Ord. 534 § 2 (part), 1993)

13.09.100 Severability.

If any section, subsection, sentence, clause or phrase of this chapter is for any reason held to be unconstitutional or invalid, such decision shall not affect the validity of the remaining portions of this chapter. The city council declares that it would have passed this chapter and each section, subsection, sentence, clause or phrase thereof irrespective of the fact that any other part thereof be unconstitutional or invalid. (Ord. 534 § 2 (part), 1993)

APPENDIX D

Resolution To Declare a Water Shortage Emergency

RESOLUTION NO. _____ (MODEL)

**A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SOLEDAD TO
DECLARE A WATER SHORTAGE EMERGENCY**

PURSUANT to California Water Code Section 350 et seq., the Council has conducted duly noticed public hearings to establish the criteria under which a water shortage emergency may be declared.

WHEREAS, the Council finds, determines and declares as follows:

- (a) The City is the water purveyor for the property owners and inhabitants of Soledad;
- (b) The demand for water service is not expected to lessen.
- (c) When the combined total amount of water supply available to the City from all sources falls at or below the Stage II triggering levels described in the 2005 Urban Water Management Plan, the City will declare a water shortage emergency. The water supply would not be adequate to meet the ordinary demands and requirements of water consumers without depleting the City's water supply to the extent that there may be insufficient water for human consumption, sanitation, fire protection, and environmental requirements. This condition is likely to exist until precipitation and inflow dramatically increases or until water system damage resulting from a disaster are repaired and normal water service is restored.

NOW, THEREFORE, BE IT HEREBY RESOLVED that the City Council of the City of Soledad hereby directs the City Manager to find, determine, declare and conclude that a water shortage emergency condition exists that threatens the adequacy of water supply, until the City's water supply is deemed adequate. After the declaration of a water shortage emergency, the City Manager is directed to determine the appropriate Rationing Stage and implement the City's Water Shortage Emergency Response.

FURTHERMORE, the Council shall periodically conduct proceedings to determine additional restrictions and regulations which may be necessary to safeguard the adequacy of the water supply for domestic, sanitation, fire protection, and environmental requirements.

PASSED AND ADOPTED by the City Council of the City of Soledad at a regular meeting duly held on the ___ day of (MONTH), (YEAR) by the following vote:

AYES, and in favor thereof, Council members:

NOES, Council members: None

ABSENT, Council members: None

ABSTAIN, Council members: None

RICHARD V. ORTIZ, Mayor

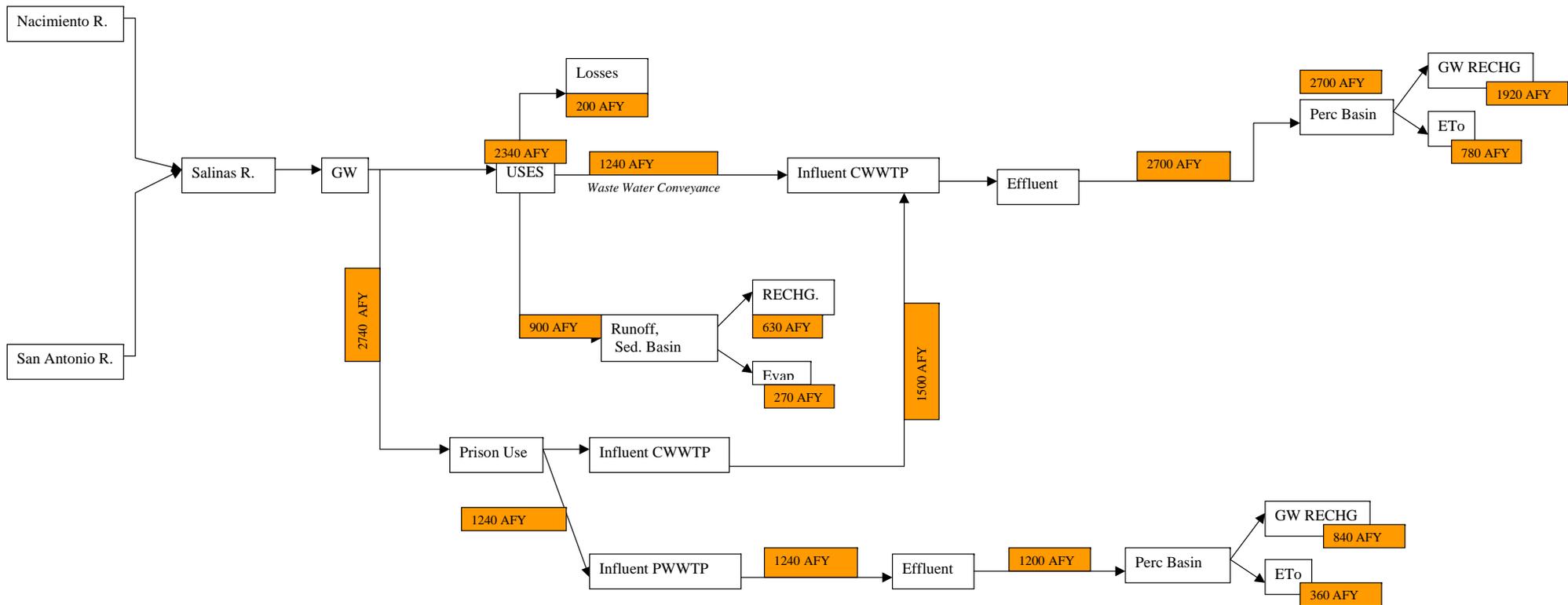
ATTEST:

NOELIA F. CHAPA, City Clerk

APPENDIX E

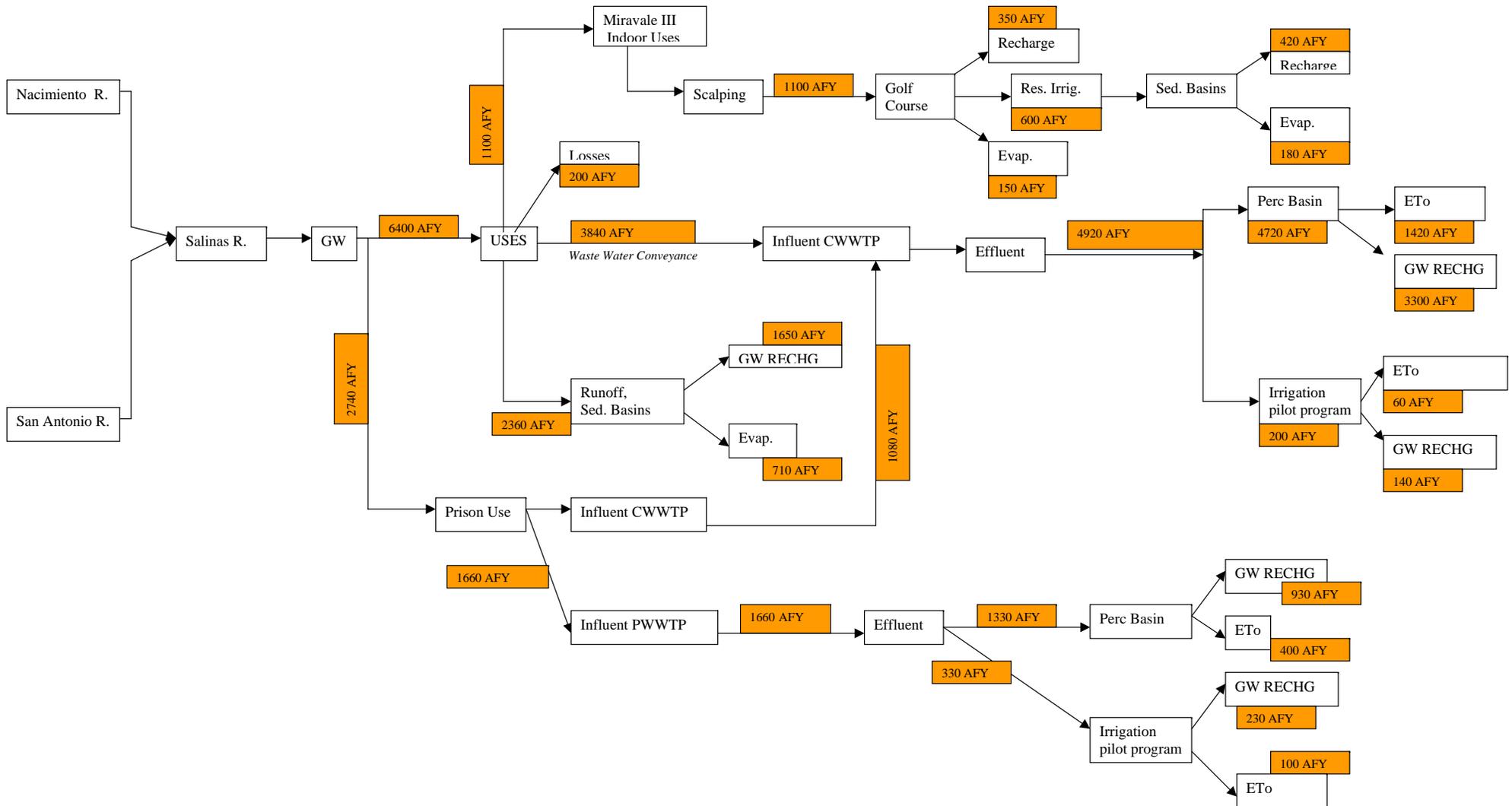
Water Supply System Flow Charts

Water Supply Flow Chart – Current City of Soledad



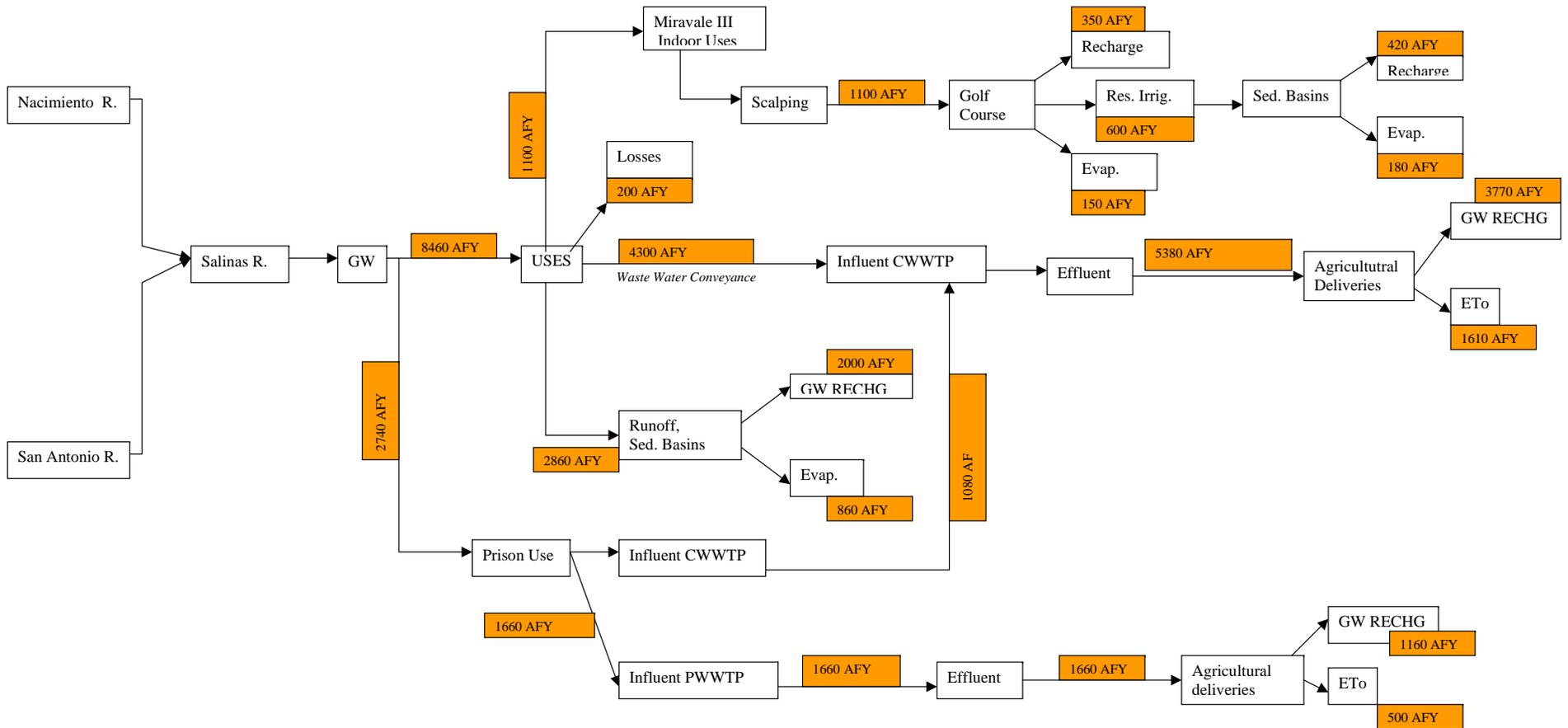
Water Supply Flow Chart – 2010

City of Soledad



Water Supply Flow Chart – 2025

City of Soledad



APPENDIX F

Comments and Responses

Appendix F.1: Comments and Responses from City of Soledad Public Hearing, December 7, 2005

Carl Hooper of Bestor Engineers expressed concern about claiming that the entire Forebay Subarea is available to Soledad.

This number has been changed. Rather than using the entire Forebay Subarea to represent the water available to Soledad, we are now using the portion of the Forebay Subarea that falls within 2 miles of the ultimate buildout of Soledad.

Councilmember Christopher Bourke noted that the page numbers skipped from page 22 to 36.

The page numbers have been fixed.

Councilmember Christopher Bourke recommended that in the water use survey (under DMM 1) there be included a question about whether or not the home is a working home, such as a day care, noting that there are many such homes in Soledad and that this affects water consumption.

The water use survey now contains a recommendation that the city include in the water use survey whether or not the home is a working home.

Mayor Richard Ortiz recommended that part of the Water Shortage Contingency Plan include the contacting of schools, developers and industry to inform them of water shortages.

Stage 3 of the Water Shortage Contingency Plan now includes the notification of schools, developers and industry.

Appendix F.2: Comments and Responses from Rob Johnson, Monterey County Water Resources Agency

For consistency, please refer to the Forebay as the Forebay Subarea, except for where referring to the Forebay Aquifer.

All instances of Forebay Subbasin, Forebay Region, etc. have been changed to Forebay Subarea.

Section 3.B refers to 2 spillway modifications in the Salinas Valley Water Project, but only the Nacimiento reservoir is receiving spillway modifications. Also, the inflatable dam will be located near the City of Marina, not the City of Salinas.

Section 3.B. has been changed accordingly

The document reads well, and the water recycling and model resolution sections are very good.