City of San Luis Obispo

Urban Water Management Plan

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Executive Summary

PURPOSE AND SCOPE
The purposes of the Plan are to assist in formulating long range City water policy, determine needed improvements in the water supply and distribution systems, identify needed expansion to reach General Plan goals, and develop a financial plan for achieving the recommendations presented in this document.

The specific objectives of the Plan can be summarized as follows:

- Provide estimates of future supplemental water requirements based the Land Use Element and per capita water use figures.
- Provide an evaluation of alternative supplemental supply sources that could meet projected water requirements.
- Summarize water treatment processes and regulations, and identify the water treatment, distribution and storage systems current deficiencies and future needs.
- Consolidate previous water policy.
- Evaluate the Implementation of the Water Conservation Program.
- Comply with State Law, AB 797, the Urban Water Management Planning Act.

URBAN WATER MANAGEMENT PLAN SUMMARY
This Executive Summary condenses the Plan into the following six main areas:

1.2 The Plan’s Relationship to the General Plan
1.4 Current Water Supply Sources
2.0 Water Policy
3.0 Supplemental Water Supply Projects
4.0 Water Operational Programs
5.0 Water Fund Financial Plan
6.0 Water Shortage Contingency Plan

1.2 THE PLAN RELATIONSHIP TO THE GENERAL PLAN AND OTHER DOCUMENTS
Chapter 2 of this Plan reflects the General Plan’s Water Management Element, first adopted in 1987. This plan includes all information needed to comply with state law AB 797, the Urban Water Management Planning Act. Progress in the implementation of this plan will be presented to the Council on yearly basis as part of the Annual Water Status Report.

1.3 WATER SERVICE AREA DESCRIPTION
The City of San Luis Obispo is located halfway between Los Angeles and San Francisco, situated in a coastal valley approximately 10 miles from the Pacific Ocean. It’s Mediterranean climate provides for mild and dry summers and cool winters, with an average rainfall of about 20 inches per year.

1.4 CURRENT WATER SUPPLY SOURCES
The City of San Luis Obispo currently receives water from three sources, Salinas Reservoir, Whale Rock Reservoir, and local groundwater. The City has depended on imported supplies from Salinas Reservoir, located near the community of Santa Margarita, since 1944 and Whale
Rock Reservoir, located near the community of Cayucos, since 1964. With the onset of the drought in 1986, resulting in decreasing surface water supplies, the City activated its groundwater sources in 1989.

The Whale Rock Reservoir provides water to the City of San Luis Obispo, California Polytechnic State University, and the California Men’s Colony as well as the town of Cayucos. The City staff work closely with staff from the other entities relative to water planning issues.

The City of San Luis Obispo is represented on the county-wide Water Resources Advisory Committee (WRAC). The WRAC is an advisory committee to the County Board of Supervisors on issues pertaining to water planning issues.

The City will strive to strengthen the reliability of the water supplies available to the City to meet current and future water demands. Policies contained in Chapter 2 which support these goals include: safe annual yield, water conservation, multi-source water supply and reclaimed water. As discussed in Section 2.1 Safe Annual Yield, the reliability of water supplies from Whale Rock and Salinas Reservoirs will be based on the most critical drought period of the historical record.

The City of Morro Bay and the Whale Rock Commission (which the City is a member agency) executed an agreement in June of 2000 which provides for Mutual Aid between agencies during disruption of water deliveries or lack of available water supplies.

2.0 WATER POLICY
The following policy statements and basis for policy summaries provide the foundation for delivering an adequate supply of water to meet current and future demands for the City of San Luis Obispo.

2.1 SAFE ANNUAL YIELD POLICY

2.1.1 Basis for Planning
The City will plan for future development and for water supplies based on the amount of water which can be supplied each year, under critical drought conditions. This amount, called “safe annual yield”, will be adopted by the City Council. The safe annual yield determination will be revised as significant new information becomes available, and as water sources are gained or lost. The determination will consider a staff analysis, which will recommend an amount based on coordinated use of all water sources. Each change to safe annual yield will be reflected in an amendment of the Water Management Element and will be updated in this plan every five years.

2.1.2 Safe Yield Amount
The City’s safe annual yield, from the coordinated operation of Salinas and Whale Rock Reservoirs and 500 acre feet of groundwater, is shown in Table 2.1.1 The safe annual yield includes reductions due to siltation at the reservoirs, discussed in more detail in Section 2.5.

2.1.3 Groundwater
A. The amount of groundwater which the City will rely upon towards safe annual yield is identified in Section 2.1.2. The City will maximize the use of groundwater in conjunction with other available water supplies to maximize the yield and long term reliability of all water resources and to minimize overall costs for meeting urban water demands. The City shall
monitor water levels at the well sites to determine whether reduction or cessation of pumping is appropriate when water levels approach historic low levels.

B. The City will not compete with local agricultural use of groundwater outside the urban reserve line or damage wildlife habitat through reduced natural stream flows in obtaining long-term sources of water supply.

**Background**
The safe annual yield of a reservoir depends on rainfall, the resulting runoff, evaporation, and releases for purposes other than the supply in question (such as required releases for downstream uses). The estimation of safe annual yield is based on historical hydrological data.

The City has developed a mathematical computer model of the Salinas and Whale Rock Reservoirs, which accounts for all the factors that affect a safe yield estimate. The current safe annual yield amount results from using data from 1943 through 1999. This period includes the drought periods of 1946-51, 1959-61, 1976-77, and 1986-91.

The current calculation reflects taking advantage of differences between the reservoirs through coordinated operation which means the City uses Salinas first, since it gains and loses water faster than Whale Rock, which is used as a backup source.

**2.2 WATER CONSERVATION POLICY**

**2.2.1 Long-term Water Efficiency**
The City will implement water efficiency programs which will maintain long-term, per capita usage at or below the per capita use rate as identified in Section 2.3.2.

**2.2.2 Short-term Water Shortages**
Short-term mandatory measures, in addition to the long-term programs, will be implemented when the City’s water supplies are projected to last three years or less, based on projected water consumption, coordinated use of all City water supplies sources, and considering the drought pattern on which safe yield is based (or in response to other situations which may interrupt water supply).

**Background**
Water conservation was first referenced as a part of the City’s water management policy in the 1973 General Plan. In 1985, the City adopted the Annual Water Operational Plan policy which established water conservation as a means to extend water supplies during projected water shortages. Since 1990, many technological and philosophical changes have occurred which are proving water conservation to be both a short term corrective measure for immediate water supply shortages and a long term solution to water supply reliability.

**2.3 WATER DEMAND PROJECTIONS POLICY**

**2.3.1 Basis of Projections**
The City will project water requirements, considering long-term conditions and the full range of water uses in the City.

**2.3.2 Water Use Rate**
The City shall use 145 gallons per person per day (approximately 0.162 acre-feet per person per year) and the number of City residents to plan total projected future water demand. This quantity will be revised if warranted by long-term water use trends, including differences in the relationship between residential and nonresidential usage. (Throughout this Plan, 145 gallons per person per day is used in computations of future water demand).

2.3.3 Overall Projected Water Demand
Applying 145 gallons per person per day to a projected City resident population of about 56,000 at General Plan build-out results in a projected water demand of 9,096 acre-feet per year, (excluding demand from the Cal Poly campus, which has separate entitlements).

2.3.4 Present Water Demand
Present water demand shall be calculated by multiplying the water use rate identified in Section 2.3.2 by the current city population (as determined by the California Department of Finance, Population Research Unit).

2.3.5 Peak Daily Water Demand
The City shall strive to develop and maintain water supply sources and facilities appropriate to ensure sufficient supply and system capacity to provide the peak daily water demand of the City.

BACKGROUND
The City must know how much water will be needed to serve residents, businesses, and other users which could be accommodated by the General Plan. This quantity can be projected using different methods. All methods involve assumptions about both future usage rates and the numbers and types of users expected in the future. The quantity expressed in the policy above corresponds closely with both (1) total citywide usage compared with total resident population and (2) projections of water demand based on usage by various land use categories.

2.4 SILTATION AT SALINAS AND WHALE ROCK RESERVOIRS POLICY
The City shall account for siltation in the adoption of the safe annual yield as identified in Policy 2.1.2. The estimated annual reduction in safe annual yield from Salinas and Whale Rock Reservoirs is 10 acre-feet per year.

Background
Siltation at reservoirs is a natural occurrence which can substantially reduce the storage capacity over long periods. The reduction of available storage will reduce the safe annual yield of the reservoir. Siltation at reservoirs varies depending on factors such as rainfall intensity and watershed management practices. There have been numerous reports addressing siltation at Salinas Reservoir, but no studies have been done for Whale Rock Reservoir.

During the recent drought, water at Salinas Reservoir fell to a record low level. An aerial survey of the reservoir was prepared in order to update storage capacity information. The latest information indicates that the siltation rate is on the order of 40 acre-feet per year.

Since no information is available to indicate what rate of siltation is occurring at the Whale Rock Reservoir, it is assumed for planning purposes that the annual average rate of siltation is similar to Salinas Reservoir.
2.5 SUPPLEMENTAL WATER REQUIREMENTS POLICY

2.5.1 Supplemental Water Requirement

The City shall develop additional water supplies to provide for the Primary Supply Requirements identified below, and strive to develop additional water supplies to provide for the Secondary Supply Requirements identified below, in the consideration of available water supply opportunities.

A. **Primary Supply Requirements** – Develop supplemental water supplies to provide sufficient water for General Plan build-out using the per-capita planning use rate identified in Policy 2.3.2 multiplied by the projected General Plan build-out population, and

B. **Secondary Supply Requirements** – Develop supplemental water supplies to provide additional yield to account for future siltation losses, drought contingency, loss of yield from an existing supply source, operational requirements necessary to meet peak operating demands, and other unforeseen conditions.

2.5.2 Supplemental Water Sources

In deciding appropriate sources of supplemental water, the City will evaluate impacts on other users of the water and other environmental impacts, total and unit costs, reliability, water quality, development time, and quantity available.

2.5.3 Paying for Supplemental Water for New Development

The cost for developing new water supplies necessary for new development will be paid by impact fees set at a rate sufficient to cover the annual debt service cost of the new water supplies attributable to new development.

**Background**

Based on the Land Use Element adopted by the City Council in August 1994 and a per capita use rate of 145 gallons per person per day, the projected total amount of water for the City to serve General Plan build-out is 9,096 acre-feet. Many of the Secondary Supply Requirements identified in Policy 2.5.1(B) are unquantifiable at this time, and their development should be considered by Council in the review of new water supply opportunities.

2.6 MULTI-SOURCE WATER SUPPLY POLICY

The City shall continue to develop and use water resources projects to maintain multi-source water supplies, and in this manner, reduce reliance on any one source of water supply and increase its supply options in future droughts or other water supply emergencies.

**Background**

Having several sources of water can avoid dependence on one source that might not be available during a drought or other water supply emergency. The Council has supported having multiple sources since adopting the General Plan Water Management Element in 1987 and by endorsing the above policy statement in November 1990.
2.7 ALLOCATION OF NEW SUPPLIES POLICY

2.7.1 Balancing Safe Annual Yield and Overall Demand
When new water sources are obtained, the additional safe yield shall be allocated first to eliminate any deficit between the adopted safe annual yield (Section 2.1) and the present demand as defined in Policy 2.3.4, second to eliminate any deficit between adopted safe yield and General Plan build-out, and third to supply for the Secondary Supply Requirements as identified in Policy 2.5.1 (B).

2.7.2 Supplying New Development
A. The City will determine the water available for allocation to new development by either; the adopted safe annual yield of the City’s water supplies minus present demand as identified in Policy 2.3.4, or the projected demand at build-out as identified in Policy 2.3.3 minus present demand as identified in Policy 2.3.4; whichever is less. Available allocations will be assigned to development in a way that supports balanced growth, consistent with the General Plan. Allocations from a new water supply project shall be considered available at the time project construction is initiated.

B. Any safe annual yield from new water supply projects beyond that needed to balance safe annual yield and present demand will be allocated to development, subject to the requirements in Policy 2.7.3, “Reserve for Intensification and Infill.”

C. A water allocation shall not be required for projects for which the developer makes changes in facilities served by the City that will reduce long-term water usage equal to twice the water allocation required for the project.

2.7.3 Reserve for Intensification and Infill Development
The City will annually update the water available for allocation based on the difference between the adopted safe annual yield (policy 2.1.2) and the present water demand (policy 2.3.4) as part of the annual Water Resources Status Report. One-half of the water available for allocation (not to exceed the total required for infill and intensification), as identified in the Water Resources Status Report, will be reserved to serve intensification and infill development within existing city limits as of July 1994.

2.7.4 Accounting for Reclaimed Water
Reclaimed water has an estimated potential of 1,000 acre feet per year of water available for appropriate non-potable uses. The amount to be added to the City’s safe annual yield, and therefore available for development, will only be the amount projected actually to be used or offset (approximately 130 a.f. initially), increasing to 1,000 acre feet per year as additional offsetting uses are brought on-line. The amount of reclaimed water used each year will be reported to Council as part of the annual Water Resources Status Report and will be added to the safe annual yield identified in Section 2.1.2, Table 2.1 of this document to determine water available for new development.

2.7.5 Private Water Supplies
When developments are supplied by private groundwater wells, the yield of those wells will not be counted toward the City’s safe annual yield. Such yield, however, will result in the demand for City water supply being lower than it otherwise would be, which may necessitate adjustments of the per capita water usage figure used to estimate overall demand.
Background
The City is pursuing additional water supply projects. The City must address how the added yield from these projects will be allocated, since the yield added at any one time may not supply all potential uses. The City has identified the following potential uses for the new supplies:
- Eliminating the deficit (if any) between adopted planning water usage figures and safe yield;
- Compensating for reduced yields due to reservoir siltation;
- Providing for development of more dwellings, businesses, and public facilities.

The policy’s objectives are to balance the needs of all the areas identified while not compounding the potential water shortage problems for existing residents of the City.

2.8 WATER ALLOCATION AND OFFSETS POLICY

2.8.1 Exemptions for Offsets
A. The City will not allow a project to reduce or eliminate the amount of the required allocation or offset, to the extent that the project is supplied by a private well, with the following exceptions:

1. The City may reduce the amount of the required water allocation, to the extent that the project is supplied by a private well serving non-potable water needs (such as irrigation) which will not significantly affect the yield of City wells. Such a well may be operated by the owner of the property containing the well only for the owner’s use. As an exemption, the City may allow a well to supply landscape irrigation on more than one parcel if the irrigation is:
   a. for the common area of a condominium complex of other development with similar common areas as approved by the Utilities Director, and the well and irrigation systems are under the control of an owner’s association; or
   b. in a single commercial development, and the well and irrigation system are subject to a recorded agreement among parcel owners, which is acceptable to the Utilities Director and the City Attorney, and which establishes responsibilities for operation and maintenance of the common areas served by the well.

2. When an allocation or potential offset is not available, a well may be allowed to eliminate the required offset for potable water needs only as an interim source until a new City water source is available. Once a new source becomes available, the project will be required to acquire an allocation from the City. Impact fees will be due at the time the development is approved.

3. The City Council approves the well proposal as part of a specific land development project approval, and the proposed well system meets all City standards; and

4. A qualified, independent, hydrological investigation demonstrates that the well(s) reliably can provide sufficient quality and quantity of water for the proposed land development project and will not impact the yields from City wells.
2.8.2 Basis for Allocations and Offsets
Required allocations and offsets will be based on long-term usage for each type of development. (These use and offset factors will be determined and published by the City, and may be revised, as warranted by new information.)

Background
In 1988, the City began to formally account for long-term water usage in new development. As a result of the 1986-1991 drought, the City decided that there should be no new development that would increase water use unless safe yield and present use was balanced. Since 1990, nearly all construction has been replacement buildings, remodels, or projects which retrofitted facilities to save (offset) twice the amount of water or water allocation necessary to serve the project.

2.9 RECLAIMED WATER POLICY

2.9.1 Reclaimed Water Quality
The City will produce high quality reclaimed water, suitable for a wide range of non-potable uses.

2.9.2 Uses of Reclaimed Water
The City will make available reclaimed water to substitute for existing potable water uses as allowed by law and to supply new non-potable uses. When deemed appropriate by the Utilities Director, new development shall be equipped with dual plumbing to maximize the use of reclaimed water for non-potable uses.

Background
Reclaimed water is highly treated wastewater (sewage) which can be used for many non-potable uses such as landscape irrigation, industrial processes, and toilet flushing in certain types of buildings. Use of reclaimed water will require a separate distribution system from potable water lines.

Reclaimed water can be used to supply non-potable uses in new development and to offset potable uses in existing development. These potential uses require a deliberate method to account for reclaimed water use, consistent with policies concerning total water requirements and other water sources.

2.10 WATER SERVICE WITHIN THE CITY POLICY

A. The City will be the only purveyor of water within the City.

B. Appropriate use of privately owned wells may be allowed with the approval of the Utilities Director, consistent with policies 2.8.5 and 2.9.1.

Background
Historically, the City has been the sole water purveyor within the City limits. This allowed the City to maintain uniformity of water service and distribution standards, and to be consistent in developing and implementing water policy. In continuing to be the sole water purveyor, the City will maintain control over water quality, distribution and customer service, as well as ensure consistency with the City’s General Plan policies and goals.
3.0 SUPPLEMENTAL WATER SUPPLY PROJECTS

POLICY
The City shall pursue the Nacimiento Reservoir Project, water reuse, water demand management activities, and increased groundwater as supplemental water supply sources to meet current and projected water demand.

INTRODUCTION
The City has been pursuing several water supply options over the past several years to secure adequate supplies to meet current and projected future demand. The following section discusses the projects presently being considered by the City.

3.1 NACIMIENTO RESERVOIR PROJECT
The Nacimiento Reservoir provides flood protection and is a source of supply for groundwater recharge for the Salinas Valley. It is owned and operated by the Monterey County Flood Control and Water Conservation District. The San Luis Obispo County Flood Control and Water Conservation District (District) has an entitlement of 17,500 acre-feet per year of water from the reservoir. Approximately 1,750 afy have been designated for use around the lake, leaving 15,750 afy for allocation to other areas within the County of San Luis Obispo.

In June, 1992, the District retained Boyle Engineering to perform a reliability assessment. The study concluded that, based on historic data, the project would have been able to deliver the full entitlement of water each year, including the critical year of the 1987-1992 drought. Based on these results, the District authorized Boyle to proceed with a more detailed evaluation of a project to distribute the full remaining entitlement.

In the Fall of 1995, the District retained Boyle Engineering as Project Manager. Carollo Engineering was hired to perform the preliminary engineering, while Ogden Environmental was hired to prepare the Environmental Impact Report (EIR) in compliance with the California Environmental Quality Act (CEQA). In July of 1996, Carollo published the draft Engineering Report, which identified the project’s alignment and the location of major facilities. In August of 1997, Ogden published the draft EIR. The public comments on the draft EIR raised a substantial amount of concern over the pipeline alignment. All of the alignment alternatives that were suggested during public comment had already been considered and determined to be infeasible for a variety of reasons.

Following the release of the draft EIR, it was determined that a pipeline route through Camp Roberts property would be acceptable with Camp Roberts administration, and would resolve many of the concerns raised by the public. This new opportunity resulted in the need for additional engineering work and the preparation of a revised draft EIR. The revised EIR was completed and certified by the County Board of Supervisors in early 2004 and the City Council adopted a resolution certifying the Council’s review and consideration of the EIR and adopting the CEQA findings on June 29, 2004. At the same meeting following this action, the Council approved execution of the participation agreement for the Nacimiento Project. The City has requested an entitlement of 3,380 acre feet per year from the Project.

The project is currently proceeding with the design phase which involves development of the detailed plans and specifications, surveying, easement/property acquisitions, additional environmental evaluations and development of detailed environmental mitigation/monitoring
plans. The current project schedule anticipates completing design work and initiating construction in 2007 and project completion in 2010.

3.2 WATER REUSE
Reuse of the highly treated water produced by the City’s Water Reclamation Facility (WRF) is a drought resistant portion of the City’s multi-source water plan. The WRF produces approximately 4,000 acre-feet of disinfected tertiary treated reclaimed water per year. This water is suitable for most uses other than drinking and food preparation.

Since most of the recycled water will be used for irrigation, it is estimated that only 1,000 acre-feet will actually be usable in the long-term. This is because demand for irrigation water is very limited during the winter while discharge from the WRF is fairly constant. The City does not plan to construct a seasonal storage facility at this time.

The Water Reuse Project will construct a distribution system to deliver reclaimed water to large volume customers. The system will be designed for future expansion to serve small volume users, when it becomes economically feasible to do so. The City’s Wastewater Division will operate the WRF and the water reuse pumps and filters located at the treatment Plant. The City’s Water Division will operate and maintain the water reuse distribution system.

3.3 WATER DEMAND MANAGEMENT
Water demand management practices and technology have advanced significantly in the last several years in reaction to the drought of 1986-1991. Historically, water demand management was viewed as an emergency response to extreme water shortage situations. The importance of using our water resources wisely and efficiently is imperative to assure adequate, reliable water supplies in the future.

In September 1991, the City Council approved and authorized the Mayor to sign the “Memorandum of Understanding” (MOU) regarding urban water conservation and the implementation of the “Best Management Practices” (BMP’s). This signifies a commitment to implement and evaluate the water efficiency measures presented in the MOU. Using the BMP’s as a road map for future water demand management program implementation, a balanced program of providing information and assistance to the City’s water customers is necessary to maintain the water use levels required to add reliability to the City’s water supplies.

3.4 OTHER SUPPLEMENTAL WATER SUPPLY ALTERNATIVES

3.4.1 INCREASED GROUNDWATER PRODUCTION
Prior to the drought of the late 1980’s, the City of San Luis Obispo had not used groundwater to meet the City’s water demand since the early 1940’s. In response to the drought conditions, the City drilled new wells and began using groundwater in April 1989. Beginning in 1992, elevated levels of nitrates in the basin greatly curtailed the use of groundwater within the City.

A preliminary study was completed by Team Engineering and Management, Inc. to evaluate the potential for increasing the safe annual yield available to meet City water demands through the coordinated operation of the groundwater basin in conjunction with the Salinas and Whale Rock
Reservoirs. The preliminary study indicated that an additional 890 acre feet, above the current assumed 500 acre feet per year, could be attained through a coordinated operation of all the City’s available water sources.

Stetson Engineers were hired by the City to prepare the Phase 1 evaluation of increasing groundwater production. The “Groundwater Project: Phase 1 – Evaluation of Project Alternatives and Potential Impacts” was completed in September 2004. The Phase 1 report provided a preliminary evaluation of the various treatment processes available to remove the contaminants, an evaluation of potential well sites, a preliminary environmental evaluation, evaluation of the alternatives including costs analysis and an evaluation of possible sites for locating treatment facilities.

The main issue continuing to confront the successful implementation of increased groundwater production involves potential impacts to stream flows in the area. This question has been discussed in past reports and has been very difficult to properly evaluate due to limited historical information. With the recent decision for City participation in the Nacimiento Project and the cost and uncertainty of the additional studies necessary to evaluate project impacts, the Council deferred additional phases of the Groundwater Development Project on December 7, 2004.

3.4.2 SALINAS RESERVOIR EXPANSION PROJECT

The Salinas Dam was constructed by the War Department in 1941 to provide water to Camp San Luis Obispo and the City of San Luis Obispo. The original construction plans for the dam included the installation of an operable spillway gate to provide an estimated storage capacity of approximately 45,000 acre-feet. A small fault was discovered beneath the dam during construction. Therefore, the gates were not installed because of stability concerns.

The Project envisions the installation of the originally planned spillway gates to increase the storage capacity from 23,843 acre feet to 41,792 acre feet. The additional storage capacity would result in an estimated increased safe annual yield of 1,650 acre feet per year. The revised environmental impact report for the project was certified by the City Council in June of 1998 and the Notice of Determination was filed on November 13, 2000.

In June of 2000, updated dam safety evaluation studies were completed by URS Corporation under contract to the City. The updated studies evaluated the structural capacity of the dam, with or without the spillway gates and added water storage, during seismic and flooding events. Based on the updated analysis, the existing dam was deemed adequate but installation of the spillway gates (i.e. increasing the maximum lake level by 19 feet) would require major structural improvements to the dam. It was estimated that the strengthening required would cost approximately $10 million (based on year 2000 dollars). This was on top of the previous estimate for the project of approximately $20 million.

With the City’s participation in the Nacimiento Project and the significant increase in project costs, the City Council placed the project on hold and no further work has been undertaken since 2000 relative to the Salinas Reservoir Expansion Project. Should the Nacimiento Project not proceed as planned, the City may reactivate the work on the project to meet the City’s water supply needs into the future.
3.4.3 Desalination
In May 1990, the City began a feasibility study for a short-term desalination facility. The preliminary analysis concluded that 3,000 acre feet per year of water could be provided at an estimated cost of 19.5 million dollars. The “Miracle March” rains of 1991 provided adequate runoff and storage in the City’s reservoirs to allow the termination of the desalination project on April 16, 1991.

Desalination may be a water supply consideration in the future if other water supply projects currently under review are not accomplished. Though considered an expensive source of water at this time, advances in technology in the future may reduce the costs to a more acceptable level.

3.4.4 Cloud Seeding
The City activated a three year cloud seeding program in January 1991 in response to the drought. The program targeted the Salinas and Lopez reservoirs watersheds, and the County of San Luis Obispo paid a prorata share of the total cost of the program.

Salinas Reservoir’s watershed runoff characteristics are favorable for producing significant runoff during average rain seasons. Therefore, cloud seeding is not viewed as an annual program but as a program that the Council may approve following below normal rainfall years.

3.4.5 Groundwater Recharge
Groundwater recharge using tertiary treated reclaimed water may be a future water supply alternative. Because of the capacity and recharge capabilities, there may be limited opportunities for recharging the groundwater basin. The State Department of Health Services have very stringent regulations governing such non-potable water recharge projects. An extensive analysis and study evaluating costs, water recharge potential, and potential storage or injection sites will be required before pursuing such a project.

4.0 WATER OPERATIONAL PROGRAMS
POLICY
The City shall sustain city-wide water efficiency programs and provide an adequate supply of high quality water which:

- Meets all Federal and State standards;
- Provides uninterrupted water flow at sufficient pressures;
- Provides fire protection.

The City shall allocate funding to meet the goals and objectives presented in this chapter (also see Chapter 5). The City should strive to replace aging water lines at the annual rate of 2% of the replacement value of the water distribution system.

4.1 WATER TREATMENT
Over the past twenty years, surface water treatment and groundwater treatment standards and regulations have become more stringent. With the enactment of the Safe Drinking Water Act (SDWA) in 1974, Congress authorized the federal government to establish national drinking water regulations. Since that time, many amendments have been made to the act which require additional monitoring and treatment and thereby increased operational costs.

For the City, the most significant issue is the regulation aimed at reducing the formation of
disinfection by-products, specifically trihalomethanes (THM’s). To remain within the acceptable level of THM’s, meet anticipated future surface water quality standards, and increase water treatment operational efficiency, the water treatment facility uses ozone as the primary disinfectant instead of chlorine. With the use of ozone, THM levels have been significantly reduced, and meet all federal and state standards.

In November 1992, nitrate levels in the Auto Park Way well exceeded State standards, so that well was taken off-line. The City’s Denny’s well experienced a similar increase in nitrate levels and was taken off-line in June 1993. Increased use of groundwater will require additional studies and treatment facilities as discussed in more detail in Section 3.6.1.

4.2 WATER DISTRIBUTION
The water distribution program delivers potable water from the water treatment plant and wells to customers and fire hydrants via three concrete storage reservoirs, nine pump stations, nine water tanks, and approximately 160 miles of water mains. Some pipes are over 100 years old, and some are too small to meet current fire-flow requirements. The City for many years did not fund distribution system replacement sufficiently to ensure replacement prior to reaching the end of the infrastructure’s service life. Because of this, the current water distribution staff workload is limited mainly to corrective maintenance with minimal time for preventative maintenance.

The City has adopted a goal of replacing about 2% of the water system annually and has been budgeting approximately 1 million dollars per year for distribution system replacement projects since the mid-1990’s. Due to increased construction costs, the amount was increased to 1.25 million dollars for 2005 and will increase by $25,000 each year thereafter.

4.3 WATER CUSTOMER SERVICE
The Water Customer Service Program is responsible for accurately measuring water delivered through the distribution system to the City’s 14,300 customers. Other duties include the repair of meter leaks, meter replacement and testing, and the starting and discontinuance of service. The current program needs are being met with assistance from the water distribution crew during peak workload periods. Future growth will add a significant number of water meters which may require additional staffing. As areas are annexed, an analysis of staffing impacts will be performed and recommendations presented to Council. The City is also considering the use of Automated Meter Reading System (AMR) that could reduce staffing impacts in the future. Recommendations will be presented to the Council for consideration in 2006.

4.4 TELEMETRY
Telemetry literally means “measuring at a distance”. Telemetry became part of the Utilities’ operations in 1988 when the Regional Water Quality Control Board required installation of alarms on the City wastewater collection lift stations. It has evolved into complex computer network, monitoring the City’s water and wastewater systems. When completed, the telemetry system will save staff time by allowing the monitoring and system adjustments to be made from a central location, adds reliability to the water system, and insures the City is in compliance with federal and state regulations.

4.5 WATER CONSERVATION
In June 1985, the Council adopted the Annual Water Operational Policy which established a procedure to monitor the City’s water supply situation. An integral component of the policy was the establishment of a water demand program aimed at instituting preventative measures when
Water supply deficits are projected.

Water conservation has two primary components, short-term and long-term water demand management. Short-term activities address immediate water shortage situations caused by prolonged below normal rainfall or disruption in water service due to natural disaster such as an earthquake. Due to the drought and water shortages experienced from 1989 to 1992, the short-term measures were developed. Based on the lessons learned from the drought, an update to the water shortage contingency plan has been completed and is included in Chapter 6 of this plan.

Long-term programs make permanent reductions in water demand while minimally impacting customer’s life-styles. In September 1991, the City approved and signed the “Memorandum of Understanding” (MOU) regarding urban water conservation and the implementation of the “Best Management Practices” (BMP’s). The BMP’s act as a road map for the City’s long-term water conservation program.

5.0 FINANCIAL PLAN POLICY

The City’s policy is to fully recover all water costs which include, operations, maintenance, capital, debt service, and appropriate overhead, through water revenues. Resolution No. 6447 states the primary goals of the City’s water utility are to provide quality water service to its citizens and to function as a self-sufficient enterprise. Under the policy, all water revenues are used only for water purposes. The water fund will reimburse the general fund for all indirect costs pursuant to the approved cost allocation plan.

Water impact fees were established in 1991 to pay for needed facilities and improvements reasonably related to new development within the City. These fees are adjusted annually to account for changes in the cost of construction or other considerations which affect the reasonable relationship between the fees and the cost of facilities and improvements on which the fees are based.

6.0 WATER SHORTAGE CONTINGENCY PLAN

Based on the experiences during the drought which lasted from 1986 to 1992, the City of San Luis Obispo recognizes the importance of prudent water planning and the development of a comprehensive Water Shortage Contingency Plan to deal with future drought conditions or other interruptions in water supply. In 1991, in accordance with the requirements of Assembly Bill 11X, the City compiled its existing mandatory water rationing and water conservation plans into one document and submitted the plan to the State. The City has been active in water resource planning and water conservation since the mid 1980’s. In November 1994, the City adopted its Urban Water Management Plan in accordance with California Water Code 10610 (et seq.) which included the Water Shortage Contingency Plan. Because of the changed water ethic in the City since the end of the 1986-1992 drought, the City’s Water Shortage Contingency plan reflects the current water use patterns in the community and provides a methodology to reduce water use during periods of projected water shortages.
CHAPTER 1

INTRODUCTION

1.1 PURPOSE AND SCOPE

The City of San Luis Obispo has aggressively monitored and managed its water resources during the past decade. Faced with increasingly restrictive budgets, growing population, limited resources, and the commitment to serving our customers needs, the City has fostered a management style which is pro-active rather than reactive, with an emphasis on actions which achieve practical results. This philosophy is the foundation for the Utilities Department's development of the Urban Water Management Plan.

To evaluate the current water supply and delivery systems and to plan for needed expansion and improvements through the year 2030, the City has undertaken the preparation of this document. The purposes of the plan are to formulate long range City water policy, identify needed improvements both in the water supply and delivery systems, determine needed expansion to reach the General Plan goals, and develop a basis for financial planning to achieve the recommendations made in this document.

Objectives and Scope

The specific objectives of the Urban Water Management Plan can be summarized as follows:

• Provide a description of all water supply, treatment, conveyance/distribution facilities.

• Provide estimates of future supplemental water requirements based on population projections developed from the General Plan Land Use Element and per capita water use figures.

• Provide an evaluation of alternative water supply sources, both short and long term, that could meet both existing and future water requirements.

• Summarize the water treatment processes and regulations, and identify the water treatment, distribution and storage systems current deficiencies and future recommended improvements.

• Consolidate previously-adopted water policies.

• Evaluate water operating program.

• Comply with the Urban Water Management Planning Act, AB 797 (as amended).

The Urban Water Management Plan for the City of San Luis Obispo provides policies and strategies for adequately maintaining and expanding the City's water resources and its treatment and delivery systems. The Plan also complies with the requirements of state law (AB 797 as amended) relating to water conservation. The Plan clearly defines and analyzes the key water issues facing the City and identifies solutions to meet our supply and infrastructure needs. It also evaluates financial options and addresses institutional relationships as necessary. The Plan is consistent with the goals, policies, land use, and population projections presented in the 1994 Land Use Element as amended to July 2004.
1.2 RELATIONSHIP TO GENERAL PLAN AND OTHER DOCUMENTS

Chapter 2, Water Policies, constitutes the Water Element of the General Plan.

This plan includes all information needed to comply with State law AB 797, the Urban Water Management Planning Act and will be updated in the year 2010, in accordance with provisions of AB 797 and subsequent amendments.

Progress on the implementation of this plan will be presented to the City Council on a yearly basis as part of the Annual Water Resources Status Report.

1.3 WATER SERVICE AREA DESCRIPTION

The City of San Luis Obispo is located half way between Los Angeles and San Francisco. Situated in a coastal valley approximately 10 miles inland from the Pacific Ocean, it’s Mediterranean climate provides for mild and dry summers and cool winters, with an annual average of about 23 inches of precipitation. Table 1.1 is the average monthly evapotranspiration rate, average maximum high temperature and average precipitation for the City of San Luis Obispo.

<table>
<thead>
<tr>
<th></th>
<th>Jan</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>ET</td>
<td>2.21</td>
<td>2.50</td>
<td>3.80</td>
<td>5.08</td>
<td>5.70</td>
<td>6.19</td>
<td>6.43</td>
<td>6.09</td>
<td>4.87</td>
<td>4.09</td>
<td>2.89</td>
<td>2.28</td>
</tr>
<tr>
<td>Ave Temp</td>
<td>63.1</td>
<td>64.9</td>
<td>65.6</td>
<td>68.4</td>
<td>70.8</td>
<td>74.9</td>
<td>78.3</td>
<td>79.3</td>
<td>79.5</td>
<td>76.7</td>
<td>70.4</td>
<td>64.5</td>
</tr>
<tr>
<td>Ave Prec</td>
<td>5.09</td>
<td>4.83</td>
<td>3.63</td>
<td>1.71</td>
<td>0.42</td>
<td>0.07</td>
<td>0.03</td>
<td>0.05</td>
<td>0.33</td>
<td>0.90</td>
<td>2.47</td>
<td>3.84</td>
</tr>
</tbody>
</table>

The City has a 1% residential growth cap which assists in projecting future annual water needs. The current General Plan estimates that the build-out population for the City will be approximately 56,000 people. Table 1.2 provides the City’s population projections.

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2010</th>
<th>2015</th>
<th>2020</th>
<th>2025</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>44,519</td>
<td>46,790</td>
<td>49,180</td>
<td>51,685</td>
<td>54,320</td>
<td>56,000</td>
</tr>
</tbody>
</table>

1.4 CURRENT WATER SOURCES

1.4.1 SALINAS RESERVOIR

Introduction

The Salinas Reservoir (also known as Santa Margarita Lake) is located on the upper Salinas River, approximately nine miles southeast of the community of Santa Margarita. The project was originally built by the War Department to ensure an adequate water supply for Camp San Luis Obispo, as well as the City of San Luis Obispo. The dam and appurtenances were declared surplus by the War Department on April 14, 1947 and the U.S. Army Corps of Engineers
assumed responsibility for the facilities. On July 11, 1947, the Corps entered into an agreement with the San Luis Obispo County Flood Control and Water Conservation District (District) for the operation and maintenance of the dam and related facilities. The City has an agreement with the Corps for the water from the reservoir. As part of this agreement, the City pays to the District all operation and maintenance costs associated with the water delivery and dam facilities.

**Operation and Distribution**

Salinas Reservoir is formed by a concrete arched dam. Immediately following construction, the reservoir had an estimated storage capacity of 26,000 acre-feet, surface area of 793 acres, and a drainage area of 112 square miles. As a result of siltation the reservoir capacity has been reduced. This is discussed in more detail in Section 2.5.

Water is conveyed from Salinas Reservoir through 48,700 feet (9.2 miles) of 24-inch diameter reinforced concrete pipe to a 3 million gallon regulating reservoir at Santa Margarita booster pumping station near the northerly base of Cuesta Grade adjacent to Highway 101. The pipeline is designed to flow by gravity from the reservoir to the regulating reservoir when the lake level is above the elevation of 1,267 feet. A booster pump station at the base of the dam, consisting of two horizontal centrifugal pumps, is capable of maintaining the rated flow of 12.4 cubic feet per second (cfs) when the water surface elevation falls below 1,267 feet. Three electrically driven horizontal centrifugal pumps at the Santa Margarita booster station pump water through 6,810 feet of 24-inch diameter reinforced concrete pipe to the entrance portal of the Cuesta Tunnel, which runs 5,327 feet through the mountains near Cuesta Grade. From the outlet portal of the tunnel, water is conveyed through an 18-inch diameter steel pipeline a distance of 5,133 feet to the City's turnout point. From the turnout, an 18-inch diameter pipe runs 4,180 feet to the Stenner Creek hydroelectric plant which is no longer in service. From there, a pipeline that varies from 24-inches to 30-inches in diameter conveys the water by gravity to the water treatment plant 5,930 feet downstream.

**Operation and Maintenance Evaluation**

The operation and maintenance of the dam and water conveyance system are the responsibility of San Luis Obispo County Flood Control and Water Conservation District. The City currently pays all operating and capital costs associated with the reservoir and transmission system (excluding any recreational activities).

**Ownership Transfer**

The Corps of Engineers currently owns the dam and property surrounding the lake. Since the facilities are not utilized to supply water to Camp San Luis Obispo, the Corps has expressed interest for many years in relinquishing ownership of the facilities. The discussions concerning which local agency, either the City or County of San Luis Obispo, should ultimately own the facilities has been debated for many years. On November 17, 1992, the City Council supported the ownership transfer to the County of San Luis Obispo, provided an acceptable agreement could be prepared which protects the City's interests in the facilities. City and County staff prepared draft agreements relative to the ownership transfer but the
agreements were never executed because of the agreement terms associated with the City’s plans to install the spillway gates (Salinas Reservoir Expansion Project) and the north county agencies opposition to the project.

With the City’s participation in the Nacimiento Pipeline Project, discussed in more detail in Chapter 3.6, the City has ceased any work associated with the Salinas Reservoir Expansion Project. If the Nacimiento Project is unsuccessful, the City would likely reinitiate work associated with expanding the Salinas Reservoir storage capacity.

The Corps of Engineers are still very interested in pursuing ownership transfer to a local agency and have actively initiated steps to surplus the property. The City and County staff have been working with the Corps staff to develop a strategy for accomplishing the transfer which would likely transfer ownership the San Luis Obispo County Flood Control and Water Conservation District (District). Three agreements would likely be needed between the City and the County to proceed with the transfer. One agreement would layout the terms associated with the transfer of the ownership from the federal government to the District. This agreement would be between the San Luis Obispo County Flood Control and Water Conservation District and the City of San Luis Obispo and would include how each agency that benefits from the property transfer will share in the cost of the studies and other expenses (discussed in more detail below) related to the property transfer.

The second agreement would be between the District and the City relative to ongoing operation and maintenance associated with the dam and conveyance facilities. The third agreement would be between the District and the County (General Services Department) for the long term operation of the recreation facilities at the lake and oversight of the property surrounding the lake.

The following studies or actions would likely be required to allow the transfer of the property to occur:

- Cultural Resources Evaluation
- Hazardous Materials Evaluation
- NEPA/CEQA documentation

In addition, once the dam transfers from the federal government to a local agency, the dam would fall under the jurisdiction of the State Division of Safety of Dams (DSOD). Additional studies and analysis may be required by DSOD to insure that the facilities meet State guidelines. Depending on the outcome of the studies, additional improvements could be required by DSOD prior to property transfer.

The costs associated with the above studies and actions would likely be several hundred thousand dollars or more. While the Corps will likely ask the local agencies to pay for some of these studies, additional discussions with the Corps and the City and County will be necessary to determine appropriate responsibilities for this funding.

**Recommended System Improvements**

With the exception of possible improvements required by DSOD as discussed above, no major system improvements have been identified as necessary at this time. Ongoing capital
improvements required for the existing facilities will be identified and evaluated during annual budget preparation by the County for the ongoing operations and maintenance of the facilities.

1.4.2 WHALE ROCK RESERVOIR

Introduction
Whale Rock Reservoir is located on Old Creek approximately one half mile east of the community of Cayucos. The project was planned, designed, and constructed under the supervision of the State Department of Water Resources. Construction took place between October 1958 and April 1961. The reservoir is jointly owned by the City of San Luis Obispo, the California Men's Colony, and the California Polytechnic State University at San Luis Obispo. These three agencies form the Whale Rock Commission which is responsible for operational policy and administration of the reservoir. Day-to-day operation is provided by the City of San Luis Obispo.

Operation
Whale Rock reservoir is formed by an earthen dam and was able to store an estimated 40,662 acre-feet of water at the time of construction. As a result of siltation, the reservoir capacity has been reduced. This is discussed in more detail in Section 2.5. The project facilities consist of a 30-inch pipeline, two pumping stations, 2.1 miles of trails and a fishing access facility (no longer utilized by the public), maintenance facility and offices, and a structure previously used as a private residence.

City staff are responsible for ongoing maintenance and operation of the reservoir, including the inlet and outlet structures, reservoir structural instrumentation, access roads, daily reservoir level readings and climatological data, reservoir patrol and security, pipelines and pumping stations, water meters, cathodic protection system, and other associated duties. In addition, staff annually install fish traps in the back area of the reservoir to trap and spawn native steelhead that reside in the lake. Once eggs are spawned and fertilized, they are transported to a Department of Fish and Game hatchery to be reared. Once the fish reach the appropriate size, they are returned to the reservoir. As of the year 2005, approximately 68,000 steelhead have been planted in the lake. Staff also monitors public fishing access to the lake during trout season (April to November).

Conveyance System
The conveyance system (Figure 1) conveys water from the reservoir to the Whale Rock Commission member agencies located between the reservoir and the City of San Luis Obispo. Outlets from the pipeline exist for water deliveries to Chorro Reservoir and water treatment plant (operated by the California Men's Colony), Cal Poly State University (for irrigation purposes), the Cayucos water treatment facility and the City's water treatment plant. In addition, water can be delivered to the Dairy Creek Golf Course under terms of an agreement between the California Men’s Colony and San Luis Obispo County.
The Whale Rock pipeline is approximately 17 miles long, connecting the reservoir to the member agencies, and terminates at the City's water treatment plant. The design capacity of the pipeline is 18.94 cubic feet per second (approximately 8,500 gallons per minute). The line consists of modified prestressed concrete cylinder pipe at most locations. Cement mortar lined steel pipe is used at creek crossings and junctions. The pipeline has surge protection consisting of eight-inch, globe type, diaphragm-actuated pressure relief valves which protect the line from excessive pressures. The cathodic protection system consists of sacrificial anodes and test stations located in areas subject to galvanic corrosion. Recent inspections of the inside of the pipeline indicate the condition of the pipeline to be very good with no rehabilitation needed in the near future.

Two pump stations transmit the water along the pipeline to member agencies. The first pump station is located in Cayucos at Chaney Way (elevation 44 feet). The second station is located near Cuesta College, approximately six miles southeast of Morro Bay (elevation 181 feet). Each station has five pumps which are capable of varying flow rates requested by member agencies. Upgrades to both pump stations, which included the addition of two pumps at each station, were completed in August 1993. Pumps and motors (6) were replaced in 2004.

![Figure 1: Whale Rock Conveyance System](image_url)

Operating Agreements

Several agreements establish policy for the operation of the Whale Rock system and actions of the member agencies. A brief description of the existing agreements follows:

A) Agreement for the construction and operation of the Whale Rock Project, 1957, set forth the project's capital cost distribution to the member agencies.

B) A supplemental operating agreement, 1960, established the Whale Rock Commission and apportioned the operating costs.
C) **Downstream water rights** agreement (original 1958 agreement was amended and replaced with a new agreement in April 1996) established water entitlements for adjacent and downstream water users. The downstream water users (Cayucos Area Water Organization or CAWO) affected by this agreement consist of three public water purveyors and the cemetery. In addition to the agencies, water entitlements were identified for two separate downstream land owners.

**Entitlements are as follows:**

<table>
<thead>
<tr>
<th>Entitlement</th>
<th>Entitlement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cayucos Area Water Organization (&quot;CAWO&quot;)</td>
<td>600 Acre-feet</td>
</tr>
<tr>
<td>Paso Robles Beach Water Association</td>
<td>222</td>
</tr>
<tr>
<td>Morro Rock Mutual Water Company</td>
<td>170</td>
</tr>
<tr>
<td>County Water District #8</td>
<td>190</td>
</tr>
<tr>
<td>Cayucos-Morro Bay Cemetery District</td>
<td>18</td>
</tr>
<tr>
<td>Mainini</td>
<td>50</td>
</tr>
<tr>
<td>Ogle</td>
<td>14</td>
</tr>
<tr>
<td><strong>Total Downstream Entitlement</strong></td>
<td><strong>664 Acre-feet</strong></td>
</tr>
</tbody>
</table>

D) A **decision and order by the Fish and Game Commission** of the State of California, October 24, 1964, required the Whale Rock Commission to stock the reservoir with 17,500 rainbow trout (between six and eight inches long) each year.

E) **Superior Court decision #36101**, 1977, required the Whale Rock Commission to allow public entry to the reservoir for fishing. In 1981, construction was completed on access trails and sanitary facilities at the reservoir, and public fishing began at the lake.

F) **An agreement for water allocation and operational policy between the agencies forming the Whale Rock Commission.** The agreement established the accounting procedures to allow each agency to carry over excess or deficit water each year.

G) **An agreement between the Whale Rock Commission and the California Men's Colony**, 1990, to establish maintenance and operation criteria for the Chorro Booster pumps. The Chorro Booster pumps were installed by the Commission on the California Men's Colony turnout from the Whale Rock line to reduce system pressures required to provide full flow to the California Men's Colony water treatment plant. Pump and pump station maintenance, per the agreement, are the responsibility of the California Men's Colony.

H) **An agreement between the Whale Rock Commission and the County of San Luis Obispo for connection to the Whale Rock pipeline**, 1995, allowed a pipeline connection to deliver water to the Dairy Creek Golf Course. Typically, the golf course uses reclaimed water from the California Men’s Colony. Water from Whale Rock Reservoir can be delivered when reclaimed water is not available under the terms of the agreement.

I) **A consent to common use agreement, 1996, between the Whale Rock Commission and the County of San Luis Obispo.** The agreement allowed the installation of the State Water pipeline at seven locations within the existing Whale Rock pipeline easement.
J) A mutual aid agreement between the Whale Rock Commission and the City of Morro Bay, 2000, relative to water resources in the event of an emergency.

Operation and Maintenance Evaluation

Current reservoir staff consists of three full-time, regular employees and one part-time employee. Reservoir staff are responsible for ongoing maintenance and operational duties which include:

- **Inlet and outlet structure maintenance.** Routine valve operations, trash rack cleaning, outlet vault valve operation, lubrication, adjustments and repairs.

- **Reservoir structural instrumentation.** Weekly recordings and analysis of piezometers, groundwater levels, reservoir and underdrain seepage data, and erosion and slippage control information.

- **Reservoir patrol and security.** Daily surveillance of the reservoir, fences, and dam areas.

- **Pipeline pumps and pumping stations.** Daily inspections during operational periods for readings, adjustments, and pump efficiency evaluation.

- **Water meters.** Monthly readings and reporting of deliveries to the various agencies and individuals. The meters monitored include Whale Rock member agencies’ meters, Cayucos Area Water Organization well and water treatment plant meters, Dairy Creek Golf Course meter and certain private party meters. Periodic maintenance is required for the proper operation of these meters.

- **Cathodic protection.** Annual monitoring of stations to ensure that the water transmission line is properly maintained and protected.

- **The seasonal steelhead hatchery.** Introduced to help alleviate a long term deficiency in the availability of native steelhead trout for fish enhancement at Whale Rock. Native adult steelhead are captured at the reservoir and spawned, then the young are raised at the Department of Fish and Game’s trout hatchery in Fillmore, California. The reservoir is then usually stocked with the hatchlings around October of each year.

Recommendations for System Improvements

With the upgrades of the pump stations which were completed in August, 1993, the replacement of 6 old motors and pumps in 2004, the pipeline realignment completed in October 2000, combined with the cathodic system maintenance program which insures the reliability of the water transmission line, it is anticipated that the raw water delivery system will not require significant capital improvements in the near future. One area of concern at the reservoir is earth movement occurring close to the fishing facility near Old Creek Road. The facility is located in an area which has been impacted by soil slippage. Due to the current low interest in Whale Rock fishing, and the hazardous condition at the facility's access driveway, the area has been closed to the public. An increase in fishing activity at the reservoir could necessitate repair of the access and parking areas. At the appropriate time, a specific proposal will be presented to Whale Rock Commission for approval if deemed necessary.
Staffing Evaluation

Existing staffing levels are considered adequate for current workloads. However, as previously mentioned, increased fishing activity at the reservoir could require additional monitoring and repair of the facility and access trails. The existing Whale Rock staff have adjusted work schedules to permit daily observation of the fishing access areas which eliminates the need for seasonal fishing program personnel. Additional use would demand more of the staff’s time which would ultimately have a negative impact on the reservoir's over-all operation and maintenance. Staff will closely monitor the fishing program at the reservoir and present a recommendation to the Whale Rock Commission if the fishing activity increases beyond the capabilities of the current staff to adequately monitor the access areas.

1.4.3 GROUNDWATER

Introduction

The City's major source of water was groundwater and local creeks until 1944 when the City began to use water from Salinas Reservoir. In 1943, the City pumped 1,380 acre-feet of groundwater. Groundwater was used again during the summer of 1948, when 440 acre-feet were pumped.

In the intervening years, until 1986, most groundwater in the City was used by agriculture and very little was used for domestic consumption. As a result of the drought beginning in 1986 and decreasing surface water supplies, the City activated groundwater wells in 1989 to meet the City's water demand.

The principal source of groundwater for the City is the San Luis Obispo Groundwater Basin. The basin is fifteen square miles and is drained by San Luis Obispo Creek. It extends from the northern limits of the City and continues southerly along the alignment of the creek to just south of Buckley Road. In the Los Osos Valley area, the basin extends four miles west to the Los Osos Basin, which includes the community of Los Osos/Baywood Park.

In 1990, at the height of the drought, the City had seven potable wells which accounted for approximately 50% of the water supplied during that period. The current groundwater program uses two potable wells, one non-potable construction water well and two irrigation wells. The names, locations, and use of the wells are shown in Table 1.3. Two of the City's wells, known as the Auto Park Way and Denny's wells, were shut down in 1992 and 1993 due to elevated nitrate levels.
Table 1.3: City Wells

<table>
<thead>
<tr>
<th>Well Name</th>
<th>Location</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pacific Beach #1</td>
<td>11950 Los Osos Valley Road</td>
<td>Municipal</td>
</tr>
<tr>
<td>Fire Station #4</td>
<td>1395 Madonna Road</td>
<td>Municipal</td>
</tr>
<tr>
<td>Corp Yard</td>
<td>25 Prado Road</td>
<td>Construction</td>
</tr>
<tr>
<td>Laguna Golf Course #1</td>
<td>11175 Los Osos Valley Road</td>
<td>Irrigation</td>
</tr>
<tr>
<td>Laguna Golf Course #2</td>
<td>11175 Los Osos Valley Road</td>
<td>Irrigation</td>
</tr>
</tbody>
</table>

Groundwater Basin Water Use

The majority of groundwater use from the San Luis Obispo Groundwater Basin is used for agricultural purposes and private property uses. The basin has not been defined to be in overdraft and has not been adjudicated. As explained in Section 2.1.3, the basin is relatively small and recharges very quickly following normal rainfall years. The City of San Luis Obispo currently relies on groundwater to supply approximately 2% of the City’s annual water demand. Table 1.4 shows the City’s groundwater production for 2000 through 2004. Table 1.5 identifies projected City groundwater production in the future. These production amounts do not include agricultural and private groundwater pumping by others.

Table 1.4: City Groundwater Production (acre feet)

<table>
<thead>
<tr>
<th>Basin Name</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Luis Obispo (Basin 3-9)</td>
<td>266</td>
<td>247</td>
<td>168</td>
<td>140</td>
<td>140</td>
</tr>
<tr>
<td>% of Total Supply</td>
<td>4.3%</td>
<td>4.2%</td>
<td>2.8%</td>
<td>2.3%</td>
<td>2.2%</td>
</tr>
</tbody>
</table>

Table 1.5: Projected City Groundwater Production (acre feet)

<table>
<thead>
<tr>
<th>Basin Name</th>
<th>2010</th>
<th>2015</th>
<th>2020</th>
<th>2025</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Luis Obispo (Basin 3-9)</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>% of Total Supply</td>
<td>6.6%</td>
<td>6.3%</td>
<td>6.0%</td>
<td>5.7%</td>
<td>5.5%</td>
</tr>
</tbody>
</table>

Operation

Operation and maintenance of the groundwater wells for the City is provided by the Water Treatment Plant staff. The well sites require daily inspections, at a minimum, to ensure proper operation of the facilities. Each site includes pumps, valves, meters and other related appurtenances, as well as necessary chlorine metering equipment for proper disinfection as required by the State Department of Health Services. Monthly production rates are recorded and maintained by staff.
The Auto Park Way well required the use of granular activated carbon ("GAC") absorption tanks for the removal of tetrachloroethylene ("PCE") which has contaminated the groundwater in the area of this well. Operation and maintenance of the GAC treatment facility required more staff time than the other well sites. Elevated nitrate levels in excess of the State's regulations required the discontinuance of the well's use in October 1992. The Denny's well on Calle Joaquin was taken out of service in June 1993 due to increasing levels of nitrate contamination.

**Operation and Maintenance Evaluation**

The operation and maintenance of the existing City wells are adequately handled by the existing personnel at the Water Treatment Plant.

**Recommended System Improvements**

Capital improvements required for the ongoing operation of the existing groundwater facilities will be identified and evaluated during the development of the City’s Financial Plan. No Capital Improvement Projects have been identified in the four year projection at this time (2005).

**1.4.4 RELIABILITY OF WATER SUPPLIES**

The City will strive to strengthen the reliability of the water supplies available to the City to meet current and future water demands. Policies contained in Chapter 2 which support these goals include: safe annual yield, water conservation, multi-source water supply and reclaimed water. As discussed in Section 2.1 Safe Annual Yield, the reliability of water supplies from Whale Rock and Salinas Reservoirs will be based on the most critical drought period of the historical record. The City does not use normal or single-dry year in determining the amount of available water necessary to meet current or future water demands.

The City does not anticipate water quality impacts to available water supply sources which would impact the amount of water available to the City of San Luis Obispo. The groundwater basin, which supplies a limited amount of water to meet City demands, is contaminated in some areas with PCE and nitrates. The City’s current potable water wells are up gradient from the pollution areas and are not anticipated to be impacted. The Salinas and Whale Rock watersheds are rural in nature and no significant pollution sources have been identified in the Source Water Assessment Plans or the Sanitary Survey Reports that have been prepared for the reservoirs. The City updates the Sanitary Survey Reports for both reservoirs every five years to evaluate potential contamination sources and changes in the watershed. In addition, the City’s water treatment plant provides a high level of treatment which can accommodate potential water quality changes at the reservoirs.

**1.4.5 AGENCY COORDINATION**

**Whale Rock Reservoir**

The Whale Rock Reservoir provides water to the City of San Luis Obispo, California Polytechnic State University, and the California Men’s Colony. The Whale Rock Commission oversees the reservoir operations and is made up of representatives from the three agencies, as well as a representative from the State Department of Water Resources. The City of San Luis Obispo provides the staff for oversight of daily operations and maintenance activities.
The City of San Luis Obispo treats the raw water at the City’s water treatment facility for delivery to City customers, as well as the University. The City staff work closely with staff from California Men’s Colony and the University relative to water planning issues.

**County Water Resources Advisory Committee**

The City of San Luis Obispo is represented on the county-wide Water Resources Advisory Committee (WRAC). The WRAC is an advisory committee to the County Board of Supervisors on issues pertaining to water resources planning. The Committee holds monthly meetings to discuss water projects, policies or other related issues that may have county-wide impacts. Recommendations are forwarded to the Board of Supervisors for their consideration. The Committee discusses items ranging from new water supply projects to water conservation programs and policies.

**Nacimiento Project Commission**

The City of San Luis Obispo is a participant in the planned construction of facilities to distribute water from Nacimiento Lake. The County of San Luis Obispo has an entitlement of 17,500 acre feet of water from Nacimiento Lake and is taking the lead on design and construction of a project to deliver up to 15,750 acre feet of water for uses within the County. The current participating agencies include the cities of Paso Robles and San Luis Obispo, Atascadero Mutual Water Company, and Templeton Community Services District. Other project participants within the county may join the project in the future. The Nacimiento Project Commission (Commission) is made up of representatives from each of the four participating agencies governing boards, as well as a representative from the County Flood Control and Water Conservation District (i.e. County Board of Supervisors). The Commission provides oversight and recommendations to the District relative to the project implementation and future operations and maintenance.

**Integrated Regional Water Management Plan**

The County of San Luis Obispo is currently developing an Integrated Regional Water Management Plan in which the City of San Luis Obispo is a key participant. City staff are specifically providing input in the water conservation and water recycling components of the plan because of the expertise the City has in these areas.

1.4.6 **TRANSFER OR EXCHANGE OPPORTUNITIES**

The City of Morro Bay and the Whale Rock Commission (which the City of San Luis Obispo is a member agency) executed an agreement in June of 2000 which provides for Mutual Aid between the agencies during disruption of water deliveries or lack of available water supplies. The agreement provides a general framework for exchanging water between agencies in the event of emergencies or other water disruptions. The agreement is voluntary based on each agency's ability to assist at any point in the future.
CHAPTER 2

WATER POLICY

INTRODUCTION

This chapter contains the water policies to ensure that adequate supplies of water are available to meet both current and projected future water demand for the City of San Luis Obispo. The Urban Water Management Plan is updated every five years per the requirements of the Urban Water Management Planning Act. The policies in the Water Management Element of the General Plan may be amended or revised more often, therefore the Water Management Element should be referenced to ensure that the most up to date information is being used. Because of the length and complexity of the policies, a summary of all the policy statements contained in this Plan are presented in Appendix 1.

2.1 SAFE ANNUAL YIELD

POLICIES

2.1.1 Basis for Planning

The City will plan for future development and for water supplies based on the amount of water which can be supplied each year, under critical drought conditions. This amount, called "safe annual yield," will be formally adopted by the Council. The safe annual yield determination will be revised as significant new information becomes available, and as water sources are gained or lost. The determination will consider a staff analysis, which will recommend an amount based on coordinated use of all water sources. Each change to safe annual yield will be reflected in an amendment of this Plan.

2.1.2 Safe Yield Amount

The City’s safe annual yield, from the coordinated operation of Salinas and Whale Rock reservoirs, reclaimed water and 500 acre feet of groundwater, is shown in Table 2.1. The safe annual yield includes annual reductions due to siltation at the reservoirs, discussed in more detail in Section 2.4.

2.1.3 Groundwater

A. The amount of groundwater which the City will rely upon towards safe annual yield is identified in policy 2.1.2. The City will use groundwater in conjunction with other available water supplies to maximize the yield and long-term reliability of all water resources and to minimize overall costs for meeting urban water demands. The City shall monitor water levels at the well sites to determine whether reduction or cessation of pumping is appropriate when water levels approach historic low levels.

B. The City will not compete with local agricultural use of groundwater outside the urban reserve line or damage wildlife habitat through reduced natural stream flows in obtaining
long-term sources of water supply.

**BACKGROUND**

Safe annual yield is the amount of water that can reliably be produced by the City's water supplies to meet the annual water demand. It is estimated by simulating the operation of the City's water supply sources over an historical period to determine the maximum level of demand that could be met during the most severe drought for which records are available.

The safe annual yield of an individual source of water supply is defined as the quantity of water which can be withdrawn every year, under critical drought conditions. Safe annual yield analyses of surface water supply sources are based on rainfall, evaporation and stream flow experienced during an historical period. The City of San Luis Obispo uses a period beginning in 1943, which covers drought periods in 1946-51, 1959-61, 1976-77, and 1986-91. The historical period used in the latest computer analysis to determine safe annual yield extends from 1943 through 1991 and includes the controlling drought period of 1986-91. Although future conditions are unlikely to occur in the precise sequence and magnitudes as have occurred historically, this technique provides a reliable estimate of the future water supply capability of the existing sources, since the long term historical record is considered a good indicator of future conditions.

The safe annual yield gradually declines as silt accumulates in the reservoirs, thereby reducing storage capacity.

Prior to 1991, the "controlling drought period" for determining safe annual yield was 1946 to 1951. The critical period for determining safe annual yield from the two reservoirs is now the period from 1986 to 1991. The safe annual yield is reflected in the table below and includes estimated losses associated with siltation.

**Table 2.1: Safe Annual Yield**

<table>
<thead>
<tr>
<th>Year</th>
<th>Salinas &amp; Whale Rock Reservoirs</th>
<th>Groundwater</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>6,990 acre feet</td>
<td>500 acre feet</td>
<td>7,490 acre feet</td>
</tr>
<tr>
<td>2006</td>
<td>6,980 acre feet</td>
<td>500 acre feet</td>
<td>7,480 acre feet</td>
</tr>
<tr>
<td>2007</td>
<td>6,970 acre feet</td>
<td>500 acre feet</td>
<td>7,470 acre feet</td>
</tr>
<tr>
<td>2008</td>
<td>6,960 acre feet</td>
<td>500 acre feet</td>
<td>7,460 acre feet</td>
</tr>
<tr>
<td>2009</td>
<td>6,950 acre feet</td>
<td>500 acre feet</td>
<td>7,450 acre feet</td>
</tr>
<tr>
<td>2010</td>
<td>6,940 acre feet</td>
<td>500 acre feet</td>
<td>7,440 acre feet</td>
</tr>
<tr>
<td>2011</td>
<td>6,930 acre feet</td>
<td>500 acre feet</td>
<td>7,430 acre feet</td>
</tr>
<tr>
<td>2012</td>
<td>6,920 acre feet</td>
<td>500 acre feet</td>
<td>7,420 acre feet</td>
</tr>
<tr>
<td>2013</td>
<td>6,910 acre feet</td>
<td>500 acre feet</td>
<td>7,410 acre feet</td>
</tr>
<tr>
<td>2014</td>
<td>6,900 acre feet</td>
<td>500 acre feet</td>
<td>7,400 acre feet</td>
</tr>
</tbody>
</table>
Previous Safe Annual Yield Studies

Previous studies of the critical historical drought periods at Salinas and Whale Rock reservoirs have indicated the following safe annual yields were available to the City:

<table>
<thead>
<tr>
<th>Water Supply</th>
<th>Safe Annual Yield</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salinas Reservoir</td>
<td>4,800 acre-feet</td>
<td>Corps of Engineers, 1977</td>
</tr>
<tr>
<td>Whale Rock Reservoir*</td>
<td>2,060 acre-feet</td>
<td>Dept Water Resources, 1974</td>
</tr>
<tr>
<td>Coordinated Operation</td>
<td>500 acre-feet</td>
<td>CH2M-Hill, 1985</td>
</tr>
<tr>
<td>Groundwater</td>
<td>500 acre-feet</td>
<td>Water Operational Plan, 1993</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>7,860 acre-feet</strong></td>
<td></td>
</tr>
</tbody>
</table>

*City's share of Whale Rock Reservoir safe annual yield.

Past safe annual yield analyses for the two reservoirs assumed independent operation and historical data to the date of each report. The critical drought period for the previous studies was 1946-51. The studies also assumed a minimum pool at Salinas and Whale Rock of 400 and 500 acre-feet respectively. Current minimum pool at each reservoir is established at 2,000 acre feet. "Coordinated operation" is a concerted effort to operate the two reservoirs together for maximum yield. Since Salinas Reservoir spills more often than Whale Rock Reservoir, due to its larger drainage area and more favorable runoff characteristics, and has higher evaporation rates, the combined yield from the two reservoirs can be increased by first using Salinas to meet the City's demand and then using Whale Rock as a backup source during periods when Salinas is below minimum pool or unable to meet all of the demand. The 500 acre-feet increase in safe annual yield was a preliminary estimate of the additional yield attributed to coordinated operations of the reservoirs identified in the 1985 report prepared by CH2M-Hill.

In 1988, the City contracted with the engineering firm of Leedshill-Herkenhoff, Inc., to prepare a detailed analysis of the City's water supplies and safe annual yield, based on coordinated operation of the reservoirs. The report "Coordinated Operations Study for Salinas and Whale Rock Reservoirs" was completed in 1989. The study estimated total safe annual yield for the City from the two reservoirs to be 9,080 acre-feet per year. Since the study period was only to 1988 and the City was in a drought period of unknown length, this amount was never adopted by Council. It should be emphasized that this estimate assumed that the "controlling drought period" was 1946 to 1951 and that Whale Rock Reservoir is used only when Salinas is below minimum pool or can not meet the monthly City demand, and does not consider limitations on the use of Salinas water due to water quality constraints. Following the end of the 1986-1991 drought, staff updated the computer program created by Leedshill-Herkenhoff to estimate the impact of the drought on safe annual yield of the reservoirs. The analysis determined that the 1986-91 drought was the critical drought of record for the two reservoirs and resulted in a reduction in the safe annual yield which is reflected in the amounts shown in Table 1.
Groundwater Resources

The groundwater basin that underlies the City of San Luis Obispo is relatively small. Therefore, extractions in excess of 500 acre-feet per year during extended drought periods cannot be relied upon. Because the basin is small, it tends to fully recharge following significant rainfall periods. Following periods of above average rainfall, the groundwater basin may be capable of sustaining increased extraction rates to meet City water demands. Since both Salinas Reservoir and the groundwater basin fill up and "spill" following significant rain periods, there may be benefit in drawing from these sources first and leaving Whale Rock Reservoir as a backup supply. The conjunctive use of the groundwater basin and surface water supplies in this manner could provide an effective management strategy that increases the reliability of all the resources to meet current and future water demands.

The groundwater in the area of higher production wells is contaminated with nitrates and PCE. In addition to issues relative to treatment of the groundwater to remove nitrate and PCE contamination, pumping additional groundwater may impact stream flows in to San Luis Obispo Creek resulting in environmental concerns.

Stetson Engineers were hired by the City to prepare the Phase 1 evaluation of increasing groundwater production. The “Groundwater Project: Phase 1 – Evaluation of Project Alternatives and Potential Impacts” was completed in September 2004. The Phase 1 report provided a preliminary evaluation of the various treatment processes available to remove the contaminants, an evaluation of potential well sites, a preliminary environmental evaluation, evaluation of the alternatives including costs analysis and an evaluation of possible sites for locating treatment facilities.

The main issue continuing to confront the successful implementation of increased groundwater production involves potential impacts to stream flows in the area. This question has been discussed in past reports and has been very difficult to properly evaluate due to limited historical information. With the recent decision for City participation in the Nacimiento Project (2004) and the cost and uncertainty of the additional studies necessary to evaluate project impacts, the Council deferred additional phases of the Groundwater Development Project on December 7, 2004.

Past City policy has been not to compete with agriculture for use of groundwater resources. Recognizing the importance of the production of food and fiber as well as open space provided by agricultural land outside the urban reserve line, the City will continue to endorse this policy.
2.2 WATER CONSERVATION

POLICIES

2.2.1 Long-term Water Efficiency

The City will implement water-efficiency programs which will maintain long-term, per-capita usage at or below the per capita use rate as identified in Policy 2.3.3.

2.2.2 Short-term Water Shortages

Short-term mandatory measures, in addition to the long-term programs, will be implemented when the City's water supplies are projected to last three years or less based on projected water consumption, coordinated use of all city water supply sources, and considering the drought pattern on which safe yield is based (or response to other situations which may interrupt supply). The City Council considered the Water Shortage Contingency Plan and adopted the plan as part of the Urban Water Management Plan update in 2000.

BACKGROUND

Water conservation was referenced as a part of the City's water management policy in 1973. In 1985, the City adopted the Annual Water Operational Plan policy that established water conservation as a means of extending water supplies during projected water shortages. Since 1985, many technological and philosophical changes have occurred which are proving water conservation to be both a short term corrective measure for immediate water supply shortages and a long term solution to water supply reliability.

A comprehensive evaluation of the potential water savings from water conservation technologies and programs were part of the 1995 and 2000 Urban Water Management Plan updates. Based on the reliability of the water conservation measures which were evaluated, and the cost effectiveness of the proposed programs, a long term reduction in water demand of approximately twenty percent from the average per capita use recorded in 1986-87 is used for planning for future water conservation programs as well as future water supply needs.

Because of the experience during the drought of 1986 to 1991, the City has developed a short term plan to deal with immediate water shortages (Chapter 6) and has recognized the importance of water efficiency by supporting long term programs. The City will reevaluate and update its water conservation efforts in response to changing water demand, supplies, technology and economic conditions.
2.3 WATER DEMAND PROJECTIONS

POLICIES

2.3.1 Basis of Projections

The City will project water requirements, considering long-term conditions and the full range of water uses in the City.

2.3.2 Water Use Rate

The City shall use 145 gallons per person per day (this equates to approximately 0.162 acre-foot per person per year) and the number of City residents to plan total projected future water demand. This quantity will be revised if warranted by long-term water use trends, including differences in the relationship between residential and nonresidential usage. (Throughout this Plan, 145 gallons per person per day is used in computations of future water demand.)

2.3.3 Overall Projected Demand

Applying 145 gallons per person per day to a projected City resident population of about 56,000 at General Plan build-out results in a projected water demand of 9,096 acre-feet per year (excluding demand from the Cal Poly campus, which has separate water entitlements from Whale Rock Reservoir).

2.3.4 Present Water Demand

Present water demand shall be calculated by multiplying the water use identified in Policy 2.3.2 by the current city population (as determined by the California Department of Finance, Population Research Unit).

2.3.5 Peak Daily Water Demand

The City shall strive to develop and maintain water supply sources and facilities appropriate to ensure sufficient supply and system capacity to provide the peak daily water demand of the City.

BACKGROUND

The City must know how much water will be needed to serve residents, businesses, and other users to accommodate the General Plan. This quantity can be projected using different methods. All methods involve assumptions about both future usage rates and the numbers and types of users expected in the future. The quantity expressed in the policy above corresponds closely with both (1) total city-wide usage compared with total resident population and (2) projections of water demand based on usage by various land use categories. There always will be some uncertainty in estimating development capacity (such as the number of dwellings or residents) as well as the usage per customer type (such as acre-feet per dwelling or per resident.) The estimating method must use reasonable assumptions, based on experience, to assure an adequate level of water supply while not overstating demands.
Since the early 1970's, usage estimates have ranged from 0.17 to 0.22 acre-foot per resident per year (about 155 to about 196 gallons per person per day). The estimates have varied so widely due to actual differences in consumption over time and to confusion about accounting for Cal Poly usage. (The City treats and delivers much of the water used by Cal Poly, even though Cal Poly has separate entitlements.) Table 2.2 shows recent water usage compared with City resident population. Table 2.3 compares the "per capita" and "land use" methods of estimating water needs.

### Table 2.2
**WATER USE 1980-1999**

<table>
<thead>
<tr>
<th>Year</th>
<th>Water from Treatment Plant and Wells acre-feet (1)</th>
<th>Total City Water Demand acre-feet (2)</th>
<th>Population (3)</th>
<th>Total Gallons per Person per Day</th>
<th>City Gallons per Person per Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986</td>
<td>8,367</td>
<td>7,767</td>
<td>38,205</td>
<td>196</td>
<td>181</td>
</tr>
<tr>
<td>1987</td>
<td>8,399</td>
<td>7,799</td>
<td>38,282</td>
<td>196</td>
<td>182</td>
</tr>
<tr>
<td>1988</td>
<td>8,411</td>
<td>7,811</td>
<td>39,858</td>
<td>188</td>
<td>175</td>
</tr>
<tr>
<td><strong>1989</strong></td>
<td><strong>6,004</strong></td>
<td><strong>5,404</strong></td>
<td><strong>41,027</strong></td>
<td><strong>129</strong></td>
<td><strong>118</strong></td>
</tr>
<tr>
<td><strong>1990</strong></td>
<td><strong>4,796</strong></td>
<td><strong>4,196</strong></td>
<td><strong>41,958</strong></td>
<td><strong>102</strong></td>
<td><strong>89</strong></td>
</tr>
<tr>
<td><strong>1991</strong></td>
<td><strong>4,640</strong></td>
<td><strong>4,040</strong></td>
<td><strong>42,178</strong></td>
<td><strong>98</strong></td>
<td><strong>86</strong></td>
</tr>
<tr>
<td>1992</td>
<td>5,316</td>
<td>4,716</td>
<td>42,922</td>
<td>110</td>
<td>98</td>
</tr>
<tr>
<td>1993</td>
<td>5,572</td>
<td>4,972</td>
<td>43,415</td>
<td>115</td>
<td>102</td>
</tr>
<tr>
<td>1994</td>
<td>5,775</td>
<td>5,200</td>
<td>43,919</td>
<td>117</td>
<td>106</td>
</tr>
<tr>
<td>1995</td>
<td>6,075</td>
<td>5,574</td>
<td>41,295</td>
<td>131</td>
<td>120</td>
</tr>
<tr>
<td>1996</td>
<td>6,379</td>
<td>5,742</td>
<td>41,404</td>
<td>138</td>
<td>125</td>
</tr>
<tr>
<td>1997</td>
<td>6,868</td>
<td>6,220</td>
<td>41,807</td>
<td>147</td>
<td>133</td>
</tr>
<tr>
<td>1998</td>
<td>6,399</td>
<td>5,852</td>
<td>42,201</td>
<td>135</td>
<td>124</td>
</tr>
<tr>
<td>1999</td>
<td>6,736</td>
<td>6,172</td>
<td>42,446</td>
<td>142</td>
<td>129</td>
</tr>
<tr>
<td>2000</td>
<td>6,695</td>
<td>6,121</td>
<td>44,174</td>
<td>124</td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td>6,446</td>
<td>5,886</td>
<td>44,218</td>
<td>119</td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td>6,588</td>
<td>6,032</td>
<td>44,333</td>
<td>122</td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>6,498</td>
<td>5,969</td>
<td>44,225</td>
<td>121</td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td>6,802</td>
<td>6,239</td>
<td>44,163</td>
<td>126</td>
<td></td>
</tr>
</tbody>
</table>


1. Data from City Water Treatment Plant production reports; includes Cal Poly potable water.
2. Cal Poly water use assumed constant for years before 1994, at 600 acre-feet.
3. January 1 population estimates from the California Department of Finance, Population Research Unit, as revised through 2004.
### TABLE 2.3
PER CAPITA WATER USE

<table>
<thead>
<tr>
<th>Method 1: Water treatment plant production and Population</th>
<th>Method 2: Metered use by development type and Land Use Element</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per capita water use - based on historic demand, population, and conservation</td>
<td>Per capita water use - based on historic demand, land use, and conservation</td>
</tr>
<tr>
<td><strong>Annual demand</strong></td>
<td>General Plan build-out</td>
</tr>
<tr>
<td>1987 year highest use</td>
<td><strong>Land use types</strong> (with 20% reduction from pre-1987 usage rates)</td>
</tr>
<tr>
<td></td>
<td>Single family residential 3,630 acre feet</td>
</tr>
<tr>
<td></td>
<td>Multifamily residential 2,633</td>
</tr>
<tr>
<td>Less Cal Poly</td>
<td>Retail commercial 422</td>
</tr>
<tr>
<td>Subtract 600 acre-feet from total, based on average demand</td>
<td>Office 393</td>
</tr>
<tr>
<td></td>
<td>Services &amp; manufacturing 438</td>
</tr>
<tr>
<td></td>
<td>Motel/hotel 608</td>
</tr>
<tr>
<td></td>
<td>Hospitals, schools, parks 1,432</td>
</tr>
<tr>
<td></td>
<td>Total 9,566 acre feet</td>
</tr>
<tr>
<td><strong>Per capita use</strong></td>
<td><strong>Less 20% long-term conservation</strong></td>
</tr>
<tr>
<td>Convert to gallons and divided by 365. Divide by Dept. of Finance population estimate (38,282)</td>
<td>145 gallons/day</td>
</tr>
<tr>
<td>182 gallons/day</td>
<td><strong>Per capita use</strong> Convert to gallons and divide by 365. Divide by estimated 56,000 build-out population (excludes Cal Poly residents).</td>
</tr>
<tr>
<td></td>
<td>152 gallons/day</td>
</tr>
</tbody>
</table>

Based on the analysis of these two approaches and the inclusion of long term water conservation programs, 145 gallons per day per person is used throughout this element for long term water supply planning purposes.

### TABLE 2.4
CALCULATION OF PRESENT (2005) WATER DEMAND

<table>
<thead>
<tr>
<th>Gallons per person per day</th>
<th>City Population</th>
<th>Gallons per Acre Foot</th>
<th>Days in a Year</th>
<th>Current Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>145</td>
<td>44,519</td>
<td>1 acre-foot 325,851 gallons</td>
<td>365</td>
<td>7,230 acre feet</td>
</tr>
</tbody>
</table>
2.4 SILTATION AT SALINAS AND WHALE ROCK RESERVOIRS

POLICY

2.4.1 Accounting for Siltation

The City shall account for siltation in the adoption of the safe annual yield as identified in Policy 2.1.2. The estimated annual reduction in safe annual yield from Salinas and Whale Rock Reservoirs is 10 acre-feet per year. As Council considers and develops new water supply opportunities, Council should consider planning for additional water to address siltation losses over a longer term.

BACKGROUND

Siltation at reservoirs is a natural occurrence that can substantially reduce the storage capacity over long periods. The reduction of available storage will reduce the safe annual yield of the reservoirs. Siltation at reservoirs varies depending on factors such as rainfall intensity and watershed management practices. There have been numerous reports addressing siltation at Salinas Reservoir, but no studies have been done for Whale Rock Reservoir.

Table 2.5 lists the studies for Salinas Reservoir and the estimated storage capacities. During the recent drought, water at Salinas Reservoir fell to record low levels. Recognizing the unique opportunity presented by the low water level, the County contracted with a local engineering consultant to provide an aerial survey of the lake and prepare revised storage capacity information. The latest information reveals that the survey conducted in 1975 may have over estimated the siltation rate at the reservoir. Early studies indicated average annual siltation rates from 23 acre-feet per year to 34 acre-feet per year. The study done by the U.S. Geological Survey in 1975 estimated that the siltation rate was approximately 82 acre-feet per year. The latest information indicates that the siltation rate is on the order of 40 acre-feet per year.

Since Whale Rock is used as a backup supply for the City, it may be many years until the lake level drops to the point where an aerial survey of siltation can be economically performed. Since no information is available to indicate what rate of siltation is occurring at the Whale Rock Reservoir, it is assumed for planning that the annual average rate of siltation is similar to Salinas Reservoir. New water supply opportunities can be utilized to offset the long term siltation losses, as discussed elsewhere in this document.

The safe annual yield from the two reservoirs will be continually reduced as a result of siltation. The City’s computer model can be used to calculate the reduction in safe annual yield from Salinas and Whale Rock reservoirs to date. The model can then be used to calculate estimated annual reductions in the future assuming siltation occurs in an average pattern.

Since the storage capacity for Salinas Reservoir was last estimated in 1990, the annual loss of 40 acre-feet per year can be applied from that date. However, since siltation at Whale Rock Reservoir has never been factored into the total available water storage, the loss of 40 acre-feet per year would apply to the period since the reservoir was constructed in 1961.
Table 2.5: Salinas Reservoir Capacity Studies

<table>
<thead>
<tr>
<th>Year</th>
<th>Agency</th>
<th>Total Capacity (acre-feet)</th>
<th>Usable Capacity (acre-feet)</th>
<th>Avg. Annual Loss Usable Capacity (acre-feet/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1941</td>
<td>U.S. Army</td>
<td>44,800</td>
<td>26,000</td>
<td>-</td>
</tr>
<tr>
<td>1947</td>
<td>U.S. Soil Conservation Service</td>
<td>-</td>
<td>25,860</td>
<td>23.3</td>
</tr>
<tr>
<td>1953</td>
<td>U.S. Soil Conservation Service and U.S. Forest Service</td>
<td>-</td>
<td>25,590</td>
<td>34.2</td>
</tr>
<tr>
<td>1975</td>
<td>U.S. Geological Survey</td>
<td>41,400</td>
<td>23,200</td>
<td>82.4</td>
</tr>
<tr>
<td>1990</td>
<td>County of San Luis Obispo</td>
<td>41,791</td>
<td>24,035</td>
<td>40.1</td>
</tr>
</tbody>
</table>

Usable capacities are shown at the 1,301.0-foot spillway elevation because the usable capacity at the 1,300.7-foot elevation for the 1947 and 1953 studies could not be accurately determined. Usable capacity at the 1,300.7-foot elevation for the 1941 survey was determined to be 25,800 acre-feet and for the 1975 survey was 23,000 acre-feet.

The estimated loss in storage capacity for Salinas Reservoir between 1990 and 2000 is 400 acre-feet. The estimated loss at Whale Rock Reservoir between 1961 and 2000 is 1,560 acre-feet. Based on these reduced storage capacities, the computer model projects a loss of 250 acre-feet of safe annual yield from the combined operation of the two lakes. With an estimated loss of 40 acre-feet per year at each reservoir, the total safe annual yield from the two lakes will be reduced by 10 acre-feet per year. This loss of yield is accounted for in the adopted safe annual yield figures shown in Table 1.

2.5 SUPPLEMENTAL WATER REQUIREMENTS

POLICIES

2.5.1 Supplemental Water Requirement

The City shall develop additional water supplies to provide for the Primary Supply Requirements identified below, and strive to develop additional water supplies to provide for the Secondary Supply Requirements identified below, in the consideration of available water supply opportunities.

A. **Primary Supply Requirements** – Develop supplemental water supplies to provide sufficient water for General Plan build-out using the per-capita planning use rate identified in Policy 2.3.2 multiplied by the projected General Plan build-out population, and

B. **Secondary Supply Requirements** – Develop supplemental water supplies to provide additional yield to account for future siltation losses, drought contingency, loss of yield from an existing supply source, operational requirements necessary to meet peak operating demands, and
other unforeseen conditions.

2.5.2 Supplemental Water Sources

In deciding appropriate sources of supplemental water, the City will evaluate impacts on other users of the water and other environmental impacts, total and unit costs, reliability, water quality, development time, and quantity available.

2.5.3 Paying for Supplemental Water for New Development

The cost for developing new water supplies necessary for new development will be paid by impact fees set at a rate sufficient to cover the annual debt service cost of the new water supplies attributable to new development.

BACKGROUND

Based on the Land Use Element adopted by the City Council in July 2004 and a per capita use rate of 145 gallons per person per day, the projected total amount of water for the City to serve General Plan build-out is 9,096 acre-feet. Many of the Secondary Supply Requirements identified in Policy 2.5.1 are unquantifiable at this time, and their development should be considered by Council in the review of new water supply opportunities.

Table 2.6: Required Safe Annual Yield for General Plan Buildout

<table>
<thead>
<tr>
<th>Source of Demand</th>
<th>Population</th>
<th>Acre-feet (at 145 gal per day per person)</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing (2005) Development</td>
<td>44,519</td>
<td>7,230</td>
<td>79.5%</td>
</tr>
<tr>
<td>New Development</td>
<td>11,481</td>
<td>1,886</td>
<td>20.5%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>56,000</td>
<td>9,096</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

City policy adopted in 1987 as part of the Water Element states that the costs of developing supplemental water sources will be borne by those making new connections to the water system. Policy 2.5.3 continues this policy and is consistent with the Land Use Element (policy 1.13.4.)
2.6 MULTI-SOURCE WATER SUPPLY

POLICY

2.6.1 Multi-Source Water Supply

The City shall continue to develop and use water resources projects to maintain multi-source water supplies, and in this manner, reduce reliance on any one source of water supply, to provide for peak operating demands in the event one of the City’s major water supply sources is unavailable, and to increase its supply options in future droughts or other water supply emergencies.

BACKGROUND

Having several sources of water can avoid dependence on one source that would not be available during a drought or other water supply reduction or emergency. There may be greater reliability and flexibility if sources are of different types (such as surface water and ground water) and if the sources of one type are in different locations (such as reservoirs in different watersheds).


2.7 ALLOCATION OF NEW WATER SUPPLIES

POLICIES

2.7.1 Balancing Safe Yield and Overall Demand

When new water sources are obtained, the additional safe yield shall be allocated first to eliminate any deficit between the adopted safe annual yield (Section 2.1) and the present demand as defined in Policy 2.3.4, second to eliminate any deficit between adopted safe yield and General Plan build-out, and third to supply for the Secondary Supply Requirements as identified in Policy 2.5.1 (B).

2.7.2 Supplying New Development

A. The City will determine the water available for allocation to new development by either; the adopted safe annual yield of the City’s water supplies minus present demand as identified in Policy 2.3.4, or the projected demand at build-out as identified in Policy 2.3.3 minus present demand as identified in Policy 2.3.4; whichever is less. Available allocations will be assigned to development in a way that supports balanced growth, consistent with the General Plan. Allocations from a new water supply project shall be considered available at the time project construction is initiated.

B. Any safe annual yield from new water supply projects beyond that needed to balance safe annual yield and present demand will be allocated to development, subject to the requirements in Policy 2.7.3, “Reserve for Intensification and Infill.”

C. A water allocation shall not be required for projects for which the developer makes changes in facilities served by the City that will reduce long-term water usage equal to twice the
water allocation required for the project.

2.7.3 Reserve for Intensification and Infill Development

The City will annually update the water available for allocation based on the difference between the adopted safe annual yield (policy 2.1.2) and the present water demand (policy 2.3.4) as part of the annual Water Resources Status Report. One-half of the water available for allocation (not to exceed the total required for infill and intensification), as identified in the Water Resources Status Report, will be reserved to serve intensification and infill development within existing city limits as of July 1994.

2.7.4 Accounting for Reclaimed Water

Reclaimed water has an estimated potential of 1,000 acre feet per year of water available for appropriate non-potable uses. The amount to be added to the City’s safe annual yield, and therefore available for development, will only be the amount projected actually to be used or offset (approximately 130 a.f. initially), increasing to 1,000 acre feet per year as additional offsetting uses are brought on-line. The amount of reclaimed water used each year will be reported to Council as part of the annual Water Resources Status Report and will be added to the safe annual yield identified in Section 2.1.2, Table 2.1 of this document to determine water available for new development.

2.7.5 Private Water Supplies

When developments are supplied by private groundwater wells, the yield of those wells will not be counted toward the City’s safe annual yield. Such yield, however, will result in the demand for City water supplies being lower than it otherwise would be, which may necessitate adjustments of the per capita water usage figure used to estimate overall demand.

BACKGROUND

The City has pursued numerous water supply projects over the years. (These projects are discussed in Chapter 3 of the Urban Water Management Plan.) This part of the element addresses allocation of these supplies once the yields from projects are realized. The City has identified these potential uses for new supplies:

- Eliminating any deficit between adopted planning figures and safe annual yield;
- Providing for water requirements for future development within the urban reserve area designated in the General Plan;
- Compensating for reduced yields due to reservoir siltation;
- Providing additional water supplies, as determined by Council, for drought, operational requirements for meeting peak demands, and other water supply emergencies;
- Providing water for habitat management.

Allocation of new supplies can balance the needs of all areas identified while not compounding the potential water shortage problems for existing City water customers.
2.8 WATER ALLOCATION AND OFFSETS

POLICIES

2.8.1 Exemptions for Offsets

A. The City will not allow a project to reduce or eliminate the amount of the required allocation or offset, to the extent that the project is supplied by a private well, with the following exceptions:

1. The City may reduce the amount of the required water allocation, to the extent that the project is supplied by a private well serving non-potable water needs (such as irrigation) which will not significantly affect the yield of City wells. Such a well may be operated by the owner of the property containing the well only for the owner's use. As an exemption, the City may allow a well to supply landscape irrigation on more than one parcel if the irrigation is:

   a. for the common area of a condominium complex or other developments with similar common areas as approved by the Utilities Director, and the well and irrigation system are under the control of an owner’s association; or
   b. in a single commercial development, and the well and irrigation system are subject to a recorded agreement among parcel owners, which is acceptable to the Utilities Director and the City Attorney, and which establishes responsibilities for operation and maintenance of the common areas served by the well.

2. When an allocation or potential offset is not available, a well may be allowed to eliminate the required offset for potable water needs only as an interim source until a new City water source is available. Once a new source becomes available, the project will be required to acquire an allocation from the City. Impact fees will be due at the time the development is approved.

3. The City Council approves the well proposal as part of a specific land development project approval, and the proposed well system meets all City standards; and

4. A qualified, independent, hydrological investigation demonstrates that the well(s) reliably can provide sufficient quality and quantity of water for the proposed land development project and will not impact the yields from City wells.
2.8.2 Basis for Allocations and Offsets

Required allocations and offsets will be based on long-term usage for each type of development. (These use and offset factors will be determined and published by the City, and may be revised, as warranted, by new information.)

BACKGROUND

In 1988, the City began to formally account for long-term water usage in new development. The allocations have been based on histories of water usage for various kinds of development. At first, the City decided to allocate some water for new land development projects even though city-wide water usage exceeded safe yield. As the 1986-1991 drought continued, and the projected completion of proposed supplemental supply projects moved farther into the future, the City decided that there should be no new development that would increase water usage. As a result, nearly all construction since 1990 has been:

- Replacement buildings, using the same or less water;
- Additions or remodels which do not substantially affect water usage; and
- Projects that have retrofitted facilities served by the City, to save (offset) twice the amount of water that would be allocated to the project. Installation of low-flow toilets, showerheads, and faucets have accounted for most of the offset credit. Substantial credits were also earned by installing water-recycling equipment in businesses.

Also, a few relatively small projects were able to do little or no retrofitting because they were supplied with groundwater through private wells. Some projects have utilized more than one of these strategies to proceed despite the lack of water allocations. In September 2002, the mandatory retrofit requirement for new construction was eliminated. At that time, City Council made the determination that “essentially” all the higher gallon per flush toilets had been replaced, therefore eliminating the need to retrofit.

2.9 RECLAIMED WATER

POLICIES

2.9.1 Reclaimed Water Quality

The City will produce high quality reclaimed water, suitable for a wide range of nonpotable uses.

2.9.2 Uses of Reclaimed Water

The City will make available reclaimed water to substitute for existing potable water uses as allowed by law and to supply new nonpotable uses.

When deemed appropriate by the Utilities Director, new development shall be equipped with dual plumbing to maximize the use of reclaimed water for non-potable uses.
BACKGROUND

Reclaimed water is highly treated wastewater (sewage) which can be used for most nonpotable purposes. The City's Water Reclamation Facility (formerly known as the Wastewater Treatment Plant) has been upgraded to the point the effluent can be used directly for landscape and agricultural irrigation and other uses such as industrial processes and toilet flushing in certain types of buildings.

Most treated effluent, in the past, has been discharged to San Luis Obispo Creek. A small amount of effluent has been used at the treatment plant site for landscape irrigation. Reclaimed water will be used for additional landscape irrigation of City parks, schools, golf course and other appropriate sites.

2.10 WATER SERVICE WITHIN THE CITY

POLICY

2.10.1 Water Service within the City

A. The City will be the only purveyor of water within the City.

B. Appropriate use of privately owned wells may be allowed with the approval of the Utilities Director, consistent with policies 2.7.5 and 2.8.1.

BACKGROUND

Historically, the City has been the sole water purveyor within the City limits. This allowed the City to maintain uniformity of water service and distribution standards, and to be consistent in developing and implementing water policy. In continuing to be the sole water purveyor, the City will maintain control over water quality, distribution and customer service, as well as ensure consistency with the City's General Plan policies and goals.
CHAPTER 3

SUPPLEMENTAL WATER SUPPLY PROJECTS

As discussed in Chapter Two, Water Policy, the City will need to develop additional water supplies to meet the projected water demand at full build-out as identified in the City’s General Plan adopted in 1994. The City is pursuing several water supply projects to meet the projected water demand. Figure 2 illustrates the anticipated addition of water supplies versus population growth.

![Available/Projected Water Supplies, Projected Water Demand & Actual Water Use](image)

**Legend**
- Present Water Demand
- Actual Water Use
- Available Safe Annual Yield

**Assumptions**
1. Projected water demand assumes 145 gcpd and 1% population growth every year from 2005.
2. Siltation loss = 10 afy
3. Reuse adds 130 af in 2006 and 25 af each year thereafter
4. Water Conservation adds 100 af in 2006
5. Nacimiento adds 3,380 af in 2011

**Figure 2**

The significant increase in Safe Annual Yield available in 2010 is based on the addition of Nacimiento Pipeline Project water which is discussed in more detail in this chapter.

This chapter will also discuss the water projects currently under consideration, as well as alternative projects deemed not feasible at this time but that could be considered in the future.
WATER SUPPLY SOURCES

Policy

The City shall pursue the Nacimiento Pipeline Project, water reuse, and water demand management activities as supplemental water supply sources to meet current and projected future water demand. Other water supply projects shall be considered in the future if warranted.

3.1 NACIMIENTO PROJECT

Introduction

San Luis Obispo County Flood Control and Water Conservation District (“District”) has an entitlement of 17,500 acre-feet per year (afy) of water from Nacimiento Reservoir. In 1992, Boyle Engineering was hired by the District to study the feasibility and make recommendations for a project to convey water from Nacimiento to several water agencies, from Paso Robles to the south of San Luis Obispo.

Background

Nacimiento Reservoir is located in San Luis Obispo County on the Nacimiento River about 12 miles above its confluence with the Salinas River. The reservoir provides flood protection and is a source of supply for groundwater recharge for the Salinas River Valley. The dam is owned and operated by Monterey County Flood Control and Water Conservation District. Although Monterey County retains a majority of the water rights to the reservoir, San Luis Obispo County is entitled to 17,500 af of water annually. Approximately 1,750 afy have been designated for use around the lake, leaving 15,750 afy for allocation to other areas within the County of San Luis Obispo.

In June, 1992, the District retained Boyle Engineering to perform a reliability assessment. The study concluded that, based on historic data, the project would have been able to deliver the full entitlement of water each year, including the critical year of the 1987-1992 drought. Based on these results, the District authorized Boyle to proceed with a more detailed evaluation of a project to distribute the full 16,200 afy remaining entitlement.

In the Fall of 1995, the District retained Boyle Engineering as Project Manager. Carollo Engineering was hired to perform the preliminary engineering, while Ogden Environmental was hired to prepare the Environmental Impact Report (EIR) in compliance with the California Environmental Quality Act (CEQA). In July of 1996, Carollo published the draft Engineering Report, which identified the project’s alignment and the location of major facilities. In August of 1997, Ogden published the draft EIR. The public comments on the draft EIR raised a substantial amount of concern over the alignment. All of the alignment alternatives that were suggested during public comment had already been considered and determined to be infeasible for a variety of reasons. Following the release of the draft EIR, it was determined that a pipeline route through Camp Roberts property would be acceptable with Camp Roberts administration, and would resolve many of the concerns raised by the public. This new opportunity resulted in...
the need for additional engineering work and the preparation of a revised draft EIR. The revised EIR was completed and certified by the County Board of Supervisors in early 2004 and the City Council adopted a resolution certifying the Council’s review and consideration of the EIR and adopting the CEQA findings on June 29, 2004. At the same meeting following this action, the Council approved execution of the participation agreement for the Nacimiento Project. The City has requested an entitlement of 3,380 acre feet per year from the Project.

The Nacimiento Project Commission (Commission) was formed to provide oversight and recommendations to the District relative to the project implementation and future operations and maintenance. The Commission is made up of representatives from each of the participating agencies and the District as discussed more fully in Section 1.4.5.

**NEXT STEPS**

The project is currently proceeding with the design phase which involves development of the detailed plans and specification, surveying, easement/property acquisitions, additional environmental evaluations and development of detailed environmental mitigation/monitoring plans. The current project schedule anticipates completing design work and initiating construction in 2007 and project completion and water deliveries beginning in 2010.

**Project Cost**

The costs associated with the early Nacimiento related studies were borne by the project participants in amounts proportional to each agency’s requested allocation. This method of cost recovery was used by the District through production of the first draft EIR. Costs associated with the preparation of the revised draft EIR were paid from an account that the District set up in the early 1960’s, specifically for a water supply project such as Nacimiento.

The City’s share of the design phase costs are estimated to be approximately $6.6 million. It is currently estimated that the total cost for water delivered from the Nacimiento Project to the City would be approximately $1,700 per acre foot based on deliveries of the fully entitlement of 3,380 acre feet per year.

**3.2 WATER REUSE**

**Introduction**

Reuse of the tertiary treated water produced by the City's Water Reclamation Facility is a drought resistant portion of the City of San Luis Obispo's multi-source water plan. Recycled water has not been previously used by the City due to its low quality, regulatory constraints, public acceptance, and cost of distribution. Increased demand for water and recent improvements to the treatment process made it feasible to consider reuse as a source of water for non-potable demands. Recycled water may be used for:

- Irrigating parks, school yards, golf courses, and residential yards,
- Washing cars, mixing concrete, compacting soil and controlling dust,
• Process and cooling water for industrial applications,
• Fire protection.

The objectives of the San Luis Obispo Water Reuse Project are to:

1) Develop a dependable water supply that will meet non-potable demand,
2) Improve the water quality of San Luis Obispo Creek,
3) Comply with the Federal Clean Water Act and California Inland Surface Water Plan,
4) Efficiently manage the water resources of the City of San Luis Obispo.

**Background**

The Water Reclamation Facility produces approximately 4,000 acre feet of disinfected tertiary recycled water per year. This water is suitable for most uses other than drinking and food preparation. Production of reclaimed water is at a relatively constant rate both on a daily and annual basis. The City has dedicated 2.5 cubic feet per second for the preservation and enhancement of the in-stream habitat of San Luis Obispo Creek. The City Council approved the project on September 5, 2000 and filed a Notice of Determination to conclude the CEQA process.

Approximately 1,000 acre feet of recycled water are available annually for irrigation, which has been identified as its primary use in the City. Initially, up to 400 acre feet of recycled water may be used to replace an equal amount of potable water currently being used for irrigation. The remaining 600 acre feet of recycled water is available to meet the non-potable demand (primarily irrigation) of future development that otherwise would be satisfied with potable water.

**Distribution System**

The Water Reuse Project distribution system has been constructed to deliver recycled water to large volume customers throughout the southern portion of the City of San Luis Obispo. The system has been designed for future expansion to serve small volume users, when it becomes economically feasible to do so. Components of the distribution system include a pump station, water storage facility, treatment equipment, pipelines, and valves. A portion of the recycled water will be discharged to San Luis Obispo Creek to support riparian habitat. The remainder will enter the recycled water distribution system to be delivered to customers.

Recycled water will be delivered to customers through a service meter near their property line. Customers will provide and install the necessary facilities to distribute the recycled water throughout their properties. Each user will install safety devices to ensure the proper use of recycled water. The required safety features may include approved backflow prevention devices, new plumbing to separate potable water from recycled water, and modification to irrigation systems to prevent over-spray and over-watering.
**Operation and Maintenance**

The City's Wastewater Division will operate the Water Reclamation Facility and the water reuse pumps and filters located at the Water Reclamation Facility. The City's Water Division will operate and maintain the recycled water distribution system.

The City will monitor the customer's compliance with the rules and regulations established for the safe use of recycled water.

**Future Development Areas**

Recycled water may be used for irrigation of residential yards with dual plumbing. It is unlikely that it will ever be economical to install the distribution system and separate plumbing for use of recycled water in older residential areas. Recycled water may be used in commercial and industrial facilities for toilet flushing, cooling and rinse water, car washing, concrete mixing, boiler water, and other uses permitted for "Disinfected Tertiary Reclaimed Water".

The most cost effective use of recycled water will be in new construction and development where the dual distribution and plumbing systems can be built as an integral part of the original construction. The Water Reuse Project is configured to be able to serve those areas identified in the General Plan Land Use Element as the principle expansion areas.

In July of 2004, the City completed the Water Reuse Master Plan that identified expansion of the Water Reuse distribution system to maximize the use of the available water for irrigation uses. The plan identified new distribution piping to provide irrigation water to Meadow Park (on South Street) and Sinsheimer Park, and other uses along the route to these parks. The plan identified uses up to approximately 1,000 acre feet per year. Table 3.1 estimates the potential future use of recycled water.

<table>
<thead>
<tr>
<th>Type of Use</th>
<th>2006</th>
<th>2010</th>
<th>2015</th>
<th>2020</th>
<th>2025</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landscape/Other</td>
<td>130</td>
<td>230</td>
<td>355</td>
<td>480</td>
<td>605</td>
<td>730</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>130</strong></td>
<td><strong>230</strong></td>
<td><strong>355</strong></td>
<td><strong>480</strong></td>
<td><strong>605</strong></td>
<td><strong>730</strong></td>
</tr>
</tbody>
</table>

**Project Schedule**

The backbone distribution system was completed in the fall of 2004. The project components associated with the Water Reclamation Facility (pump station, storage tank, chemical feed systems, etc.) are currently under construction and project completion is scheduled for spring of 2006. Water deliveries to school site, sports fields, and parks are expected to begin immediately following project completion.
**Staffing Evaluation**

The Water Distribution Maintenance and Customer Service Section will be responsible for the recycled water distribution system. The system will have very few customers (many are City facilities) during initial system operation. As the customers using recycled water increases, staff issues will need to be evaluated. This is also true for the expansion of the water distribution system associated with the Airport, Margarita, and Orcutt areas which will also increase the infrastructure maintenance and meter reading.

**3.3 WATER DEMAND MANAGEMENT (CONSERVATION)**

**Introduction**

Water demand management practices and technology have advanced significantly in reaction to the drought of 1986-1991. Historically, water demand management was viewed as an emergency response to extreme water shortage situations. As demand for water resources increase due to growing population and agricultural needs, the importance of using our water wisely and efficiently is imperative to assure adequate, reliable water supplies in the future.

**Background**

Water demand management, or water conservation, was first referenced as a part of the City's water management policy in the 1973 General Plan. In 1985, the City Annual Water Operational Plan policy formally established water demand management as a means to extend water supplies during projected water shortages. From 1988 (when an aggressive water conservation program was implemented) to October 1993, approximately 14,400 acre-feet of water savings can be attributed to the water efficiency programs implemented during that period.

In 1990, the City endorsed a multi-source water plan in an attempt to solve both short-term water shortages and establish long-term solutions to the City's water needs. Because of the difficulty in developing new water supply projects, there has been a philosophical shift in perception of water demand management as crisis management vehicle in 1985 to a water supply alternative today.

**Water Demand Management Program Direction**

In September 1991, the Council approved signing the "Memorandum of Understanding" (MOU) regarding water conservation and the implementation of the "Best Management Practices" (BMP's). The progress in implementing the BMP’s are listed in Appendix 2. This signifies a commitment to implement and evaluate the water efficiency measures presented in the MOU.
Using the BMP's as a road map for future water demand management program implementation, a balanced program of providing information and assistance to the City's water customers is necessary to maintain the water use reductions levels required to increase the reliability of the City's water supplies. Many valuable studies which the City could not afford to perform are being funded and administered by the BMP signatory group, the California Urban Water Conservation Council. These studies will have a direct benefit to the City by providing a method to analyze water conservation programs for cost effectiveness and to quantify reliable savings associated with specific programs.

As part of the 2003-2005 Financial Plan, the City Council approved an expanded water conservation program which included a major emphasis on outdoor conservation and commercial customers. Implementation of the program occurred in 2004 with the monitoring of results taking place during the 2005-06 fiscal year.

3.4 OTHER SUPPLEMENTAL WATER SUPPLY PROJECT ALTERNATIVES

3.4.1 INCREASED GROUNDWATER PRODUCTION

Background

Prior to the drought of the late 1980’s, the City of San Luis Obispo had not used groundwater to meet the City’s water demand since the early 1940’s. In response to the continuing drought conditions, the City drilled new wells and began using groundwater in April of 1989. In 1990 and 1991, the City extracted approximately 1,950 acre feet each year to supplement dwindling water supplies at Salinas and Whale Rock Reservoirs. Due to drought conditions and pumping by all users of the groundwater basin, there were several properties which were impacted by subsidence in the area.

In October of 1992, the Auto Parkway well (which was the City’s largest producing and most consistent well) was found to have elevated nitrate levels following routine water sampling. The levels exceeded the Department of Health Services standards and the well was shut down. Several years later, the well was permanently abandoned and the site was restored to it’s original condition.

In June of 1993, the Denny’s well located on Calle Joaquin showed elevated levels of nitrates. While the levels did not exceed the State standard, the levels were very close and the migration of the nitrate plume was imminent. The well was shut down shortly after the test results were received and the well has been inactive since that time.

The loss of the Auto Parkway and Denny’s wells have caused a drastic reduction in the amount of groundwater which can be pumped on an annual basis. With the current wells which are not impacted by contamination, the City can pump approximately 150 acre feet per year.
Studies

The City of San Luis Obispo has investigated the potential for increasing groundwater production. As discussed earlier, the wells in the vicinity of Auto Parkway and Calle Joaquin were the largest producing wells during the drought but were decommissioned due to contamination. The groundwater basin is contaminated with PCE which was likely the result of a spill many years ago from a dry cleaning facility. The basin is also contaminated with nitrates which is likely the result of past agricultural practices which overlie the basin.

A preliminary study was completed by Team Engineering and Management, Inc. to evaluate the potential for increasing the safe annual yield available to meet City water demands through the coordinated operation of the groundwater basin in conjunction with the Salinas and Whale rock Reservoirs. The preliminary study indicated that an additional 890 acre feet, above the current assumed 500 acre feet per year, could be attained through a coordinated operation of all the City’s available water sources.

The additional groundwater extractions will require treatment to remove PCE and nitrates from the water. The PCE can effectively be removed using carbon filtration units. These systems were used during the drought to treat two wells prior to the migration of the nitrate contamination. The removal of nitrates will require the use of reverse osmosis, ion exchange, or biological processes.

Stetson Engineers were hired by the City to prepare the Phase 1 evaluation of increasing groundwater production. The “Groundwater Project: Phase 1 – Evaluation of Project Alternatives and Potential Impacts” was completed in September 2004. The Phase 1 report provided a preliminary evaluation of the various treatment processes available to remove the contaminants, an evaluation of potential well sites, a preliminary environmental evaluation, evaluation of the alternatives including costs analysis and an evaluation of possible sites for locating treatment facilities.

The main issue continuing to confront the successful implementation of increased groundwater production involves potential impacts to stream flows in the area. This question has been discussed in past reports and has been very difficult to properly evaluate due to limited historical information. With the recent decision for City participation in the Nacimiento Project and the cost and uncertainty of the additional studies necessary to evaluate project impacts, the Council deferred additional phases of the Groundwater Development Project on December 7, 2004.
3.4.2 SALINAS RESERVOIR EXPANSION PROJECT

Introduction

The Salinas Reservoir (also known as Santa Margarita Lake) was constructed in 1941. The original design of the dam included operable spillway gates which would have increased the maximum water surface elevation at the spillway crest from 1,300.74 to approximately 1,320.0 feet. Because of uncertainties at the time of construction, the spillway gates were never installed. The Salinas Reservoir Expansion Project would involve the installation of gates which would result in an increase of available storage capacity from 23,843 acre-feet (af) to 41,790 af with an increase of an estimated 1,650 acre-feet per year of safe annual yield.

Background

The Salinas Dam was constructed by the War Department (now U.S. Army Corps of Engineers) in 1941 to provide water to Camp San Luis Obispo and the City of San Luis Obispo. The U.S. Army Corps of Engineers (Corps) filed and received an application to appropriate water from the Salinas River with the Division of Water Resources (now State Water Resources Control Board, Division of Water Rights) on May 27, 1941. The City of San Luis Obispo filed and received an identical permit on June 4, 1941. The City’s right to appropriate water for beneficial use was second in time and right to the Corps permit. Both permits allowed a direct diversion of up to 12.4 cubic feet per second (cfs) between January 1st and December 31st and a diversion to storage for later use of up to 45,000 A.F. between November 1st and June 30th of each season. In 1995, the Corps permit was revoked and the Corps was added to the City of San Luis Obispo’s permit #5882. This action resolved the issue of duplicative permits which was a concern of the State Water Resources Control Board.

The original construction plans for the dam included the installation of an operable spillway gate to provide an estimated storage capacity of approximately 45,000 acre-feet. During the "fast track" construction of the dam, a small fault was discovered beneath the right abutment (right side of dam, looking downstream). There was concern at the time for the dam stability and therefore the gates were not installed. As a historical note, the spillway gates intended for the Salinas Dam were installed at Friant Dam in the foothills above Fresno.

Studies

The Phase I report for "Salinas Reservoir Expansion Project" was completed in February 1989 by Woodward-Clyde Consultants. Part I of the report provided geotechnical, seismicity, and dam safety evaluation. Part II analyzed the hydrology, reservoir yield, and an evaluation of alternatives. The outcome of the analysis revealed that the dam, with the gate installed, was strong enough to withstand a major earthquake (7.4 magnitude) on the nearby Rinconada Fault without failing or causing a sudden release of water from the reservoir. The analysis also found that raising the dam 19 feet would produce an additional 1,650 acre-feet per year of safe annual yield from the reservoir.
The firm of Woodward-Clyde Consultants was retained by the City in March of 1992 to prepare the environmental impact report for the proposed Salinas Reservoir Expansion Project. Detailed evaluation of the impacts associated with the raising of the maximum water surface elevation revealed major impacts to the recreational facilities and roadways at the lake. It was determined that a detailed recreational relocation plan was necessary to allow for the evaluation of the impacts associated with this work to be addressed in the EIR. The conceptual recreation relocation plan was completed to the satisfaction of County Parks staff and the draft EIR was released in November 1993.

Following public review and comments on the initial draft EIR, it was determined that a revised draft EIR should be prepared to address issues raised by the public and various agencies. A revised draft EIR was completed and released for public review in May of 1997. Following the close of the public comment period, the Final EIR was prepared and responses to all comments received on both the initial and revised draft EIR were prepared and included in the final report. The City Council certified the final EIR on June 2, 1998. As a condition of the State Water Resources Control Board Order relative to the City’s water rights permit, the City Council of San Luis Obispo approved the Salinas Reservoir Expansion Project (November 9, 2000) and filed the Notice of Determination on November 13, 2000.

In June of 2000, updated dam safety evaluation studies were completed by URS Corporation under contract to the City. The updated studies evaluated the structural capacity of the dam, with or without the spillway gates and added water storage, during seismic and flooding events. Previous studies had indicated that the dam capacity could be increased and the dam could still meet State dam safety regulations. Since the previous studies, the criteria for seismic events has been revised which has resulted in much higher seismic design loadings for the analysis. Based on the updated analysis, the existing dam was deemed adequate but installation of the spillway gates (i.e. increasing the maximum lake level by 19 feet) would require major structural improvements to the dam. It was estimated that the strengthening required would cost approximately $10 million (based on year 2000 dollars). This was on top of the previous estimate for the project of approximately $20 million.

With the City’s participation in the Nacimiento Project and the significant increase in project costs, the City Council placed the project on hold and no further work has been undertaken since 2000 relative to the Salinas Reservoir Expansion Project. Should the Nacimiento Project not proceed as planned, the City may reactivate the work on the project to meet the City’s water supply needs into the future.
3.4.3 DESALINATION

Background

In May 1990, the City was faced with the prospect of reaching minimum pool in both of its surface water supply sources within an 18 to 20 month period. In response to the crisis, the City embarked on a short term desalination feasibility investigation. The consulting firm of James Montgomery Engineers was hired to prepare a study which evaluated the various desalination methods, site options, joint venture opportunities, and financing. The project also had termination or "Go/No-Go" date established after the 1990/91 rainy season to determine if a change in direction was warranted due to any change in water storage resulting from winter storms. The preliminary analysis concluded that 3,000 acre-feet per year of desalted water could be provided by using reverse osmosis technology which was considered the most cost effective technology at that time to meet the City's needs. The project capital cost was estimated to be $19.5 million. The recommendation was based on capital costs, operation and maintenance costs, decommissioning costs, aesthetics and environmental concerns. Due to the limited time available to site the facility and build the necessary infrastructure, a tentative agreement with PG&E was reached to locate a short-term facility (5 year site lease) at the Morro Bay power plant utilizing their seawater intake and outfall facilities.

The "Miracle March" rains of 1991 provided adequate runoff and subsequent increased water storage in the City's reservoirs to allow termination of the desalination project. The City Council officially directed staff to discontinue the project on April 16, 1991.

Future Desalination Water Supply Project

Using desalted water as a future supply water source will have to be investigated independently of the past research and study projects. Because the previously discussed desalination endeavor was planned to be a short-term water supply to meet a crisis situation, the cost analysis, location, environmental review, and technological information would have to be reevaluated for a long term project. Desalination is a viable technology which is not rainfall dependent. The major disadvantages of desalination are the cost, potential for environmental degradation, and energy demand. When compared to existing water supplies and other future water supply options under consideration, desalted water is likely more expensive at this point in time. Desalination may be a water supply consideration in the future if other water supply projects currently under review are not accomplished. Also, advances in desalination technology in the future may reduce the costs to a more acceptable level when compared to the cost of other water supply sources.

3.4.4 CLOUD SEEDING

The City of San Luis Obispo activated a three year cloud seeding program in January 1991 in response to the continuing drought and limited surface water supplies at Salinas Reservoir. The program "targeted" the Salinas and Lopez Reservoir watersheds, and the County of San Luis Obispo paid their prorata share of the total cost for the cloud seeding program. The City's participation in the program ended in January 1993, when the Salinas Reservoir filled to capacity and began spilling.
Evaluations of each year's cloud seeding program were completed following each winter season. Estimates of increased precipitation ranged from 11% to 14% for the Salinas and Lopez Reservoir watersheds. These were substantial increases and proved to be a cost-effective means of enhancing runoff during periods when Salinas Reservoir or Lopez lake water levels are low.

Salinas Reservoir's watershed runoff characteristics are favorable for producing significant runoff during normal rain seasons. Therefore, cloud seeding is not viewed as an annual program but as a program that the Council may approve following below normal rainfall years and/or periods when significant storage is available in Salinas Reservoir to capture additional runoff. Staff will evaluate the need for a cloud seeding program following each year's rainfall season, if cloud seeding is deemed warranted, and provide a recommendation to Council for the next year's winter season as part of the Annual Water Status Report.

3.4.5 GROUNDWATER RECHARGE

Groundwater recharge using tertiary treated reclaimed water may be a future water supply alternative. The groundwater basin from which the City pumps water is relatively small and recharges quickly following average rainfall periods. Because of the limited storage capacity and rapid recharge, there may be limited opportunities for recharge of the groundwater basin. It may be possible in the future to develop a groundwater recharge system using reclaimed water produced at the Water Reclamation Facility for potable water uses. The State Department of Health Services have very stringent regulations governing such non-potable water recharge projects. An extensive analysis and study evaluating costs, water recharge potential, and potential storage or injection sites will be required before pursuing such a project.
CHAPTER 4

WATER OPERATIONAL PROGRAMS

WATER OPERATIONS

Policy

The City shall sustain city-wide water efficiency programs and strive to provide an adequate supply of high quality water which:

- meets all Federal and State standards;
- provides uninterrupted water flow at sufficient pressures;
- provides fire protection.

The City shall allocate funding to meet the goals and objectives presented in this chapter (also see Chapter 5). The City should strive to replace aging water lines at the annual rate of 2% of the replacement value of the water distribution system.

Introduction

The City has depended on imported water supplies from Salinas Reservoir since 1944, Whale Rock Reservoir since 1961, and limited local groundwater sources since 1989. Figure 3 shows the City's reservoir water supplies and delivery system. This chapter will describe the existing water system, operation and maintenance procedures, and identify current and future system deficiencies.

4.1 WATER TREATMENT

The City currently receives its water from three sources, Salinas Reservoir, Whale Rock Reservoir, and groundwater. Over the past twenty years, surface water treatment and groundwater treatment standards and regulations have become more stringent. With the enactment of the Safe Drinking Water Act (SDWA) in 1974, Congress authorized the federal government to establish national drinking water regulations. Since that time, many amendments have been made to the act which require additional monitoring and treatment which has resulted in increased operational costs. The following sections discuss the impacts of the current regulations on the City's water treatment facilities and potential impacts of any foreseeable amendments to the current regulations.
Figure 3: City's Water Supply and Conveyance System

4.1.1 SURFACE WATER

Background
The City of San Luis Obispo depends on surface water to meet most of its water requirements. The Salinas Reservoir, located nine miles southeast of the community of Santa Margarita, has been providing water to the City since 1944 and Whale Rock Reservoir, located one-half mile east of the town of Cayucos, has been a water source since 1961. Both water supplies are considered to be of high quality.

Existing Surface Water Treatment Facility
The existing water treatment plant is located on Stenner Creek Road, northwest of the Cal Poly campus. The facility was constructed in 1964 to provide treatment of surface water from Salinas and Whale Rock Reservoirs. The plant was originally designed to treat up to eight million gallons per day (mgd). In 1977, the plant was upgraded to provide 11.5 mgd of treatment capacity but has actually treated up to 12 mgd for limited periods during peak water demands. In 1994, the plant was again upgraded to comply with new regulations and to increase the capacity to 16.0 million gallons per day. The water treatment plant is a conventional plant that includes coagulation, flocculation, sedimentation, filtration, and ozone disinfection.

Surface Water Treatment Regulation
Since the existing water treatment plant was built, the Safe Drinking Water Act was adopted and was significantly amended. The 1986 amendments are extremely broad in scope and require implementation of new regulations by the U.S. Environmental Protection Agency. The Safe Drinking Water Act also required the Environmental Protection Agency to specify criteria under which filtration is required as a treatment technique for surface supplies. On June 29, 1989, the Environmental Protection Agency issued the Surface Water Treatment Rule which defined the
standards for surface water treatment and had specific compliance deadlines. The purpose of the regulation is to protect the public, as much as possible, from waterborne diseases. Waterborne diseases, most notably Giardia lamblia, Cryptosporidium, and Legionella, are most commonly transmitted by surface water contamination. For the City of San Luis Obispo, the most significant issue is the regulation aimed at reducing the formation of disinfection by products, specifically trihalomethanes ("THM's"), which are a group of compounds formed during disinfection by the reaction of chlorine with naturally occurring organics. While the City had consistently met the previous 100 micrograms-per-liter limit, there have been occasional instances in which the standard was exceeded due to the high organic content of Salinas Reservoir water during certain times of the year. The new regulations required increased chlorine contact times which would cause the THM levels to exceed the regulations. The current limit for THM’s is 80 micrograms per liter.

**Ozone Water Treatment Facility**

To comply with the current standards for THM's, meet anticipated future water quality standards, and increase water treatment operational efficiency, the City upgraded the water treatment facility to use ozone as the primary disinfectant instead of chlorine. The use of ozone provides enhanced disinfection capability to meet federal and state requirements while reducing the levels of THM's. The use of ozone also helps produce water free of objectionable taste and odor associated with algae blooms at Salinas Reservoir and meet all current as well as anticipated regulations.

The upgrade project also increased the capacity of the plant from 11.5 million gallons per day to 16.0 million gallons per day. This was accomplished through increased filter efficiency and the ability to treat Whale Rock Reservoir water without using the sedimentation process. The expanded capacity is sufficient to meet projected water demand at full build-out under the General Plan.

**4.1.2 GROUNDWATER**

**Background**

Prior to 1986, most groundwater in the San Luis Obispo area was used by agriculture with very little used for domestic consumption. With the onset of the drought in 1986, resulting in decreasing surface water supplies, the City activated groundwater wells in 1989 to meet the City's water demand.
Groundwater quality requirements, as with surface water, are governed by the SDWA. Like surface water, groundwater must meet the standards set in the Safe Drinking Water Act. Water quality analysis in 1989 indicated that advanced treatment was needed on the now decommissioned Dalidio and Auto Park Way wells due to unacceptable levels of Tetrachloroethylene (PCE). Carbon absorption units were placed on each well to provide necessary treatment, and were granted approval for domestic consumption by the State of California, Department of Health Services.

In November 1992, nitrate levels in the Auto Park Way well exceeded State standards, so the well was taken out of service. The well located near Denny's Restaurant adjacent to Los Osos Valley Road (referred to as the "Denny's well") experienced a similar increase in nitrate levels and was taken off-line in June 1993.

4.1.3 POSSIBLE FUTURE REGULATORY CHANGES

As analytical techniques allow for lower levels of regulated water contaminants to be detected and new contaminants are added to the regulatory list issued by the U.S. Environmental Protection Agency and state regulatory agencies, there may be impacts on the City's water treatment operations. While the Stenner Canyon Water Treatment Plant upgrade was designed to meet current and anticipated water treatment standards, future regulations may require additional modifications, depending on the action levels adopted by the federal and state regulatory agencies. The following are possible regulatory changes which may influence water treatment plant operations:

- **Regulation of total organic carbon.** Could require optimizing coagulation, which may add an acid-feed system to the treatment process.

- **Regulation of THM sub-species.** Chlorinated bromides would most likely be targeted, which would not necessarily be a problem unless the action level is extremely low.

- **Regulation of hypochlorites.** Chlorates caused by the decomposition of hypochlorite solution may require coolers or insulation be installed on holding tanks to stabilize temperature inside the tanks. This is a requirement now being considered by the State.

- **Lowering of the THM allowable levels.** The standard is now 80 ppb and could be decreased in the future. This could require changing from hypochlorite to chloramines for final disinfection.

The effect of any of the potential regulations on the City's treatment operations is dependent on the action level adopted. More technical and complicated processes may require training or hiring of personnel skilled in the maintenance of sophisticated electronic equipment and knowledgeable in telemetry and computer programming. This will be addressed in the future, if necessary.
4.1.4 STAFFING EVALUATION

California law requires certification of all water treatment plant operators. There are five certification levels with Grade V being the highest. Because of the size and output capabilities of the City's water treatment facility, the plant supervisor must be a Grade V.

The level and qualification of staffing at the treatment plant meets both the legal standards mandated by the State and the operational requirements of the water treatment facility. As the operation and monitoring requirements become more sophisticated, a review of the staffing needs may be required.

4.2 WATER DISTRIBUTION

Introduction

The water distribution system delivers potable water to approximately 14,300 metered customers. The goals of the program are to provide uninterrupted water flow at adequate pressures, to meet all fire and domestic flow requirements, and to minimize system water loss due to leakage. In order to accomplish these goals, the water distribution program has seven major work objectives. They are as follows:

- Pump station and tank maintenance
- Water main maintenance and repair
- Water service renewal
- Fire hydrant installation
- Fire hydrant maintenance
- Cross connection control
- Underground Service Alert (USA) markouts
- Bacteriological sampling

Because of the geographic setting of San Luis Obispo, the water distribution system is a very complex system of pipes, pumps, storage tanks, and pressure regulating valves.
4.2.1 SYSTEM DESCRIPTION

The water distribution program delivers potable water from the water treatment plant and wells to customers and fire hydrants via three storage reservoirs, eight pump stations, nine water tanks, and approximately 160 miles of water mains. It is unlikely this basic distribution pattern will change, since the water treatment plant will continue to be the principal source of treated water for the City.

Growth within the City has placed increased demands on the water distribution system. Additionally, many pipes throughout the City are over 100 years old, and do not provide adequate capacity to meet current fire-flow requirements. Even without growth or fire protection requirements, aging pipes must be replaced to avoid major service disruptions and leaks due to deterioration. Historically, the City has not sufficiently funded distribution system replacement to a level that ensures replacement prior to the end of its expected service life.

There are approximately 160 miles of water distribution pipelines throughout the City. The engineering estimate for the life expectancy of these facilities is 50 years. Complete replacement within the term of life expectancy would require that the City replace an average of 2% of the system infrastructure each year.
Figure 4 illustrates the distribution system's pressure zones. The water delivered from the treatment plant is split into two main distribution networks. About half flows into the City by gravity and the other half is pumped to a storage reservoir at a higher elevation and then flows into the various service areas by gravity and through pressure reducing valves (PRV's). The most apparent strain is in the pumped delivery system. This will be discussed in more detail in the system evaluation section. Since electrical power for pumping water is a major expense, a goal is to develop a system which minimizes pumping.

The goal of the water supply system is to deliver water at pressures between 40 pounds per square inch and 80 pounds per square inch at the customer's meter without using a pressure reducing valve on the pipe connecting the water main to the meter. This pressure range will meet the needs of most irrigation sprinklers and other uses, and provide adequate pressure for fire sprinkler systems. Pressure zones are established in the distribution system to maintain these pressure ranges. The City currently has 18 pressure zones divided between the gravity and pumped delivery systems.
Water Storage Facilities

Water storage facilities are necessary to provide water during peak demand periods and emergency situations such as fires. The City has twelve water storage facilities, eight of which are steel storage tanks ranging in size from .04 to 4 million gallons and four concrete facilities with a capacity of .03 to 7.5 million gallons. The combined storage capacity is 24.21 million gallons. The holding capacity of the various facilities and tank locations throughout the City are shown in Figure 5.

Water Transmission System

Parts of the City's water transmission system are over 100 years old. Most of the pipes are made of cast or ductile iron. Other pipes are made of asbestos cement (located primarily in the Laguna Lake area), or, since the mid-1970's, PVC. Water pipes serve two basic functions. The larger pipes or transmission mains move large volumes of water from one portion of the City to another. They range in size from 12 inches to 30 inches. The smaller pipes or distribution mains are to distribute water within a local area and deliver it to each property in the City. They range in size from 2 inches (in the older portions of the City) to 12 inches. The current minimum standard is 8 inches for distribution mains.

Water from the water treatment plant in Stenner Canyon is transported through a 30 inch transmission line 3,500 feet to the transfer pumps (located on Stenner Canyon Road). The transfer pumps take approximately 50% of the water, increase the pressure, and then provide water to Stenner Canyon Reservoir (Reservoir #2), Cal Poly, and other portions of the City, generally north and east of the Southern Pacific Railroad tracks. From the transfer pumps, there are two 24 inch transmission lines that move water about one mile to the city limits. One pipe is the high pressure line from the transfer pumps and the other pipe has lower pressure supplied directly from the water treatment plant's clear well. Figure 6 shows a simplified schematic of the water transmission system.

![Figure 6: Water Transmission Schematic](image)

Fire Protection System

Fire protection is one of the most important services the City provides to its residents. The fire protection system is a network of 1,800 public hydrants and 120 private hydrants.
The Las Pilitas fire in 1985 nearly exceeded the City's capability to supply sufficient water for fire suppression. The Johnson Avenue and Orcutt Road areas are the weakest areas for emergency water supply, because less than 5% of the total storage is in this area and our delivery from the distribution system is limited to about 2,000 gallons a minute. To correct this problem, a new 750,000 gallon storage tank will be constructed to replace the existing 95,000 gallon Bishop tank. This project is anticipated to begin construction in the Spring of 2006. The alternatives for improving this situation are to increase the water storage capacity in that area or increase the capacity of the transmission delivery system. Another area of concern is in the San Luis Drive neighborhood. Due to existing water main easements and location of these mains in relationship to fire hydrants, fire protection capabilities are not adequate. To correct this problem, a water project is in the preliminary design phase to relocate the water mains in City right-of-ways and re-connect customer service lines to the new mains. The project is scheduled to be completed in 2006.

Fire flows can be met in all of the other gravity zones. There are local distribution problems within all zones that will be remedied by removal of deteriorated and undersized pipes as part of the ongoing capital replacement program.

4.2.2 OPERATION AND MAINTENANCE

In order to retain a reliable water distribution system, a routine maintenance program is essential. The following section discusses the components of a preventative maintenance program necessary to minimize water service disruption and prolong system service life.

Preventative Maintenance Components

System-wide Mainline Valve Exercise Program

A comprehensive mainline valve exercise program is beneficial since it ensures proper operation of valves and minimizes disruptions to water customers during an emergency shutdown. This program also identifies problem areas such as broken valves, broken operating nuts, buried gatewells, and misaligned access sleeves. Identified problem areas can then be scheduled for repair or replacement which will minimize future distribution problems. In addition, a valve exercise program assures that fire hydrants can be isolated for maintenance and repair. The current practice is to exercise valves in anticipation of a planned shutdown or during emergencies only.

Pump Station Maintenance

Since electrical and mechanical pumping equipment consists of many moving parts that are subject to wear, they require a comprehensive preventative maintenance program to prolong their useful life and avoid costly breakdowns. Currently, staff performs weekly inspections of the five pumping facilities. Corrective maintenance is performed as needed.
Water Storage Tank Inspection and Maintenance

The water storage tanks are a very important component of the water distribution system. As a result of the storage facilities, the system's flow and pressures are improved and stabilized to better serve the customers within a storage facility's zone. Additionally, these supplies serve as a reserve for emergencies such as fire suppression and power outages. Regular inspections and preventative maintenance are necessary to protect the City's investment in these facilities. This includes regularly-scheduled inspections and cleaning of probes and relays, paint and protective coatings, facility security systems, and maintenance of access roads and sites and monitoring of the cathodic protection system.

Service Line Change-Out Program

The service line (from the water main to the customer water meter) change-out program is currently a reactive program due to the high rate of service line failures. The City's service lines consist of one of five types of materials: copper, polyethylene, polybutylene, lead, and galvanized pipe. Three of the materials, polybutylene, galvanized iron and lead, have been determined to be inferior due to their high failure rate and potential health risk. These types of lines are replaced upon their discovery or failure and account for 40% of the workload of the water distribution staff.

Because of the high failure rate of the polybutylene lines in particular, the Utilities Department has implemented a polybutylene replacement CIP program which began in fiscal year 1999-00. Funding for the program is budgeted at $250,000 per year and will proceed the paving program to minimize breaks and associated repairs during new street pavement construction projects. It is anticipated that the program will require approximately 8 years to complete the majority of the service line replacements. The first replacement project is planned for construction in the spring/summer of 2001. Once all the polybutylene services within the public right of way have been replace, the focus will be on replacing the polybutylene in condominium complexes.

Pressure Reducing Valve Maintenance Program

Pressure reducing valves (PRV's) are necessary to maintain acceptable pressure levels in both low lying and higher elevation areas of the City. Pressure reducing valves reduce plumbing failures and system leakage in areas that would otherwise experience high pressure. There are 23 PRV's in the City which should be inspected and tested annually, and rebuilt periodically as part of a PRV maintenance program. A program to perform the recommended routine maintenance has been partially implemented. Full implementation has not been possible to date because staffing resources have been directed towards polybutylene and water main line failures. It is anticipated once the benefits of the polybutylene line replacement program are realized, full implementation of the PRV maintenance program will commence.
Fire Hydrants

To ensure that fire hydrants operate correctly when needed, annual testing, maintenance, and repair should be performed. It is the responsibility of the water distribution staff to perform all maintenance, repairs, and hydrant replacement as needed. Preventative maintenance is only performed on a limited basis. Periodic flow testing is performed by the Fire Department.

Bacteriological Sampling

Water Distribution staff has assumed the responsibility of bacteriological sampling for all new water line related construction in the City. This sampling assures that all new water lines are free of water borne pathogens before they are placed in service, protecting the health and safety of customers.

USA Markouts

All City related USA mark outs (water, sewer, storm drains, fiber optics and street lights) have been consolidated under a single contract position. Consolidation has streamlined the process and freed up staff to pursue much needed projects. The management of the Underground Utility Locator is the responsibility of the Water Distribution Supervisor.

Mandatory Certification

The State has mandated certification for all water distribution operators. Our system is rated a D4 system. All operators must attain D3 certification. Continuing education is mandatory in order to keep certification. The mandatory continuing education requirements have had an impact on staff workload. When the water reclamation system comes on line our system will be upgraded to a D5 system. This upgrade will require the Water Distribution Supervisor to maintain a D5 certification.

Operation and Maintenance Summary

The preventative maintenance program goals are only being partially accomplished at this time due to the lack of available staff time to perform the various program components. This is a result of an aging distribution system which requires a significant amount of emergency repair coupled with an increase in system size (additional miles of pipeline). Currently, approximately 50% of the staff's time is spent responding to system failures in either service or main lines.

4.2.3 WATER DISTRIBUTION INFRASTRUCTURE EVALUATION

In October of 2000, the Water System Master Plan for the City of San Luis Obispo was completed and accepted by the City Council. The Water System Master Plan identified several capital projects that will eliminate identified deficiencies within the water distribution system.
**Priority Areas**

This section identifies specific existing deficiencies in the water distribution system. These deficiencies are considered high priorities and could require funding beyond the recommended capital improvement project program expenditures.

The following is a description of the identified problem areas and the recommended solution:

**Alrita Pump Station**

**Problem** - The current system consists of a hydro-pneumatic pump that serves 11 customers. Other customers, immediately outside of the Alrita Zone, have inadequate water pressure.

**Solution** – The Water Master Plan (Boyle Engineers, 2000) recommends replacement of the hydro-pneumatic pump system and the inclusion of a fire pump to increase pressures and fire flows to serve the upper Alrita Street area. The existing system has failed on several occasions and is in need of replacement. Design and construction of the new system is scheduled to be completed by Fall of 2006. The necessary easement has been acquired to accommodate the new pump station.

**Highland Zone**

**Problem** - The Highland Tank is undersized for the area it serves. The tank is also too low, resulting in inadequate pressure for some residences.

**Solution** - The Water Master Plan recommends that the Highland Tank be abandoned and service to the area be provided from the Ferrini Tank. In order to serve the Highland zone from the Ferrini Tank several modifications to existing pressure reducing valves (PRV’s) will be undertaken, a new PRV to serve the Ferrini zone from the Rosemont zone and the addition of a new PRV within the Ferrini Pump Station will be necessary. In addition, a new pump station will be needed to replace the existing Rosemont Pump Station which is sited adjacent to the Highland Tank. This pump station is not enclosed and does not meet fire flow requirements for the area.

**Laguna Lake Area (west of Los Osos Valley Road)**

**Problem** - A small area near Prefumo Canyon Road has inadequate fire flows and low pressures which are the result of the long distance from the Edna Tank that serves this area.

**Solution** – The most feasible alternative available may be to identify the extent of the area which does not have sufficient fire flows and recommend that all residences be retrofit with internal fire protection systems. If all residents in the area have fire systems, then the fire flow requirements can be reduced by 50%. This would eliminate the need for an elevated tank in the area which would be very difficult to site and expensive to construct.
San Luis Drive Area

**Problem** - Water mains were originally constructed in easements through the back yards of the properties in the area. Fire hydrants density is inadequate, reading water meters is difficult, and maintenance on the facilities is nearly impossible.

**Solution** - The water lines will be relocated to the public streets in front of the residences. The services will also be changed over to the front of each house. The project is currently (2005) in design with construction estimated to occur during the summer of 2006.

Bishop Zone

**Problem** – The existing Bishop tank has a storage capacity of 95,000 gallons which is not adequate to serve the area. During power outages or other situations where the tank is unable to fill at a normal rate, the small tank is quickly drained and service to the customers in the area is significantly impacted.

**Solution** - The Water Master Plan recommends replacing the existing under-sized tank with a new 750,000 gallon tank at the same elevation. The new tank would enhance the level of service to the City’s water customers and increase the fire protection capabilities in the area. In addition, an existing, inactive Pressure Reducing Valve (PRV) near Orcutt Road could be reactivated to provide additional storage for the Terrace Hill and Islay Hill service areas in the event of an emergency. The design is nearly completed (2005) and the easement for the enlarged tank is being sought from the property owner (County of San Luis Obispo). Construction is planned to begin in the summer of 2006 and anticipated to take six months to complete.

Pumping Facilities

The Water Master Plan recommends the following improvements to existing pump stations to insure adequate water service to city customers. Depending on the level of difficulty and cost, the improvements will either be identified in the Capital Improvement Program for the Utilities Department or will be included in the Water Distribution operating program.

**Felmar Pump Station** – The Felmar Pump Station will no longer be needed once the Highland Tank is abandoned. This pump station will be left in place for several years following the abandonment of the Highland Tank until the other system modifications have demonstrated adequate operating conditions.

**Bressi Pump Station** - Replace aging, inefficient pumps and motors at each pump station to insure reliability, increased efficiency and cost effectiveness. The pumps were replaced with new units by City staff.
**Transfer Pump Station**—This pump station serves approximately two-thirds of the city and is approximately 40 years old. Replacement of the three aging, inefficient pumps and motors will insure reliability of this critical pumping facility. As part of the Water Treatment Plant Upgrade Project, relocation and replacement of the exiting pump station was recommended and approved by the Council. The new pump station will be sited within the Water Treatment Plant property and the existing pump station will be demolished. Construction on the improvements at the Water Treatment Plant are anticipated to begin in the spring of 2006 and require approximately eighteen months to complete.

**McCollum Pump Station**—The Master Plan recommends the installation of a SCADA system to monitor pump station operations. The need for SCADA at this and other sites will be evaluated as part of the Telemetry System Upgrade which is currently in the planning process (2005).

### 4.2.4 FUTURE DEVELOPMENT AREAS

It is estimated that the water distribution system size will increase by approximately 30% or about 45 miles under the adopted General Plan. It is important to note this does not include annexation of the Airport area. In addition, the reclaimed water distribution system, to be maintained by the water distribution staff, currently has approximately 8 miles of pipeline and may total 11 miles of water line depending on the future expansion of the system.

### 4.2.5 STAFFING EVALUATION

Current staffing levels are considered adequate at this time. As future growth in the water delivery system occurs and the ongoing maintenance of the water reclamation system is undertaken, additional staffing requirements will be analyzed when more complete water system information is available.

### 4.3 WATER CUSTOMER SERVICE

**Introduction**

The water customer service program is responsible for accurately measuring water delivered through the distribution system to the City's 14,300 customers. The following are the major goals for this section: 1) to accurately measure the amount of water which passes through the customer water meters, and 2) to schedule and perform meter reads which will generate timely and regular water billings. To accomplish these goals, the program has three major objectives. They are as follows:

- **Water Meter Reading.** Read approximately 7,100 water meters each month, investigate abnormal readings (high and low), start and stop water service, and maintain access to water meters.
• **Meter replacement and maintenance.** Replace all obsolete meters to conserve water and accurately measure water use for billing purposes; replace meters on a 20 year replacement schedule to ensure proper operation, and repair meter leaks as necessary.

• **New construction meter installation.** Install new meters as development throughout the city occurs.

### 4.3.1 PROGRAM DESCRIPTION AND EVALUATION

The Water customer service program is responsible for the following:

- Read approximately 7,100 water meters monthly as part of the City's bimonthly billing process
- Repair water meter leaks
- Install new meters for new development within the city
- Replace obsolete, old and damaged water meters
- Starting and discontinue water service (turn-on and offs)
- Discontinue and restore service for non-payment

The program is achieving the work objectives with the assistance of the water distribution maintenance staff during peak work load periods.

### 4.3.2 FUTURE DEVELOPMENT AREAS

Under the adopted General Plan, it is estimated there will be an increase of approximately 23% in the number of water meters. This increase does not include the Airport Area. Depending on the annexation size and adopted development plan for that area, an additional increase of 2% to 5% could be anticipated. Given this assumption in system growth, it can be projected that the number of water meters in the City will increase by approximately 2,875 to 3,500 when General Plan build-out is achieved.

### 4.3.3 STAFFING EVALUATION

Water customer service is staffed by three full-time employees. Assistance on an "as needed" basis is provided by the water distribution maintenance crew. In addition, customer service personnel are required to perform standby duties on a rotating basis and respond to any water emergency occurring during off duty hours. This means customer service personnel must be fully trained and qualified to perform the same job functions as the water distribution maintenance staff. Staff are now required to attain State certification for water system operations and due to the water system complexity, staff must attain a Distribution Operator III (D3) certification level.
While a large percentage of time is spent on scheduled meter reads (approximately 35%), most of the time is spent in other areas, such as establishing or disconnecting water service, corrective maintenance and installing new water meters at new development sites. Assistance is needed during peak periods of start or stop service requests (coinciding with the beginning and end of Cal Poly's quarters), and substituting during vacations or illness.

The cross-over of staffing during peak workload periods and emergency situations is accomplishing the Customer Service Program goals and objectives. Based on the estimated increase in the number of water meters as the City annexes areas within the Urban reserve line, additional staffing may be required in the future. As areas are annexed or other changes in the meter reading program occur, an analysis of the staffing impacts will be performed and a recommendation presented to Council. The City is also currently analyzing the costs and benefits of installing Automated Meter Reading (AMR) devices to reduce future staffing increases. The study is expected to be completed in the Spring of 2006.

4.4 TELEMETRY

Introduction

Telemetry literally means "measuring at a distance". Telemetry equipment includes the complete measuring, transmitting, receiving, and recording of data from an outlying location. The use of a telemetry system provides operational personnel with a mechanism to monitor and control the water system or Water Treatment Plant from a central location and to obtain information at a moment's notice. The information can either be sent by telephone lines, fiber optic lines or via radio signals. Through telemetry, Water Division personnel can by command or by programming of the computer system, automatically turn pumps on or off, change reservoir elevations and respond to abnormal or emergency operations more expeditiously from a central location. The result is a reduction in staff hours spent accomplishing these tasks and the reduction in vehicle trips to these outlying sites. In addition, State and Federal regulatory standards require alarm procedures to detect process failures at the Water Treatment Plant. The telemetry system monitors the required processes, achieving compliance with the various regulations and ensuring reliability of the water system.

4.4.1 SYSTEM DESCRIPTION

The Water Division telemetry system is a network of interconnected distributed process controllers (DPCs) and personal computers. DPCs are similar to personal computers, but are specifically designed to interconnect to sensing and control devices, and run programs written in a distinctive computer language. Electronic sensing or measuring devices at a remote site transmit data such as the level of water in a tank via radio signals or telephone lines to another site, such as a pump station. At the pump station, a DPC uses the tank level data to decide when and which pumps to operate. DPCs are capable of operating all types of industrial equipment from the simple pump example to complex water and wastewater treatment processes, and are more reliable and flexible than the old electromechanical or pneumatic control systems previously utilized.
The Water Division telemetry system currently consists of 3 separate DPC networks. All of the systems are 10 to 15 years old and are in need of upgrades to insure reliable operation. This is discussed in more detail in Section 4.4.2.

1. The Whale Rock Project network includes one personal computer and 4 DPCs connected by leased telephone lines to control the pumps and valves along the pipeline.

2. The Water Treatment Plant network includes 7 DPCs and 2 personal computers, all connected by City owned wiring at the plant.

3. The Water Distribution System network includes 9 DPCs and 3 personal computers. This system runs on 2 radio data repeaters and 3 remote links.

4.4.2 SYSTEM OPERATION AND MAINTENANCE

The Water Division telemetry system program was implemented in 1989, initially serving Whale Rock Reservoir and the water treatment plant. All design, installation, and programming was done by the City's Telemetry and Instrumentation Technician with assistance provided by Water Division field crews, with the exception of the equipment that was installed as part of the Whale Rock Pump Station Improvements, and Water Treatment Plant Upgrade Project.

Some existing equipment has been in service for over 15 years. The City is currently considering the most appropriate strategy for upgrading the telemetry systems for both the Water and Wastewater Divisions of the Utilities Department. Some of the existing system hardware is outdated and is no longer supported by the equipment vendor. System hardware, software and communication links will all be evaluated for potential upgrade to increase reliability and system functionality. As part of the Water Treatment Plant Upgrade Project (planned for construction starting in 2006), the telemetry control and monitoring system for the Water Treatment Plant operations will be completed updated with new hardware, software, and fiber communication lines.

4.4.3 STAFFING EVALUATION

The City’s Water and Wastewater telemetry systems have been maintained in the past by one Telemetry and Instrumentation Technician with support by other Utilities Department staff. As part of the Information Technology Strategic Plan, March 2002, an evaluation of the telemetry system and recommendations for staffing was undertaken. The “Strategic Plan” recommended a number of organizational changes to enhance service levels. One of the recommendations included hiring a Telecommunications Supervisor and placing the Telemetry and Instrumentation Technician under this position in the Finance and Information Technology Department. The telemetry position was formally moved to the Finance and Information Technology (F&IT) Department in March of 2003. The F&IT Department has provided oversight and maintenance of the telemetry system since this point with the one full time position and backup support from other Information Technology staff.
The Telemetry and Instrumentation Technician position has been vacant for approximately 5 months, as of June 2005. On a related note, there is also a vacancy in the F&IT Department for the Radio System Technician. The F&IT Department is evaluating the staffing needs of their department relative to both of these positions. Currently any repairs or assistance needed for telemetry or radio systems is provided by two separate outside contractors.

4.5 WATER CONSERVATION

Introduction

In June 1985, the City Council adopted the Annual Water Operational Plan policy which established a procedure to monitor the City's water supply situation on an annual basis. An integral component of the policy was the establishment of a water demand management or conservation program aimed at instituting corrective measures ahead of any projected water supply deficit to maintain a dependable supply during critically dry periods. Water demand management has played an ever increasing role in the overall water supply development and management strategies since 1985. In 1990, the City adopted a multi-source water policy in an attempt to solve both short term water shortages and meet the City's long term water needs. The importance of the implemented water efficiency programs has become even more apparent because of the difficulty in developing new water supply projects. Water conservation is now being viewed more as a water supply alternative.

The primary goal of the water conservation program is to maintain city-wide per capita water use at or below the 145 gallons per person per day water planning figure. The specific objectives to achieve the goals of the water conservation program are to:

- Educate and inform water customers on short-term and long-term water supply conditions and the importance of efficient water use;
- Replace old plumbing hardware with water efficient plumbing hardware;
- Evaluate water customer's indoor and outdoor water usage and provide specific recommendations for improved efficiency;
- Analyze water efficiency programs for cost effectiveness;
- Develop new water efficiency programs;
- Monitor and enforce water conservation municipal codes.

4.5.1 PROGRAM DESCRIPTION

Water conservation has two primary components, short-term and long-term water demand management. Short-term activities address immediate water shortage situations caused by prolonged below normal rainfall or disruption in water service due to a natural disaster such as an earthquake. Long-term programs make permanent, long-term reductions in water demand while minimally impacting customers' lifestyles.
**Short Term Water Efficiency Program**

Due to the drought and subsequent water shortage the City experienced from 1989 to 1992, the short-term measures developed during that period (formalized in the City's *Water Shortage Contingency Plan*) will be a model for any future water emergencies the City might face. The *Water Shortage Contingency Plan* was submitted to the State Department of Water Resources in 1992 and was included in the 1995 and 2000 Urban Water Management Plan. The Water Shortage contingency Plan is included in the Plan as Chapter 6.

The Water Shortage Contingency Plan is a compilation of all the monitoring systems the City has in place to evaluate its water supply and any corrective actions necessary based on the water supply outlook. As the City becomes more water efficient, it will become more difficult to achieve substantial temporary reductions (mandatory conservation levels). Adjustments have been made in the water shortage contingency plan to account for this increased water efficiency and to maintain equity in the program administration.

**Long Term Water Efficiency Program**

Many of the public assistance programs implemented during mandatory rationing have proven to be sound long-range water management practices. In September 1991, the City Council approved and authorized the Mayor to sign the "Memorandum of Understanding" (MOU) regarding urban water conservation and the implementation of the "Best Management Practices" ("BMP's"). The BMP's are comprised of fourteen water conservation measures. The BMP's and the implementation progress are listed in Appendix 2. The City’s progress in implementation satisfies the MOU and fulfills the annual reporting requirements outlined in the BMP's.

**4.5.3 PROGRAM EVALUATION**

The influence of the water rationing program during the drought and higher water rates make it difficult to identify water savings from a specific program or service. As a signatory agency to the MOU, the city is a member of the California Urban Water Conservation Council (CUWCC). CUWCC is currently working on several studies that will assist the member agencies in evaluating water efficiency programs for water savings potential and cost effectiveness.

Three major components are included in the City's water efficiency strategies. The components are: 1) water hardware retrofitting; 2) technical assistance; and 3) public information and education.

- **Water Hardware Retrofitting.** Studies to determine water savings from residential and commercial toilet retrofitting were performed by member agencies to the CUWCC. The results from the retrofit evaluations have substantiated that the assumptions used to calculate potential water savings in the residential and commercial sectors are reliable. The water hardware replacement program utilizes a three pronged approach to toilet replacement.

  1. **Retrofit to build** (voluntary as of 2002)
  2. **Retrofit Rebate Program** (in effect since 1990)
3. **Retrofit Upon Sale, Remodel or Change in Use**

It is estimated that approximately 80% of the toilets and 90% of the shower heads in the City of San Luis Obispo have been retrofitted resulting in annual water savings of about 1,400 acre feet.

Additionally, the City implemented a rebate program for High Efficiency Washing Machines (HEW) in 2003.

- **Technical Assistance.** Technical Assistance includes leak detection, water auditing services, both indoor and irrigation, and water efficient plant material information. This program was expanded in 2004 to place a higher emphasis on outdoor irrigation and landscape design.

- **Public Information and Education.** Public information and education have historically been the foundation of all the City's water efficiency programs. Though it is impossible to determine precise water savings from this type of program, it is recognized in the water profession that information and education are a key to a utility's effectiveness to serve its customers. The water conservation office offers free information on a variety of conservation topics including leak detection, irrigation scheduling, landscaping, and water hardware retrofitting. In addition, informational workshops and awareness programs are conducted.

### 4.5.4 STAFFING EVALUATION

The initial water conservation program was staffed with seasonal temporary and contract employees. In August 1988, it was recognized that the coordinator position should be made a regular position to maintain continuity in the development and implementation of short-term and long-term water efficiency programs. Staffing levels beyond the coordinator position continued to be filled by contract staff on an as-needed basis, and the level of staffing evaluated annually until 1995.

As part of the 1995-1997 Financial Plan, the City Council approved two regular positions (in addition to the Coordinator position) to staff the Water Conservation and Solid Waste Management Programs. Approximately 50% of the coordinator time is spent on water conservation program planning, implementation and oversight. As part of the 2003-2005 Financial Plan, the City Council approved 2 temporary positions to assist with the implementation of the new and expanded programs. The current level of staffing is adequate at this time to meet the goals and objectives of the Water Conservation Program, as well as the Solid Waste Management Programs.
CHAPTER 5

WATER FUND FINANCIAL PLAN

Policy

The City will fully recover all water costs, operations, maintenance, capital, debt service, and appropriate overhead, through water revenues. Resolution No. 6447 states the primary goals of the City's water utility are to provide quality water service to its citizens and to function as a self-sufficient enterprise. Under this policy, all water revenues are used only for water purposes. The water fund will reimburse the general fund for all indirect costs pursuant to the approved cost allocation plan.

Water impact fees were established in 1991 to pay for needed facilities and improvements reasonably related to new development within the City. Based on the policies contained in Section 2.6.3, impact fees will be set at a rate sufficient to ensure cost recovery for that portion of new supplies attributable to the new development. These fees are adjusted annually to account for changes in the cost of construction or other considerations which affect the reasonable relationship between the fees and the cost of facilities and improvements on which the fees are based.

Introduction

The City's Financial Plan policies require the annual review of the Water Fund financial needs. Fees and rate structure must be evaluated to ensure that they are appropriate and equitable. Fees and rates must be set at levels which fully cover the total cost of providing water services, including operations, capital outlay and debt service. Annual review assures rate increases, if required, can be kept to modest levels.

City policy requires that the Water Fund, as all other enterprise funds and the General Fund, maintain a fund balance of at least 20% of operating expenditures. This is considered the minimum level necessary to maintain the City's credit worthiness and to adequately provide for economic uncertainties, local disasters, and other financial hardships or downturns in the local or national economy; contingencies for unforeseen operating or capital needs; cash flow requirements.

In addition, fund balance levels must be sufficient to meet funding requirements for projects approved in prior years which are carried forward into the new year; debt service reserve requirements; reserves for encumbrances; and other reserves or designations required by contractual obligations, state law, or generally accepted accounting principles.
5.1 ANNUAL WATER FUND REVIEW

In addition to stating that the primary goals of the water utility are to provide quality water service and to function as a self-sufficient enterprise, Resolution No. 6447 states that city water should meet all health standards, be free of bad taste and odors, provide adequate fire protection, and assure reliability and continuity of service to users.

The annual review of the Water Fund is conducted with the above goals and philosophy in mind. Appendix 3 is a summary projection of revenues, expenditures and changes in financial position for the Water Fund through fiscal year 2003-04. This projection, revised annually, outlines the operations and capital improvement budget for the Water Fund as presented in the approved 2003/2004 Financial Plan. These projections include funding for the Nacimiento Project, water treatment plant upgrade and for the construction of the Water Reuse Project.

Key Variables

The following is a summary of the key variables in forecasting water fund revenue and expenses:

- Short term and permanent level of water conservation
- Base operating costs plus inflation
- Debt service requirements
- Water customer base growth rate (based on General Plan, not to exceed 1% per year)
- Capital improvement charges ("impact fees" paid by new development)
- Connection and meter charges
- Service start-up fees
- Major capital projects

The most recent water fund analysis, Appendix III, provided a listing of these variables and what was specifically assumed in the analysis.

City-Operated Utility Rate Structure Objectives

Although both revenue requirements and rate structure are considered in the annual review of the Water Fund, the revenue required to operate the water facilities and the rate structure by which the revenue is generated are two separate issues. Revenue requirements tell how much revenue is needed to fully recover the total cost of providing water services, including operations, capital outlay and debt service. Rate structure describes how these costs will be distributed among different types of customers. It is important to recognize that any rate structure can be designed to ensure revenue adequacy.

The Council adopted the following rate review objectives in May, 1988:

- Comply with legal requirements
• Ensure revenue adequacy to fully meet system operating and capital needs
• Encourage conservation
• Provide equity and fairness between classes of customers
• Be easy to understand by our customers and easy to administer
• Provide for ongoing review in order to facilitate rate stability

In January 1993, Council requested a review of the existing rate structure. Upon close examination, it was felt that some of these goals were potentially in conflict. For example, a rate structure that provided rate stability would probably not encourage conservation efforts. A rate structure that was easy to understand by customers would not necessarily be equitable between classes of customers.

With that in mind, potential rate structures were analyzed based on the primary "goal" that was intended, viewing the goals as a continuum ranging from a strong bias towards rate stability to a strong bias towards water conservation. At the end of the continuum emphasizing conservation, rates would be composed entirely of commodity charges, with no flat rate charges. At the opposite end of the continuum that emphasizes rate stability, the rates would be composed entirely of flat rate charges with no commodity charges. The rate system based entirely on commodity charges would produce revenue based entirely on consumption which would vary from month to month. The rate system based on flat charges would not relate to consumption at all, and would be the same every month.

Prior to March 1993, the City's water rate structure was a combination of a base charge related to meter size and a two-tiered commodity charge based on an increasing block rate. After March 1993, the city's rate structure was modified to be entirely commodity driven. It is now a two-tiered increasing block rate with no base charge. Although rates changed by customer type, it was a revenue neutral rate structure change. This type of rate structure encourages conservation, recognizes that the marginal cost of adding new water resources is high, and is easier for customers to understand. It is equitable among classes of customers, as no one group is required to carry a disproportionate share of system costs. The primary disadvantage is that the revenues may be unstable if the customers have inconsistent consumption patterns.

Concerns about the predictability of consumption patterns due to conservation levels and rates based wholly on commodity use (and the impact this could potentially have on revenues) could be addressed through the adoption of a higher fund balance requirement. Also, the current 20% fund balance requirement is applied only to operating expenditures. This may need to include debt service as well. A higher fund balance would be beneficial during mandatory rationing periods to minimize revenue shortfalls created by decreased water demand.

**Rate Setting Methodology**

In determining water rate revenue requirements and setting recommended rates, the following general methodology is used:
Step 1: Determine Water Fund revenue requirements for:
- Operations and maintenance
- Capital improvements and replacements
- Debt service obligations (existing and projected)
- Revenue requirements are generally projected for four years into the future.

Step 2: Subtract from this amount "non-rate revenues" such as:
- Interest earnings
- Connection fees and meter sales
- Other service charges

Step 3: Identify water rate revenue requirements
- Revenue to be generated from water rates is the difference between water revenue requirements (Step 1) and "non-rate" revenues (Step 2).

Step 4: Determine new rates.
- Model the rate base (consumption and customer account assumptions) against the existing rate structure and rate requirements identified in Step 3.

5.2 IMPACT FEES
The City adopted impact fees (also called "connection fees") in 1991, following a high degree of community discussion. The adopted fees were calculated under the requirements of AB 1600, which states that a "reasonable relationship" must exist between the need and the cost for a public facility and the development on which the fee is imposed. The goal of the adopted fees was to assure that new development paid its fair share of the cost of constructing necessary community facilities. This goal was the 1990 recommendation of the Citizens' Advisory Committee (CAC) established to review and evaluate the City's long-term financial health.

Based on prior Council direction and adoption of the policies contained in Sections 2.3 and 2.6, staff has evaluated the necessary impact fees to recover the cost of new supplies necessary to serve new development.
Chapter 6

WATER SHORTAGE CONTINGENCY PLAN

Background

Based on the experiences during the drought which lasted from 1986 to 1992, the City of San Luis Obispo recognizes the importance of prudent water planning and the development of a comprehensive Water Shortage Contingency Plan to deal with future drought conditions or other interruptions in water supply. In 1991, in accordance with the requirements of Assembly Bill 11X, the City compiled its existing mandatory water rationing and water conservation plans into one document and submitted the plan to the State. The City has been active in water resource planning and water conservation since the mid 1980’s. In November 1994, the City adopted its Urban Water Management Plan in accordance with California Water Code 10610 (et seq.) which included the Water Shortage Contingency Plan. An updated WSCP was presented and approved during a joint meeting with the Planning Commission and City Council in July 2000. Because of the changed water ethic in the City since the end of the 1986-1992 drought, the City’s Water Shortage Contingency plan reflects the current water use patterns in the community and provides a methodology to reduce water use during periods of projected water shortages.

6.1 WATER RATIONING STAGES AND PER CAPITA REDUCTION GOALS

The City has developed a three stage rationing plan to invoke during declared water shortages (Table 6.1). The City has developed a computer model to project how long water supplies would last using different assumptions. The model takes into account the total storage in the two lakes and available groundwater resources in meeting the city’s water demand. The model also uses historical hydrologic information (rainfall, evaporation, etc.) which is based on the average for the worst four years of the 1987-91 drought period. The model is updated annually to project water supply availability. Stage I is implemented when it there is a projected three year supply of water available. Stage II and III are enacted when water supplies are projected to last two years then one year respectively.
Table 6.1 Water Rationing Stages & City-wide Per Capita Reduction Goals

<table>
<thead>
<tr>
<th>Stage</th>
<th>Reduction Goal</th>
<th>Type of Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>115 gpd</td>
<td>Mandatory</td>
</tr>
<tr>
<td>II</td>
<td>100 gpd</td>
<td>Mandatory</td>
</tr>
<tr>
<td>III</td>
<td>85 gpd</td>
<td>Mandatory</td>
</tr>
</tbody>
</table>

The goal would be to at least gain another winter rainfall period in hopes of adding to reservoir storage. The model confirmed that mandatory conservation measures can extend available resources an additional year and would be an effective water management tool.

Figure 7 illustrates when the different mandatory levels would be initiated.

City of San Luis Obipo
Reservoir Storage Curve

Figure 7: Reservoir Storage Model
6.2 PRIORITY BY USE

The following priorities for use of available potable water during shortages have been established in order to determine water allocations for the various customer classes:

1. Minimum health and safety allocations for interior residential needs (includes single family, multi-family, hospitals and convalescent facilities, retirement and mobile home communities and student housing);

2. Commercial, industrial, institutional/government operations (where water is used for manufacturing and for minimum health and safety allocations for employees and visitors), to maintain jobs and economic base of the community (not for landscape uses);

3. Existing landscape;

4. New customers, i.e., proposed projects without permits when shortage is declared.

6.3 HEALTH AND SAFETY REQUIREMENTS

Based on accepted estimates of interior residential water use in California and the estimated average indoor water use in the City, the City has established a health and safety allotment of 52 gallons per person per day (gpd). It has been determined that this amount of water is sufficient for essential interior residential water use if the customer has retrofitted all water using plumbing fixtures with low water using fixtures. The previously discussed reductions in city-wide per capita water use rate during mandatory water rationing takes into account the minimum health and safety needs of the community.

6.4 WATER ALLOTMENT METHODOLOGY

The City has established the following allocation method for each customer classification.

Single Family Residential- A per capita allotment of 115 gppd during Stage 1, 100 gppd during Stage 2 and 85 gppd during Stage 3 based on a three person household will be assigned to each single family residence. If there are more than three people in the household, additional water would be allocated dependent on verification of the actual number of people in a household and will be based on the health and safety (52 gppd) requirements previously identified for each additional person.

Multi-family Residential- A per capita allotment based on a three person household will be assigned to each multi-family residence. If there are more than three people in the household, additional water would be allocated dependent on verification of the actual number of person in the household and will be based on the health and safety requirements previously identified.
Commercial- Commercial customers will receive an allocation using a percent reduction methodology based on the average of the previous three years of water use. An optional baseline standard allocation will also be available to commercial customers.

Institutional- Institutional customers will receive an allocation using a percent reduction methodology based on the average of the previous three years of water use.

Landscape Meters- Landscape only metered customers will receive an allocation using a percent reduction methodology based on the average of the previous three years of water use.

Excessive Water Use Penalties- Customers exceeding their assigned allocation will pay a 100% surcharge of the water portion of their bill. If the customer exceeds the base allocation assigned to their account, a 200% surcharge will be assessed.

6.5 PROHIBITIONS

In 1987 and 1989, the City adopted water waste ordinances that prohibited specific activities deemed to waste water. The prohibitions are in effect on a continuing basis. The following is the list of the prohibited activities:

- Use of substandard water fixtures.
- Water runoff from property.
- Use of water from fire hydrants for other than firefighting.
- Serving water in restaurants unless requested.
- Washing sidewalks, driveway and parking areas with potable water.
- Using potable water for new construction.

Additionally, the City retains the ability to enact other water waste provisions such limiting irrigation within the City water service area to specified hours, prohibiting irrigation entirely within the service area and/or prohibit the installation of new landscaping during a declared water emergency.

The city has the authority to install a flow restrictor or terminate water service to any customer who is in violation of this code, including the failure to meet water conservation reduction requirements. Prior to the termination of a water service, the city will provide a due process hearing before the water conservation adjustment board. The criteria to install a flow restrictor or terminate water service was established by resolution. (Ord. 1168 § 2 (part), 1990: Ord. 1143 § 2 (part), 1989)
6.6 REVENUE AND EXPENDITURE IMPACTS

During periods of mandatory water conservation measures, the revenues from water sales will be reduced but the operations and maintenance costs will not reduce accordingly. In fact, during the previous drought the operations budgets increased due to groundwater exploration and other actions taken by the city during the crisis. The reduction in revenues resulting from decreased water use did result in the need to raise water rates during that period.

To minimize the need to raise rates during mandatory conservation, the city is currently considering the establishment a reserve fund for rate stability. The Council will be presented an analysis of the proposed reserve fund as part of the Water and Sewer Rate Structure Analysis in March 2006.

One option would be to provide a reserve fund which could cover the first two years of a mandatory conservation program without the need to raise rates. The final year would likely require a water rate increase. If the city is in a third year of mandatory conservation, a water rate increase could be beneficial in further encouraging additional reductions in overall water use.

The current city policy for fund reserves is 20% of operating budget (see Chapter 5). It is estimated that approximately $2.5 million in revenue reductions would result from the first two years of mandatory conservation (Stage I and II). This represents approximately 60% of the water fund operating budget. It could be argued that during a time such as this that a portion of the 20% fund reserve could be available to cover reduced revenues. If 5% to 10% of the current fund balance was available for rate stability purposes, the total water fund reserves would need to be increased to 70% to 75% of operating budget.

6.7 MECHANISM TO DETERMINE REDUCTIONS IN WATER USE

Under normal water supply conditions, potable water production figures are recorded daily at the Water Treatment Facility. Totals are reported monthly to the Utilities Director, Water Division Manager and Utilities Conservation Coordinator. From this information, month to month and year to year statistics can be calculated to track water use and subsequent increases or reductions in consumption levels. The Annual Water Resources Status Report, which is presented to the City Council in June of each year, summarizes the years water production and consumption. If reduction goals are not being met, the Council can make the necessary decisions for corrective action to be taken.


6.8 CATASTROPHIC WATER SUPPLY INTERRUPTION

The City of San Luis Obispo has a number of emergency response plans which cover a variety of potential disasters including: earthquakes, floods, wildland fires, etc. The plans identify resources available to the City from other agencies or private companies in the area. Additionally, the City of Morro Bay and the Whale Rock Commission (which the City of San Luis Obispo is a member of) executed an agreement in June of 2000 which provides for Mutual Aid between the agencies during disruption of water deliveries or lack of available water supplies. The agreement provides a general framework for exchanging water between agencies in the event of emergencies or other water disruptions. The agreement is voluntary based on each agencies ability to assist at any point in the future.

During the recent update of the plans and in preparation for potential “Y2K” problems, the City undertook an analysis and review of our current preparedness in the event of extended power outages. In relation to providing water service, it was determined that additional portable generators could minimize water disruptions during an extended power outage. As a result of the studies, the City acquired six additional trailerable generators to enable the water system to continue to treat and distribute water to our customers during extended power outages. These generators are maintained and available to the City at any time and are stored at the City Corporation Yard.

Water & Wastewater Agency Response Network

The City has been a member of the Water and Wastewater Agency Response Network (W2ARN) for many years. W2ARN is a statewide organization of water and wastewater agencies and companies that have entered into a mutual aid agreement to assist other agencies during emergencies or other related situations. The agreement provides the framework for providing assistance and provides a key contact to initiate a multiple agency response to an emergency situation.
Appendix I - WATER POLICY SUMMARY

2.1 SAFE ANNUAL YIELD DETERMINATION

2.1.1 Safe annual yield will be based on coordinated operation of all water supply sources.

2.1.2 The City’s safe annual yield, from the coordinated operation of Salinas and Whale Rock reservoirs, reclaimed water and 500 acre feet of groundwater. The safe annual yield includes reductions due to siltation at the reservoirs, discussed in more detail in Section 2.4.

2.1.3 A. The amount of groundwater which the City will rely upon is identified in Section 2.1.2. The City will maximize the use of groundwater in conjunction with other available water supplies to maximize the yield and long term reliability of all water resources and to minimize overall costs for meeting urban water demands. The City shall monitor water levels at the well sites.

B. The City will not compete with local agricultural use of groundwater outside the urban reserve line or damage wildlife habitat through reduced natural stream flows in obtaining long-term sources of water supply.

2.2 WATER CONSERVATION POLICY

2.2.1 Long-term water efficiency measures will maintain long-term, per-capita usage at or below the per capita use rate as identified in Section 2.3.2.

2.2.2 Short-term mandatory measures will be implemented when the City's water supplies are projected to last three years.

2.3 WATER DEMAND PROJECTIONS

2.3.1 The City will project water requirements, considering long-term conditions and the full range of water uses in the City.

2.3.2 The City shall use 145 gallons per person per day (0.162 acre-feet) to plan for future water supplies.

2.3.3 Projected water demand at General Plan buildout is about 9,096 acre-feet.

2.3.4 Present water demand is calculated by multiplying the water use identified in Section 2.3.2 by the current city population.

2.3.5 The City shall strive to develop and maintain water supply sources and facilities appropriate to ensure sufficient supply and system capacity to provide the peak daily water demand of the City.
2.4 SILTATION AT SALINAS & WHALE ROCK RESERVOIRS

The City shall account for siltation in the adoption of the safe annual yield as identified in Policy 2.1.2. The estimated annual reduction in safe annual yield from Salinas and Whale Rock Reservoirs is 10 acre-feet per year. As Council considers and develops new water supply opportunities, Council should consider planning for additional water to address siltation losses over a longer term.

2.5 SUPPLEMENTAL WATER REQUIREMENTS

2.5.1 The City shall develop additional water supplies to meet projected demand at build-out of the General Plan, to establish the reliability reserve, and to offset water yields lost due to siltation.

A. Primary Supply Requirements – Develop supplemental water supplies to provide sufficient water for General Plan build-out using the per-capita planning use rate identified in Policy 2.3.2 multiplied by the projected General Plan build-out population, and

B. Secondary Supply Requirements – Develop supplemental water supplies to provide additional yield to account for future siltation losses, drought contingency, loss of yield from an existing supply source, operational requirements necessary to meet peak operating demands, and other unforeseen conditions.

2.5.2 In deciding on appropriate sources of supplemental water, the City will evaluate the impacts on other users of the water and the environment.

2.5.3 The cost for developing new water supplies necessary for new development will be paid by impact fees.

2.6 MULTI-SOURCE WATER SUPPLY

The City shall continue to develop and use water resource projects to maintain multi-source water supplies to reduce reliance on any one source.

2.7 ALLOCATION OF NEW WATER SUPPLIES

2.7.1 When new water sources are obtained, the additional yield shall be allocated first to eliminate any deficit between safe annual yield (Section 2.1) and present demand as defined in Sections 2.1 and 2.3.4 at the time the new source is obtained.

2.7.2 A. The City will determine the water available for allocation to new development by either; the adopted safe annual yield of the City’s water supplies minus present demand as identified in Policy 2.3.4, or the projected demand at build-out as identified in Policy 2.3.3 minus present demand as identified in Policy 2.3.4; whichever is less.

B. Any safe annual yield from new water supply projects beyond any deficit elimination will be allocated (A) one-half to the reliability reserve and compensating for reduced yields due to siltation and (B) one-half to development (see section 2.7.3).
C. A water allocation shall not be required for projects for which the developer makes changes in facilities served by the City that will reduce long-term water usage equal to twice the water allocation required for the project.

2.7.3 The City will annually update the water availability for allocation. One-half of the water available for allocation will be reserved for infill and intensification within existing City limits as of July 1994.

2.7.4 The amount of reclaimed water used each year will be reported to Council as part of the annual Water Resources Status Report and will be added to the safe annual yield identified in Section 2.1.2, Table 1 of this document to determine water available for new development.

2.7.5 When developments are supplied by private groundwater wells, the yield of those wells will not be counted toward the City's safe yield.

2.8 WATER ALLOCATION & OFFSETS

2.8.1 Exemptions to needing a water allocation, or reducing the amount of the required allocation for a project may be granted to the extent that a project is supplied by a suitable private well which will not significantly affect the yield of City wells.

2.8.2 Required allocations and offsets will be based on long-term usage for each type of development.

2.9 RECLAIMED WATER

2.9.1 The City shall produce high quality reclaimed water, suitable for a wide range of nonpotable uses.

2.9.2 The City will make available reclaimed water as allowed by law to supply new non-potable uses.

2.10 WATER SERVICE WITHIN THE CITY

A. The City will be the only purveyor of water within the City.

B. Appropriate use of privately owned wells may be allowed.

OTHER URBAN WATER MANAGEMENT PLAN POLICIES

CHAPTER 3 SUPPLEMENTAL WATER SUPPLY PROJECTS

The City shall pursue the Nacimiento Reservoir Pipeline Project, water reuse, additional groundwater, and water demand management activities as supplemental water supply sources.
CHAPTER 4 WATER OPERATIONAL PROGRAMS

The City shall sustain city-wide water efficiency programs and strive to provide an adequate supply of high quality water which meets all government standards, provides flows at sufficient pressures, and provides fire protection. The City shall allocate funding to meet those goals and objectives. The City should strive to replace aging water lines at the annual rate of 2% of the replacement value of the water distribution system.

CHAPTER 5 FINANCIAL PLAN

The City's policy is to fully recover all water costs, operations, maintenance, capital, debt service, and appropriate overhead, through water revenues. All water revenues are used only for water purposes. The water fund will reimburse the general fund for all indirect costs pursuant to the approved cost allocation plan. Water impact fees were established in 1991 to pay for needed facilities and improvements reasonably related to new development within the City.
Appendix II - WATER CONSERVATION PROGRAMS AND SERVICES

A) Best Management Practices/Coverage Reports

B) Current Programs and Services

BEST MANAGEMENT PRACTICES - IMPLEMENTATION UPDATE (2004)

The fourteen Best Management Practices (BMP’s) are described and a brief update on the implementation progress is explained in the following section. Coverage reports provided by the California Water Conservation Council’s reporting database are included at the end of the appendix.

1. WATER SURVEY PROGRAMS FOR SINGLE-FAMILY RESIDENTIAL AND MULTI-FAMILY RESIDENTIAL CUSTOMERS

Program:
Offer indoor and outdoor water audits to all single and multi-family customers which will include the following services:

Indoor
a) Check for leaks, including toilets, faucets, and meter check;
b) Check showerhead flow rates, aerator flow rates, and offer to replace or recommend replacement, as necessary;
c) Check toilet flow rates and offer to install or recommend installation of displacement device or direct customer to ULFT replacement program, as necessary; replace leaking toilet flapper, as necessary.

Outdoor
a) Check irrigation system and timers
b) Review or develop customer irrigation schedule

Result:
During the calendar year 2004 the Utilities Conservation Office completed 962 single family residential water audits and 262 multi-family water audits. The office continues to market the program through paid advertising, customer contact and department newsletter.
2. RESIDENTIAL PLUMBING RETROFIT

Program:

Develop targeting and marketing strategy to distribute or directly install high-quality, low flow showerheads, toilet displacement devices flappers and aerators as practical to residences requiring them until 75% of both single and multi-family dwellings are retrofitted.

Result:

Through the various water fixture replacement programs, it is estimated that approximately 95% of the showerheads and 80% to 85% of toilets have been retrofitted.

3. SYSTEM WATER AUDITS, LEAK DETECTION AND REPAIR

Program:

Annually complete a prescreening system audit to determine the need for a full-scale system audit. A full scale system audit is required if system losses are more than 10%.

Result:

For the past ten years the range of system water losses has been between 4% and 8%. System losses for 2004 were 7%.
4. METERING WITH COMMODITY RATES FOR ALL NEW CONNECTIONS AND RETROFIT OF EXISTING CONNECTIONS

Program:

All water connections shall be metered and subject to commodity based rates. Additionally, the City should perform a feasibility study and consider the merits of a program to provide incentives to switch mixed use accounts to dedicated landscape meters.

Results:

All water connections within the City are metered and charged accordingly. At this time, the City is not considering a program to switch mixed use meters to dedicated landscape meters. Because of the increasing cost of sewer service for commercial accounts which is based on water usage, business are increasingly requesting dedicated irrigation meters.

5. LARGE LANDSCAPE CONSERVATION PROGRAMS AND INCENTIVES

Program:

A. IMPLEMENTATION

Implementation shall consist of at least the following actions:

CUSTOMER SUPPORT, EDUCATION AND ASSISTANCE

a) Agencies shall provide non-residential customers with support and incentives to improve their landscape water use efficiency. This support shall include, but not be limited to, the following:

ACCOUNTS WITH DEDICATED IRRIGATION METERS

a) Identify accounts with dedicated irrigation meters and assign ET0-based water use budgets equal to no more than 100% of reference evapotranspiration per square foot of landscape area in accordance with the schedule given in Section B of this Exhibit.

b) Provide notices each billing cycle to accounts with water use budgets showing the relationship between the budget and actual consumption in accordance with the schedule given in Section B of this Exhibit; agencies may choose not to notify customers whose use is less than their water use budget.
COMMERCIAL/INDUSTRIAL/INSTITUTIONAL ACCOUNTS WITH MIXED-USE METERS OR NOT METERED

a) Develop and implement a strategy targeting and marketing large landscape water use surveys to commercial/industrial/institutional (CII) accounts with mixed-use meters. Each reporting period, directly contact via letter or telephone not less than 20% of CII accounts with mixed-use meters and offer water use surveys. (Note: CII surveys that include both indoor and outdoor components can be credited against coverage requirements for both BMP 5 and BMP 9.)

b) Unmetered service areas will actively market landscape surveys to existing accounts with large landscapes, or accounts with landscapes which have been determined by the purveyor not to be water efficient.

c) Offer the following measures when cost-effective:

i) Landscape water use analysis/surveys

ii) Voluntary water use budgets

iii) Installation of dedicated landscape meters

iv) Training (multi-lingual where appropriate) in landscape maintenance, irrigation system maintenance, and irrigation system design.

v) Financial incentives to improve irrigation system efficiency such as loans, rebates, and grants for the purchase and/or installation of water efficient irrigation systems.

vi) Follow-up water use analyses/surveys consisting of a letter, phone call, or site visit where appropriate.

d) Survey elements will include: measurement of landscape area; measurement of total irrigable area; irrigation system check, and distribution uniformity analysis; review or develop irrigation schedules, as appropriate; provision of a customer survey report and information packet.

e) Track survey offers, acceptance, findings, devices installed, savings potential, and survey cost.

NEW OR CHANGE OF SERVICE ACCOUNTS

Provide information on climate-appropriate landscape design, efficient irrigation equipment/management to new customers and change-of-service customer accounts.
RECOMMENDED

a) Install climate appropriate water efficient landscaping at water agency facilities, and dual metering where appropriate.

b) Provide customer notices prior to the start of the irrigation season alerting them to check their irrigation systems and make repairs as necessary. Provide customer notices at the end of the irrigation season advising them to adjust their irrigation system timers and irrigation schedules.

Results:

Past efforts have been to audit all of the major park’s irrigation systems, large greenbelt areas and several homeowner association’s common landscape areas. Currently, the UCO staff has identified the largest dedicated irrigation accounts and have been developing water budgets for those accounts by utilizing the GIS system. Staff compares the water budget to the actual water consumption to determine if customer contact is warranted. To date, 52 landscape water budgets out of 300 dedicated landscape metered accounts have been completed. On a case by case basis or when requested by a customer, staff analyzes mixed used commercial water accounts, develop water budgets and offer technical assistance. Marketing the program and the follow-up tracking is via direct mail with the customers. In the future, an analysis of the feasibility of developing and implementing a strategy targeting and marketing large landscape water use surveys to commercial/industrial/institutional (CII) accounts with mixed-use meters will be performed. Though the City is not currently meeting its coverage requirement for this BMP, it is anticipated during 2006 the resources will be available to meet the requirement. The City will offer the following measures when cost-effective:

1) Landscape water use analysis/surveys
2) Voluntary water use budgets
3) Installation of dedicated landscape meters
4) Training in landscape maintenance, irrigation system maintenance, and irrigation system design.
5) Financial incentives to improve irrigation system efficiency such as loans, rebates, and grants for the purchase and/or installation of water efficient irrigation systems.
6) Follow-up water use analyses/surveys consisting of a letter, phone call, or site visit where appropriate.
7) Track survey offers, acceptance, findings, devices installed, savings potential, and survey cost.

Staff is currently developing a program to provide financial incentives to customers. The other components outlined will be phased in accordingly.
6. HIGH-EFFICIENCY WASHING MACHINE REBATE PROGRAMS

Program:

If an energy utility which services the City offers a rebate for the purchase of high efficiency washing machines then the city will develop and implement a rebate program.

Result:

The city implemented the HEW rebate program in July 2001. Customers are offered $150 rebate for qualifying machines. During 2004, 75 rebates were awarded.

7. PUBLIC INFORMATION PROGRAMS

Program:

The City will implement a public information program to promote water conservation and water conservation related benefits.

RESULTS:

1) The City utilizes the following measures:
2) Paid advertising
3) Public Service Announcements
4) Newsletters
5) Bill showing water usage in comparison to previous year
6) Special events
7) Speaker’s bureau
8. SCHOOL EDUCATION PROGRAM

Program:

The City will implement a school education program to promote water conservation and water conservation related benefits.

Result:

A water education program directed towards 3rd and 4th graders, adaptable to both higher and lower elementary grades, has been in place since 1999. Additionally, a separate water education program for grades 7 and 8 was implemented in 1999. During 2004, 33 class presentation were provided to student from grades k through 8th, reaching about 1,000 students.

9. CONSERVATION PROGRAMS FOR COMMERCIAL, INDUSTRIAL & INSTITUTIONAL ACCOUNTS

Program:

The City will develop a targeting and marketing strategy to provide water use surveys to at least 10% of the CII customers on a repeating basis or implement programs to reduce water use by an amount equal to 10% of baseline water (base year 1989) use over a ten year period. Additionally, the City will establish a program to replace high-water-using toilets in the CII sector.

Results:

The City investigates and offers water audits to CII customers which experience high water bills. Water use in the CII sector has been reduced by approximately 20% from the base year 1989. During 2004 the UCO completed 177 CII surveys. Additionally, the City has a goal to replace all high-water-using toilets in the City, including CII customers. It is estimated that between 80% to 85% of all toilets in the City have been replaced with ULF toilets.

10. WHOLESALE AGENCY ASSISTANCE PROGRAMS

Not applicable to the City.
11. CONSERVATION PRICING

Program:

The City will establish rates which will encourage water conservation.

Results:

The city has a two tiered increasing block rate which is 100% commodity based (no meter or minimum charge). Customers that use 10 units or less of water during a bi-monthly billing cycle pay less per unit.

12. CONSERVATION COORDINATOR

Program:

The City will designate a water conservation coordinator and have support staff (if necessary) to oversee the water conservation programs and BMP implementation.

Results:

The Utilities Conservation Office has a coordinator position which divides time between water conservation and solid waste management. Additionally, there are two support personnel who also assist in the administration of the water programs.

13. WATER WASTE PROHIBITION

Program:

The city will enact and enforce measure prohibiting water waste.
Results:

All water using features in a new development are reviewed for water efficiency during the initial development review process. Additionally, the City has the following water waste prohibitions:

1) Use of substandard water fixtures.
2) Water runoff from property.
3) Use of water from fire hydrants for other than firefighting.
4) Serving water in restaurants unless requested.
5) Washing sidewalks, driveway and parking areas with potable water.
6) Using potable water for new construction.

14. RESIDENTIAL ULFT REPLACEMENT PROGRAM

Program:

The City will implement programs for replacing existing high-water-using toilets with ultra-low flush toilets in single family and multi-family residences.

Results:

The City’s goal is to replace all high-water-using toilets with ultra-low flush toilets. There programs in place to accomplish this goal. They are:

1) Retrofit Upon Sale Program
2) Retrofit to Build Program (Offset)
3) Retrofit Rebate Program

To date, approximately 80% to 85% of the City has been retrofitted.
CUWCC BMP COVERAGE REPORTS

**BMP 01 Coverage: Water Survey Programs for Single-Family and Multi-Family Residential Customers**

<table>
<thead>
<tr>
<th>Reporting Unit:</th>
<th>City of San Luis Obispo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reporting Period:</td>
<td>03-04</td>
</tr>
</tbody>
</table>

**MOU Exhibit 1 Coverage Requirement**

| No exemption request filed |  |
| Agency indicated "at least as effective as" implementation during report period? | No |

A Reporting Unit (RU) must meet three conditions to satisfy strict compliance for BMP 1.

Condition 1: Adopt survey targeting and marketing strategy on time

Condition 2: Offer surveys to 20% of SF accounts and 20% of MF units during report period

Condition 3: Be on track to survey 15% of SF accounts and 15% of MF units within 10 years of implementation start date.

**Test for Condition 1**

City of San Luis Obispo to Implement Targeting/Marketing Program by: 1999

Year City of San Luis Obispo Reported Implementing Targeting/Marketing Program: 1989 1989

City of San Luis Obispo Met Targeting/Marketing Coverage Requirement: YES YES

**Test for Condition 2**

Survey Program to Start by: 1998

Residential Survey Offers (%): 24.37% 19.78%

Survey Offers > 20% Reporting Period: 03-04 YES NO

**Test for Condition 3**

Completed Residential Surveys

Single Family Multi-Family
<table>
<thead>
<tr>
<th></th>
<th>2,893</th>
<th>795</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Completed Surveys 1999 - 2004:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Past Credit for Surveys Completed Prior to 1999 (Implementation of Reporting Database):</td>
<td>880</td>
<td>316</td>
</tr>
<tr>
<td>Total + Credit</td>
<td>3,773</td>
<td>1,111</td>
</tr>
<tr>
<td>Residential Accounts in Base Year</td>
<td>8,910</td>
<td>2,750</td>
</tr>
<tr>
<td>City of San Luis Obispo Survey Coverage as % of Base Year Residential Accounts</td>
<td>42.35%</td>
<td>40.40%</td>
</tr>
<tr>
<td>Coverage Requirement by Year 7 of Implementation per Exhibit 1</td>
<td>7.90%</td>
<td>7.90%</td>
</tr>
<tr>
<td>City of San Luis Obispo on Schedule to Meet 10-Year Coverage Requirement</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>

**BMP 1 COVERAGE STATUS SUMMARY:**
Water supplier has not met one or more coverage requirements for this BMP.
BMP 02 Coverage: Residential Plumbing Retrofit

Reporting Unit: City of San Luis Obispo

MOU Exhibit 1 Coverage Requirement

No exemption request filed

Agency indicated "at least as effective as” implementation during report period? No

An agency must meet one of three conditions to satisfy strict compliance for BMP 2.

Condition 1: The agency has demonstrated that 75% of SF accounts and 75% of MF units constructed prior to 1992 are fitted with low-flow showerheads.

Condition 2: An enforceable ordinance requiring the replacement of high-flow showerheads and other water use fixtures with their low-flow counterparts is in place for the agency's service area.

Condition 3: The agency has distributed or directly installed low-flow showerheads and other low-flow plumbing devices to not less than 10% of single-family accounts and 10% of multi-family units constructed prior to 1992 during the reporting period.

Test for Condition 1

<table>
<thead>
<tr>
<th>Report Year</th>
<th>Report Period</th>
<th>Single-Family</th>
<th>Multi-Family</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Saturation &gt; 75%?</td>
<td>Saturation &gt; 75%?</td>
</tr>
<tr>
<td>1999</td>
<td>99-00</td>
<td>90.00%</td>
<td>90.00%</td>
</tr>
<tr>
<td>2000</td>
<td>99-00</td>
<td>95.00%</td>
<td>95.00%</td>
</tr>
<tr>
<td>2001</td>
<td>01-02</td>
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</tr>
<tr>
<td>2002</td>
<td>01-02</td>
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<td>95.00%</td>
</tr>
<tr>
<td>2003</td>
<td>03-04</td>
<td>95.00%</td>
<td>95.00%</td>
</tr>
<tr>
<td>2004</td>
<td>03-04</td>
<td>95.00%</td>
<td>95.00%</td>
</tr>
</tbody>
</table>

Test for Condition 2

<table>
<thead>
<tr>
<th>Report Year</th>
<th>Report Period</th>
<th>City of San Luis Obispo has ordinance requiring showerhead retrofit?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>99-00</td>
<td>YES</td>
</tr>
<tr>
<td>2000</td>
<td>99-00</td>
<td>YES</td>
</tr>
<tr>
<td>2001</td>
<td>01-02</td>
<td>YES</td>
</tr>
<tr>
<td>2002</td>
<td>01-02</td>
<td>YES</td>
</tr>
<tr>
<td>2003</td>
<td>03-04</td>
<td>YES</td>
</tr>
<tr>
<td>2004</td>
<td>03-04</td>
<td>YES</td>
</tr>
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</table>
### Test for Condition 3

**Reporting Period:** 03-04

<table>
<thead>
<tr>
<th>Accounts</th>
<th>Num. Showerheads Distributed to SF Accounts</th>
<th>Single-Family Coverage Ratio</th>
<th>SF Coverage Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992 SF</td>
<td>18,167</td>
<td>&gt; 10%</td>
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</table>

<table>
<thead>
<tr>
<th>Accounts</th>
<th>Num. Showerheads Distributed to MF Accounts</th>
<th>Multi-Family Coverage Ratio</th>
<th>MF Coverage Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992 MF</td>
<td>7,082</td>
<td>&gt; 10%</td>
<td>NO</td>
</tr>
</tbody>
</table>

**BMP 2 COVERAGE STATUS SUMMARY:**
Water supplier is meeting coverage requirements for this BMP.
BMP 03 Coverage: System Water Audits, Leak Detection and Repair

Reported Unit: City of San Luis Obispo

MOU Exhibit 1 Coverage Requirement

<table>
<thead>
<tr>
<th>Reporting Period</th>
<th>Pre-Screen Result</th>
<th>Full Audit Indicated</th>
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</thead>
<tbody>
<tr>
<td>1999 99-00</td>
<td>96.1%</td>
<td>No</td>
</tr>
<tr>
<td>2000 99-00</td>
<td>97.3%</td>
<td>No</td>
</tr>
<tr>
<td>2001 01-02</td>
<td>94.2%</td>
<td>No</td>
</tr>
<tr>
<td>2002 01-02</td>
<td>91.6%</td>
<td>No</td>
</tr>
<tr>
<td>2003 03-04</td>
<td>96.2%</td>
<td>No</td>
</tr>
<tr>
<td>2004 03-04</td>
<td>93.2%</td>
<td>No</td>
</tr>
</tbody>
</table>

Test for Conditions 1 and 2

An agency must meet one of two conditions to be in compliance with BMP 3:

Condition 1: Perform a prescreening audit. If the result is equal to or greater than 0.9 nothing more needs be done.

Condition 2: Perform a prescreening audit. If the result is less than 0.9, perform a full audit in accordance with AWWA’s Manual of Water Supply Practices, Water Audits, and Leak Detection.

BMP 3 COVERAGE STATUS SUMMARY:
Water supplier is meeting coverage requirements for this BMP.
### BMP 04 Coverage: Metering with Commodity Rates for all New Connections and Retrofit of Existing

**Reporting Unit:** City of San Luis Obispo  
**Reporting Period:** 03-04

#### MOU Exhibit 1 Coverage Requirement

<table>
<thead>
<tr>
<th>No exemption request filed</th>
<th>Agency indicated &quot;at least as effective as&quot; implementation during report period?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
</tr>
</tbody>
</table>

An agency must be on track to retrofit 100% of its unmetered accounts within 10 years to be in compliance with BMP 4.

#### Test for Compliance

- **Total Meter Retrofits Reported through 2004**
- **No. of Unmetered Accounts in Base Year**
- **Meter Retrofit Coverage as % of Base Year Unmetered Accounts**
- **Coverage Requirement by Year 6 of Implementation per Exhibit 1** 42.0%
- **RU on Schedule to meet 10 Year Coverage Requirement** YES

#### BMP 4 COVERAGE STATUS SUMMARY:

*Water supplier is meeting coverage requirements for this BMP.*
BMP 05 Coverage: Large Landscape Conservation Programs and Incentives

Reporting Unit: City of San Luis Obispo

MOU Exhibit 1 Coverage Requirement

| Agency indicated "at least as effective as" implementation during report period? | No |

An agency must meet three conditions to comply with BMP 5.

Condition 1: Develop water budgets for 90% of its dedicated landscape meter accounts within four years of the date implementation is to start.

Condition 2: (a) Offer landscape surveys to at least 20% of its CII accounts with mixed use meters each report cycle and be on track to survey at least 15% of its CII accounts with mixed use meters within 10 years of the date implementation is to start OR (b) Implement a dedicated landscape meter retrofit program for CII accounts with mixed use meters or assign landscape budgets to mixed use meters.

Condition 3: Implement and maintain customer incentive program(s) for irrigation equipment retrofits.

### Test for Condition 1

<table>
<thead>
<tr>
<th>Year</th>
<th>Report Period</th>
<th>BMP 5 Implementation Year</th>
<th>No. of Irrigation Meter Accounts</th>
<th>No. of Irrigation Accounts with Budgets</th>
<th>Budget Coverage Ratio</th>
<th>90% Coverage Met by Year 4</th>
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</thead>
<tbody>
<tr>
<td>1999</td>
<td>99-00</td>
<td>1</td>
<td>377</td>
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<td>1.2%</td>
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<td>2000</td>
<td>99-00</td>
<td>2</td>
<td>400</td>
<td>5</td>
<td>1.2%</td>
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<tr>
<td>2001</td>
<td>01-02</td>
<td>3</td>
<td>400</td>
<td>5</td>
<td>1.2%</td>
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</tr>
<tr>
<td>2002</td>
<td>01-02</td>
<td>4</td>
<td>414</td>
<td>5</td>
<td>1.2%</td>
<td>No</td>
</tr>
<tr>
<td>2003</td>
<td>03-04</td>
<td>5</td>
<td>413</td>
<td>5</td>
<td>1.2%</td>
<td>No</td>
</tr>
<tr>
<td>2004</td>
<td>03-04</td>
<td>6</td>
<td>413</td>
<td>18</td>
<td>4.4%</td>
<td>No</td>
</tr>
</tbody>
</table>

### Test for Condition 2a (survey offers)

Select Reporting Period: 03-04

Large Landscape Survey Offers as % of Mixed Use Meter CII Accounts: 0.9%

Survey Offers Equal or Exceed 20% Coverage Requirement: NO
Total Completed Landscape Surveys Reported through 14 Credit for Surveys Completed Prior to Implementation of Reporting Database 28 Total + Credit 42 CII Accounts in Base Year 1,735 RU Survey Coverage as a % of Base Year CII Accounts 2.4% Coverage Requirement by Year of Implementation per Exhibit 1 6.3% RU on Schedule to Meet 10 Year Coverage Requirement NO

Test for Condition 2b (mixed use budget or meter retrofit program)

<table>
<thead>
<tr>
<th>Report Year</th>
<th>Report Period</th>
<th>BMP 5 Implementation Year</th>
<th>Agency has mix-use budget program?</th>
<th>No. of mixed-use budgets</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>99-00</td>
<td>1</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>99-00</td>
<td>2</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td>01-02</td>
<td>3</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td>01-02</td>
<td>4</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>03-04</td>
<td>5</td>
<td>NO</td>
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</tr>
<tr>
<td>2004</td>
<td>03-04</td>
<td>6</td>
<td>NO</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Report Year</th>
<th>Report Period</th>
<th>BMP 4 Implementation Year</th>
<th>No. of mixed use CII accounts</th>
<th>No. of mixed use CII accounts fitted with irrig. meters</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>99-00</td>
<td>1</td>
<td>1,275</td>
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<tr>
<td>2002</td>
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<td></td>
</tr>
<tr>
<td>2003</td>
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<tr>
<td>2004</td>
<td>03-04</td>
<td>6</td>
<td>1,000</td>
<td></td>
</tr>
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Test for Condition 3

<table>
<thead>
<tr>
<th>Report Year</th>
<th>Report Period</th>
<th>BMP 5 Implementation Year</th>
<th>RU offers financial incentives?</th>
<th>No. of Loans</th>
<th>Total Amt. Loans</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>99-00</td>
<td>1</td>
<td>NO</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>2001</td>
<td>01-02</td>
<td>3</td>
<td>NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td>01-02</td>
<td>4</td>
<td>NO</td>
<td></td>
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</tr>
<tr>
<td>2003</td>
<td>03-04</td>
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<td>2004</td>
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<td>6</td>
<td>NO</td>
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<table>
<thead>
<tr>
<th>Report Year</th>
<th>Report Period</th>
<th>No. of Grants</th>
<th>Total Amt. Grants</th>
<th>No. of rebates</th>
<th>Total Amt. Rebates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>99-00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td>Coverages</td>
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<tr>
<td>------</td>
<td>-----------</td>
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<tr>
<td>2000</td>
<td>99-00</td>
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<td></td>
<td></td>
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<tr>
<td>2001</td>
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<td></td>
</tr>
<tr>
<td>2002</td>
<td>01-02</td>
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<td></td>
<td></td>
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<tr>
<td>2003</td>
<td>03-04</td>
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<td></td>
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</tr>
</tbody>
</table>

**BMP 5 COVERAGE STATUS SUMMARY:**
Water supplier has not met one or more coverage requirements for this BMP.
### BMP 06 Coverage: High-Efficiency Washing Machine Rebate Programs

**Reporting Unit:** City of San Luis Obispo  
**Reporting Period:** 03-04

#### MOU Exhibit 1 Coverage Requirement

<table>
<thead>
<tr>
<th>No exemption request filed</th>
<th>Agency indicated &quot;at least as effective as&quot; implementation during report period?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
</tr>
</tbody>
</table>

An agency must meet one condition to comply with BMP 6.

**Condition 1:** Offer a cost-effective financial incentive for high-efficiency washers if one or more energy service providers in service area offer financial incentives for high-efficiency washers.

#### Test for Condition 1

<table>
<thead>
<tr>
<th>Year</th>
<th>Report Period</th>
<th>BMP 6 Implementation Year</th>
<th>Rebate Offered by ESP?</th>
<th>Rebate Offered by RU?</th>
<th>Rebate Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>99-00</td>
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<td>NO</td>
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</tr>
<tr>
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<td>YES</td>
<td>YES</td>
<td>150.00</td>
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<tr>
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<td>01-02</td>
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<td>YES</td>
<td>YES</td>
<td>150.00</td>
</tr>
<tr>
<td>2002</td>
<td>01-02</td>
<td>4</td>
<td>NO</td>
<td>YES</td>
<td>150.00</td>
</tr>
<tr>
<td>2003</td>
<td>03-04</td>
<td>5</td>
<td>NO</td>
<td>YES</td>
<td>150.00</td>
</tr>
<tr>
<td>2004</td>
<td>03-04</td>
<td>6</td>
<td>NO</td>
<td>YES</td>
<td>150.00</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Report Period</th>
<th>BMP 6 Implementation Year</th>
<th>No. Rebates Awarded</th>
<th>Coverage Met?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
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<td>2001</td>
<td>01-02</td>
<td>3</td>
<td>100</td>
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<td>100</td>
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<td>03-04</td>
<td>5</td>
<td>93</td>
<td>YES</td>
</tr>
<tr>
<td>2004</td>
<td>03-04</td>
<td>6</td>
<td>75</td>
<td>YES</td>
</tr>
</tbody>
</table>

**BMP 6 COVERAGE STATUS SUMMARY:**

Water supplier is meeting coverage requirements for this BMP.
BMP 07 Coverage: Public Information Programs

Reporting Unit: City of San Luis Obispo
Reporting Period: 03-04

MOU Exhibit 1 Coverage Requirement

<table>
<thead>
<tr>
<th>Agency indicated &quot;at least as effective as&quot; implementation during report period?</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
</tr>
</tbody>
</table>

An agency must meet one condition to comply with BMP 7.

Condition 1: Implement and maintain a public information program consistent with BMP 7’s definition.

Test for Condition 1

<table>
<thead>
<tr>
<th>Year</th>
<th>Report Period</th>
<th>BMP 7 Implementation Year</th>
<th>RU Has Public Information Program?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>99-00</td>
<td>2</td>
<td>YES</td>
</tr>
<tr>
<td>2000</td>
<td>99-00</td>
<td>3</td>
<td>YES</td>
</tr>
<tr>
<td>2001</td>
<td>01-02</td>
<td>4</td>
<td>YES</td>
</tr>
<tr>
<td>2002</td>
<td>01-02</td>
<td>5</td>
<td>YES</td>
</tr>
<tr>
<td>2003</td>
<td>03-04</td>
<td>6</td>
<td>YES</td>
</tr>
<tr>
<td>2004</td>
<td>03-04</td>
<td>7</td>
<td>YES</td>
</tr>
</tbody>
</table>

BMP 7 COVERAGE STATUS SUMMARY:
Water supplier is meeting coverage requirements for this BMP.
BMP 08 Coverage: School Education Programs

Reporting Unit: City of San Luis Obispo
Reporting Period: 03-04

MOU Exhibit 1 Coverage Requirement

<table>
<thead>
<tr>
<th>Agency indicated &quot;at least as effective as&quot; implementation during report period?</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
</tr>
</tbody>
</table>

An agency must meet one condition to comply with BMP 8.
Condition 1: Implement and maintain a school education program consistent with BMP 8's definition.

Test for Condition 1

<table>
<thead>
<tr>
<th>Year</th>
<th>Report Period</th>
<th>BMP 8 Implementation Year</th>
<th>RU Has School Education Program?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>99-00</td>
<td>2</td>
<td>YES</td>
</tr>
<tr>
<td>2000</td>
<td>99-00</td>
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</tr>
<tr>
<td>2001</td>
<td>01-02</td>
<td>4</td>
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<tr>
<td>2002</td>
<td>01-02</td>
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<td>YES</td>
</tr>
<tr>
<td>2003</td>
<td>03-04</td>
<td>6</td>
<td>YES</td>
</tr>
<tr>
<td>2004</td>
<td>03-04</td>
<td>7</td>
<td>YES</td>
</tr>
</tbody>
</table>

BMP 8 COVERAGE STATUS SUMMARY:
Water supplier is meeting coverage requirements for this BMP.
BMP 09 Coverage: Conservation Programs for CII Accounts

Reporting Unit: City of San Luis Obispo  Reporting Period: 03-04

MOU Exhibit 1 Coverage Requirement

<table>
<thead>
<tr>
<th>Agency indicated &quot;at least as effective as&quot; implementation during report period?</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>No exemption request filed</td>
<td></td>
</tr>
</tbody>
</table>

An agency must meet three conditions to comply with BMP 9.

Condition 1: Agency has identified and ranked by use commercial, industrial, and institutional accounts.

Condition 2(a): Agency is on track to survey 10% of commercial accounts, 10% of industrial accounts, and 10% of institutional accounts within 10 years of date implementation to commence.

OR

Condition 2(b): Agency is on track to reduce CII water use by an amount equal to 10% of baseline use within 10 years of date implementation to commence.

OR

Condition 2(c): Agency is on track to meet the combined target as described in Exhibit 1 BMP 9 documentation.

Test for Condition 1

<table>
<thead>
<tr>
<th>Year</th>
<th>Report Period</th>
<th>BMP 9 Implementation Year</th>
<th>Ranked Com. Use</th>
<th>Ranked Ind. Use</th>
<th>Ranked Inst. Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>99-00</td>
<td>1</td>
<td>NO</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>2000</td>
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<td>2</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>2001</td>
<td>01-02</td>
<td>3</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
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<tr>
<td>2002</td>
<td>01-02</td>
<td>4</td>
<td>YES</td>
<td>YES</td>
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<td>2003</td>
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<td>5</td>
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<tr>
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<td>03-04</td>
<td>6</td>
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Test for Condition 2a

<table>
<thead>
<tr>
<th>Total Completed Surveys Reported through 2004</th>
<th>Commercial</th>
<th>Industrial</th>
<th>Institutional</th>
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<tbody>
<tr>
<td>421</td>
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<td>3</td>
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</tr>
</tbody>
</table>

Credit for Surveys Completed Prior to Implementation of Reporting Databases

<table>
<thead>
<tr>
<th>Total + Credit</th>
<th>Commercial</th>
<th>Industrial</th>
<th>Institutional</th>
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</thead>
<tbody>
<tr>
<td>481</td>
<td>7</td>
<td>6</td>
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</tr>
</tbody>
</table>

CII Accounts in Base Year

<table>
<thead>
<tr>
<th>CII Accounts in Base Year</th>
<th>Commercial</th>
<th>Industrial</th>
<th>Institutional</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,650</td>
<td>38</td>
<td>47</td>
<td></td>
</tr>
</tbody>
</table>
RU Survey Coverage as % of Base Year CII Accounts | 54.7% | 18.4% | 19.1%
Coverage Requirement by Year 6 of Implementation per Exhibit 1 | 4.2% | 4.2% | 4.2%
RU on Schedule to Meet 10 Year Coverage Requirement | YES | YES | YES

**Test for Condition 2a**

<table>
<thead>
<tr>
<th>Year</th>
<th>Report Period</th>
<th>BMP 9 Implementation Year</th>
<th>Performance Target Savings (AF/yr)</th>
<th>Performance Target Savings Coverage</th>
<th>Performance Target Savings Coverage Requirement Met</th>
</tr>
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<tbody>
<tr>
<td>1999</td>
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<td>2000</td>
<td>99-00</td>
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<td>NO</td>
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<tr>
<td>2001</td>
<td>01-02</td>
<td>3</td>
<td>80</td>
<td>4.8%</td>
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<td>88</td>
<td>5.3%</td>
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<td>5</td>
<td>90</td>
<td>5.4%</td>
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<td>92</td>
<td>5.6%</td>
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</tbody>
</table>

**Test for Condition 2c**

<table>
<thead>
<tr>
<th>Total BMP 9 Surveys + Credit</th>
<th>918</th>
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<tbody>
<tr>
<td>BMP 9 Survey Coverage</td>
<td>52.9%</td>
</tr>
<tr>
<td>BMP 9 Performance Target Coverage</td>
<td>5.6%</td>
</tr>
<tr>
<td>BMP 9 Survey + Performance Target Coverage</td>
<td>58.5%</td>
</tr>
<tr>
<td>Combined Coverage Equals or Exceeds Coverage Requirement?</td>
<td>YES</td>
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</table>

**BMP 9 COVERAGE STATUS SUMMARY:**
Water supplier is meeting coverage requirements for this BMP.
BMP 11 Coverage: Conservation Pricing

Reporting Unit: City of San Luis Obispo
Reporting Period: 03-04

MOU Exhibit 1 Coverage Requirement
No exemption request filed
Agency indicated "at least as effective as" implementation during report period? No

An agency must meet one condition to comply with BMP 11.

Agency shall maintain rate structure consistent with BMP 11's definition of conservation pricing. Implementation methods shall be at least as effective as eliminating non-conserving pricing and adopting conserving pricing. For signatories supplying both water and sewer service, this BMP applies to pricing of both water and sewer service. Signatories that supply water but not sewer service shall make good faith efforts to work with sewer agencies so that those sewer agencies adopt conservation pricing for sewer service.

a) Non-conserving pricing provides no incentives to customers to reduce use. Such pricing is characterized by one or more of the following components: rates in which the unit price decreases as the quantity used increases (declining block rates); rates that involve charging customers a fixed amount per billing cycle regardless of the quantity used; pricing in which the typical bill is determined by high fixed charges and low commodity charges.

b) Conservation pricing provides incentives to customers to reduce average or peak use, or both. Such pricing includes: rates designed to recover the cost of providing service; and billing for water and sewer service based on metered water use. Conservation pricing is also characterized by one or more of the following components: rates in which the unit rate is constant regardless of the quantity used (uniform rates) or increases as the quantity used increases (increasing block rates); seasonal rates or excess-use surcharges to reduce peak demands during summer months; rates based upon the longrun marginal cost or the cost of adding the next unit of capacity to the system.

Test for Condition 1

<table>
<thead>
<tr>
<th>Year</th>
<th>Report Period</th>
<th>RU Employed Non Conserving Rate Structure</th>
<th>RU Meets BMP 11 Coverage Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>99-00</td>
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<td>NO</td>
</tr>
<tr>
<td>2000</td>
<td>99-00</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>2001</td>
<td>01-02</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>2002</td>
<td>01-02</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>2003</td>
<td>03-04</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>2004</td>
<td>03-04</td>
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</tbody>
</table>

BMP 11 COVERAGE STATUS SUMMARY:
Water supplier is meeting coverage requirements for this BMP.
### BMP 12 Coverage: Conservation Coordinator

**Reporting Unit:** City of San Luis Obispo  
**Reporting Period:** 03-04

#### MOU Exhibit 1 Coverage Requirement

<table>
<thead>
<tr>
<th>No exemption request filed</th>
<th>Agency indicated &quot;at least as effective as&quot; implementation during report period?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
</tr>
</tbody>
</table>

Agency shall staff and maintain the position of conservation coordinator and provide support staff as necessary.

#### Test for Compliance

<table>
<thead>
<tr>
<th>Report Year</th>
<th>Report Period</th>
<th>Conservation Coordinator Position Staffed?</th>
<th>Total Staff on Team (incl. CC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
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<tr>
<td>2000</td>
<td>99-00</td>
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<td>3</td>
</tr>
<tr>
<td>2001</td>
<td>01-02</td>
<td>YES</td>
<td>3</td>
</tr>
<tr>
<td>2002</td>
<td>01-02</td>
<td>YES</td>
<td>3</td>
</tr>
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<td>2003</td>
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<td>YES</td>
<td>4</td>
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</table>

**BMP 12 COVERAGE STATUS SUMMARY:**  
Water supplier is meeting coverage requirements for this BMP.
BMP 13 Coverage: Water Waste Prohibition

<table>
<thead>
<tr>
<th>MOU Exhibit 1 Coverage Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>No exemption request filed</td>
</tr>
<tr>
<td>Agency indicated &quot;at least as effective as&quot; implementation during report period? No</td>
</tr>
</tbody>
</table>

An agency must meet one condition to comply with BMP 13.

Implementation methods shall be enacting and enforcing measures prohibiting gutter flooding, single pass cooling systems in new connections, non-recirculating systems in all new conveyer car wash and commercial laundry systems, and non-recycling decorative water fountains.

Test for Condition 1

<table>
<thead>
<tr>
<th>Year</th>
<th>Gutter Flooding</th>
<th>Single-Pass Cooling Systems</th>
<th>Single-Pass Car Wash</th>
<th>Single-Pass Laundry</th>
<th>Single-Pass Fountains</th>
<th>Other</th>
<th>RU has ordinance that meets coverage requirement</th>
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<tbody>
<tr>
<td>1999</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
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<td>yes</td>
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<td>yes</td>
<td>yes</td>
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</table>

BMP 13 COVERAGE STATUS SUMMARY:

Water supplier is meeting coverage requirements for this BMP.
BMP 14 Coverage: Residential ULFT Replacement Programs

Reporting Unit: City of San Luis Obispo

MOU Exhibit 1 Coverage Requirement

A Reporting Unit (RU) must meet one of the following conditions to be in compliance with BMP 14.

Condition 1: Retrofit-on-resale (ROR) ordinance in effect in service area.

Condition 2: Water savings from toilet replacement programs equal to 90% of Exhibit 6 coverage requirement. An agency with an exemption for BMP 14 is not required to meet one of the above conditions. This report treats an agency with missing base year data required to compute the Exhibit 6 coverage requirement as out of compliance with BMP 14.

Status: Water supplier is meeting coverage requirements for this BMP. as of 2004

<table>
<thead>
<tr>
<th>Coverage Year</th>
<th>BMP 14 Data Submitted to CUWCC</th>
<th>Exemption Filed with CUWCC</th>
<th>ROR Ordinance in Effect</th>
<th>Exhibit 6 Coverage Reqmt (AF)</th>
<th>Toilet Replacement Program Water Savings* (AF)</th>
</tr>
</thead>
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<tr>
<td>1998</td>
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<td></td>
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<td>44.85</td>
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<td>No</td>
<td>No</td>
<td>No</td>
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*NOTE: Program water savings listed are net of the plumbing code. Savings are cumulative (not annual) between 1991 and the given year. Residential ULFT count data from unsubmitted forms are NOT included in the calculation.

BMP 14 COVERAGE STATUS SUMMARY:
Water supplier is meeting coverage requirements for this BMP.

BMP 14 Coverage: Residential ULFT Replacement Programs

BMP 14 Coverage Calculation Detail:
Retrofit on Resale (ROR) Ordinance
# Water Savings

## 1992 Housing Stock

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<th>Single Family</th>
<th>Multi-Family</th>
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<tr>
<td>Average rate of natural replacement (% of remaining stock)</td>
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<td>.04</td>
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<tr>
<td>Average rate of housing demolition (% of remaining stock)</td>
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<td>.005</td>
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### Estimated Housing Units with 3.5+ gpf Toilets in 1997

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<tbody>
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### Average resale rate

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<tbody>
<tr>
<td>.05</td>
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<td>.025</td>
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### Average persons per unit

### Average toilets per unit

### Average savings per home (gpd; from Exhibit 6)

<table>
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<th>Multi-Family</th>
</tr>
</thead>
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## Single Family Housing Units

<table>
<thead>
<tr>
<th>Coverage Year</th>
<th>Unretrofitted Houses Sold</th>
<th>Houses Sold</th>
<th>Houses Unsold</th>
<th>Sold and Retrofitted</th>
<th>Sold and Already Retrofitted</th>
<th>Unsold and Retrofitted</th>
<th>Gross ROR Savings (AFY)</th>
<th>Nat'l Replacement Only Savings (AFY)</th>
<th>Net ROR Savings (AFY)</th>
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<tbody>
<tr>
<td>1998</td>
<td>13529.95</td>
<td>737.71</td>
<td>14016.46</td>
<td>737.71</td>
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<td>673.11</td>
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<td>354.29</td>
<td>269.36</td>
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<td>414.72</td>
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<td>2007</td>
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<td>323.39</td>
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<td>245.77</td>
<td>644.08</td>
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<td>207.81</td>
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</table>

## Multi Family Housing Units

<table>
<thead>
<tr>
<th>Coverage Year</th>
<th>Unretrofitted Houses Sold</th>
<th>Houses Sold</th>
<th>Houses Unsold</th>
<th>Sold and Retrofitted</th>
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<th>Nat'l Replacement Only Savings (AFY)</th>
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<tbody>
<tr>
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<td>2004</td>
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<td>245.77</td>
<td>644.08</td>
<td>436.28</td>
<td>207.81</td>
</tr>
</tbody>
</table>
CURRENT PROGRAMS AND SERVICES

Using the BMPs as a guide, the water conservation office has developed programs and procedures to reach the City's goal of long term water efficiency through out the community. The following section will briefly explain the programs and services.

PROGRAMS AND SERVICES

1) Rebate Program

Customers are offered up to $100 per bathroom to replace toilets, showerheads, and faucet aerators with water efficient hardware. A $150 rebate is offered for “High Efficiency” washing machines.

2) Retrofit Upon Sale Ordinance

Effective October 15, 1992, any property sold or transferred must be retrofitted prior to the close of escrow with water conserving plumbing hardware.

3) Indoor Water Use Evaluations

Water efficiency specialists evaluate all indoor water use and recommend water efficiency measures to residential and commercial customers.

4) Irrigation Evaluation and Audit

The Utilities Conservation Office offers free irrigation systems evaluation and will perform distribution and uniformity audits to determine irrigation scheduling and make recommendations to improve water efficiency.

5) Water Efficient Plant Material Consultations

Printed information and suggestions are offered to customers interested in retrofitting existing landscapes with water conserving plant materials.

6) School Education Program

<table>
<thead>
<tr>
<th>Year</th>
<th>Savings (AFY)</th>
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<tr>
<td>1998</td>
<td>5412.39</td>
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<td>2006</td>
<td>3197.30</td>
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<td>2007</td>
<td>2993.69</td>
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</tbody>
</table>
The Utilities Department offers in-class presentations and materials for elementary and middle school students.

7) **Public Information and Education Program**
Ongoing informational and promotional advertising both paid and public service announcements. Variety of printed informational brochures and pamphlets available free of charge. Educational workshops on water efficiency topics offered to the public.

8) **Water Waste Code Enforcement**
Mostly an educational, water efficiency specialist contact customers experiencing water run-off problems and offer suggestions on how to solve these problems.

9) **Low Income Assistance Water Audit Program**
People applying for low income assistance on their water/wastewater bill are required to have a home water audit performed before being granted a utility bill reduction.

10) **Water Offset Program (retrofit to build)**
The Utilities Conservation Office coordinate and tracks the retrofit activity associated with the program. This has been a very effective program to facilitate toilet replacement within the City.

11) **Multi-family Resource Conservation Services Program**
A program developed specifically for multi-family complexes to assist in establishing successful recycling programs and achieving water efficiency.

12) **Large Landscape Water Budgets**
Staff is preparing water budget for all irrigation only accounts. The information mailed directly to the customers with an offer of follow-up assistance.

13) **Residential High Water Use Contact Letters**
On a monthly basis, staff mails letters to single family residential customers using 50 units (ccf) bi-monthly in the summer and 40 units in the winter. The letter offers assistance and other helpful information to reduce their water use.
Appendix III - 2005 Water Fund Analysis
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B. Significant Operating Program Change Requests
C. Capital Improvement Plan Requests

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B. Structure
C. History

ASSUMPTIONS

A. Sales
B. Development Impact Fee collection
C. Debt Service Payments

2004-05 UPDATE

A. Major Activities and Programs

LOOKING TO THE FUTURE

A. New Regulatory Requirements
B. Master plan upgrades and improvements
C. Infrastructure Maintenance

EXHIBIT A – FINANCIAL SCHEDULES

A. 1. Changes in financial position
A. 2. Assumptions
A. 3. Capital Improvement Plan
I. OVERVIEW

This report presents the financial condition of the Water Fund, based on the 2005-07 Financial Plan operating program budgets, and recommended program and capital requests to address the identified needs in the Water Master Plan, regulatory requirements, and adopted city financial and infrastructure maintenance policies.

II. 2005-07 FINANCIAL PLAN

A. Summary of Operating Programs

Including requests shown in section B.

<table>
<thead>
<tr>
<th>Source of Supply</th>
<th>2005-06</th>
<th>2006-07</th>
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</thead>
<tbody>
<tr>
<td>Source of Supply</td>
<td>BUDGET</td>
<td>BUDGET</td>
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<td>Conservation</td>
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<td>Treatment</td>
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<td>Water Distribution</td>
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Water Taxes and Fees

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<td>Water Taxes and Fees</td>
<td>381,600</td>
<td>434,800</td>
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Total Water Services

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<tr>
<td>Total Water Services</td>
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B. Significant Operating Program Change Requests

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<tbody>
<tr>
<td>Source of Supply</td>
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<td>BUDGET</td>
</tr>
<tr>
<td>Increased Salinas Reservoir Payment</td>
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<td>Establish Water Recycling Oper Budget</td>
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Water Treatment Plant

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<tr>
<td>Contract Lab Svcs – Stage II Disinfect Rule</td>
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<td>Increased Chemical Cost</td>
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<td>Lab Analyst – proportionate share</td>
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Water Distribution

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<thead>
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<td>Underground Service Alert Staffing</td>
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### C. Capital Improvement Plan Requests

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<tr>
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<tr>
<td>Downtown sprinkler reimbursement</td>
<td></td>
<td></td>
<td>25,000</td>
<td>25,000</td>
</tr>
<tr>
<td>Polybutylene water service replacement</td>
<td>250,000</td>
<td>250,000</td>
<td>350,000</td>
<td>350,000</td>
</tr>
<tr>
<td>Fleet addition:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skid steer tractor</td>
<td>56,800</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pickup for USA marking</td>
<td>16,800</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fleet replacement - pickup</td>
<td></td>
<td>212,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 ton service body trucks</td>
<td></td>
<td></td>
<td>32,800</td>
<td>57,900</td>
</tr>
<tr>
<td>5 – ½ ton pickups</td>
<td></td>
<td></td>
<td>63,900</td>
<td></td>
</tr>
<tr>
<td>Flatbed with crane</td>
<td></td>
<td></td>
<td></td>
<td>82,500</td>
</tr>
<tr>
<td>Backhoe</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Administration and Engineering</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fleet replacement - sedan</td>
<td></td>
<td></td>
<td>17,000</td>
<td></td>
</tr>
<tr>
<td><strong>Total Water Services</strong></td>
<td>2,565,600</td>
<td>2,698,300</td>
<td>2,338,700</td>
<td>2,307,900</td>
</tr>
</tbody>
</table>

### III. RATE SETTING METHODOLOGY

In determining water revenue requirements and setting recommended rates, the following general methodology is used:

**Step 1:** Determine Water Fund revenue requirements for:

a. Operations and maintenance
b. Capital improvements and replacements
c. Debt service obligations (existing and projected)

**Step 2:** Subtract from this amount “non-rate revenues” such as:

a. Interest earnings
b. Connection fees and meter sales
c. Revenues from other agencies (Cal Poly)
d. Other service charges (service start-up fees, late charges, etc.)

**Step 3:** Identify water rate requirements:
- Revenue needed to be generated from water rates is the difference between water revenue requirements (Step 1) and “non-rate” revenues (Step 2).

**Step 4:** Determine new rates:
- Model the rate base (consumption and customer account assumptions) against the existing rate structure and rate requirements identified in Step 3.

Because this analysis is performed over a multi-year period, other factors are considered, such as working capital available to support capital projects, debt service requirements, and minimum working capital policy.

**B. Water Rate Structure**

*Current policies to guide rate structure setting*
- Comply with legal requirements
- Encourage conservation
- Ensure revenue adequacy to fully meet system operating and capital needs
- Provide equity and fairness between classes of customers
- Be easy to understand and easy to administer
- Facilitate ongoing review to maintain rate stability

The current water rate structure is completely variable, with the charges based on the volume of water used. The table below shows the current water rate structure.

<table>
<thead>
<tr>
<th>Monthly Water Charges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inside the City Rates</td>
</tr>
<tr>
<td>1 – 5 CCF</td>
</tr>
<tr>
<td>5 – 10 CCF</td>
</tr>
<tr>
<td>Outside the City Rates</td>
</tr>
<tr>
<td>1 – 5 CCF</td>
</tr>
<tr>
<td>5 – 10 CCF</td>
</tr>
</tbody>
</table>

1 For service to customers outside the City, the rates are two times the “In-City” rate.

**C. Water Rate History**

The table below shows two years of projected as well as a ten-year history of water charges.

<table>
<thead>
<tr>
<th>Year</th>
<th>Monthly Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Projected charges</td>
</tr>
<tr>
<td>Proposed</td>
<td></td>
</tr>
<tr>
<td>2006-07</td>
<td>1-5 ccf</td>
</tr>
<tr>
<td></td>
<td>more than 5 ccf</td>
</tr>
<tr>
<td>Proposed</td>
<td></td>
</tr>
<tr>
<td>2005-06</td>
<td>1-5 ccf</td>
</tr>
<tr>
<td></td>
<td>more than 126 ccf</td>
</tr>
</tbody>
</table>
IV. ASSUMPTIONS

The following provides more detail for the key assumptions in Exhibit A.1. and A.2. to this report, the financial schedules showing the water fund’s changes in financial position and the listing of assumptions.

A. Revenues

1. Sales are calculated based on the percentage increase in rates and a one percent growth rate.

2. Sales to Cal Poly are based on historic use and the 2003 Agreement between the City and the University. This agreement set the proportion (61%) of the non-residential rate the University pays to account for the University’s difference from other customers (the University owns its own water supply and capacity interest at the Water Treatment Plant).

3. Development Impact Fee collection is calculated according to the base set by the impact fee study in 2004 and adjusted by the one percent growth rate and inflation. Annually, this calculation is evaluated and proportionately adjusted due to lower than one percent growth as well as development occurring under maps vested prior

<table>
<thead>
<tr>
<th>Year</th>
<th>Monthly Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004-05</td>
<td>1-5 ccf</td>
</tr>
<tr>
<td></td>
<td>2.71</td>
</tr>
<tr>
<td></td>
<td>more than 5 ccf</td>
</tr>
<tr>
<td></td>
<td>3.40</td>
</tr>
<tr>
<td>2003-04</td>
<td>1-5 ccf</td>
</tr>
<tr>
<td></td>
<td>2.51</td>
</tr>
<tr>
<td></td>
<td>more than 5 ccf</td>
</tr>
<tr>
<td></td>
<td>3.15</td>
</tr>
<tr>
<td>2002-03</td>
<td>1-5 ccf</td>
</tr>
<tr>
<td></td>
<td>2.51</td>
</tr>
<tr>
<td></td>
<td>more than 5 ccf</td>
</tr>
<tr>
<td></td>
<td>3.15</td>
</tr>
<tr>
<td>2001-02</td>
<td>1-5 ccf</td>
</tr>
<tr>
<td></td>
<td>2.51</td>
</tr>
<tr>
<td></td>
<td>more than 5 ccf</td>
</tr>
<tr>
<td></td>
<td>3.15</td>
</tr>
<tr>
<td>2000-01</td>
<td>1-5 ccf</td>
</tr>
<tr>
<td></td>
<td>2.51</td>
</tr>
<tr>
<td></td>
<td>more than 5 ccf</td>
</tr>
<tr>
<td></td>
<td>3.15</td>
</tr>
<tr>
<td>1999-00</td>
<td>1-5 ccf</td>
</tr>
<tr>
<td></td>
<td>2.51</td>
</tr>
<tr>
<td></td>
<td>more than 5 ccf</td>
</tr>
<tr>
<td></td>
<td>3.15</td>
</tr>
<tr>
<td>1998-99</td>
<td>1-5 ccf</td>
</tr>
<tr>
<td></td>
<td>2.79</td>
</tr>
<tr>
<td></td>
<td>more than 5 ccf</td>
</tr>
<tr>
<td></td>
<td>3.50</td>
</tr>
<tr>
<td>1997-98</td>
<td>1-5 ccf</td>
</tr>
<tr>
<td></td>
<td>2.79</td>
</tr>
<tr>
<td></td>
<td>more than 5 ccf</td>
</tr>
<tr>
<td></td>
<td>3.50</td>
</tr>
<tr>
<td>1996-97</td>
<td>1-5 ccf</td>
</tr>
<tr>
<td></td>
<td>2.75</td>
</tr>
<tr>
<td></td>
<td>more than 5 ccf</td>
</tr>
<tr>
<td></td>
<td>3.45</td>
</tr>
<tr>
<td>1995-96</td>
<td>1-5 ccf</td>
</tr>
<tr>
<td></td>
<td>2.65</td>
</tr>
<tr>
<td></td>
<td>more than 5 ccf</td>
</tr>
<tr>
<td></td>
<td>3.35</td>
</tr>
</tbody>
</table>
to impact fee establishment. Development in those areas pays only those fees in place at the time of approval.

B. Expenses

The operating and capital expenses are based upon projections to the end of the 2004-05 fiscal year and the preliminary 2005-07 Financial Plan. Thereafter, operations and maintenance costs are adjusted according to an inflation rate of 3%.

C. Debt Service Payments

1. Debt service for the upgrade of the Water Treatment Plant and the refinancing of earlier bonds for system upgrades--the 2001 and 2002 Refunding Water Revenue Bonds--is $1,074,900 in 2005-06 and $1,078,100 in 2006-07. The 2001 lease revenue bonds (about $390,000 annually) are retired in December 2008.

2. Debt service to pay for the energy conservation projects is $28,600 in 2005-06 and $28,700 in 2006-07.

3. Debt service for the repayment of the State Revolving Loan Fund for the construction of the Water Reuse system is projected to be $573,100.

4. Debt Service for the upgrades to the Water Treatment Plant are estimated to be $456,200 annually. Depending on the availability of working capital, the amount of this loan will be adjusted accordingly.

5. Debt service for the water fund’s share of the new dispatch center and radio system upgrades are projected at $15,200 in 2005-06 and $46,200 annually thereafter.

V. 2004-05 UPDATE

A. Major Activities and Programs

1. The Water Reuse Project

The Water Reuse project was approved by Council in 1997 and construction of the backbone distribution system was completed in August of 2004. The Water Reclamation Facilities’ improvements required for the Recycled Water System are currently under construction and recycled water deliveries are anticipated to begin in spring of 2006. This is the first significant new water supply added to the City since the completion of the Whale Rock Reservoir and transmission facilities in 1962. The Water Reuse project is being funded through a combination of State Grant ($2.9 million) and State Revolving Loan funds ($8.8 million) with annual debt service payments for Water Reuse beginning in 2005-06 ($573,000).
2. **Water Conservation**

Enhancements to the City’s water conservation program were approved with the 2003-05 Financial Plan. Water conservation continues to remain a key component of our water resource strategy and the overall program costs are about $295,000 for 2005-06. Water conservation is perhaps the City’s most cost effective supply, but we have already implemented most of the potential supply benefits from conservation and the annual program costs represent the ongoing maintenance costs for the program. There are several opportunities that staff will continue to evaluate to enhance the City’s water conservation programs. These are discussed in more detail in the annual Water Resources Status Report (June of each year).

3. **Nacimiento Pipeline Project**

Participation in the Nacimiento Pipeline Water Supply Project is the most significant water supply achievement in terms of both cost and benefit. The project, as identified, will provide the City with an additional 3,380 acre-feet per year of yield, providing adequate yield to meet our current General Plan build-out needs and provide greatly improved system and service reliability. The total project cost for the Nacimiento Project is estimated at $150 million for design and construction. The City’s share of that cost is projected at $6.6 million for design and $64 million for construction. Debt service for design and operations and maintenance payments for the project are projected at $5.4 million beginning in 2010-11 and annually thereafter for the remaining life of the bonds (30 years).

VI. **LOOKING TO THE FUTURE**

A. **Master plan upgrades and improvements**

Design of the Water Master Plan Improvements to our Water Treatment Plant is anticipated to be completed in winter 2005-06. This analysis projects initiation of the Master Plan Capital Improvements to our Water Treatment Plant in 2007-08 at a projected cost of $8.035 million. The analysis assumes debt financing for $6.2 million of the project costs. Funding for the Water Treatment Plant Master Plan Improvements will increase annual debt service by $456,200.

B. **Utility Billing Services**

With increasing water and sewer rates and customer growth, the need to complete a thorough review of our customer service/utility billing programs is becoming an increasing priority. The City Council has approved a contract with HDR Engineering Inc. to provide a thorough evaluation of customer service programs which include water and sewer rate structure issues, automated/remote meter read options, billing frequency, and billing system software to support the customer service needs of the community.

C. **Dispatch Center and Radio Systems Upgrade Improvements**

Utilities relies heavily on the radio system for dispatch of field crews and communication between crews on routine and emergency operations. The Enterprise funds will be expected to participate financially in the Dispatch Center and Radio Systems Upgrade Project. The project will be debt financed and annual debt service costs to the water fund
are estimated at $46,200 beginning in 2006-07.

D. **Infrastructure Maintenance**

Industry standard would set annual infrastructure replacements at two percent of system value (based on a fifty year replacement cycle) for the water main distribution system. This equates to expenditures of $1,250,000 in 2005-06 and $1,275,000 in 2006-07. Repair and upgrade at major facilities such as the Water Treatment Plant and pump stations is based on maintenance and repair history as well as depreciated value and overall efficiency.
FROM: John Moss, Director of Utilities  
Prepared By: Sue Baasch, Admin Analyst  
Gary Henderson, Water Division Manager

SUBJECT: 2005 WATER FUND REVIEW

CAO RECOMMENDATION

1. Review and accept the 2005 annual water fund financial and rate review; and

2. Conceptually approve the proposed operating program changes and capital improvement plan requests contained in the preliminary 2005-07 Financial Plan, pending final budget review and adoption; and

3. Adopt a resolution increasing water service charges by eight percent (8.0%), effective July 1, 2005 and eight percent (8.0%), effective July 1, 2006, consistent with the rate increases projected in approving participation in the Nacimiento Water project.

4. Adopt a resolution resetting water meter and adaptor costs, effective July 1, 2005.

DISCUSSION

The 2005 Water Fund analysis confirms the ongoing moderate rate increases forecasted last year during consideration of the Nacimiento project. With this rate increase, the Water Fund will continue to be healthy and stable, capable of supporting the continuing and recommended operations and capital programs. This report recommends adoption of a resolution increasing water rates by eight percent (8.0%), effective July 1, 2005 and an additional eight percent (8.0%), July 1, 2006. A resolution resetting water meter and adapter costs to the current pricing structure is also attached. The water meter and adapter costs have not been reset for a number of years, and staff requests approval to reset the charges to what Utilities is currently paying for these fixtures.

Within this analysis, which forecasts the water fund’s financial position until 2011-12, the City is able to achieve its long-term goal of adequate water supply. This analysis includes supplementing the City’s water supplies through participation in the Nacimiento water supply project and delivery of recycled water for irrigation. This analysis also includes construction of the Water Master Plan improvements and achieves an ongoing level of capital maintenance projects to maintain the City’s water infrastructure assets at industry standard levels.
Although annual regular rate increases are forecasted to position the water fund to meet its future obligations, this should be put into context. Water rates did not change for over five years, and in 1999, the rates were rolled back by 10%. The current rates are actually lower than the ones in place for three years (1996 to 1999). The recommended rate increases city water rates from $2.71 to $2.93 (2005-06) and then to $3.16 (2006-07) per hundred cubic feet (“ccf”) for the first tier use (1 – 5 ccf monthly), and from $3.41 to $3.68 (2005-06) and then to $3.96 per hundred cubic feet for the second tier use (more than 5 ccf monthly).

What does this mean to the average residential customer? For the average residential customer using 10 units (“ccf”) of water monthly, the following illustrates the changes to the monthly bill with the recommended increases.

<table>
<thead>
<tr>
<th></th>
<th>Average Residential Water Customer Monthly Bill</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Assumption: 10 units of water use per month</td>
<td>2004-05</td>
<td>2005-06</td>
</tr>
<tr>
<td>1 – 5 ccf</td>
<td>$2.71/ccf</td>
<td>13.55</td>
<td>$2.93/ccf</td>
</tr>
<tr>
<td>5-10 ccf</td>
<td>3.40/ccf</td>
<td>17.00</td>
<td>$3.67/ccf</td>
</tr>
<tr>
<td>Total</td>
<td>$30.55</td>
<td></td>
<td>$33.00</td>
</tr>
</tbody>
</table>

The update to the charges for meters and adaptors is to merely reset the charges to what staff currently has to pay when they purchase these fixtures. The table below shows the current and proposed changes.

<table>
<thead>
<tr>
<th>Meter and Adaptor Charges</th>
<th>Approved Costs</th>
<th>Proposed Costs*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Meter Costs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>.58 x .75 inches (5/8 x ¾ inch)</td>
<td>$43.00</td>
</tr>
<tr>
<td></td>
<td>.75 inch (3/4 inch)</td>
<td>$74.00</td>
</tr>
<tr>
<td></td>
<td>1.0 inch</td>
<td>$104.00</td>
</tr>
<tr>
<td></td>
<td>1.5 inch</td>
<td>$239.00</td>
</tr>
<tr>
<td></td>
<td>2.0 inch</td>
<td>$359.00</td>
</tr>
<tr>
<td></td>
<td>3.0 inch and larger</td>
<td>Time and materials</td>
</tr>
<tr>
<td>Adapter Costs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.0 inch service / .58 inch x .75 inch meter</td>
<td>$11.00 per pair</td>
<td>$11.00 per pair</td>
</tr>
<tr>
<td>1.0 inch service / .75 inch meter</td>
<td>$11.00 per pair</td>
<td>$11.00 per pair</td>
</tr>
<tr>
<td>1.5 inch service / 1.0 inch meter</td>
<td>$52.00 per pair</td>
<td>$52.00 per pair</td>
</tr>
<tr>
<td>2.0 inch service / 1.0 inch meter</td>
<td>$53.00 per pair</td>
<td>$54.00 per pair</td>
</tr>
</tbody>
</table>
Background

The 2005 Water Fund Analysis

The details of the process and assumptions used to complete this year’s review are included in the attached 2005 Water Fund Analysis (Attachment 1). A summary of the 2005-07 Water Fund Financial Plan requests are included in this attachment and the detailed requests are provided in the City’s 2005-07 Financial Plan prepared by the Finance Department and previously provided to Council. Annually, staff reviews the water fund’s health and recommends appropriate rates to meet the forecasted financial and programmatic conditions.

This annual rate review recommends adoption of two years of increases to water service charges and projects a series of annual rate increases until 2010. As identified last year, the water fund is being positioned to pay for the City’s share of the Nacimiento project, as well as to ensure the water fund’s fiscal health. Participation in the Nacimiento project represents the achievement of one of the most significant Major City Goals in the City’s history, securing an additional long-term water supply.

Long-term water supply development has been a Major City Goal since the early 1990s. During this time, we have seen the objectives of this elusive goal move from one water supply project opportunity to another, all seemingly increasing in cost and complexity. At this time and included in this analysis, it now appears that the City will achieve water supply adequacy and reliability with the completion of several key water supply projects.

Council approved the Water Reuse project in 1997 and construction of the backbone distribution system was completed in August of 2004. The Water Reclamation Facilities’ improvements required for the Recycled Water System are currently under construction and recycled water deliveries are anticipated to begin in spring of 2006. This is the first significant new water supply added to the City since the completion of the Whale Rock Reservoir and transmission facilities in 1962. The Water Reuse project is being funded through a combination of State Grant ($2.9 million) and State Revolving Loan funds ($8.8 million) with annual debt service payments for Water Reuse beginning in 2005-06 ($573,100).

Enhancements to the City’s water conservation program were approved with the 2003-05 Financial Plan. Water conservation continues to be a key component of our water resource strategy and the overall program costs are about $295,000 for 2005-06. Water conservation is perhaps the City’s most cost effective supply, but we have already implemented most of the potential supply benefits from conservation and the annual program costs represent the ongoing maintenance costs for the program. There are several opportunities for staff to continue to evaluate and enhance the City’s water conservation programs, and these are discussed in more detail in the annual Water Resources Status Report (June of each year). Even with the potential
development of significant additional supplies from Nacimiento, the City remains committed to achieving the highest levels of conservation through quality conservation service programs.

Participation in the Nacimiento Water Supply Project is the most significant water supply achievement in terms of both cost and benefit. The project as identified will provide the City with an additional 3,380 acre-feet per year of yield, providing adequate yield to meet our current General Plan build-out needs and provide greatly improved system and service reliability. The total project cost for the Nacimiento Project is estimated at $150 million for design and construction. The City’s share of that cost is projected at $6.6 million for design and $64 million for construction. Debt service for design and operations and maintenance payments for the project are projected at $5.4 million beginning in 2010-11 and annually thereafter for the remaining life of the bonds (30 years).

At this point, the funding for the Nacimiento project is projected on an order of magnitude basis. The recommendation for adoption of the next two years of rate increases at this time will allow for refinement of information relative to project cost once design is completed. It is important to project future rate increases based on what we know today so that Council has a picture of the project costs and implications, however, actual rate adoption should be based on more refined information as it is developed. Our current rate setting strategy of two years in concert with our financial planning process should work well, in terms of timing and refined information, with the development of the Nacimiento project through design and construction. Following this period of significant expenditures and associated projected rate increases it is anticipated that the Water Fund will return to a more stable rate condition comparable to inflation.

**Water Master Plan Improvements**

Design of the Water Master Plan Improvements to our Water Treatment Plant is anticipated to be completed in winter 2005-06. This analysis projects initiation of the Master Plan Capital Improvements to our Water Treatment Plant in 2007-08 at a projected cost of $8.1 million. The analysis assumes debt financing for $6.2 million of the project costs. Funding for the Water Treatment Plant Master Plan Improvements will increase annual debt service by $456,200.

**Issues on the Horizon**

*Utility Billing Services*

With increasing water and sewer rates and customer growth, the need to complete a thorough review of our customer service/utility billing programs is becoming an increasing priority. The City Council approved a contract with HDR Engineering, Inc., on May 17, 2005, to provide a through evaluation of customer service programs which include water and sewer rate structure issues, automated/remote meter reading options, billing frequency, and billing system software to support the customer service needs of the community. This study will begin in June and go through the fall 2005.

**WATER REUSE CLOSE-OUT CONTINGENCY**

A close out contingency for the water reuse project of $800,000 has been included in this fund
analysis. As Council is aware, there are considerable contract and legal issues associated with the completion and closeout of this project that “may” require additional funding. This may mean additional legal and scheduling services, as well as consultant and possibly contractor payments. Since staff has no means, at this time, to accurately estimate what the reuse closeout costs may be, no financial plan request has been prepared. However, funding has been set aside from working capital in case it is required to ensure working capital adequacy. Staff will be returning to Council periodically with updates on the project and will identify and request any specific funding needs for project closeout at that time.

**DISPATCH CENTER AND RADIO SYSTEMS UPGRADE IMPROVEMENTS**

The Utilities Department relies heavily on the radio system for dispatch of field crews and communication between crews on routine and emergency operations. The project will be debt financed and annual debt service costs to the water fund are estimated at $46,200 once the project is completed.

**PUBLIC PARTICIPATION**

The recommended rate increases will be discussed as a public hearing item before the Council. The public will have an opportunity at that time to comment on these recommendations. In addition, staff plans to have an extensive outreach to the public as part of the consultant study of the water and sewer rate structures and guiding policies. The current recommendation looks only at revenue adequacy; the new study will allow opportunity to fully discuss rate structures and how various customer classes pay. That study will be kicking off in June and the first study session with Council will be in the summer. Staff looks forward to Council and community input on these issues.

**ATTACHMENTS**

1. **2005 WATER FUND ANALYSIS**  
   *Exhibit A – Financial Schedules*  
   A.1. Changes in Financial Position  
   A.2. Assumptions  
   A.3. Capital Improvement Plan Schedule

2. **RESOLUTION SETTING WATER SERVICE CHARGES**  
   *Exhibit A. Water Rates for 2005-06 and 2006-07*

3. **RESOLUTION SETTING WATER METER AND ADAPTER COSTS**  
   *Exhibit A. Water Meter and Adaptor Costs*

4. 2005 Water and Sewer Rate Survey
Appendix IV – Miscellaneous Documents
FROM: John Moss, Utilities Director
Prepared By: Gary Henderson, Water Division Manager
            Ron Munds, Utilities Conservation Coordinator

SUBJECT: URBAN WATER MANAGEMENT PLAN UPDATE

CAO RECOMMENDATION

Adopt a resolution approving the update to the Urban Water Management Plan.

DISCUSSION
Background

The Urban Water Management Planning Act requires water purveyors which serve 3,000 or more customers or deliver more than 3,000 acre feet of water per year to submit an Urban Water Management Plan (UWMP) every five years (years ending in -00 and -05) to the Department of Water Resources. The City Council adopted the City’s first UWMP in November 1994. An updated plan was approved and submitted to the State in the year 2000. Staff has updated the plan in accordance with the provisions of the Urban Water Management Planning Act (as amended) and will submit the revised plan to the State upon adoption. The Executive Summary of the Plan is included as Attachment 1 to this report with the entire document available in the Council Office for review.

The specific objectives of the City’s Urban Water Management Plan can be summarized as follows:

1. Provide policy as a basis for future water planning relative to new development within the community.
2. Provide a description of all water supply, treatment, conveyance/distribution facilities.
3. Provide estimates of future supplemental water requirements based on population projections developed from the General Plan Land Use Element and per capita water use figures.
4. Provide an evaluation of alternative water supply sources, both short and long term, that could meet both existing and future water requirements.
5. Summarize the water treatment processes and regulations, and identify the water treatment, distribution and storage system’s current deficiencies and future recommended improvements.
6. Evaluate water operating programs.
7. Comply with the Urban Water Management Planning Act (as amended).
8. Provide a plan for any future water shortage situation.

Another important purpose in adopting the UWMP is that it qualifies the City for any future grant or other State funding possibilities, such as Proposition 50, future drought assistance and State Revolving Loan monies, such as the funding source for the Water Reuse Project.

When looking at the plan as a whole, the most significant changes since the year 2000 update involve updating dates and schedules for the water supply projects and identifying system deficiencies and the recommended improvements. The water policies in Chapter 2, which are the same as the Water Element to the General Plan, have been updated to reflect the changes that have occurred since the year 2000 update and are noted in the Chapter 2 summary below. Though there are no recommended policy changes in Chapter 2, changes have been made to “cleanup” language and/or modify the background information to make the policies more consistent with the changes that have occurred over the past five years. Staff will be returning to the Planning Commission and City Council at a future date with these changes for formal adoption and inclusion in the Water Element.
The following is a summary of the changes made to the plan.

CHAPTER ONE INTRODUCTION

Chapter One provides a brief overview of the plan, then details the City’s sources of water supply and operational information. Three new sections were added to this chapter to meet the State’s requirements. The new or modified sections are as follows:

1. Section 1.3, “Water Service Area Description” has been expanded to include weather information.
2. Section 1.4.3, “Groundwater” has been expanded to discuss the groundwater basin in more detail, including projected use of groundwater.
3. Section 1.4.4, “Reliability” of Supplies was added as required by amended State law.
4. Section 1.4.5, “Agency Coordination” was expanded to include the Nacimiento Project Commission and the City’s involvement with the County’s Integrated Regional Water Management Plan.

The other changes to the chapter are minor modifications to reflect operational variations since the adoption of the 2000 UWMP.

Chapter Two Water Policy

The UWMP adopted in 1994 identified the water policies in Chapter Two as being the Water Element to the General Plan. The Water Element has been modified several times since the adoption of the UWMP in 2000 and those modifications are reflected in this update. These previously approved modifications and the dates approved are as follows:

1. Elimination of the Reliability Reserve policy, elimination of the mandatory Offset policy, added language regarding accounting for siltation and accounting for reclaimed water (September 2002).
2. Various policies relating to supplemental water supplies, primarily the Nacimiento Project (June 2004).

Though no changes to Chapter Two are being recommended at this time, as mentioned previously, staff has identified inconsistent language and other out of date background information that needs to be updated. Since these modifications will require an amendment to the Water Element to the General Plan, staff will be returning to the Planning Commission and the Council at a future date to resolve these issues.

Chapter Three Supplemental Water Supply Projects

Chapter Three describes all of the water supply projects under consideration plus some alternative projects that could be considered in the future. The changes to the chapter mainly
consist of updating the information to reflect the current status of each of the water projects. More detailed discussions are included in the Water Reuse and Increased Groundwater Production sections to reflect the studies, master plans and other information that has changed since the year 2000 UWMP. The current projects are:

1. Nacimiento Project  
2. Water Reuse  
3. Water Demand Management (conservation)

An update of the projects, including the water conservation program, will be discussed in detail when Council is presented the Annual Water Status Report in June of this year.

**Chapter Four Water Operational Programs**

Chapter Four describes the existing water system, operation and maintenance programs, staffing evaluations, and identifies current and future system deficiencies. Most of the changes in the chapter are revisions to reflect minor operational changes since the last update in 2000. In addition, updates in Section 4.2.3, Water Distribution Infrastructure Evaluation reflect progress made on projects identified as deficiencies in the October 2000 Water Master Plan.

**Chapter Five Water Fund Financial Plan**

Chapter Five explains the policies and procedures for setting water rates which insure there is adequate revenue to recover all operating costs. There have been no modifications to this chapter since there have been no changes in the way water rates are determined.

**Chapter Six Water Shortage Contingency Plan**

In the year 2000 UWMP, the Water Shortage Contingency Plan (WSCP) was included as an appendix. In order to better comply with the new State requirements for plan updates, the WSCP was moved into the main document. The WSCP was reviewed and approved by the Council and the Planning Commissioners at the joint study session held in July 2000. The highlights of the plan are:

1. Residential per capita water allocation methodology versus a percent reduction system.  
2. Revised action levels based on gallons per person per day.  
3. Commercial allocations based on either a percent reduction methodology or a baseline allocation determined by business type.  
4. Significant penalties for exceeding water allocations during mandatory conservation periods.

There have been no modifications to the WSCP since the year 2000 update.

**APPENDICES**
Appendix I

Appendix I is a summary of the water policies contained in Chapter Two. It is meant to be a quick reference and summary of each policy. The changes to the appendix are discussed in Chapter Two of this report.

Appendix II

Appendix II is a description of the Water Conservation Program’s components and services. An update to the “Best Management Practices” is included, as well as an update to the evaluations of technologies and programs section.

Appendix III

Appendix III contains the most recent Water Fund analysis which was presented to Council in June 2005.

CONCURRENCES

The Community Development and Finance Departments concur with the recommendations made in this report. Because this update does not modify the Water Management Element of the General Plan, Planning Commission review was not necessary. However, as noted in the report, staff will be returning the Council with the minor modifications to Chapter 2 in regards to text references and background information in the policies.

FISCAL IMPACT

Adoption of the updated Urban Water Management Plan (UWMP) document does not directly create additional fiscal impacts on the Water Fund. Conceptual approval of water policies does not approve work programs or budget. However, the policies contained in the Urban Water Management Plan do have financial implications, all of which are examined in detail in the Water Fund review presented to Council annually in June.

ATTACHMENTS

Attachment 1- Executive Summary to Urban Water Management Plan
Attachment 2- Resolution to adopt the Urban Water Management Plan

Available in Council Office for Review: Urban Water Management Plan
SAMPLE ORDINANCE NO. (2005 Series)

AN ORDINANCE OF THE COUNCIL OF THE CITY OF SAN LUIS OBISPO
ESTABLISHING A MANDATORY WATER CONSERVATION PROGRAM

WHEREAS, the City has experienced multiple years of below normal rainfall; and

WHEREAS, the City’s reservoirs have an estimated three year water storage capacity; and

WHEREAS, City policy requires that when there is an estimated three year water storage capacity remaining in the City’s reservoirs that mandatory conservation measures be implemented.

BE IT ORDAINED by the Council of the City of San Luis Obispo as follows:

SECTION 1. The City has established the following allocation method for each customer classification.

Single Family Residential- A per capita allotment of 115 gppd during Stage 1, 100 gppd during Stage 2 and 85 gppd during Stage 3 based on a three person household will be assigned to each single family residence. If there are more than three people in the household, additional water would be allocated dependent on verification of the actual number of people in a household and will be based on the health and safety (52 gppd) requirements previously identified for each additional person.

Multi-family Residential- A per capita allotment based on a three person household will be assigned to each multi-family residence. If there are more than three people in the household, additional water would be allocated dependent on verification of the actual number of person in the household and will be based on the health and safety requirements previously identified.

Commercial- Commercial customers will receive an allocation using a percent reduction methodology based on the average of the previous three years of water use. An optional baseline standard allocation will also be available to commercial customers.

Institutional- Institutional customers will receive an allocation using a percent reduction methodology based on the average of the previous three years of water use.

Landscape Meters- Landscape only metered customers will receive an allocation using a percent reduction methodology based on the average of the previous three years of water use.

Excessive Water Use Penalties- Customers exceeding their assigned allocation will pay 100% surcharge of the water portion of their bill. If the customer exceeds the base allocation assigned to their account, a 200% surcharge will be assessed.
SECTION 2. A summary of this ordinance, approved by the City Attorney, together
with the names of the Council members voting for and against it, shall be published at least five
days prior to its final passage, in the Tribune, a newspaper published and circulated in this City.
This ordinance will go into effect at the expiration of thirty (30) days after its final passage.

INTRODUCED on the _________ day of _____________________________2005 AND
FINALLY ADOPTED by the Council of the City of San Luis Obispo on the ________day of
________________________2005, on the following roll call vote:

AYES:

NOES:

ABSENT:

____________________________________
Mayor David Romero

ATTEST:

____________________________________
Audrey Hooper, City Clerk

APPROVED AS TO FORM:

____________________________________
Jonathan Lowell, City Attorney