Section 9: Recommended Plan

The previous section identifies recommended long-term supply alternatives to meet CCSD's future potable water demand. This section presents the recommended plan and required implementation activities.

9.1 Development of Recommended Plan

Due to the lack of sufficient recharge during drought periods and the influx of summer tourists, CCSD's water supply could be exhausted during an extended drought. Accordingly, CCSD has identified the need for an assessment of long-term water supply alternatives. Potential water supply alternatives were compiled from discussions with CCSD staff, as well as a collection of studies conducted in the last twenty years identifying and evaluating potential sources of additional potable water for CCSD. Sources of future supply include seawater desalination, local and imported surface water, groundwater, hard rock drilling, recycled water, and seasonal storage.

From a comparison of CCSD's available supply and projected demand, the long-term supplemental dry season water requirement is between 602 (build-out Scenario 4) to 994 AFY (build-out Scenario 1), when the 50 percent quality of life increase is applied and 1.66 people per dwelling unit are considered (see Tables 2-7 and 2-8 for additional AFY values associated with other build-out scenarios, quality of life increases in consumption, and persons per dwelling units.). Future available supply, as determined by the CCC Development permit and a model based on historical data that projected basin response to increased production, was projected to be 1,230 AFY (286 AF during the dry season). For build-out Scenario 4 (4650 residential units), with a 50-percent quality of life increase, future water demand was projected to be 1,514 AFY (888 AF during the dry season). Similarly, for build-out Scenario 1 (6700 residential units) demand was estimated at 2,181 AFY (1,280 AF during the dry season). Because the unit demands used in the development of these estimates included commercial and residential uses, the estimated volumes include an allowance for future visitor serving commercial development. The commercial component represents approximately 25 percent of the estimated demands in Cambria. This value also exceeds the 20 percent minimum for such uses stipulated by the CCC development permit.

To provide the additional supply needed, it is recommended that CCSD's goal be two-fold; to reduce overall potable water demand and increase supply availability during the dry season. Accordingly, the recommended plan consists of the implementation of a combination of long-term supply alternatives. These supply alternatives were evaluated based on a ranking scale for the following criteria: water supply capability, water quality, reliability, required agreements/institutional issues, environmental issues, permitting/CEQA, cost and availability of funding.

Based on the evaluation and the recommended goals, it is recommended that CCSD's long-term water supply strategy consist of the following elements:

- Water Demand Management
- Recycled Water
- Seawater Desalination

Each of these alternatives had the highest ranking using equal weight of criteria and are discussed in the following subsections. Other alternatives, such as the Nacimiento Water Supply and Whale Rock Exchange, had ranking values slightly lower than these alternatives and may also be considered as sources of supplemental supply.

9.1.1 Demand Management

In order to reduce existing potable water demands, a combination of improved water demand management measures and recycled water should be implemented. Improved water demand management has minimal costs, no environmental issues, and could be implemented immediately. Although some additional measures to reduce potable water used for landscape irrigation can be implemented, such as rain sensors and cisterns, further reduction in consumption is limited by the aggressiveness of the existing measures. Accordingly, demand management alone would not significantly reduce potable water demand, but would provide short-term relief until an additional source is established. However, when implemented together with a recycled water system, potable water demand could be significantly reduced. Recycled water would provide a reduction of approximately 162 to 184 AFY of potable water demand. However, additional study is needed to confirm the quantity of recycled water that is available without impacting the CCSD's hydraulic mound operation and aquatic environment. Furthermore, state and federal funding may be available for water conservation and recycled water projects, which would help minimize impacts to CCSD's current water rate.

9.1.2 Increased Supply Availability

In order to provide an additional water supply of 602 to 994 AFY during the dry season, it is recommended that CCSD implement Seawater Desalination. Seawater Desalination offers the most flexibility in operation and production, which will better suit CCSD's variable water supply needs, and has the potential to meet all four projected water demand scenarios, when the 50 percent quality of life increase is considered. Furthermore, Seawater Desalination is a very reliable source particularly during critically dry years when additional demand is needed most. Although the 600 gpm option is sufficient to meet to anticipated water supply requirements with a slight increase in the days of operation, CCSD may want to consider saving room for future expansion to 900 gpm to provide nearly sufficient redundancy to meet with the anticipated max day demand (approximately 1,091 gpm for Scenario 4, assuming 1.66 people per dwelling unit). This may become important if further restrictions on CCSD groundwater pumping are implemented as a result of increased riparian demands and habitat requirements. Seawater Desalination will also allow CCSD to provide a better quality of water to its customers and has the potential to significantly reduce the use of individual water softeners, which would greatly reduce the salt loadings at the wastewater treatment plant. Furthermore, with respect to creek and riparian habitat, Seawater Desalination would provide environmental benefits at times when the creeks are under duress due to drought conditions. An added benefit is the availability of federal funding for this alternative, which would minimize impacts to CCSD's current water rate.

9.2 Estimated Cost of the Recommended Plan

The costs of the individual elements of the recommended plan were discussed in Section 8 and are summarized in Table 9-1.

TABLE 9-1
ESTIMATED COST (2002) OF THE RECOMMENDED PLAN

Element	Annual Fixed Cost[(a)] ($/yr)	Variable Cost ($/AF)
Water Demand Management	< $100,000	$0
Recycled Water	$369,000	$810
Seawater Desalination[(b)]	$275,000	$710

Notes:
(a) Combination of the capital cost annualized over a 30-year period at 4 percent and annual O&M costs.
(b) Based on selection of a 600 gpm RO system with the 75 percent reduction in capital cost from grant funding included.

9.3 Recommended Implementation Activities

In order to implement each phase, several development activities need to occur and issues need to be addressed. The following is a listing of the major activities and issues to be addressed. The activities are generally listed in order of occurrence; however, some could occur concurrently.

1. Institutional Agreements: This activity would involve the implementation of additional water demand management measures for landscape irrigation as well as negotiations with the potential recycled water users. Non-potable water demand would also be determined. Additionally negotiations with the CCC to construction the desalination facility would also occur.

2. Preliminary Design: This activity would provide a detailed evaluation of alternative pipeline routes for the recycled water and desalination systems; evaluate potential water system impacts, collect utility and traffic information, and prepare updated cost estimates.

3. Permitting: This activity would involve obtaining required permits and regulatory approvals, including DHS, RWQCB, CEQA, and construction permits. Regulatory activities should be initiated concurrently with preliminary design and continue through implementation and operation.

4. Design/Construction: This activity would involve detailed design, bidding, and construction of the recommended facilities. Any updated regulatory requirements, institutional issues, and community concerns would be incorporated into the project. Design and construction efforts can begin immediately following preliminary design.

5. Training: This activity would involve training and guidance to the site supervisors assigned by each recycled water user. The site supervisors should be educated on the proper use of the recycled water, recycled water regulations, and basic principles of backflow prevention and cross-connection control. Operators at both the recycled water and desalination facilities should be educated and trained on the operation and maintenance of the facilities as well.

9.4 Implementation Phases

This section presents phasing for the recommended plan. Because the time required for implementation of Recycled Water and Seawater Desalination programs is long, it is

recommended that these activities be implemented concurrently. Completion for the recommended plan is anticipated to take 8 to 10 years, if phases are not implemented concurrently.

9.4.1 Phase 1 - Demand Management

Improved demand management activities could be implemented after approval of the modifications made to the existing ordinance to include the landscape irrigation measures. Approval is anticipated to be obtained within one year.

9.4.2 Phase 2 - Recycled Water

Recycled water is anticipated to take 2.5 to 3.5 years to complete. Although relatively straightforward, negotiations with potential recycled water users may take up to 6 months and should begin as early as possible. Opportunities for state and federal funding should also be pursued early in the process. Permitting, design, construction, and startup are likely to require 2 to 3 years to complete. The permitting process may also be lengthy due to the numerous Title 22 requirements and should also begin as early as possible. Preliminary design of the recycled water distribution system is currently in progress as part of the Water Master Plan update; however, preliminary design of the necessary treatment plant upgrades would still need to be completed. Construction activities could be divided into 2 phases. Phase 2A would consist of the necessary treatment plant upgrades and phase 2B would consist of the construction of the distribution system pipeline. Both construction phases could be implemented concurrently.

9.4.3 Phase 3 - Seawater Desalination

Seawater desalination is anticipated to take 4 to 5 years to complete. Negotiations with the CCC, required to obtain approval for construction of the intake and discharge facilities, is anticipated to take up to one year. Completion of a final EIR may also hinder implementation. It is recommended that these activities be started as early as possible as they may delay the construction process. Negotiations for state and federal funding should also be started at this time. Permitting, design, construction, and startup are likely to require an additional 3 to 4 years to complete. Due to the past design efforts for a seawater desalination facility, the final design phase is not anticipated to hinder implementation. Construction of the facility may be divided into 3 phases. Phase 3A would involve construction of the intake facility and the exfiltration gallery. Phase 3B would consist of the construction of both the intake and discharge pipelines. Phase 3C would consist of the construction of the treatment facilities. These phases could be implemented concurrently.