



# WaterReuse Bay Area

Recycled Water Through the Years

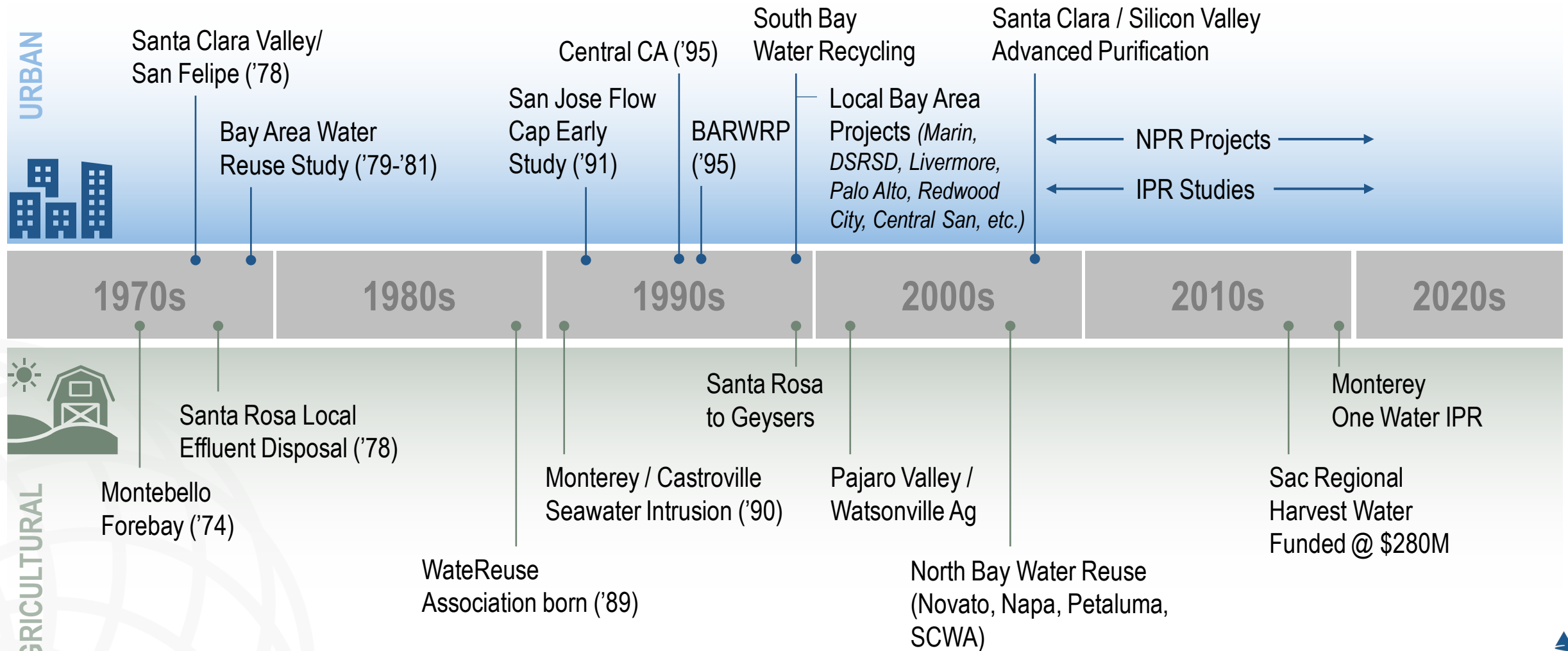
Presented by: Michele Pla, Dave Richardson, and Eric Rosenblum

Moderated by: Melody LaBella

COMMITMENT & INTEGRITY DRIVE RESULTS



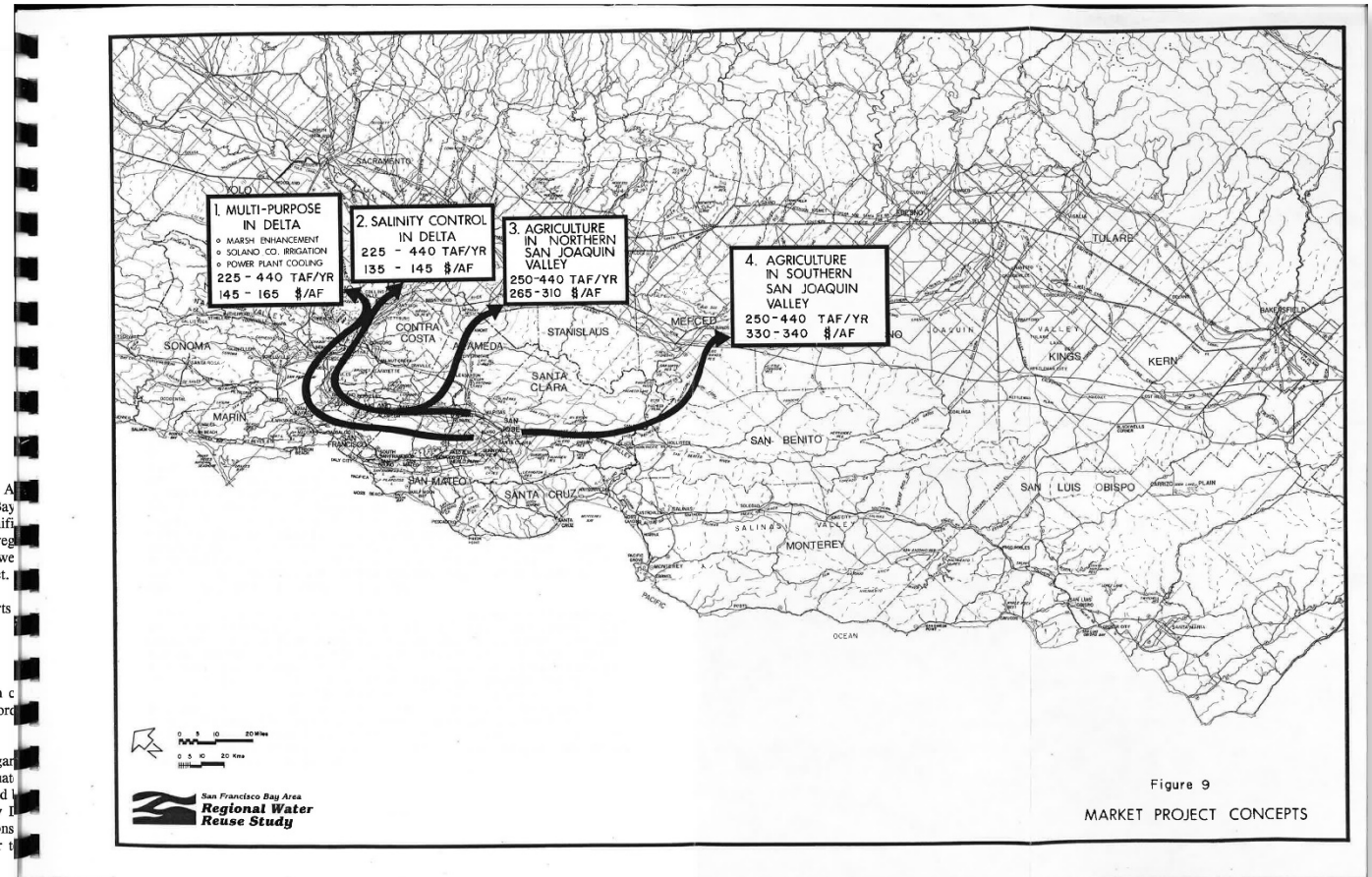
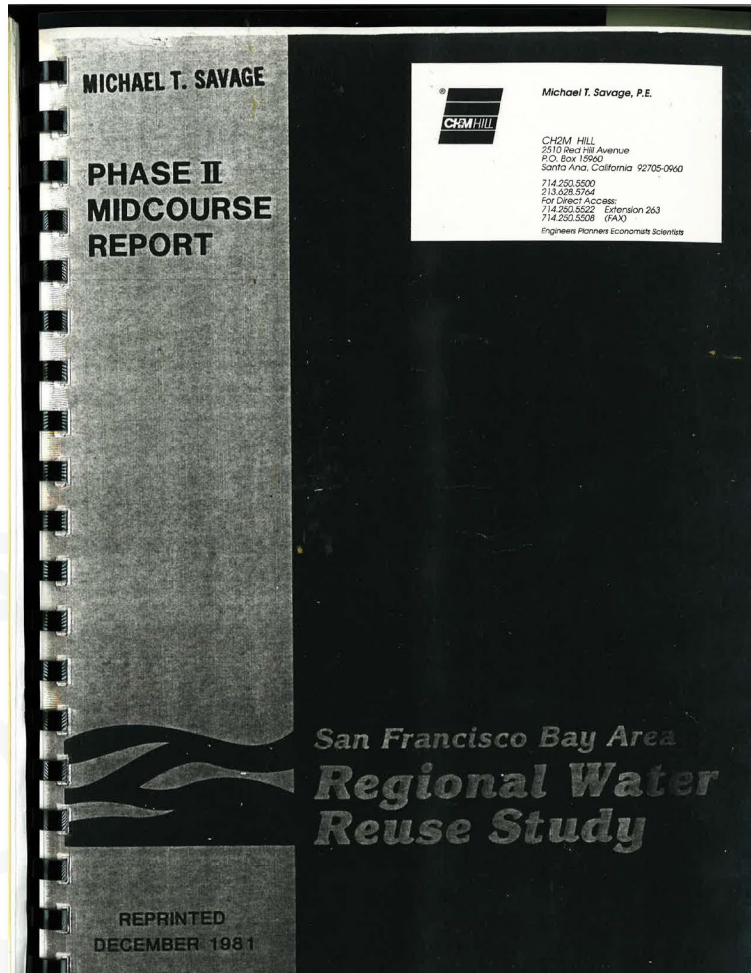
# Conceptual\* Timeline of Water Recycling in California in Modern Times\*\*



\* From memory \*\* Since as far back as Michele, Dave and Eric can remember



# SFBA Regional Study (Salinity Control, Multi-purpose in Delta, and Ag in SJ Valley) – 1979 - 1981





# Central California (with Discharge of Valley Drainage) - 1995

## Central California Regional Water Recycling Project Step 1 Feasibility Study

### Administrative Draft Report

### Volume 1: Report

June 30, 1995

A Cooperative Effort Funded by U.S. Bureau of Reclamation and Bay Area  
Water and Wastewater Agencies

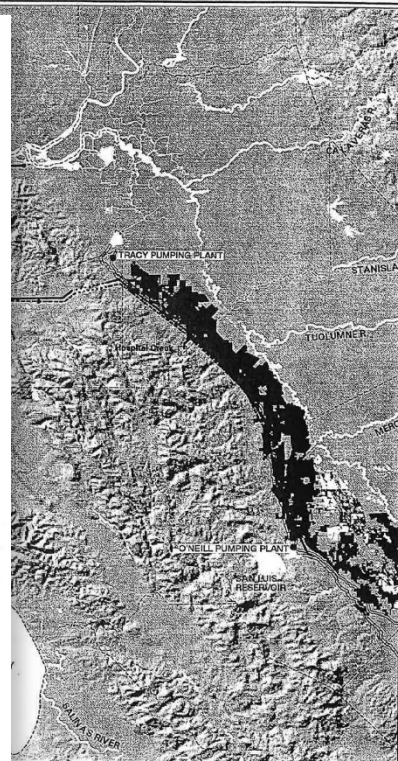


FIGURE 14-18  
ALTERNATIVE 1E

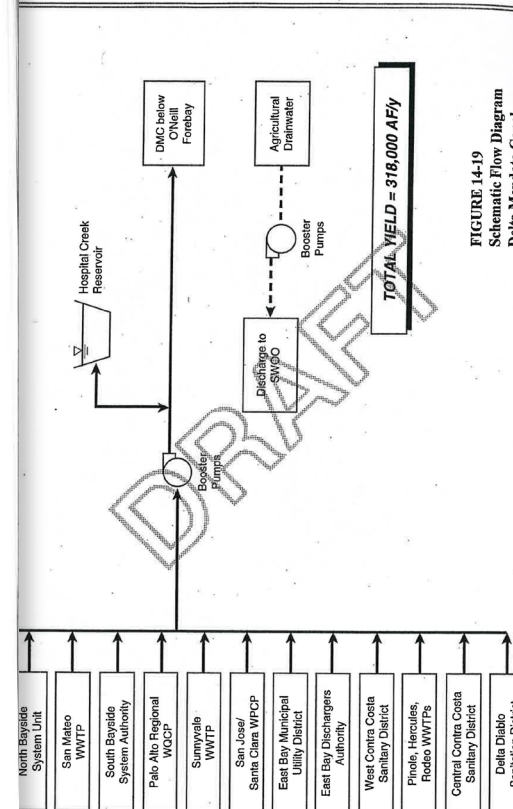


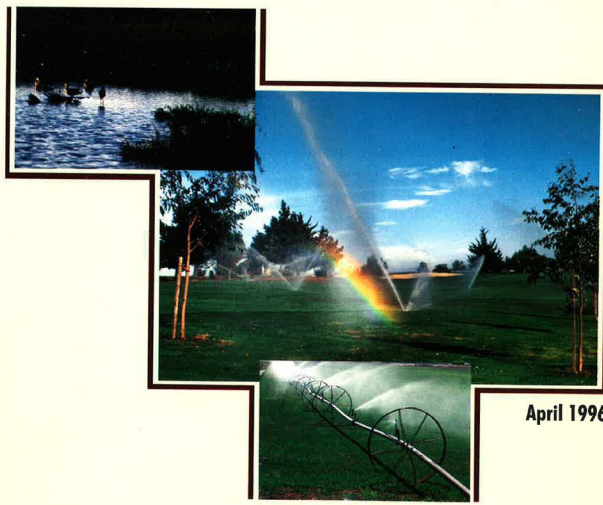
FIGURE 14-19  
Schematic Flow Diagram  
Delta Mendota Canal  
Alternative 1E

Alternatives	Capital Cost (\$million)	Annual O&M Cost (\$million/yr)	Total Annual Cost (\$million/yr)
No Project			
NP-B Secondary/SWOO	1,655	24.3	162.3
Delta Mendota Canal			
1E O'Neill/Tertiary/Hospital Creek/SWOO	6,547	62.9	628.8
Delta Service Area			
2C Tertiary/High Storage	5,363	76.1	531.8
Monterey Bay Area			
3B Tertiary/Storage	6,198	85.7	618.9
3G Combination of 2A and 3	6,002	73.6	590.7
South San Joaquin Area			
4B Tertiary/Storage/Partial Dist/Partial Outfall Drain	6,459	138.8	707.8
Indirect Potable Reuse			
5A RO/Existing Local Reservoirs	3,360	127.6	436.0


# Central California (no Drainage) - 1996

■ ■ ■

## Benefits of Water Recycling in the Bay Area and Beyond



April 1996



**CENTRAL CALIFORNIA REGIONAL  
WATER RECYCLING PROJECT**

A Cooperative Effort Funded by U.S. Bureau of Reclamation and Bay Area Water and Wastewater Agencies

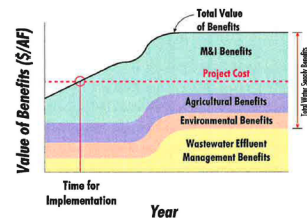
### Timing of Implementation

The optimum timing of implementation, either for local or export recycling projects, should be determined by evaluating the total value of project benefits compared with projects costs over time. The example provided by Figure 16 shows time of implementation as the point at which the increasing value of M&I benefits causes the total value of benefits to increase beyond the project cost. This type of evaluation should be conducted for all potentially feasible alternatives.

### Conclusions

The major conclusions of this benefits issue paper are as follows:

- Implementation of regional water recycling would provide a significant source of "new" water.
- The 650,000 acre feet total yield could be used to improve the reliability of supply to M&I uses, agricultural uses, and/or environmental uses.
- Implementation of regional water recycling would significantly reduce discharges to the Bay from municipal wastewater treatment plants.
- The average project costs of export recycling are less than the average costs of local recycling; the relative values of these two components of regional water recycling may be reversed, however, when they are evaluated as a supply for M&I use.
- Regional water recycling will provide multiple benefits. The value of these benefits should be utilized as a means to allocate costs and secure project funding.
- The greater the value of wastewater effluent management benefits, the lower the "net" water supply costs of local and export water recycling. Even assuming a relatively small value for the wastewater benefits, the "net" water supply costs of water recycling appear to be competitive with other new sources of water.
- The relative value of local recycling as an M&I supply may lead to the conclusion that implementation of these projects should occur as soon as possible. The value of export recycling benefits should be projected as part of the Step 2 financial analysis, and implementation should occur when the total value of benefits exceeds the project cost.



WATER RECYCLING PROJECTS SHOULD BE IMPLEMENTED WHEN TOTAL VALUE OF BENEFITS EXCEEDS COSTS

FIGURE 16

BENEFITS PAPER 12



# BARWRP - 1999



San Francisco  
Bay Area  
REGIONAL WATER  
RECYCLING PROGRAM



Recycled Water Master Plan  
September 1999

## EXECUTIVE SUMMARY

However, water supplies are not always reliable during drought shortages are predicted to increase in the economic growth. Most of the Bay Area's water supply, however, originates from the Sacramento-San Joaquin River Delta. However, obtaining additional supplies from the Delta is an environmental issue under evaluation by the CALFED

The Regional Master Plan results, water recycling can play a role in solving this dilemma. Recycled water can safely replace many types of water demands, and recycled water of high reliability. Through cooperative arrangements for water recycling from the closest source and through innovative financing, benefits and costs, the Regional Water Recycling Master Plan eases the feasibility of water recycling in the Bay Area.

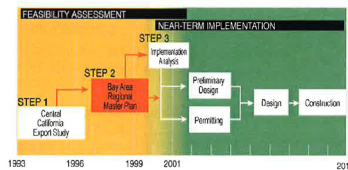


Figure ES-3  
Regional Master Plan Prioritizes Near-Term Implementation



Figure ES-4  
Regional Plan Builds Upon Locally Planned Projects

ES-5

## EXECUTIVE SUMMARY

Issues and compliance measures to be resolved prior to construction of near-term projects. Implementation of large-scale water recycling in the Bay Area will help limit future demands on the Delta and its watershed, and thus, provide an important component of the solutions being evaluated by the CALFED Bay-Delta Program.

### Public Acceptance

Using recycled water improves the water supply reliability of the Bay Area and California and contributes to long-term restoration of the Bay-Delta environment. Recycled water treated to meet the California Department of Health Service's strictest water quality requirements provides a safe, reliable source of water. The BARWRP Communications Committee recommends a comprehensive education program to convey these messages to potential users of recycled water, to other stakeholders and to the general public.

### Water Recycling Benefits

#### Ensuring Water Supply Reliability

Most Bay Area water agencies have completed integrated water resources plans to define future demands and assess options for meeting those demands. Many of these agencies have evaluated water recycling as an option, but the regional approach utilized by BARWRP results in a much higher projection of total potential water yield. The large-scale implementation of water recycling recommended in the Master Plan can provide a significant portion of the total dry year deficit projected by Bay Area water agencies.

Water recycling provides several advantages over other water supply options being studied in the CALFED Program. By maximizing use of recycled water for its permitted demands, water agencies can reduce the demands on their current high quality water supplies and limit the need for new, possibly, lower quality supplies in the future.

### Sustaining the Regional and State Economy

Securing a reliable, drought-proof water supply has been identified by business associations as an important cornerstone of the long-term economic vitality of the Bay Area and California. Implementation of the regional water recycling program promotes economic vitality as follows:

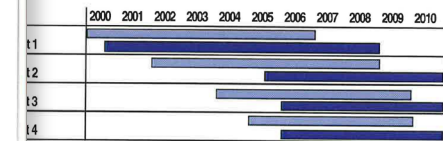
- The projected recycled water yield for the near-term and mid-term years (2010 and 2025, respectively) greatly reduces projected dry year water shortages for the Bay Area.

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ES-6

## EXECUTIVE SUMMARY

and construction costs be funded by the federal and state governments, and that 50 percent be funded by local agencies. The federal share could come from Title XVI, the CALFED authorization, the Water Resources Development Act and/or new legislation. The state share could come from new CALFED



Pre-Construction Implementation: Predesign, Permitting, Design, etc.  
Construction

Figure ES-11  
Near-Term Implementation Schedule

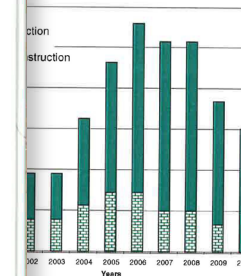


Figure ES-12  
Near-Term System: Projected Cash Flow

funding and/or separate water bonds. The local share could come from the bonding capacity of individual agencies and/or a new regional joint powers authority. A preliminary schedule and cash flow diagram are shown on Figures ES-11 and ES-12 assuming that near-term implementation is broken up into four sets of projects. A summary of the recommended implementation actions appears on the following pages.

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ES-15