

EXHIBIT 4-A

MPWMD  
Capital Improvement Plan  
DRAFT  
(as of 3-27-12)

	FY2012-13	FY2013-14	After 2014
Water Supply: Aquifer Storage and Recovery Phase 1 Completion <sup>1</sup>	\$885,165	\$435,314	\$295,348
Water Supply: Groundwater Replenishment <sup>2</sup>	1,036,550	1,469,200	50 - 70,000,000
Water Supply: Studies in Support of Combined Desal, GWR, and ASR Operations	150,000	250,000	250,000
Water Supply: ASR Expansion Study – Part 1(Scoping locations)	150,000		0
Water Supply: ASR Expansion Study – Part 2 (Easements & Test Wells)		500,000	n.a.
Water Supply: Feasibility studies – Other Projects	200,000	200,000	n.a.
Water Supply: Repayment of Advances for ASR <sup>1</sup>	427,056	427,056	427,056
Mitigation Program: Capital <sup>3</sup>	109,873	50,000	n.a.
TOTAL CIP	\$2,958,644	\$3,331,570	n.a.

Notes:

- (1) 3-22-12 update per J. Oliver; Capital costs only – staff and overhead captured in operating budget.
- (2) 50% of FY 2013 and 2014 costs from Monterey Regional Water Pollution Control Agency GWR Project Planning Costs – Funding 1-2012, plus an additional \$375,000 for environmental work.
- (3) February 13, 2012 Comparison of Mitigation Program Costs Spreadsheet; Sum of program area “capital costs” plus Program Support “capital asset purchases.”

## **Description of Significant Capital Projects**

### **Aquifer Storage and Recovery**

In Phase 1 of Aquifer Storage and Recovery (District Water Project #1) excess winter flow from the Carmel River is treated, transported and injected into the Seaside Basin via special wells. This water is then taken in the dry season for customer use. Santa Margarita Wells #1 and #2 are complete. Construction on a facilities building is complete, with permanent power installation underway. MPWMD continues coordination with Cal Am regarding system operations and capacity, pipeline easement and ownership/operations. 1,117 AF were injected in Water Year 2011, for a total injection of 4,346 AF since 1998. Expected average yield is 920 AFY.

District Water Project #2 is an expansion or phase 2 of ASR and includes two planned wells at Seaside Middle School. Well #1 is drilled, with production testing complete. Installation of a permanent pump and motor, along with temporary electrical control, is in progress. Construction on Well #2 is planned for 2012-13. Expected average yield is 1,000 AFY.

MPWMD and Cal Am continue to coordinate on needed infrastructure to enable operation of Water Projects #1 and #2 at full capacity, as well as plans for future ASR expansion phases. A third phase, the fifth and sixth wells, are envisioned as a component of the regional desalination project

### **Groundwater Replenishment**

Modeled after the successful “Water Factory 21” project in Orange County, and its larger and more advanced replacement project, the Groundwater Replenishment project sponsored by the Monterey Regional Water Pollution Control Agency would inject highly purified water from its treatment plant into the Seaside Basin. After meeting time and distance standards, this water could later be recovered for use.

MPWMD has pledged to fund 50% of pay-as-you-go capital costs beginning in FY 2013, and to enter into a MOU with MRWPCA regarding the bond financing, water purchase, and potable water resale. It is expected that the District will issue bonds secured by wholesale water purchases by Cal-Am, backstopped by the District’s secure User Fee revenue stream. Expected average yield is expected to be 3,300 AFY.

## **Studies in Support of Combined Desal, GWR, and ASR Operations**

Examination of how the basin will be "operated" if four primary sources of water are both injected and extracted: (a) natural inflow, (b) Carmel River water under ASR, (c) desal water in order to balance steady plant operations against variable demand, and (d) advanced treated wastewater under Groundwater Replenishment. There are several key issues which will require study and will lead to operations strategy:

Groundwater Flow Modeling - related simply to how will water move between injection and extraction sites, and will it actually move? That is, what is the difference between basin-wide accounting and more localized well-based accounting? For example, must examine the potential of over-drafting down-gradient extraction or production wells, if replenishment water does not reach that location at the same pace, especially with respect to seawater intrusion. Further discussion about injection into which aquifer and matching/balancing extraction capacity from the same strata;

Geochemical Mixing Modeling - Four water sources are introduced to a single reservoir. New mixing modeling will be needed, and water quality issues examined.

Hydraulic Modeling – Examination of injection into different aquifer strata (Paso Robles or Santa Margarita) and balancing the extraction capacity of wells in the same aquifer. Does Cal-Am have sufficient well capacity for extraction of all the new supply expected to come from the Seaside Basin? Is the Cal Am infrastructure in place to extract, pump, move, and transmit water into their system? Does Phase 3 ASR provide sufficient capacity to balance desal operations?

Permit Strategy - For all wells capable of both injection and extraction, how can the permits be conformed to all read similarly for similar sources and to allow for injection of both desal water and Carmel River water? Should the Groundwater Replenishment wells also be permitted for injection of desal water and Carmel River water, especially for dilution if needed? Should ASR wells also become permitted for standard production (like Peralta, Plumas, etc)? How is water accounting done for the groundwater basin as a whole, yet still account for localized effects?

## **ASR Expansion Study**

The District expects to determine additional locations for ASR wells in the Seaside Basin, the Tullarcitos aquifer in Carmel Valley, and other locations. This study will provide guidance for the reallocation of the District's remaining water right 20808-B. Part 1 of the

study will identify possible sites for ASR facilities. Part 2 would involve possible test wells and site acquisition. Such sites would be “banked” until additional ASR capacity is needed.

## **OTHER PROJECTS**

### **Desalination**

Desalination is treating seawater or brackish water to remove impurities and salts in order to produce drinking water and concentrated effluent. Seawater Reverse Osmosis desalination uses membrane filters for coastal projects. The District has offered to provide technical analysis, CEQA leadership, ownership, and or low-cost public finance, for various desal alternatives. If a Cal-Am facility is the eventual project, the District will endeavor to lend its status to reduce costs through low interest State loans and access to the public finance markets. Even if a large “regional” project moves forward, MPWMD engineers continue to explore desalination feasibility at an abandoned treatment plant on U.S. Navy property at Del Monte Beach as a future water supply.

### **Los Padres Dam Improvements**

The District’s Water Project #5 explores the possibility of expanding capacity of the Los Padres Reservoir via dredging and/or a small increase in spillway elevation. The increase in spillway elevation could perhaps be achieved by a rubber dam. However, the proposed project cannot move forward until issues are resolved about future decommissioning, ownership, fish passage, spillway improvements, among others. Hence, the District no longer views this project as a near-term solution. MPWMD continues conversations with Cal Am and fishery agencies regarding the value of water release from the Los Padres Reservoir in order to improve river habitat and increase aquifer storage, especially in the dry summer months. Expected average yield increase of 850 AFY through dredging, or up to 1,500 AFY if additional capacity is created (e.g. a rubber dam).

U:\Arlene\word\2012\BoardMeetings\StaffNotes\20120328\Exhibit 4-A StoldtREV.docx

