



● **Board of Directors**
Engineering and Operations Committee

8/17/2010 Board Meeting

7-2

Subject

Appropriate \$1.04 million; and authorize two Colorado River Aqueduct rehabilitation projects (Approp. 15438)

Description

This action authorizes construction to upgrade the flow and chlorine monitoring station at Mile 12 of the Colorado River Aqueduct (CRA), and authorizes final design for repair of the garage service pit at Iron Mountain Pumping Plant.

Timing and Urgency

One of the CRA's critical points for monitoring flow rates and chlorine levels is located at mile marker 12 (Mile 12) along the aqueduct. The flow data and chlorine residual concentrations at Mile 12 are monitored continuously. These data are needed to enable the CRA to convey its maximum available flow capacity; to prevent pumping beyond the aqueduct's capacity, which could cause spills; and to inject the proper amount of chlorine for quagga mussel control. Due to the advancing state of corrosion at Mile 12, staff recommends proceeding with upgrades at this time.

Metropolitan's construction and maintenance vehicles for the desert region are serviced at Iron Mountain Pumping Plant. The concrete service pit located within the facility's garage, has severely cracked concrete floor and walls, and is no longer functional. As a result, Metropolitan staff hauls large construction and maintenance vehicles more than 80 miles for repair. This travel increases maintenance costs and increases downtime of the equipment. These vehicles are needed to support routine operation of the CRA. Rehabilitation of the service pit at the Iron Mountain garage is recommended in order to return the pit back to operation.

These projects have been reviewed with Metropolitan's updated Capital Investment Plan (CIP) prioritization criteria, and are categorized as Infrastructure Upgrade projects. Both projects are budgeted within Metropolitan's CIP for fiscal year 2010/11.

Project No. 1 – Mile 12 Monitoring Station Upgrades – Construction (\$900,000)

The Mile 12 monitoring station is located approximately five miles downstream of Copper Basin reservoir at an isolated site. Monitoring equipment includes a set of flow meters with instrumentation, chlorine analyzers, communication equipment, solar panels, and batteries. The information collected at the monitoring station is used to adjust flow rates at each pumping plant and reservoir outlet gate, and to adjust chlorine injection rates at Copper Basin reservoir.

The Mile 12 monitoring station is presently located below ground within a manhole structure, directly above a pipeline portion of the aqueduct. The existing monitoring equipment was placed into operation in the early 1990s. Typically, these types of devices have a useful service life of approximately 15 years. Although the equipment has performed well, it has exceeded its life span and is beginning to fail, which has lead to unreliable readings and interruptions in transmission of data. The manufacturers no longer support much of the equipment, and replacement parts are difficult to obtain. In addition, following the introduction of chlorine at Copper Basin reservoir in 2007 to control quagga mussels, the equipment at this monitoring station became exposed to residual

chlorine vapors. Chlorine vapors are extremely corrosive to a number of metals. This exposure has accelerated the deterioration of key equipment components. At the present time, Water System Operations staff makes frequent trips to this isolated site to verify the flow rates and the chlorine residual measurements, requiring entry into the manhole. Prior to entering the structure, chlorine concentrations must be tested to ensure that the manhole is safe to enter.

In November 2009, Metropolitan's Board authorized final design phase activities for upgrades to the Mile 12 monitoring station. Final design is now complete and staff recommends proceeding with construction of the upgrades at this time. Planned improvements include replacement of the existing deteriorated flow meters with new ultrasonic models that are compatible with other meters in use throughout the CRA; relocation of the data and communications equipment from the underground manhole to a new aboveground monitoring station; and construction of a reliable power source. Relocating the sensitive electrical equipment into an aboveground structure, away from the chlorine vapors, will extend the life of the new equipment and provide a safer working environment for staff. The aboveground structure will require air-conditioned cabinets because the equipment requires a controlled environment to operate. All construction will be performed by Metropolitan forces.

This action appropriates \$900,000 and authorizes construction of upgrades to the Mile 12 monitoring station. The appropriated funds include \$382,000 for Metropolitan force labor; \$350,000 for materials, supplies and equipment; \$68,000 for permitting, environmental monitoring of endangered species, and for project management; \$67,000 for technical support and record drawings by Metropolitan design staff; and \$33,000 for remaining budget. The construction cost for this project is estimated to be \$732,000.

Project No. 2 – Iron Mountain Service Pit Rehabilitation – Final Design Phase (\$140,000)

The garage at Metropolitan's Iron Mountain Pumping Plant, which was constructed in the 1960s, is the desert region's primary vehicle service center. The garage services all types of Metropolitan construction and maintenance vehicles. The 17,000 square foot facility has a 15-foot by 48-foot reinforced concrete service pit that is used on a daily basis to maintain vehicles. Nearly 1,650 pieces of mobile equipment are maintained in the desert region, including cranes, bulldozers, road graders, and light- and heavy-duty utility trucks. These vehicles are required to support CRA maintenance activities and capital projects. Examples of these activities include: pump plant maintenance, structure repair and upgrades, facility maintenance and painting, grading of access roads, fee property maintenance, quagga mussel control, aqueduct shutdown services and security patrols.

The concrete flooring and walls above the pit have severely cracked, and staff has determined that the pit is unsafe for operation. While the pit remains out of service, Metropolitan's maintenance staff must tow vehicles more than 80 miles to privately owned garages that are large enough to handle the maintenance vehicles, typically located in Indio or Lake Havasu City. This transport has increased maintenance costs and the repair time for equipment. When the equipment is not readily available, staff has deferred maintenance, borrowed equipment from distant facilities, such as Lake Mathews, or has rented from an outside vendor.

Staff recommends proceeding with final design for repair of the Iron Mountain service pit at this time. Planned rehabilitation includes demolition of the existing structure and construction of a new service pit that will be able to withstand equipment weighing up to 75,000 pounds.

This action appropriates \$140,000 and authorizes final design phase activities for the Iron Mountain Service Pit Rehabilitation project. All final design activities will be performed by Metropolitan staff. The planned scope of work includes engineering design, preparation of drawings, and development of a construction cost estimate. Requested funds include \$59,200 for final design; \$10,000 for field surveys; \$58,800 for permitting, environmental documentation and project management; and \$12,000 for remaining budget. The final design cost as a percentage of the total estimated construction cost is approximately 13.9 percent. Engineering Services' goal for design of projects with construction cost less than \$3 million is 9 to 15 percent. The construction cost for this project is anticipated to range from \$400,000 to \$425,000. Staff will return to the Board at a later date for the authorization of construction by Metropolitan forces.

Both projects have been evaluated and recommended by Metropolitan's CIP Evaluation Team. See [Attachment 1](#) for the Financial Statement and [Attachment 2](#) for the Location Map.

These projects are consistent with Metropolitan's goals for sustainability by enhancing reliability of the existing conveyance facilities and by providing for prudent use and management of assets.

Project Milestones

February 2011 – Completion of final design of the Iron Mountain service pit rehabilitation

March 2011 – Completion of construction of the Mile 12 monitoring station upgrades

Policy

Metropolitan Water District Administrative Code Section 5108: Appropriations

California Environmental Quality Act (CEQA)

CEQA determinations for Option #1:

Project No. 1 – Mile 12 Monitoring Station Upgrades – Construction

The project was previously determined to be categorically exempt under the provisions of CEQA and State CEQA Guidelines. The Board found these projects to be exempt under Class 1, Section 15301; Class 2, Section 15302; Class 3, Section 15303, and Class 4, Section 15304 of the State CEQA Guidelines on November 10, 2009. A Notice of Exemption (NOE) was filed on the projects at that time and the statute of limitations has ended. With the current board actions, there are no substantial changes proposed to the projects since the original NOE was filed. Hence, the previous environmental documentation in conjunction with the projects fully complies with CEQA and the State CEQA Guidelines. Accordingly, no further CEQA documentation is necessary for the Board to act with regards to the proposed actions.

The CEQA determination is: Determine that the proposed actions have been previously addressed in the 2009 NOE (Class 1, Section 15301; Class 2, Section 15302; Class 3, Section 15303; and Class 4, Section 15304 of the State CEQA Guidelines) and that no further environmental analysis or documentation is required.

Project No. 2 – Iron Mountain Service Pit Rehabilitation – Final Design Phase

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The overall activities involve the funding, design, minor alterations and replacement of existing public facilities with negligible or no expansion of use and no possibility of significantly impacting the physical environment. Accordingly, the proposed action qualifies under Class 1 and Class 2 Categorical Exemptions (Sections 15301 and 15302 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed action qualifies under two Categorical Exemptions (Class 1, Section 15301 and Class 2, Section 15302 of the State CEQA Guidelines).

CEQA determination for Option #2:

Project No. 1 – Mile 12 Monitoring Station Upgrades – Construction

Same as Option #1

Project No. 2 – Iron Mountain Service Pit Rehabilitation – Final Design Phase

None required

CEQA determination for Option #3:

None required

Board Options

Option #1

Adopt the CEQA determinations and

- a. Appropriate \$1.04 million;
- b. Authorize construction of upgrades to the CRA Mile 12 monitoring station; and
- c. Authorize final design to rehabilitate the Iron Mountain Pumping Plant service pit.

Fiscal Impact: \$1.04 million in budgeted funds under Approp. 15438

Business Analysis: These projects will enhance CRA reliability, improve operational efficiency, and enhance workplace safety.

Option #2

Adopt the CEQA determination and

- a. Appropriate \$900,000;
- b. Authorize construction of upgrades to the CRA Mile 12 monitoring station; and
- c. Do not authorize final design to rehabilitate the Iron Mountain Pumping Plant service pit.

Fiscal Impact: \$900,000 in budgeted funds under Approp. 15438

Business Analysis: Upgrades to the Mile 12 monitoring station would improve operational efficiency and enhance workplace safety. This option would forego an opportunity to rehabilitate the service pit at Iron Mountain Pumping Plant. As a result, maintenance costs and downtime of support vehicles would increase.

Option #3

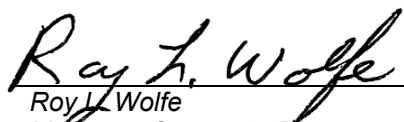
Do not authorize the two CRA reliability projects.

Fiscal Impact: None

Business Analysis: This option would forego an opportunity to improve the reliability and ensure workplace safety of Mile 12 chlorine monitoring station. This action will not provide a consistent level of CRA reliability.

Staff Recommendation

Option #1


 Roy L. Wolfe
 Manager, Corporate Resources

7/27/2010
 Date


 Jeffrey Lightlinger
 General Manager

8/2/2010
 Date

Attachment 1 – Financial Statement

Attachment 2 – Location Map

Ref# cr12606317

Financial Statement for CRA Reliability – Phase II Program

A breakdown of Board Action No. 10 for Appropriation No. 15438 for the Mile 12 Monitoring Station Upgrades project* and the Iron Mountain Service Pit Rehabilitation project** is as follows:

	Previous Total Appropriated Amount (Apr. 2010)	Current Board Action No. 10 (Aug. 2010)	New Total Appropriated Amount
Labor			
Studies and Investigations	\$ 1,186,000	\$ 10,000	\$ 1,196,000
Final Design	1,208,900	59,200	1,268,100
Owner Costs (Program mgmt. & environ. monitoring)	1,633,890	126,700	1,760,590
Submittals Review & Record Drwgs.	128,900	51,200	180,100
Construction Inspection and Support	612,800	16,000	628,800
Metropolitan Force Construction	934,300	367,400	1,301,700
Materials and Supplies	1,822,405	350,000	2,172,405
Incidental Expenses	70,300	14,500	84,800
Professional Services	1,120,000	-	1,120,000
Equipment Use	-	-	-
Contracts	5,301,000	-	5,301,000
Remaining Budget	877,505	45,000	922,505
Total	\$ 14,896,000	\$ 1,040,000	\$ 15,936,000

Funding Request

Program Name:	CRA Reliability – Phase II Program		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15438	Board Action No.:	10
Requested Amount:	\$ 1,040,000	Capital Program No.:	15438
Total Appropriated Amount:	\$ 15,936,000	Capital Program Page No.:	283
Total Program Estimate:	\$ 25,350,000	Program Goal:	I-Infrastructure Reliability

* The total amount expended to date on the Mile 12 Monitoring Station Upgrades project is approximately \$200,603.

** This action is the initial appropriation for the Iron Mountain Service Pit Rehabilitation project.

