

Metropolitan Water District of Salt Lake & Sandy  
Board Packet Information  
Last Update: November 9, 2009

**Agenda Item:** Consider approval of contract for final design of the Terminal Reservoir Replacement Project

**Objective:** Seek Board authorization to enter into a Professional Services contract with Bowen, Collins & Associates (BC&A) for the final design of Terminal Reservoir Replacement Project.

**Background:** Solicitation of Proposals for Engineering Services for the Terminal Reservoir Replacement Project Final Design occurred on October 8, 2009. Proposals were accepted on Wednesday, October 28, 2009. The following consultants submitted proposals:

- Bowen, Collins & Associates
- Brown & Caldwell
- Carollo

On November 4<sup>th</sup>, a selection committee met and selected BC&A as the preferred consultant. Although the competition between the consultants was viewed as very competitive, there was no compelling reason to change consultants from the preliminary design and their unique knowledge of the project. The selection committee further asked that the BC&A scope of work be amended to include further evaluations of other tank construction technologies without amending their fee.

In addition, and in response to previous Board direction,

- A Risk Evaluation memorandum was developed to aid in the Board's decision on replacement of Terminal Reservoir and the proposed time table (see attached).
- A letters to each member city was drafted acknowledging that the Final Design is not a New Capacity Improvement project. This information was also reviewed at the November 12<sup>th</sup> Member Cities meeting. We are awaiting formal response from the cities.

**Recommendation:** Staff recommends that the District enter into a Professional Services Agreement with Bowen, Collins & Associates for the Design of the Terminal Reservoir Replacement Project for a not to exceed amount of \$699,850.00. Budget for this Capital Project is \$758,080.00.



## **TECHNICAL MEMORANDUM (DRAFT)**

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### **Risk Evaluation of Capital Facilities Plan, Metropolitan Water District of Salt Lake & Sandy**

**PREPARED FOR:** Wayne Winsor, P.E.  
Engineering Manager  
Metropolitan Water District of Salt Lake & Sandy  
3430 East Danish Road  
Sandy, Utah 84093

**PREPARED BY:** Michael Collins, P. E.  
Bowen, Collins & Associates  
154 East 14000 South  
Draper, Utah 84020

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Shawn Draney/SCM  
File

**DATE:** November 11, 2009

**SUBJECT:** Risk Evaluation of Capital Facilities Plan

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### **INTRODUCTION AND BACKGROUND**

The Metropolitan Water District of Salt Lake & Sandy (MWDSLS) just completed a major project that provided added reliability, redundancy, and capacity for their water delivery system. This project, completed in 2007, was the result of more than a decade of planning, design, and construction and included a new water treatment plant, transmission piping, and upgrades to their existing Little Cottonwood Water Treatment Plant as well as improvements to other parts of the existing water delivery systems. MWDSLS expended almost \$300 million in completing these improvements. Much of the project was funded through the use of bonding. As a result, MWDSLS debt load has increased dramatically and the funds available to MWDSLS for further capital improvements are limited.

MWDSLS has developed a capital facilities plan for the next several years and with input from their Board of Trustees and staff have identified the most critical projects for MWDSLS.

## PURPOSE

The purpose of this memorandum is to discuss those projects that have been identified as priorities for completion and how MWDSLs is planning on implementing those projects over the next several years considering their limits on capital funding.

## CAPITAL IMPROVEMENT PROGRAM

MWDSLs developed a capital facilities plan in early 2008. This plan identified numerous projects to be completed by MWDSLs. Of these, the following two significant projects were determined to have the highest priority.

- Provo Reservoir Canal Enclosure Project
- Terminal Reservoir Replacement Project

**Provo Reservoir Canal Enclosure Project.** The Provo Reservoir Canal Enclosure Project (PRCEP) will enclose the Provo Reservoir Canal (PRC) from the mouth of Provo Canyon to the Point of the Mountain. MWDSLs uses this canal to deliver water to its new Point of the Mountain Water Treatment Plant. The project has been studied for years and MWDSLs is working with a coalition of other water agencies to complete this project. The project will provide added capacity, increased public safety, reduced risk of damage from canal failure, and many other benefits for the project sponsors. This project will require MWDSLs to expend approximately \$25 million. The project is being bid shortly and construction will begin in early 2010.

Several studies have been completed on the PRC and have identified the need for the project and the benefits to the project sponsors. These include the “Enclosure of the Provo Reservoir Canal, Technical Memorandums” completed in 2002, and the “Preliminary Design Report” completed in 2008. Both of these outline the many benefits of completing the project.

**Terminal Reservoir Replacement Project.** The 40 million gallon (MG) Terminal Reservoir was constructed by the U.S. Bureau of Reclamation (USBR) in 1951 to provide terminal storage for the Salt Lake Aqueduct (SLA). The reservoir consists of two 20 MG buried reinforced concrete cells. Engineering design standards at the time the Terminal Reservoir was constructed did not include seismic considerations. The District’s 1998 Master Plan Update and geologic hazards study identified the lack of seismic capability at Terminal Reservoir and the need for further study to recommend improvements to mitigate risks associated with a major seismic event. The subsequent Terminal Reservoir Study, completed by EWP in 1999, assessed the condition of the facility and recommended both short-term and long-term improvements to address the seismic inadequacy of the structure and to mitigate associated risks.

In June 2009, Bowen Collins & Associates (BC&A) completed the Preliminary Design of the Terminal Reservoir Replacement Project including an independent analysis of the reservoir seismic capabilities and present structural condition. BC&A’s conclusions were consistent with prior studies, and it was recommended that the District proceed with design of improvements to replace the existing reservoir. BC&A also developed a phased construction implementation plan to replace the existing

structure over a period of approximately eight to ten years, in order to maintain storage needed during construction and to manage capital costs.

## **RISK EVALUATION**

Both projects present risks to MWDSLS. The PRCEP is an open earth lined canal that traverses 21 miles of northern Utah County. The area adjacent to the canal is highly developed and a canal failure would result in major damage downstream and the potential for loss of life. The canal bank has failed in the past and resulted in major damage downstream of the canal. The canal is the primary conveyance for water to the MWDSLS's Point of the Mountain Water Treatment Plant (POMWTP). Without the canal, the POMWTP could potentially be without water during high delivery periods for an extended period. Several people have drowned in the canal since it was built, and additional development around the canal has increased the likelihood of future drownings. The PRCEP will mitigate these type of risks and enhance the water delivery system that serves the Salt Lake valley.

The Wasatch Front is a seismically active area with a history of large magnitude earthquakes. It is anticipated that the Terminal Reservoir site and surrounding areas will be subjected to strong ground shaking in the future. Studies indicate that Terminal Reservoir will fail in a large seismic event. There is significant development downstream of the reservoir and the potential for major damage and loss of life. In a smaller seismic event, the roof panels could fail resulting in disruptions to deliveries to Salt Lake City.

## **FUNDING AVAILABLE FOR CAPITAL IMPROVEMENT PROJECTS**

MWDSLS's present funding for capital improvements is approximately \$3-\$5 million per year. Without major increases in their revenues, they cannot complete both projects simultaneously. The PRCEP will require MWDSLS to inject some of its reserve funds into the project over the next three years as part of its initial cost share and then MWDSLS will have a long term payment for the next 24 years. One of the reasons that MWDSLS is participating in the PRCEP at this time is that the Central Utah Water Conservancy District is funding half of the project costs. If the project is not completed at this time, this funding could potentially disappear.

## **PRIORTIZATION OF CAPITAL PROJECTS**

Staff and the Board have identified the PRCEP as the project with the highest priority and have committed to the other project sponsors their willingness to participate in and fund this project. This will require MWDSLS to fund the replacement of Terminal Reservoir over several years. The June 2009 Preliminary Design Report outlines an eight to ten year plan for replacing Terminal Reservoir. This is due partly to funding constraints, but also as a result of attempting to maintain a minimum of 40 MG of storage at the site during replacement. For this to occur, the project needs to be phased over several years.

As a result, Terminal Reservoir will continue to present a risk to MWDSLS until it is replaced. MWDSLS developed a risk assessment of the Terminal Reservoir dated November 10, 2009 which describes the risk associated with Terminal Reservoir until it is replaced. It also describes how as

improvements are made over the eight to ten year period those risks will be mitigated. MWDSLS intends to replace Terminal Reservoir as quickly as funding allows.

**CONCLUSION**

Over the next several years, MWDSLS will fund the PRCEP, and then the Terminal Reservoir Replacement Project as funding allows.