



● **Board of Directors**  
***Engineering and Capital Programs Committee***

July 14, 2009 Board Meeting

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**8-2**

**Subject**

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Appropriate \$8.47 million for (1) Metropolitan force construction of the Skinner Completion Project, and (2) extended inspection and support activities for the Skinner Oxidation Retrofit Program (Approp. 15388)

**Description**

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This action appropriates funds for: (1) Inspection activities to support completion of the Oxidation Retrofit Program (ORP) construction contract at the Robert A. Skinner Water Treatment Plant, and (2) Metropolitan force construction of “wrap-up” work at the Skinner plant. The principal Skinner ORP construction contract is currently scheduled to be completed in September 2009, which is several months beyond the planned completion date due to weather and contractor-related time extensions and Metropolitan’s requested change orders. Due to this extension, the field inspection, contract administration, and engineering support activities have continued for a longer duration than originally planned. As a result, additional funds are required in order to complete these activities.

In 2007, Metropolitan’s Board adopted a resolution to accept \$20 million in Proposition 50 grant funding for the Skinner ORP. The grant-fundable activities have taken place, and Metropolitan has incurred grant-administration costs per the funding agreement. In 2008, staff submitted a claim to the California Department of Public Health (CDPH) for the full reimbursement of \$20 million. To date, the reimbursement has not yet been received from the state and the future availability of these funds is uncertain. When the \$20 million reimbursement is received from the state, the grant funds will serve to offset the appropriated funds for this program.

In addition to the principal ORP contract which is currently underway, three smaller construction efforts are planned at Skinner which will conclude the major construction program that has been underway at the plant over the past six years. These latter three efforts will be executed via two construction contracts and by Metropolitan forces. Each has been planned to take place after completion of the principal ORP project. The present action authorizes the Metropolitan force construction, and staff will return to the Board for award of the first construction contract in August 2009.

**Timing and Urgency**

In keeping with the Board’s directive to reduce and postpone expenses where possible during the ongoing economic crisis, Metropolitan staff closely analyzed the merits of proceeding with these activities. The ORP inspection is recommended to continue in order to achieve quality goals for the Skinner ozonation system and to meet contractual obligations. The Metropolitan force construction is recommended to proceed to address plant-wide improvements that will enhance plant reliability and safety.

The ORP and the Metropolitan force construction are categorized as Water Quality projects within Metropolitan’s Capital Investment Plan (CIP). Both projects have been reviewed with Metropolitan’s updated CIP prioritization criteria.

**Background**

The Skinner plant was placed into service in 1976 to supply treated water to Riverside and San Diego Counties. Since its original construction, the plant has been expanded four times and now consists of seven treatment modules that are operated as three distinct facilities (Plants Nos. 1, 2 and 3). The Skinner plant has a total treatment capacity of 630 mgd. It delivers a blend of waters from the Colorado River and State Water Project to Eastern Municipal Water District, Western Municipal Water District of Riverside County, and San Diego County Water Authority.

The addition of ozone as the primary disinfection process at each of Metropolitan's treatment plants will remove blend restrictions and substantially lower disinfection by-product levels for compliance with both Stage 1 and Stage 2 of the U.S. Environmental Protection Agency's Disinfectants/Disinfection By-Products Rule. Use of ozone will also enhance Metropolitan's ability to treat water with variable source-water quality, and provide critical operational flexibility to meet varying treatment challenges resulting from periodic occurrences such as drought and other source water limitations. Further, ozonation will provide the capability to control taste-and-odor causing compounds that may be present from time to time, as well as a number of pharmaceutical and personal care products (PPCPs), and endocrine disruption chemicals (EDCs). The ozonation process is currently in use at the Mills and Jensen plants, while construction is underway at the Skinner and Diemer plants.

Over the past six years, the Skinner plant has undergone a major construction program to expand the plant, upgrade existing facilities, and add the ozonation process. Metropolitan's plan to execute this program has included a series of contracts which were designed to minimize overlap of contractors, to complete key elements of work within shutdown windows and in advance of fixed completion dates, and to minimize impacts to plant operations. A total of five major construction contracts have been planned. Four contracts with a total of \$381 million have been awarded to date:

1. Site Preparation
2. Module No. 7
3. Chemical Systems Modifications
4. Oxidation Retrofit Program and Washwater Reclamation Plant No. 3

The first three of these contracts are complete. The fourth contract to construct the ozonation facilities is underway by Shimmick/Obayashi, a Joint Venture, and is currently scheduled to be completed in September 2009.

Plant improvements that are: (1) dependent on completion of the first four contracts, (2) spread throughout the plant, or (3) most efficiently constructed by Metropolitan forces, will be addressed under the Skinner Completion Project. The approach of addressing "wrap-up" items under the Completion Project was taken to provide uniform responsibility for certain work that stretches across the entire Skinner plant, rather than splitting it up among the multiple earlier contracts, and to avoid modifying or damaging work which was installed in the earlier contracts.

**Project No. 1 - Skinner Completion Project**

In February 2008, Metropolitan's Board authorized final design activities for the Skinner Completion Project. The project's current scope includes three broad elements:

1. Road improvements throughout the Skinner plant, including a direct thoroughfare between the ozonation facilities and the main Skinner plant. This work will be performed under a construction contract which is planned to be awarded in 2011.
2. Chemical systems and solids collection improvements, including replacement of sodium hypochlorite and polymer feed piping to the filter backwash system; addition of secondary containment for the chemical feed piping at Plants Nos. 1 and 2; and addition of chemical piping trenches at Plant No. 2. This work will be performed under a construction contract scheduled to be awarded by Metropolitan's Board in August 2009.

3. Integration of key Supervisory Control and Data Acquisition (SCADA) system components, communication systems, and chemical systems; and final coating applications. This work will be performed by Metropolitan forces, and is the subject of this action.

Final design of the Skinner Completion Project is currently underway. Staff recommends moving forward with Metropolitan force construction of the third element at this time to permit efficient integration with the new ozonation facilities and to avoid delays to ORP start-up activities. Staff will return to the Board to award a contract for the first element in 2011. The contract for the second element is planned to be awarded in August 2009.

**Metropolitan Force Construction (\$1.48 million)** Key integration activities for the new facilities at the Skinner plant are recommended to be performed by Metropolitan forces. Use of Metropolitan forces will be more cost-effective than reliance on a construction contractor due to the greater flexibility in scheduling of construction activities around plant operations, and in the reduction of construction management and oversight costs. Examples of work to be performed include:

- Integration of plant telephones and the public address system installed in the ozonation facilities with communication systems serving the remainder of the Skinner plant.
- Modification of ORP sample lines discharging into the main plant laboratory sink and basement of the Skinner Administration Building. Construction of Skinner ORP sample lines was extended to a point outside of the administration building to prevent interference with the plant's day-to-day critical sampling operations. Grab samples from these lines are required to be taken every four hours to meet compliance monitoring requirements. For greater accuracy and efficiency, modifications will be made to the laboratory to provide a larger sink and more space for the sample line taps to be routed.
- Modification of ORP acid and caustic soda unloading station valves for delivery trucks. Revised unloading equipment is required to meet Metropolitan's current chemical suppliers' unloading equipment requirements. This improvement will provide a means to check for pressure and to relieve any residual pressure before the chemical vendor makes the connection, thereby increasing safety of the delivery operation.
- Installation of two SCADA work stations in the Ozone Generation Building to allow Skinner plant operators to operate the entire plant from the ORP control room.
- Final application of protective coatings to 144-inch-diameter steel inlet piping located in several pipe vaults, for standardization with the plant's steel coating system.

This action appropriates \$1.48 million in budgeted funds and authorizes construction by Metropolitan forces of final integration work for the Skinner ORP with the main Skinner plant.

### **Project No. 2 - Skinner ORP Construction**

In June 2005, Metropolitan's Board awarded a \$184.65 million construction contract to Shimmick/Obayashi, A Joint Venture, for the Skinner ORP and Washwater Reclamation Plant No. 3 (Specifications No. 1483). This project involves the construction of a complete ozonation system to treat the full Skinner plant capacity of 630 mgd, a washwater reclamation plant, and numerous support facilities. Construction of the Skinner ORP is now 99 percent complete, and the contract is nearing completion. All change order work is anticipated to be completed within the authority level delegated by the Board to the General Manager. However, there are several issues that have extended the duration of the construction contract beyond its planned completion date.

Increased durations of contracts raise Metropolitan costs because additional staff time must be spent inspecting construction work; administering the contract including responding to contractor questions and negotiating items; testing installed systems and equipment; paying for support trailers and utilities; and any additional travel expenses. For the Skinner ORP, the time extensions are primarily due to inclement weather days, beneficial change order time extensions, and contractor-related time extensions. As a result of these extensions, the amount of time required for inspection and technical support for the Skinner ORP contract, with associated costs, has increased beyond the previously anticipated amount.

### **Status of Proposition 50 Grant Funding**

In July 2007, Metropolitan's Board adopted a resolution to accept \$20 million of state Proposition 50 "The Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002" grant funding for the Skinner ORP. The CDPH and Metropolitan subsequently executed a Letter of Commitment to provide \$20 million for grant-eligible activities including design, ozone equipment procurement, and construction costs. Staff has planned for this \$20 million to be a funding source for the Skinner ORP appropriation.

In late 2008, the final grant funding agreement for the Skinner ORP project was fully executed by CDPH. Metropolitan staff subsequently submitted a \$20 million claim to CDPH for Skinner ORP grant-eligible costs, and the claim was approved by CDPH. Due to the current unprecedented financial crisis in the state of California, CDPH has informed Metropolitan that payout of Proposition 50 grant funds may be delayed by one year or longer. This delay will impact similar Metropolitan grant funds for the Diemer and Weymouth ORPs.

As the \$20 million have not yet been received from CDPH, the present action appropriates additional program funds for Proposition 50 grant administration. When the reimbursement is received from the state, the grant funds will serve to offset this appropriated amount.

**Proposition 50 Grant Auditing Costs (\$400,000)** As part of the Proposition 50 grant, Metropolitan is required to contract with a state-approved auditing firm and to perform labor-compliance monitoring of the contractor's prevailing wage payment practices over the course of the construction contract. In July 2007, Metropolitan's Board authorized an agreement with Yuba City Unified School District to perform this function. As the audit costs are an allowable expense under the Proposition 50 grant, staff's plan was to charge these costs, which totaled \$400,000, to the Skinner ORP.

### **Skinner ORP Inspection and Support Activities – Completion of Construction**

This action appropriates \$6.59 million for Skinner ORP construction inspection and support activities. By providing funding for this element of the Skinner ORP, staff will have the flexibility to properly oversee the final stages of the contractor's work efforts. A summary of the program appropriation for the Skinner ORP is shown in [Attachment 1](#).

**Weather and Contractor-Related Time Extensions – (\$4.52 million)** The Skinner ORP construction contract has experienced numerous weather-related delays for which Metropolitan is contractually required to provide the contractor with additional construction time. Weather-related delays are defined as days where it rains, or the winds are of such magnitude that 75 percent of the contractor's work force (180 persons) cannot perform construction work and are sent home for the day. For the Skinner ORP contract, these delays have totaled 42 days over the course of the construction effort. During these weather-event days, where contractor work is not performed, Metropolitan's inspection staff (~ 19 persons) continue to work on construction-related issues such as requests for information from the contractor, payment requests, project schedule issues, and other construction-management issues. This weather-related additional time has increased Metropolitan's costs for construction inspection and support services, design consultant support, and project management, totaling \$1.53 million.

After considering weather-related and beneficial change order time extensions (which are discussed below), Shimmick/Obayashi was scheduled to complete the Skinner ORP construction on May 21, 2009. However, the contractor was unable to complete the construction work on that date, per the revised contract. Staff presently estimates that the contract work will be completed in September 2009.

On a typical construction contract, a contractor who fails to complete the work within the contract's specified duration (plus authorized extensions) would be required under the contract to pay liquidated damages to Metropolitan for the delay. For the Skinner ORP contract, Shimmick/Obayashi maintains that it is not responsible for the approximately 77-day delay from May until September 2009, due to extenuating circumstances. Staff is currently reviewing the contractor's assertion and will make an assessment of their justification for the additional delay. While staff evaluates the contractor's assertion, staff must move forward with construction oversight of the contractor's work effort, which is 99 percent complete, to close out the project. During this high-activity period, Metropolitan's costs are estimated to be \$38,900/day. Based on the expected completion date, Metropolitan's cost for construction inspection and support services, design consultant support, and project management may

total \$2.99 million. Metropolitan will need to maintain these construction oversight functions until the contract is complete.

**Beneficial Change Order Time Extensions – (\$2.07 million)** During the course of construction, beneficial change orders have been issued to Shimmick/Obayashi to improve the quality of the Skinner ORP construction, improve the original design's efficiency for operations and maintenance, meet evolving code requirements, and increase the final facility's energy efficiency. In general, when negotiating a beneficial change order with a construction contractor, there are two major issues to be addressed: the cost of the change order, and any additional time required to accomplish the work. On the Skinner ORP, the total cost of all change order work is expected to be within the authority level delegated by the Board to the General Manager. Staff has returned to the Board on several occasions to authorize additional scope for the contract, including site preparation work for the Skinner Solar Power Generation Facility, and additional electrical work to accommodate the new S. C. Edison 66kV main electrical service to the plant. For the project's beneficial change orders, the contractor has been granted 57 days of additional time to complete the work. Due to this additional time, Metropolitan incurred additional costs for construction inspection and support services, design consultant support, and project management, totaling \$2.07 million.

### **Summary**

This action appropriates \$8.47 million for Metropolitan force construction of "wrap-up" activities at the Skinner plant (Skinner Completion Project), and for construction inspection and support activities to complete the principal Skinner ORP construction contract. These projects have been evaluated and recommended by Metropolitan's CIP Evaluation Team. See [Attachment 1](#) for the Appropriation Summary, [Attachment 2](#) for the Financial Statement and [Attachment 3](#) for the Location Map.

These projects are consistent with Metropolitan's goals for sustainability by enhancing the reliability of the Skinner plant, in order to maintain reliable water deliveries in the future.

### **Project Milestones**

September 2009 – Completion of the principal Skinner ORP construction contract

Late 2013 – Completion of all activities for the Skinner ORP capital program

### **Policy**

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Metropolitan Water District Administrative Code Section 5108: Appropriations

### **California Environmental Quality Act (CEQA)**

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CEQA determination for Options #1 and #2:

The environmental effects from the funding, design, procurement of equipment, construction, and operation of the Skinner Module No. 7, Oxidation Retrofit Program, Chemical Systems Modifications, and Wastewater Reclamation Plant programs (Program) were evaluated in the "Robert A. Skinner Filtration Plant Reliability and Quality Program Final Program Environmental Impact Report" (Final PEIR). The Final PEIR was certified by the Board on July 8, 2003. The Board also approved the Findings of Fact (Findings), the Statement of Overriding Considerations (SOC), the Mitigation Monitoring and Reporting Program (MMRP), and the Program itself. Subsequent to the certification of the 2003 Final PEIR for the Program, to comply with CEQA and the State CEQA Guidelines, Metropolitan as the Lead Agency prepared a Mitigated Negative Declaration (MND) entitled "Robert A. Skinner Filtration Plant Reliability and Quality Program, Additional Construction Use Area and Creek Crossing" to address the environmental impacts of establishing an additional construction use area for the Program. The MND was adopted by the Board on May 11, 2004. Additionally, further refinements were found to be required thus modifying the original Program description. Metropolitan prepared a Negative Declaration (ND) entitled "Robert A. Skinner Filtration Plant Reliability and Quality Program Refinements to the Program" to address these refinements. The ND was adopted by the Board on November 9, 2004. Addendum No. 1 to the MND was prepared in July 2006, for installation and use of a temporary metal storage building during Program construction. The current proposed actions would not result in any new significant environmental impacts, nor

result in substantial changes to the approved Program. Hence, the previously adopted environmental documentation in conjunction with the current board action fully complies with CEQA and the State CEQA Guidelines. Accordingly, no further environmental documentation is necessary for the Board to act on with respect to the proposed actions.

The CEQA determination is: Determine that the proposed actions have been previously addressed in the certified 2003 Final PEIR and related documents, the adopted 2004 MND and 2006 Addendum No. 1 to the MND, and the adopted 2004 ND, and that no further environmental analysis or documentation is required.

CEQA determination for Option #3:

None required

## Board Options

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### Option #1

Adopt the CEQA determination and appropriate \$8.47 million to support completion of the Skinner ORP construction contract, and for Metropolitan force construction of the Skinner Completion Project.

**Fiscal Impact:** \$1.48 million in budgeted funds and \$6.99 million in unbudgeted funds (Approp. 15388)

**Business Analysis:** This option will support efficient completion of the Skinner ORP principal construction contract, and Metropolitan force construction of “wrap-up” work.

### Option #2

Adopt the CEQA determination and

- a. Appropriate \$6.99 million to support completion of the Skinner ORP construction contract; and
- b. Do not authorize Metropolitan force construction of the Skinner Completion Project.

**Fiscal Impact:** \$6.99 million in unbudgeted funds (Approp. 15388)

**Business Analysis:** This option will support efficient completion of the Skinner ORP principal construction contract, but will defer Metropolitan force construction activities until the principal contract is completed.

While this option would minimize opportunities for interferences with contractor work, full operability of the ozonation system would be delayed by several months.

### Option #3

- a. Do not appropriate funds to support completion of the Skinner ORP construction contract; and
- b. Do not authorize Metropolitan force construction of the Skinner Completion Project.

**Fiscal Impact:** Significant increase in costs likely to complete the Skinner ORP

**Business Analysis:** This option would not support completion of the contract with oversight of construction work which is currently underway. This lack of oversight would likely lead to construction deficiencies, non-operable equipment, reduced quality of completed work, further delays to completion of the work, and potential contractor claims.

**Staff Recommendation**

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Option #1

  
\_\_\_\_\_  
Roy L. Wolfe  
Manager, Corporate Resources

7/1/2009

Date

  
\_\_\_\_\_  
Jeffrey Kichtlinger  
General Manager

7/1/2009

Date

**Attachment 1 – Appropriation Summary**

**Attachment 2 – Financial Statement**

**Attachment 3 – Location Map**

BLA #6599

**Appropriation Summary  
Skinner Oxidation Retrofit Program  
(Approp. 15388)**

Skinner ORP Program  
Cost By Project

Status Through 5/30/09

ORP Completion Project - \$8.35 M In progress	Appropriated to Date \$0.34 M Expended to Date \$0.10 M Current Action \$1.48 M Future Action \$6.53 M
ORP Principal Construction - \$195.27 M In progress	Appropriated to Date \$188.28 M Expended to Date \$177.43 M Current Action \$ 6.99 M
Ozone Eqpt. Procurement - \$10.52 M In progress	Appropriated to Date \$10.52 M Expended to Date \$ 7.31 M
SCE Ductbank Construction - \$0.85 M Completed	Completed \$0.85 M
Potable/Fire Water Pump Station - \$7 M Completed	Completed \$7 M
Large Pipe Procurement - \$8.75 M Completed	Completed \$8.75 M
Site Preparation - \$3.68 M Completed	Completed \$3.68 M
Initial Study through Design - \$17.58 M Completed	Completed \$17.58 M

ORP Completion Project			
	Appropriated to Date	Expended to Date	Current Action
Design	\$0.34 M	\$0.10 M	\$ 0 M
MWD Construction	\$ 0 M	\$ 0 M	\$1.48 M
<b>Total</b>	<b>\$0.34 M</b>	<b>\$0.10 M</b>	<b>\$1.48 M</b>

ORP Principal Construction			
	Appropriated to Date	Expended to Date	Current Action
Contract Work	\$160.60 M	\$154.30 M	\$ 0 M
MWD Construction	\$ 1.30 M	\$ 0.94 M	\$ 0 M
Inspection	\$ 14.06 M	\$ 13.05 M	\$ 1.89 M
Materials	\$ 1.60 M	\$ 0.67 M	\$ 0 M
<u>All Other*</u>	<u>\$ 10.72 M</u>	<u>\$ 8.47 M</u>	<u>\$ 5.10 M</u>
<b>Total</b>	<b>\$188.28 M</b>	<b>\$177.43M</b>	<b>\$ 6.99 M</b>

**Total Current Action  
\$8.47 Million**

- \* All Other includes:
- o Professional & Technical Services (Support of design consultant, project labor agreement, grant auditing, envir. monitoring)
  - o Control System Integration
  - o Owner Costs (Permitting, project mgmt., envir. documentation)
  - o Incidental Expenses & Equipment Use

Total Program Estimate  
\$252.0 Million

Total Appropriated To Date  
\$237.0 Million  
  
Total Expended to Date  
\$222.7 Million

**Financial Statement for Skinner Water Treatment Plant Oxidation Retrofit Program**

A breakdown of Board Action No. 11 for Appropriation No. 15388 for the Skinner Oxidation Retrofit Program is as follows:

	<b>Previous Total Appropriated Amount (Feb 2008)</b>	<b>Current Board Action No. 11 (July 2009)</b>	<b>New Total Appropriated Amount</b>
Labor			
Studies and Investigations	\$ 1,540,000	\$ -	\$ 1,540,000
Final Design	378,000	-	378,000
Owner Costs (Program mgmt., permitting, envir. monitoring)	6,926,536	3,646,000	10,572,536
Submittals Review	608,000	-	608,000
Metropolitan Force Construction	2,036,000	687,500	2,723,500
Construction Inspection and Support	2,385,000	106,500	2,491,500
Control System Integration	1,077,000	-	1,077,000
Materials and Supplies	18,918,000	200,000	19,118,000
Incidental Expenses	716,000	40,000	756,000
Professional/Technical Services	35,776,201	3,593,000	39,369,201
Equipment Use	476,000	-	476,000
Contracts	166,185,263 *	-	166,185,263
Remaining Budget	-	197,000	197,000
<b>Total</b>	<b>\$ 237,022,000</b>	<b>\$ 8,470,000</b>	<b>\$ 245,492,000</b>

**Funding Request**

<b>Program Name:</b>	Skinner Water Treatment Plant Oxidation Retrofit Program		
<b>Source of Funds:</b>	Revenue Bonds, Replacement and Refurbishment, General Funds (\$232,022,000) and Proposition 50 Grant (\$20,000,000)		
<b>Appropriation No.:</b>	15388	<b>Board Action No.:</b>	11
<b>Requested Amount:</b>	\$ 8,470,000	<b>Capital Program No.:</b>	15388-W
<b>Total Appropriated Amount:</b>	\$ 245,492,000	<b>Capital Program Page No.:</b>	246
<b>Total Program Estimate:</b>	\$ 252,022,000	<b>Program Goal:</b>	WQ/Compliance

\* Includes previous reallocation of \$8,112,263 from Remaining Budget to Contracts for rock excavation and change orders during the construction of Skinner ORP, as previously reported to the Board in July 2008 and February 2007.



# SORP Completion Project Locations

