

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

September 12, 2006 Board Meeting

---

7-2

---

**Subject**

---

Appropriate \$750,000; and authorize four rehabilitation projects at the Weymouth Treatment Plant (Approps. 15440, 15369)

---

**Description**

---

The F. E. Weymouth Water Treatment Plant was placed into service in 1941 with an initial capacity of 100 million gallons per day (mgd) and was expanded twice in 1949 and 1962 to its current capacity of 520 mgd. The plant delivers a blend of waters from the Colorado River and State Water Project to Metropolitan's Central Pool portion of the distribution system.

**Weymouth Basin Inlet Gate – Design and Installation (\$195,000)**

When the Weymouth plant's Treatment Basins Nos. 5 through 8 were constructed in 1962, a gate guide for a 10-foot by 15-foot steel gate was installed to allow isolation of the inlet channel between new Basins Nos. 5 through 8 and the original Basins Nos. 1 through 4. The steel drop gate was seldom used and was recycled many years ago. Over time, the gate guide became corroded and can no longer accept insertion of an isolation drop gate. Due to the hydraulic configuration of the Weymouth plant, an isolation drop gate must be installed in the inlet channel to Basins Nos. 5 through 8 to allow continued usage of Basins Nos. 1 through 4 during Weymouth ORP construction. Staff recommends fabricating a new 10-foot by 15-foot steel drop gate and gate guide for installation during the upcoming Weymouth plant shutdown planned for December 2006.

This action appropriates \$195,000 and authorizes design and fabrication of a new gate and gate guide. Work will be performed by Metropolitan staff.

**Weymouth Reservoir Gates Repair – Study (\$119,000)**

The Weymouth plant's Finished Water Reservoir (FWR) has three inlet gates, three bypass gates and three outlet gates. All nine gates were originally installed when the FWR was constructed in 1964. Properly functioning gates are required to isolate the reservoir when it is removed from service for maintenance. Each 8-foot by 8-foot gate is fabricated of carbon steel plate mounted vertically within a gate guide. Each gate is presently motor-operated. Gates are routinely exercised to verify proper operation.

During routine inspection, divers inspected Inlet Gate #2 and detected corrosion of both the gate and its guide. The gate has difficulty closing. Staff recommends removing Inlet Gate #2 and its operator assembly during a Weymouth plant shutdown planned for December 2006 and installing a steel drop gate in the same location. In-place inspection of the other eight normally submerged gates will also occur during the upcoming plant shutdown. Based on this inspection, staff will determine the need for refurbishment or replacement of the remaining FWR gates.

This action appropriates \$119,000 and authorizes fabrication of a replacement drop gate for Inlet Gate #2 and inspection of all FWR gates. Metropolitan staff will perform this work. Repair of the remaining gates, if required, will be the subject of a future board action and will be coordinated with upcoming planned Weymouth plant shutdowns.

**Weymouth Filter Rehabilitation – Preliminary Design (\$339,000)**

The filters at the Weymouth plant range in age from 40 to more than 60 years old. While they were state-of-the-art at the time of their construction, the filters were designed to meet much less stringent performance and water quality standards than exist today. The filters were originally designed to operate at lower filtration rates, using a fine sand monomedia and low backwash rates. Since then, the filters have been retrofitted with a dual media composed of anthracite coal and silica sand to enhance performance. However, no other appurtenances that support the filtration process (e.g., troughs, underdrains, etc.) were changed to accommodate the higher performance expected of the filters. By modern standards, the existing filter cells are constrained by their shallow depth. This shallow depth can lead to short filter runs and a susceptibility to air-binding problems.

Filter media in the 48 Weymouth plant filters is planned to be replaced in 2010. Any long-term modifications to the filters to improve performance should be implemented simultaneously with the media replacement. At the present time, several filters have significantly shorter run times than the other filters. Staff recommends that the media be removed and replaced in four filters as soon as possible. This work would create a unique opportunity to test alternate media types and filter appurtenances within the shallow configuration of the Weymouth filter cells. Staff therefore recommends that four filters be rebuilt with new media and different configurations of design enhancements, so that the performance of these four filters can be monitored and evaluated during a full-scale demonstration study. During the planned nine-month test period, staff will assess performance with respect to water quality and the impacts of physical constraints within the existing filter cells, in order to identify the optimal configuration for rehabilitation of the remaining 44 filters. Filter modifications may include alternate types and layers of filter media, a new underdrain system, an air-scour system, and new washwater troughs. Initial efforts will include preliminary design of improvements for all four filters, inspection of the media and underdrains within one filter, and replacement of the filter media in that filter following the inspection.

This action appropriates \$339,000, authorizes preliminary design of improvements to four Weymouth plant filters, and replacement of media in one filter. Metropolitan staff will perform the preliminary design. Staff will return to the Board to authorize final design and construction of improvements for the remaining three filters.

**Weymouth Raw Water Bypass – Final Design (\$97,000)**

In the event of an extreme event or emergency that impacts the Weymouth plant's ability to treat water, it may be necessary to bypass the treatment plant and deliver untreated water into the distribution system. Currently at Weymouth, both the raw water inlet pipeline and the FWR outlet have blocked stubouts. In an emergency, a short pipe spool could be inserted to connect the two pipelines and bypass the treatment plant.

With the construction of the Weymouth ORP facilities, the raw water inlet line to the plant will be relocated to supply the new ozone contactors. This project will add a stubout to the new raw water inlet line that could be used in the future as a raw water bypass. This stubout would most efficiently be constructed with the upcoming ORP facilities. Work on the finished-water side of this connection will be designed and constructed separately in the future.

This action appropriates \$97,000 and authorizes final design of a new raw water bypass stubout at the Weymouth plant. Staff recommends that Carollo Engineers perform final design under an existing professional services agreement, which was authorized by the Board in April 2005. For this agreement, Metropolitan established an SBE participation level of 20 percent. No amendment to the existing Carollo agreement is required.

Staff will return to the Board in fiscal year 2007/08 for a CEQA determination and authorization for the finished-water side of the Weymouth bypass connection, along with similar bypass connections planned for Metropolitan's other treatment plants. The Weymouth Raw Water Bypass project is unbudgeted in the current fiscal year, but is recommended to move forward at this time to take advantage of construction efficiencies and a planned shutdown of the plant inlet line for construction of the Weymouth ORP, and to increase system reliability under emergency conditions.

**Summary**

This action appropriates \$750,000 and authorizes four rehabilitation projects at the Weymouth plant. All four projects have been evaluated and recommended by Metropolitan's Capital Investment Plan (CIP) Evaluation Team. Funds have been included in the fiscal year 2006/07 capital budget for all projects except the Weymouth Raw Water Bypass project. Upon approval of this action, the fiscal year 2006/07 capital expenditure plan will be adjusted to reflect the new Weymouth Raw Water Bypass project.

These funds are included under two capital programs within Metropolitan's CIP. See [Attachment 1](#) for the two Financial Statements, and [Attachment 2](#) for the Location Map.

***Project Milestones***

December 2006 – Basins Nos. 5-8 Inlet Gate installation and reservoir gates inspection

January 2007 – Completion of Weymouth filter rehabilitation preliminary design

**Policy**

---

Metropolitan Water District Administrative Code Section 5108: Appropriations

**California Environmental Quality Act (CEQA)**

---

**Weymouth Basin Inlet Gate – Design and Installation**

CEQA determination for Options #1, #2 and #3:

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. In particular, the proposed action consists of the maintenance, and operating of existing equipment and facilities with no expansion of use beyond that existing at the time of the lead agency's determination. In addition, it will not have a significant effect on the environment. Accordingly, this proposed action qualifies as a Class 1 Categorical Exemption (Section 15301 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed action qualifies under a Categorical Exemption (Class 1, Section 15301 of the State CEQA Guidelines).

**Weymouth Reservoir Gates Repair – Study**

CEQA determination for Options #1 and #3:

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed action involves the funding of a study and minor modifications to existing public facilities with negligible or no expansion of use and no possibility of significantly impacting the physical environment. In addition, the proposed action consists of basic data collection and resource evaluation activities which does not result in a serious or major disturbance to an environmental resource. This may be strictly for information gathering purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted, or funded. Accordingly, the proposed action qualifies for both Class 1 and Class 6 Categorical Exemptions (Sections 15301 and 15306 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 6, Section 15306 of the State CEQA Guidelines).

CEQA determination for Option #2:

None required

**Weymouth Filter Rehabilitation – Preliminary Design**

CEQA determination for Options #1, #2 and #3:

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed action consists of basic data collection and resource evaluation activities, which do not result in a serious or major disturbance to an environmental resource. This may be strictly for information gathering

purposes, or as part of a study leading to an action which a public agency has not yet approved, adopted, or funded. Accordingly, the proposed action qualifies as a Class 6 Categorical Exemption (Section 15306 of the State CEQA Guidelines).

The CEQA determination is: Determine that pursuant to CEQA, the proposed action qualifies under a Categorical Exemption (Class 6, Section 15306 of the State CEQA Guidelines).

### **Weymouth Raw Water Bypass – Final Design**

CEQA determination for Options #1 and #2:

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed action involves the funding and minor alterations of existing private or public facilities, along with minor modifications in the condition of land, water, and/or vegetation which do not involve removal of healthy, mature, scenic trees. These activities would result in negligible or no expansion of use and no possibility of significantly impacting the physical environment. Accordingly, the proposed action qualifies under both Class 1 and Class 4 Categorical Exemptions (Sections 15301 and 15304 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 4, Section 15304 of the State CEQA Guidelines).

CEQA determination for Option #3:

None required

## **Board Options**

---

### **Option #1**

Adopt the CEQA determinations and

- a. Appropriate \$750,000;
- b. Authorize design and installation of the Weymouth Basin Inlet Gate project;
- c. Authorize study and inspection for the Weymouth Reservoir Gates Repair project;
- d. Authorize preliminary design of the Weymouth Filter Rehabilitation project; and
- e. Authorize final design of the Weymouth Raw Water Bypass project.

**Fiscal Impact:** \$653,000 of budgeted funds and \$97,000 of unbudgeted funds under the following appropriations:

Approp. 15440: \$555,000

Approp. 15369: \$195,000

**Business Analysis:** Implementation of the Weymouth Basin Inlet Gate, Reservoir Gates Repair, and Filter Rehabilitation projects will aid in maintaining plant reliability and meeting Metropolitan's water quality goals. Implementation of the Weymouth Raw Water Bypass project will give Metropolitan additional flexibility to respond during an extreme event or emergency. Proceeding with the Weymouth Raw Water Bypass during this fiscal year will take advantage of a planned shutdown of the plant inlet line for construction of the Weymouth ORP.

### **Option #2**

Adopt the CEQA determinations and

- a. Appropriate \$631,000;
- b. Authorize design and installation of the Weymouth Basin Inlet Gate project;
- c. Defer study and inspection for the Weymouth Reservoir Gates Repair project;
- d. Authorize preliminary design of the Weymouth Filter Rehabilitation project; and
- e. Authorize final design of the Weymouth Raw Water Bypass project.

**Fiscal Impact:** \$534,000 of budgeted funds and \$97,000 of unbudgeted funds under the following appropriations:

Approp. 15440: \$436,000

Approp. 15369: \$195,000

**Business Analysis:** Implementation of the Weymouth Basin Inlet Gate and Filter Rehabilitation projects will aid in maintaining plant reliability and meeting Metropolitan’s water quality goals. If the Reservoir Gate project is deferred at this time, the project would have to wait until the next Weymouth shutdown planned for 2009.

**Option #3**

Adopt the CEQA determinations and

- a. Appropriate \$653,000;
- b. Authorize design and installation of the Weymouth Basin Inlet Gate project;
- c. Authorize study and inspection for the Weymouth Reservoir Gates Repair project;
- d. Authorize preliminary design of the Weymouth Filter Rehabilitation project; and
- e. Defer final design of the Weymouth Raw Water Bypass project.

**Fiscal Impact:** \$653,000 of budgeted funds under the following appropriations:

Approp. 15440: \$458,000

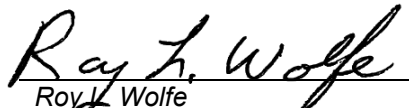
Approp. 15369: \$195,000

**Business Analysis:** If the Weymouth Raw Water Bypass project is deferred, an additional Weymouth plant shutdown will be required. While not budgeted in the current fiscal year, proceeding with the Raw Water Bypass project will take advantage of a planned shutdown at the plant inlet line for construction of the Weymouth ORP.

**Staff Recommendation**

---

Option #1

  
 Roy L. Wolfe  
 Manager, Corporate Resources

8/18/2006  
 Date

  
 Jeffrey Kightlinger  
 General Manager

8/23/2006  
 Date

**Attachment 1 – Financial Statements**

**Attachment 2 – Location Map**

BLA #4627

### **Financial Statement for Weymouth Water Treatment Plant Improvements Program**

A breakdown of Board Action No. 17 for Appropriation No. 15369 for the Weymouth Basin Inlet Gate is as follows:

	<b>Previous Total Appropriated Amount (Nov. 2005)</b>	<b>Current Board Action No. 17 (Sept. 2006)</b>	<b>New Total Appropriated Amount</b>
Labor			
Studies and Investigations	\$ 1,065,477	\$ -	\$ 1,065,477
Final Design	737,000	15,000	752,000
Owner Costs (Program management)	2,182,000	11,000	2,193,000
Construction Inspection and Support	2,351,000	8,000	2,359,000
Metropolitan Force Construction	1,210,000	78,000	1,288,000
Materials and Supplies	938,000	53,000	991,000
Incidental Expenses	85,000	5,000	90,000
Professional/Technical Services	5,864,000	-	5,864,000
Contracts	24,446,735	-	24,446,735
Remaining Budget	5,796,788	25,000	5,821,788
<b>Total</b>	<b>\$ 44,676,000</b>	<b>\$ 195,000</b>	<b>\$ 44,871,000</b>

### **Funding Request**

<b>Program Name:</b>	Weymouth Water Treatment Plant Improvements Program		
<b>Source of Funds:</b>	Revenue Bonds, Replacement and Refurbishment or General Funds		
<b>Appropriation No.:</b>	15369	<b>Board Action No.:</b>	17
<b>Requested Amount:</b>	\$ 195,000	<b>Capital Program No.:</b>	15369-I
<b>Total Appropriated Amount:</b>	\$ 44,871,000	<b>Capital Program Page No.:</b>	E-70
<b>Total Program Estimate:</b>	\$ 163,000,000	<b>Program Goal:</b>	I – Infrastructure Reliability

**Financial Statement for Weymouth Improvements – Phase II Program**

A breakdown of Board Action No. 1 for Appropriation No. 15440 for the Weymouth Reservoir Gates Repair, Filter Rehabilitation, and Raw Water Bypass projects is as follows:

	<b>Board Action No. 1 (Sept. 2006)</b>
Labor	
Studies and Investigations	\$ 186,000
Final Design	-
Owner Costs (Program management)	58,000
Construction Inspection & Support	-
Metropolitan Force Construction	46,000
Materials and Supplies	106,000
Incidental Expenses	5,000
Professional/Technical Services	
Carollo Engineers	70,000
Hazardous Material Testing/Handling	15,000
Equipment Use	-
Contracts	-
Remaining Budget	69,000
<b>Total</b>	<b>\$ 555,000</b>

**Funding Request**

<b>Program Name:</b>	Weymouth Improvements – Phase II Program		
<b>Source of Funds:</b>	Revenue Bonds, Replacement and Refurbishment or General Funds		
<b>Appropriation No.:</b>	15440	<b>Board Action No.:</b>	1
<b>Requested Amount:</b>	\$ 555,000	<b>Capital Program No.:</b>	15440-I
<b>Total Appropriated Amount:</b>	\$ 555,000	<b>Capital Program Page No.:</b>	E-72
<b>Total Program Estimate:</b>	\$ 17,000,000	<b>Program Goal:</b>	I-Infrastructure Reliability

