



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

5/13/2014 Board Meeting

---

**7-5**

**Subject**

---

Appropriate \$530,000; and authorize two rehabilitation projects at the F. E. Weymouth Water Treatment Plant (Approp. 15477)

**Executive Summary**

---

This action authorizes design of two rehabilitation projects at the F. E. Weymouth Water Treatment Plant: (1) improvements to the recycled washwater pump station; and (2) replacement of water quality monitoring instrumentation.

**Timing and Urgency**

The recycled washwater pump station at the Weymouth plant returns water from the Washwater Reclamation Plant (WWRP) to the main treatment plant inlet. Rehabilitation of the pump station is necessary to minimize fluctuations in the flow of washwater to the head of the plant. Following completion of the ozonation facilities which are currently under construction, a steady flowrate at the inlet to the plant will be needed to maintain uniform ozone dosing to consistently and efficiently meet disinfection requirements.

Water quality instruments monitor flow at the Weymouth plant's filter outlet and finished water reservoir inlet for regulated constituents. The existing instruments and piping have been in continuous service for approximately 25 years. During that time, the regulatory requirements for water quality monitoring and reporting have increased significantly. Improvements to the monitoring system are needed to provide more representative samples and accurate data for reporting purposes. Staff recommends relocating the instruments adjacent to their sampling points to enable reliable and rapid response to changing water quality conditions.

These projects have been reviewed with Metropolitan's Capital Investment Plan (CIP) prioritization criteria and are categorized as Infrastructure Upgrade and Water Quality projects. Funds for this action are available within Metropolitan's capital expenditure plan for fiscal year 2013/14.

**Details**

---

**Background**

The Weymouth plant was placed into service in 1941 with an initial capacity of 100 million gallons per day (mgd), and has been expanded twice to its current treatment capacity of 520 mgd. The plant delivers a blend of waters from the Colorado River Aqueduct and State Water Project to Metropolitan's Central Pool portion of the distribution system, and to an exclusive service area. The Weymouth plant is located in the city of La Verne.

**Project No. 1 – Washwater Pump Station Improvements – Preliminary Design Phase (\$210,000)**

The Weymouth plant's recycled washwater pump station returns reclaimed water to the inlet of the plant from the WWRP, along with filtered water from the Oxidation Demonstration Plant. The flowrate from the recycled water pump station can vary abruptly as pumps turn on and off. Following completion of the Weymouth ozonation facilities, flow fluctuations at the plant inlet due to the addition of reclaimed water will need to be minimized.

Flow fluctuations can adversely affect the ozone dosing necessary to achieve the disinfection performance required for compliance with drinking water regulations.

Staff recommends proceeding with preliminary design of improvements to the washwater pump station to minimize flow surges. Planned improvements include modifying piping configurations; adding variable frequency drives; modifying pump controls; and replacing pumps at the Oxidation Demonstration Plant. Planned preliminary design activities include performing technical analyses to optimize the improvements; developing final design criteria; and preparing a preliminary construction cost estimate.

This action appropriates \$210,000 and authorizes preliminary design phase activities to improve the Weymouth washwater pump station. All work will be performed by Metropolitan staff. Requested funds include \$143,000 for the above-noted technical analyses and preparation of a preliminary design report; \$35,000 for program management and shutdown planning; and \$32,000 for remaining budget. Upon completion of preliminary design, staff will return to the Board to request authorization for final design.

The total estimated cost to complete the washwater pump station improvements, including the current funds requested and future construction cost, is anticipated to range from \$1.5 million to \$2 million.

### **Project No. 2 – Water Quality Instrumentation Improvements – Final Design Phase (\$320,000)**

As regulatory requirements for water quality monitoring have increased over time, Metropolitan has progressively added instrumentation to monitor an increasing number of constituents. At the Weymouth plant, the instruments that monitor the plant's filter outlet and finished water reservoir inlet were originally installed in 1989, and have been modified several times over the intervening 25 years. During this time, increasingly stringent water quality regulations led to a 50-fold increase in sampling and monitoring, and an 80% decrease in allowable turbidity levels. These changes have significantly decreased required response times to address potential water quality episodes.

At the Weymouth plant, the subject water quality instrumentation is located within the basement of the Administration Building, which is over 500 feet from the sample points. The instrumentation is used to analyze chlorine residual, ammonia residual, pH, fluoride, conductivity, and other water quality parameters. Timely and accurate water quality monitoring results are required to properly control treatment processes and to monitor regulated constituents. The long piping runs from the sampling points to the analyzers, which can exhibit biological growth in the sample lines, can also lead to erroneous readings due to excessive sample transport times. Over the years, the piping has deteriorated and is leaking.

Staff recommends relocating the water quality monitoring instrumentation closer to the sampling points. The planned facilities include a new enclosure located near the finished water reservoir, an instrumentation cabinet near the combined filter outlet channel, and new piping. The close proximity of the new instrument stations to the sampling locations will provide more representative samples and more accurate and reliable monitoring data.

This action appropriates \$320,000 and authorizes final design of improvements to water quality instrumentation at the Weymouth filter outlet and reservoir inlet. Planned activities include field investigations for identification of utilities, preparation of drawings and specifications, development of a construction cost estimate, receipt of competitive bids, and all other activities in advance of award of a construction contract. All work will be performed by Metropolitan staff. Requested funds include \$130,000 for final design; \$96,000 for field investigations and studies including potholing and utility research; \$52,000 for bidding and project management; and \$42,000 for remaining budget. The final design cost as a percentage of the estimated construction cost is approximately 13 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 \$1.2 million to \$1.7 million. Staff will return to the Board at a later date for award of the construction contract.

The total estimated cost to complete the water quality instrumentation improvements, including the current funds requested and future construction cost, is anticipated to range from \$1.5 million to \$2 million.

**Summary**

This action appropriates \$530,000 and authorizes two rehabilitation projects at the Weymouth plant. Each project has been evaluated and recommended by Metropolitan's CIP Evaluation Team, and funds have been included in the fiscal year 2013/14 capital budget. See **Attachment 1** for the Financial Statement and **Attachment 2** for the Location Map.

These projects are included within capital Appropriation No. 15477, the Weymouth Improvements Appropriation - FY 2012/13 Through 2017/18, which was initiated in fiscal year 2012/13. With the present action, the total funding for Appropriation No. 15477 will increase from \$4,625,000 to \$5,155,000.

**Project Milestones**

December 2014 – Completion of preliminary design of wastewater pump station improvements

March 2015 – Completion of final design of water quality instrumentation improvements

**Policy**

---

Metropolitan Water District Administrative Code Section 5108: Appropriations

**California Environmental Quality Act (CEQA)**

---

CEQA determination for Option #1:

**Project No. 1 – Wastewater Pump Station Improvements – Preliminary Design Phase**

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed action consists of appropriation of funds and authorization of preliminary design, 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).

**Project No. 2 – Water Quality Instrumentation Improvements – Final Design Phase**

The environmental effects of funding, design, construction and operation of the Weymouth Water Quality Instrumentation Improvements (Project) were evaluated in the F. E. Weymouth Filtration Plant Ozonation Facilities and Site Improvements Program Final Environmental Impact Report (Final EIR), which was certified by the Board on April 12, 2005. The Board also approved the Findings of Fact (Findings), the Statement of Overriding Considerations (SOC), the Mitigation Monitoring and Reporting Program (MMRP), and the project itself. The current action is solely based on appropriation and authorization of funding for final design of the approved project and not on any changes to the approved Project. Hence, the previous environmental documentation acted on by the Board in conjunction with the proposed action fully complies with CEQA and the State CEQA Guidelines. Accordingly, no further CEQA documentation is necessary for the Board to act on the proposed action.

The CEQA determination is: Determine that the proposed action has been previously addressed in the certified 2005 Final EIR, Findings, SOC, and MMRP, and that no further environmental analysis or documentation is required.

CEQA determination for Option #2:

None required

**Board Options**

---

**Option #1**

Adopt the CEQA determinations that the proposed actions are categorically exempt and have been previously addressed in the certified EIR, and that no further environmental analysis or documentation is required, and

- a. Appropriate \$530,000;
- b. Authorize preliminary design of washwater pump station improvements at the Weymouth plant; and
- c. Authorize final design of water quality instrumentation improvements.

**Fiscal Impact:** \$530,000 in capital funds under Approp. 15477

**Business Analysis:** This option will enhance Weymouth plant reliability and compliance with treated water quality regulations.

**Option #2**

Do not proceed with the two improvements projects at this time.

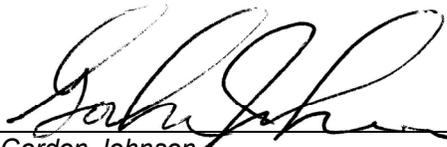
**Fiscal Impact:** None

**Business Analysis:** This option would forgo an opportunity to enhance Weymouth plant reliability.

**Staff Recommendation**

---

Option #1



---

4/21/2014  
Date

Gordon Johnson  
Manager/Chief Engineer  
Engineering Services



---

4/29/2014  
Date

Jeffrey Kightlinger  
General Manager

**Attachment 1 – Financial Statement**

**Attachment 2 – Location Map**

**Financial Statement for Weymouth Improvements Appropriation – FY 2012/13 Through FY 2017/18**

A breakdown of Board Action No. 7 for Appropriation No. 15477 for the Weymouth Washwater Pump Station Improvements and Water Quality Instrumentation Improvements<sup>1</sup> projects is as follows:

	<b>Previous Total Appropriated Amount (Nov. 2013)</b>	<b>Current Board Action No. 7 (May 2014)</b>	<b>New Total Appropriated Amount</b>
Labor			
Studies & Investigations	\$ 712,000	\$ 239,000	\$ 951,000
Final Design	255,000	130,000	385,000
Owner Costs (Program mgmt., permitting)	563,300	87,000	650,300
Submittals Review & Record Drwgs	60,000	-	60,000
Construction Inspection & Support	64,000	-	64,000
Metropolitan Force Construction	70,000	-	70,000
Materials & Supplies	5,500	-	5,500
Incidental Expenses	33,400	-	33,400
Professional/Technical Services	1,905,000	-	1,905,000
Contracts	368,480	-	368,480
Remaining Budget	588,320	74,000	662,320
<b>Total</b>	<b>\$ 4,625,000</b>	<b>\$ 530,000</b>	<b>\$ 5,155,000</b>

**Funding Request**

<b>Appropriation Name:</b>	Weymouth Improvements Appropriation – FY 2012/13 Through FY 2017/18		
<b>Source of Funds:</b>	Revenue Bonds, Replacement and Refurbishment or General Funds		
<b>Appropriation No.:</b>	15477	<b>Board Action No.:</b>	7
<b>Requested Amount:</b>	\$ 530,000	<b>Budget Page No.:</b>	340
<b>Total Appropriated Amount:</b>	\$ 5,155,000	<b>Total Appropriation Estimate:</b>	\$105,203,000

<sup>1</sup>This action is the initial appropriation for the the Weymouth Washwater Pump Station Improvements and Water Quality Instrumentation Improvements projects.

# Distribution System

