



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

9/13/2022 Board Meeting

7-2

Subject

Authorize an increase of \$1,200,000 to an existing agreement with IBI Group, for a new not-to-exceed total of \$1,830,000 for design services, and an agreement with Fugro, in an amount not-to-exceed \$450,000 for geotechnical engineering services for the Weymouth Administration Building seismic upgrade project; the General Manager has determined that this proposed action is exempt or otherwise not subject to CEQA

Executive Summary

A key component of Metropolitan's seismic resiliency strategy includes seismic evaluation and upgrade of its facilities. Seismic analyses of the Administration Building at the F. E. Weymouth Water Treatment Plant (Weymouth plant) have concluded that the building needs to be strengthened in order to withstand a major earthquake. The planned upgrades include structural strengthening consistent with current seismic standards for essential facilities, as well as accessibility and fire/life safety improvements. This action authorizes an amendment to an existing agreement for design to upgrade the Weymouth plant's Administration Building and authorizes a new agreement to perform geotechnical engineering services in support of the project.

Details

Background

The Weymouth plant was placed into service in 1941 with an initial capacity of 100 million gallons per day (mgd) and was expanded twice to its current capacity of 520 mgd. The plant delivers a blend of waters from the Colorado River Aqueduct and the 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, approximately 1.5 miles from the Sierra Madre-Cucamonga Fault, which can generate a 7.0 magnitude earthquake.

The Weymouth Administration Building has been in service since 1941. The building is comprised of two separate reinforced concrete structures: a two-story, 112-foot-wide by 92-foot-long structure of approximately 15,200 square feet that houses offices, support spaces, restrooms, a demonstration room, and a water quality laboratory; and an adjacent, four-story, 94-foot-wide by 74-foot-long structure (typically referred to as the Control Building) of approximately 20,000 square feet that houses the plant control room, chemical piping systems, lockers, conference rooms, and an equipment storage area. The plant's outlet conduit passes underneath the building.

When the Administration Building was constructed in 1940, it was designed to meet then-current building codes. Over the last several decades, industry knowledge of earthquakes and seismic design has greatly improved, which has led to the development of today's more stringent building codes. Structural evaluations conducted by staff under Metropolitan's seismic assessment program concluded that the building requires structural upgrades to withstand a major earthquake and retain its functionality as an essential facility. In January 2018, Metropolitan's Board authorized final design of seismic upgrades and building improvements to the Weymouth Administration Building.

The initial detailed structural analyses commenced shortly after the Board's authorization of this project. These analyses were based on then-current La Verne site-specific seismic criteria developed prior to 2009 and current provisions for seismic evaluation and retrofit of existing buildings (ASCE 41-13). However, new building code requirements released in 2019 prompted the update of the site-specific criteria, which increased the design ground

acceleration by approximately 50 percent, resulting in the development of a completely new seismic retrofit solution which significantly increased the complexity of the project's overall design efforts.

Due to these changes in the code, some of the early design work was reevaluated in order to meet the code's seismic requirements. The recommended approach now includes the use of micro-piles and larger shear walls to increase building strengthening. The addition of larger shear walls in critical areas of the facility resulted in the relocation of utilities and water treatment piping from the basement to an exterior trench, which also enhances accessibility and personnel safety; the reconfiguration of restrooms and other rooms; architectural modifications near the areas of structural upgrades; and related improvements associated with the preservation of historic architectural features. A new fire protection system consistent with California Fire Code Standards is also needed. Final design of this work is planned to be completed by a consultant under the existing professional services agreement, which is the subject of this action.

The planned seismic upgrades to the Weymouth Administration Building include: (1) addition of micro-piles to supplement existing caisson footings; (2) reinforcement of the walls for the plant's filter outlet channel; (3) filling of below-ground openings with structural concrete; (4) reinforcement of column base plates and roof-to-wall, beam, and shear wall connections; and (5) addition of new shear walls and drag beams. Staff also recommends instituting a micro-pile verification test program to refine the preliminary concepts for the foundation uplift resistance and load-deformation response data as part of the retrofit's overall design process.

Also included with this project are upgrades to the Weymouth plant's natural gas system, which consists of four gas meters and associated piping, serving all buildings and service shops throughout Metropolitan's La Verne site. The natural gas system components have exceeded the recommended 50-year service life. Upgrades to the natural gas system were previously included as part of the utility improvements for the La Verne Shops project. Since the existing main gas line is adjacent to and passes through the basement of the Administration Building, the system would require a shutdown during building construction. As a result, it is more efficient to upgrade the plant's gas system in conjunction with the building seismic upgrades work. This approach will reduce operations impact associated with natural gas outages and simplify construction.

As the Weymouth Administration Building is an essential facility that supports treatment plant operations, staff recommends moving forward with final design for building upgrades to enhance seismic resiliency and personnel safety. A number of staff and facilities in the building will be relocated prior to the start of construction activities to ensure that critical operational activities continue on an uninterrupted basis during the retrofit work. Planning activities for temporary offices and other facilities will be undertaken by staff and consultants during the design phase to support this objective.

In accordance with the April 2022 action on the biennial budget for Fiscal Years 2022/23 and 2023/24, the General Manager will authorize staff to proceed with the action described herein, pending board authorization of the actions described below. Based on the current Capital Investment Plan (CIP) expenditure forecast, funds for work to be performed pursuant to this action during the current biennium are available within the Capital Investment Plan Appropriation for Fiscal Years 2022/23 and 2023/24 (Appropriation No. 15525). This project has been reviewed in accordance with Metropolitan's CIP prioritization criteria and was approved by Metropolitan's CIP evaluation team to be included in the Treatment Plant Reliability Program.

Weymouth Administration Building Upgrades– Final Design

Final design phase activities include: (1) detailed structural analyses; (2) preparation of drawings and specifications; (3) development of a construction cost estimate; (4) development of a staff relocation plan, (5) micro-pile verification and testing; (6) value engineering; and (7) advertisement and receipt of competitive bids. These activities will be conducted with a hybrid effort of consultants and Metropolitan staff. The civil, structural, and instrumentation design will be performed by Metropolitan staff. The architectural, mechanical, and electrical design will be performed by IBI Group, while the micro-pile verification and testing will be performed by Fugro, as discussed below. Metropolitan staff and the IBI Group will collectively develop a staff relocation plan that will be implemented while the construction is underway. Metropolitan staff will also perform overall project management and technical review.

A total of \$4.8 million is required for this work. Allocated funds include \$1.2 million for final design by the IBI Group and \$450,000 for field investigation by Fugro, as described below. Allocated funds for Metropolitan

staff activities include \$1.5 million for civil, structural, and instrumentation design and technical oversight and review of consultant's work; \$920,000 for environmental support, project management, and project controls; and \$730,000 for remaining budget. **Attachment 1** provides the allocation of the required funds.

As described below, final design will be performed by the IBI Group and Metropolitan staff. Engineering Services' performance metric target range for final design with construction more than \$3 million is 9 to 12 percent. For this project, the performance metric goal for final design is 12 percent of the total construction cost. The estimated cost of construction for this project is anticipated to range from \$22.5 million to \$24.5 million.

Engineering Services (IBI Group) – Amendment to Agreement

In January 2019, Metropolitan's Board awarded a \$630,000 agreement to IBI Group to perform final design of building improvements related to seismic upgrades for the Weymouth Administration Building. As noted above, new building code requirements increased the design ground acceleration and resulted in a new seismic retrofit solution and additional preliminary design efforts. IBI Group is recommended to complete the remaining final design scope of work under the agreement amendment. The scope of work will include: (1) development of construction drawings and specifications for mechanical, electrical, plumbing, fire sprinkler, and gas service improvements; (2) analysis of the building's compliance with the current codes, including egress, occupancies, fire/life safety, and accessibility; (3) preparation of a plan for the preservation of historic features; (4) preparation of an engineer's cost estimate; and (5) technical assistance during the bid period.

This action authorizes an increase of \$1,200,000 to an existing agreement with IBI Group for a new not-to-exceed amount of \$1,830,000 to provide engineering design services for upgrades to the Weymouth Administration Building. For this agreement, Metropolitan has established a Small Business Enterprise (SBE) participation level of 18 percent. IBI Group has agreed to meet this level of participation. The planned subconsultants for this work are listed in **Attachment 2**.

Geotechnical Engineering Services (Fugro) – New Agreement

Fugro is recommended to provide geotechnical engineering services for micro-pile verification and testing. Fugro was prequalified through Request for Qualifications No. 1220 and was selected based on the firm's expertise in the structural and geotechnical aspects of this project, and its past work developing the geotechnical engineering report for the preliminary design phase of this project.

The planned geotechnical services include: (1) development of prototype micro-piles and a work plan; (2) drilling, installation, and testing of the proposed prototype micro-piles; (3) performing verification testing; and (4) preparation of a data report summarizing the procedure and results of the testing program. The experience gained from this testing program will validate the constructability of the proposed design concept and will be incorporated into the final designs and specifications of the construction contract.

This action authorizes an agreement with Fugro for a not-to-exceed amount of \$450,000 to provide geotechnical services in support of the project to structurally strengthen the Weymouth Administration Building. For this agreement, Metropolitan has established an SBE participation level of 25 percent. The planned subcontractor for the drilling work is Condon-Johnson & Associates, Inc.

Alternatives Considered

Alternatives considered for completing final design activities of seismic upgrades and building improvements included assessing the availability and capability of in-house Metropolitan staff to conduct this work. Metropolitan's staffing strategy for utilizing consultants and in-house Metropolitan staff has been: (1) to assess current work assignments for in-house staff to determine the potential availability of staff to conduct this work; and (2) for long-term rehabilitation projects, when resource needs exceed available in-house staffing or require specialized technical expertise.

In the case of this project, Metropolitan staff maintains the core competencies and technical capabilities to perform civil, structural, and instrumentation design. The consultants will be relied upon to design the architectural and related mechanical, electrical, plumbing, and fire safety components; and to provide specialized services to address historical features and micro-pile verification and testing. In this manner, in-house staff will continue to address a baseload of work on capital projects, while the professional services agreements will be

relied upon to perform work that falls outside of the core competencies of in-house staff. This approach will allow for the efficient and timely completion of this project.

Summary

This action amends an agreement with IBI Group for a new not-to-exceed amount of \$1,830,000 for design services to upgrade the Weymouth Administration Building; and authorizes an agreement with Fugro for a not-to-exceed amount of \$450,000 to provide geotechnical services for structural strengthening of the Weymouth Administration Building. See **Attachment 1** for the Allocation of Funds, **Attachment 2** for the List of Subconsultants, and **Attachment 3** for the Location Map.

Project Milestone

November 2024 – Complete final design of upgrades to the Weymouth Administration Building

Policy

Metropolitan Water District Administrative Code Section 5108: Appropriations

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

Metropolitan Water District Administrative Code Section 11104: Delegation of Responsibilities

By Minute Item 51073, dated January 9, 2018, the Board authorized final design of seismic upgrades to several La Verne buildings, including the Administration Building, Water Quality Laboratory and the Field Engineering Building.

By Minute Item 52778, dated April 12, 2022, the Board appropriated a total of \$600 million for projects identified in the Capital Investment Plan for Fiscal Years 2022/23 and 2023/24.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed action is categorically exempt under the provisions of CEQA and the State CEQA Guidelines. The proposed action consists of basic data collection, research, and resource evaluation activities, which do not result in a serious or major disturbance to an environmental resource. These 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).

CEQA determination for Option #2:

None required

Board Options

Option #1

- a. Authorize an increase of \$1,200,000 to an existing agreement with IBI Group, for a new not-to-exceed amount of \$1,830,000 for design services to upgrade the Weymouth Administration Building.
- b. Authorize an agreement with Fugro for a not-to-exceed amount of \$450,000 to provide geotechnical engineering services for structural strengthening of the Weymouth Administration Building.

Fiscal Impact: \$4.8 million in capital funds. Approximately \$4.0 million in capital funds will be incurred in the current biennium and has been previously authorized. The remaining capital expenditures will be funded from future CIP budgets following board approval of those budgets.

Business Analysis: This option will enhance Metropolitan's ability to maintain reliable water deliveries and enhance worker safety in the event of a major earthquake.

Option #2

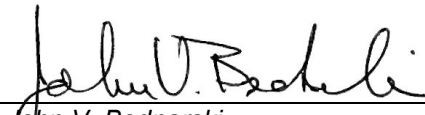

Do not proceed with agreements at this time.

Fiscal Impact: None

Business Analysis: This option would forego an opportunity to reduce the risk of damage to the Weymouth Administration Building in the event of a major earthquake. Staff would continue to assess potential initiatives to minimize the risk of disruption to plant operations and provide life safety protection for critical infrastructure and personnel.

Staff Recommendation

Option #1

	8/18/2022
John V. Bednarski Manager/Chief Engineer Engineering Services	Date
	8/23/2022
Adel Hagekhalil General Manager	Date

Attachment 1 – Allocation of Funds

Attachment 2 – List of Subconsultants

Attachment 3 – Location Map

Ref# es12682558

Allocation of Funds for Weymouth Administration Building Upgrades

	Current Board Action (Sept. 2022)
Labor	
Studies & Investigations	\$ -
Final Design	1,500,000
Owner Costs (Program mgmt., envir. monitoring)	920,000
Submittals Review & Record Drwgs.	-
Construction Inspection & Support	-
Metropolitan Force Construction	-
Materials & Supplies	-
Incidental Expenses	-
Professional/Technical Services	-
IBI Group	1,200,000
Fugro, Inc.	450,000
Right-of-Way	-
Equipment Use	-
Contracts	-
Remaining Budget	730,000
Total	\$ 4,800,000

The total amount expended to date on the seismic upgrades and building improvements at the Weymouth Administration Buildings is approximately \$2.6 million. The total estimated cost to complete the project, including the amount appropriated to date, funds allocated for the work described in this action, and future construction costs, is anticipated to range from \$29.9 million to \$31.9 million.

The Metropolitan Water District of Southern California
Subconsultants for Agreement with IBI Group

Subconsultant and Location
Blackman & Forsyth Santa Monica, CA
Construction Cost Consultants, Inc. Los Angeles, CA
Historic Resources Group, LLC Pasadena, CA
Lerch Bates Englewood, CO
P2S, Inc. Long Beach, CA
Silverlake Conservation, LLC Los Angeles, CA

Distribution System

