


STAFF SUMMARY

TO: Board of Directors
FROM: Frederick A. Laskey, Executive Director 
DATE: October 17, 2018
SUBJECT: Update on the Consultant Support Structure for the Metropolitan Tunnel Redundancy Program

COMMITTEE: Water Policy and Oversight

 INFORMATION
 X VOTE

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Preparer/Title


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RECOMMENDATION:

That the Board of Directors approve staff's recommendation to prepare and issue an RFQ/P for Program Support Services and an RFQ followed by an RFP (two-step) for Preliminary Design/ Geotechnical/MEPA review services to support the Metropolitan Tunnel Redundancy Program.

DISCUSSION:

In February 2017, the Board of Directors approved construction of northern and southern deep rock tunnels from the Hultman Aqueduct and MetroWest Water Supply Tunnel to the Weston Aqueduct Supply Main 3 and to the Southern Spine water mains for the purpose of providing redundancy for the Metropolitan Tunnel System (City Tunnel, City Tunnel Extension, and Dorchester Tunnel) and to proceed with preliminary design, geotechnical investigation, and Massachusetts Environmental Policy Act (MEPA) review of the project.

At this time, the Tunnel Redundancy Program is in the very early stages of planning/design. Over the next several years there is much work to be done in preparation for the final design and construction phases of the project. During these early years, many program-wide activities will need to be initiated including program-wide planning, risk management planning, quality management planning, health and safety planning, design criteria and standardization, document management and controls, work breakdown planning, procurement planning, construction package planning, field investigation procedures, rock core storage, critical path scheduling, and budget planning and management. In addition, the Preliminary Design Phase of the program will involve significant efforts on permitting, geotechnical investigations, alternatives evaluation, as well as community outreach.

Given the size and complexity of the Tunnel Redundancy Program, it is staff's recommendation that two initial consultant contracts be procured to perform necessary work over the next several

years for Program Support Services (PSS) and Preliminary Design Engineering. The staff of the Tunnel Redundancy Department, with support from other MWRA departments as appropriate, will oversee the Program including all work of the PSS and Preliminary Design Engineer. The proposed consultant organization chart is attached.

Engagement of a program-wide, independent consultant to support very large, long duration, complex projects is very common and generally consistent with past MWRA programs, such as the Lead Design Engineer and Program Manager/Construction Manager on the Boston Harbor Project, Design Management Support on the John J. Carroll Water Treatment Plant, and Owner's Representative on the Norumbega, Blue Hills and Spot Pond Covered Storage projects. It is typical for very large tunnel projects to include an independent consultant(s) in the form of an Owner's Representative, Owner's Advisor, Program Manager, Geotechnical Consultant, Tunnel Consultant, or Program Support Services.

Program Support Services Consultant

The PSS consultant firm will provide technical professional resources to the Tunnel Redundancy Department to support program-wide management, risk management, quality management, standardization, contract delivery and contract packaging. The PSS will include independent technical reviews, constructability reviews, critical path schedule evaluations, and cost estimating/opinions. The PSS will be especially helpful in providing early and essential consultation as well as preparing some early work products to ensure the Program moves forward properly as the Department adds key permanent staff.

The staff of the PSS consultant firm will consist mostly of senior professionals with significant experience in tunneling and complex underground construction to be used as needed to supplement the Tunnel Redundancy Department. Key personnel will include technical experts in the areas of program management, rock tunneling, geotechnical engineering, structural engineering, and cost estimating/scheduling with experience in the planning, design, and construction on similar complex rock tunneling and underground projects including mega projects (greater than \$1.0 billion).

The PSS consultant will also provide program-wide risk management/mitigation analysis as well as an in-depth understanding of the state of the practice and current trends in the tunnel construction industry. The PSS staff will have the necessary skills in the area of tunneling and complex underground construction required to properly execute the Tunnel Redundancy Program but would be difficult and not cost-effective for MWRA to hire as permanent staff.

Although the PSS consultant will provide a vital resource to the program, it is not envisioned at this time that the PSS will serve as an engineer-of-record or construction manager for the project. It is envisioned that the PSS will be precluded from participating directly in either the preliminary or final design, or the construction phase of the project. It is envisioned that the PSS contract will be procured under a one-step RFQ/P process for a duration of 5 years, with up to two 2-year renewals (for a total of 9 years). Selection of the PSS will follow the MWRA's existing evaluative procurement process. Staff are preparing an estimate of the costs for the PSS services over the 9-year contract.

Limiting the PSS's role by precluding the PSS firm from proposing on other consultant contracts for the project and establishing a reasonably long contract duration is intended to encourage interest and competition for the PSS contract. Furthermore, it encourages

independence from the interests of other program participants, and fosters a long-term commitment to the MWRA and the tunnel program.

Preliminary Design Engineering Contract

The Preliminary Design Engineering Contract will include the preliminary geotechnical investigation, preliminary route and shaft site alternative evaluations, preliminary design, and preparation of a comprehensive list of the environmental permits needed and preparation of required MEPA review for the project. This phase of the project will initiate the actual design of the program.

The Preliminary Design Engineering Contract is anticipated to include several significant project documents including a Preliminary Geotechnical Data and Design Report, Alternatives Evaluation and Preliminary Design Report, Environmental Impact Report and preliminary design drawings.

It is envisioned that the Preliminary Design Engineer will be procured under a two-step evaluative process (RFQ followed by an RFP issued only to the shortlisted respondents). At this time, it is anticipated that Preliminary Design can be accomplished within 3 years.

Next Steps

The next steps will be to develop a scope of work and procurement for a consultant to provide Program Support Services followed by development of a scope of work and procurement for a consultant to provide Preliminary Design Engineering. At this time, the goal is to issue the RFQ/P for the PSS by early 2019 and issue the Preliminary Design Engineering RFQ by the summer of 2019.

After the completion of the preliminary design, additional consultant contracts will be needed to support both final design and construction management of the program. Future staff summaries will provide details on the structure and scope of those contracts.

BUDGET/FISCAL IMPACTS:

No change to the total funding allocated for the Metropolitan Tunnel Redundancy Program is proposed to support the professional services recommended herein or as part of the FY2020 CIP. Although a Program Support Services contract is not specifically identified in the FY2019 CIP, it includes funds for "Administration, Legal and Public Outreach," which was envisioned to address such program-wide professional services. Refinement of the program budget will be conducted as part of the 2020 CIP process.

ATTACHMENT:

Consultant Organization Chart

Metropolitan Tunnel Redundancy Program – Consultant Organization

