

SUBJECT

BOARD RESOLUTION NO. 16-94

Pertaining to an agreement with AECOM to provide professional services for a condition assessment of the Board's raw water supply conduits.

BACKGROUND INFORMATION

Staff is seeking approval of a \$369,325 professional services agreement with AECOM to conduct a condition assessment of the raw water supply conduits between the Fridley Pumping Station to the McCarrons Treatment Plant.

Following Board approval, City Contracts and Analysis will prepare and execute a Professional Services Agreement, which will include the City's standard terms and conditions, liability and insurance language, and the following:

Scope of Work:

1. Conduct a kick-off meeting and collect pertinent background data.
2. Perform a desktop analysis of the background data to develop a risk model and cluster analysis.
3. Conduct a full length internal inspection of the pipelines. This will include visual observations, hammer soundings, ultrasonic thickness tests, internal corrosion pit survey, and joint inspections.
4. Conduct an external inspection of the pipelines at up to 20 locations with excavation provided by SPRWS crews.
5. Prepare a final report and maintenance plan based on the findings of the inspections and desktop analysis.
6. Conduct a desktop analysis of all pre-stressed concrete cylinder pipe (PCCP) in the distribution system and provide recommendations for further investigation based on risk.

The work is further detailed in AECOM's November 6, 2015 Proposal, sections of which are attached for review.

Cost: Not to exceed \$369,325

Term: January 1, 2016 - December 31, 2016

See attached Report, Location Map, and Project Approach and Cost from the AECOM Proposal.

RECOMMENDATION

Approval is recommended.

REPORT

Raw Water Conduit Condition Assessment

January 12, 2016

The system of conduits that supply raw water from the Mississippi River to the McCarrons Treatment Plant consists of 26 miles of 60-inch and 90-inch diameter pipes. The conduits run in parallel for redundancy and are separated into three distinct segments:

Mississippi Conduits (Mississippi River to Charley Lake):

Conduit #1: 1924 – 60-inch Concrete and Steel

Conduit #2: 1958 – 60-inch Steel

Pleasant Conduits (Pleasant Lake to Sucker Lake):

Conduit #1: 1936 – 60-inch Concrete

Conduit #2: 1957 – 60-inch Concrete

Vadnais Conduits (Vadnais Lake to McCarrons Treatment Plant):

Conduit #1: 1925 – 90-inch Concrete

Conduit #2: 1958 – 90-inch Steel

In the past, Vadnais staff have performed maintenance on the concrete conduits to repair joint leaks. Additionally, nearly 1,100 feet of the steel segment of Mississippi Conduit #1 was replaced due to corrosion. In general, the conduits are believed to be in good condition. However, the 2014 Master Plan recommended that an assessment of the conduits be conducted due to their criticality to the supply system.

The primary objective of the project is to assess the condition of the raw water supply system, quantify its structural and hydrostatic integrity and identify a staged or immediate improvement program to reliably provide service for 50 years or more. Key aspects of the project will include:

1. Develop a clear understanding of the current condition of the pipelines, the nature and severity of defects and their spatial distribution along the length of the pipe.
2. Identify factors that led to the defects occurring and future deterioration risks for the supply lines in their present state with current operation and maintenance protocols in place.
3. Provide an assessment of the effectiveness of past and current repair methodologies and their anticipated design life.
4. Establish performance/service criteria as a benchmark to quantify acceptable condition and service level objectives moving forward.
5. Conduct an assessment of residual life and anticipated service level degradation without intervention.
6. Develop an optimized rehabilitation program to meet the defined performance and service objectives.
7. Quantify the certainty of the program based on the level of field activities undertaken.

8. Conduct a brief desktop assessment of distribution system assets comprised of PCCP pipe and develop a prioritization plan for investigating risk of failure. *(This item is not related to the raw water conduits, but requires similar expertise. The cost for this portion of the project is \$22,700 of the total.)*

A full-length internal inspection has never been performed on the conduits. This project will identify existing deficiencies to be repaired and forecast remaining life to aid in budgeting for future capital improvements to the system.

A Request for Proposals was advertised by the City of Saint Paul Contracts and Analysis Services. Five proposals were received, reviewed, and scored by a SPRWS selection committee. The committee decided to interview only four of the five firms because the fifth proposal was submitted incomplete and was scored initially very low. The following provides a summary of the scoring and proposal costs of the four interviewed firms:

Criteria	Max Points	AECOM	Black & Veatch	CDM Smith	GEI
1. Experience/Qualifications	150	133	144	125	134
2. Related Project					
Experience of the Company	150	136	139	131	117
3. Project Approach	400	300	363	276	331
4. Proposal Cost	300	244	162	290	210
5. Interview	100	84	88	73	82
Score Total:	1100	897	896	895	874

Total Cost	\$369,325	\$440,000	\$320,400	\$394,800
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Although AECOM's score was very close to the next two highest scores, staff feels AECOM is the best choice for the following reasons:

1. AECOM demonstrated an exceptional level of expertise and understanding of both concrete and steel pipe lines. Their experience on the Shoal Lake Aqueduct in Winnipeg, MB and other projects will provide insight for this project which includes pipe of similar vintages and materials.
2. AECOM's proposal includes inspection of existing joint repairs by a sub-contractor who specializes in pipe joint repair techniques.

The selection committee believes these characteristics make AECOM the best value to complete the project on time and on budget.