

## Report to Civic Works Committee

**To:** Chair and Members  
Civic Works Committee

**From:** Kelly Scherr, P.Eng., MBA, FEC  
Managing Director, Environmental & Engineering Services  
and City Engineer

**Subject:** Sole Source Award: Acoustic Fibre Optic Monitoring Contract

**Date:** January 9, 2024

## Recommendation

That, on the recommendation of the Managing Director, Environmental and Engineering Services and City Engineer, the following actions **BE TAKEN** with respect to the Acoustic Fibre Optic (AFO) Monitoring Contract:

- (a) The contract value for Pure Technologies Ltd. 300, 705-11 Avenue SW, Calgary, Alberta, T2R 0E3, **BE APPROVED**, in accordance with section 14.3 (c) of the Corporation of the City of London's Procurement of Goods and Services Policy, in the total amount of \$717,413.41 (excluding HST) for a four year period (2024-2027) to continuously monitor 15.86 km of the City's most critical watermains;
- (b) the Civic Administration **BE AUTHORIZED** to undertake all the administrative acts that are necessary in connection with this project;
- (c) the Mayor and City Clerk **BE AUTHORIZED** to execute any contract or other documents, if required, to give effect to these recommendations.

## Executive Summary

This report recommends the approval of a four-year acoustic fibre optic (AFO) monitoring contract required to continuously monitor the condition of the City's most critical watermains from the Arva Pumping Station to the Springbank Reservoirs. Actively monitoring the condition of the trunk watermain allows the City to defer capital costs related to replacement and to reduce the social and economic impacts of a watermain break.

In use since 2010, the monitoring data provided by Pure Technologies has allowed the City to proactively replace compromised water pipeline before a catastrophic failure occurs, reducing both costs and impacts to the public.

## Linkage to the Corporate Strategic Plan

This recommendation supports the following 2023-2027 Strategic Plan areas of focus:

- Climate Action and Sustainable Growth:
  - Infrastructure is built, maintained, and secured to support future growth and protect the environment.
  - The infrastructure gap is managed for all assets.

## Analysis

### 1.0 Background Information

#### 1.1 Previous Reports Related to this Matter.

- Sole Source: Concrete Pressure Pipe Inspection – Fibre Optic Installation, April 14, 2010, Board of Control
- Sole Source Award: Acoustic Fibre Optic Monitoring Contract, February 21, 2017, Civic Works Committee
- Sole Source Award: Acoustic Fibre Optic Monitoring Contract, February 6, 2018, Civic Works Committee
- Sole Source Award: Acoustic Fibre Optic Monitoring Contract, March 6, 2019, Civic Works Committee
- Sole Source Award: Acoustic Fibre Optic Monitoring Contract, February 19, 2020, Civic Works Committee

## **2.0 Discussion and Considerations**

### **2.1 Purpose**

This report recommends the approval of a four-year acoustic fibre optic (AFO) monitoring contract required to continuously monitor the condition of the City's most critical watermains from the Arva Pumping Station to the Springbank Reservoirs.

### **2.2 Discussion**

The City of London relies on large diameter watermains to transport water from the Arva Pumping Station to the Springbank Reservoirs. Since 2010, The City has monitored the condition of these watermains through Acoustic Fibre Optic Monitoring Technology, developed by Pure Technologies. This proprietary technology allows the City to monitor the condition of this watermain to defer capital costs related to replacement and to reduce the social and economic impacts of a watermain break.

Pure Technologies provides real-time monitoring of the City's critical water infrastructure. When a problem is detected, Pure Technologies emails City staff with the relevant information on the location and severity of the issue. Should the detected problem constitute an emergency, Pure Technologies will directly call the City's water emergency number. This monitoring data has allowed the City to proactively replace compromised water pipeline well before a catastrophic failure occurs, reducing both costs and impacts to the public.

### **Monitoring Results**

In 2017, this monitoring system identified a number of wire breaks in the Arva-Huron pipeline which links the Arva Pumping Station to the Springbank Reservoirs. This information prompted a more invasive inspection of the critical section. The inspection confirmed the pipe was distressed and at risk of failure. Staff used this information to plan and schedule the pipe's replacement. This proactive planning also allowed staff to operationally plan for the pipe to be out of service during replacement. A sudden break in this large main would have cost significantly more to repair and would have caused more disruption compared to the preventative replacement that was completed. The preventative replacement was a proactive step made possible by the AFO monitoring system.

### **2024 Monitoring Program Extension**

Pure Technologies has proposed a contract to continue to provide monitoring services in accordance with the following fee schedule:

Period	Length (m)	Provisional Additional Length (m)	Unit Rate (\$/m/year)	Warranty (\$)	Base (\$)	Total Fee Including Additional Length (\$)
2024	15,858	475	8.27	29,226.00	10,000.00	174,299.91
2025	15,858	475	8.44	29,810.52	10,000.00	177,661.04
2026	15,858	475	8.61	30,406.73	10,000.00	181,033.86
2027	15,858	475	8.78	31,014.86	10,000.00	184,418.60
					<b>Total</b>	<b>717,413.41</b>

The total fee increase each year is 2%. The warranty component of the contract covers all materials associated with the AFO monitoring system. In 2015, a component of the system was replaced under the warranty. Had the warranty not been in place, the cost to replace this component alone would have been \$75,000. There are also cancellation clauses included in the proposed contract which will allow the City to reserve the right, at its absolute sole discretion, to cancel this contract in either of these scenarios:

- With thirty days written notice, without cause and without penalty; and
- With seven days written notice, with cause and without penalty.

### 2.3 Procurement Process

Section 14.3 (c) of the Procurement of Goods and Services Policy allows a procurement to be conducted using a sole source if the service is unique to one supplier with no alternative or substitution. As the AFO monitoring system owned by the City is proprietary in nature, Pure Technologies is the only firm that can provide the required monitoring services.

This contract is the second cycle of an operationally funded, multi-year contract. The previous cycle was successful. This contract is intended to remain funded through the operating budget due to the nature of work. Proceeding with a multi-year contract ensures continuity in the monitoring program and improve administrative efficiencies as it will reduce staff and Council time spent vetting and approving multiple similar contracts. Pure Technologies has provided monitoring services since the AFO was installed in 2010.

### 3.0 Financial Impact/Considerations

The total cost of the contract is valued at \$717,413.41 spread out over four years. This cost was expected and has been included in the water operating budget.

## Conclusion

Staff recommend retaining Pure Technologies, in accordance with Section 14.3 (c) (Sole Source) of the Procurement of Goods and Services Policy, to continue to provide AFO monitoring services of the City's most critical watermain. The proprietary equipment required to undertake this task is already in place in the water distribution system, and it is Pure Technologies' unique proprietary system that is needed to provide the City with this monitoring service.

**Prepared by:** Aaron Rozentals, P.Eng., GDPA,  
Division Manager, Water Engineering

**Submitted by:** Ashley M. Rammeloo, MMSc., P.Eng.  
Director, Water, Wastewater, and Stormwater

**Recommended by:**

**Kelly Scherr, P. Eng., MBA, FEC  
Deputy City Manager, Environment, and  
Infrastructure**

cc:

Audrey Kester, Water Demand Manager, Water Engineering  
Gary MacDonald, Budget Analyst, Finance Supports  
Steve Mollon, Senior Manager, Procurement & Supply, Finance Supports  
Allison Biggar, Pure Technologies