Report to Civic Works Committee

To: **Chair and Members**
Civic Works Committee
From: **Kelly Scherr, P.Eng., MBA, FEC**
Deputy City Manager, Environment & Infrastructure
Subject: **Greenway and Adelaide Wastewater Treatment Plants Climate Change Resiliency Consulting Fees Value Increase**
Date: **August 15, 2023**

Recommendation

That, on the recommendation of the Deputy City Manager, Environment & Infrastructure, the following actions **BE TAKEN** with respect to the Greenway and Adelaide Wastewater Treatment Plants Climate Change Resiliency design project:

a) The value of the engineering consulting fees for CIMA Canada Inc. **BE INCREASED** by $949,759.80 including contingency but excluding HST, due to additional scope requests and project consolidation;

b) the financing for this project **BE APPROVED** as set out in the Sources of Financing Report attached hereto as Appendix 'A'; and

c) the Mayor and City Clerk **BE AUTHORIZED** to execute any contract or other documents, if required, to give effect to these recommendations.

d) the Civic Administration **BE AUTHORIZED** to undertake all the administrative acts that are necessary in connection with this project.

Executive Summary

The purpose of this report is to seek approval to increase consulting fees to CIMA Canada Inc. for engineering services under the federal Disaster Mitigation and Adaptation Fund for the Greenway and Adelaide Wastewater Treatment Plant designs. The increased funds are requested to complete additional scope identified as necessary during the preliminary design phase and to consolidate other previously planned asset renewal capital works as a cost saving measure in the construction phase. All items relate to work being undertaken at the Adelaide Wastewater Treatment Plant.

The City of London secured the opportunity for federal funding through the Disaster Mitigation and Adaptation Fund for improvements to the resilience of the Greenway and Adelaide Wastewater Treatment Plants through flood protection. Two separate Municipal Class Environmental Assessments have been completed for the plants and the preferred flood protection measures have been identified. Building on these Environmental Assessments, preliminary design work has also been completed at each site. The final design will improve asset resilience, enhance treatment capabilities, and enhance the safety of plant staff during extreme wet weather events.

Additionally, the amount of wastewater being received at the Adelaide Wastewater Treatment Plant has increased significantly over the last five years and is approaching the plant's available treatment capacity. Previously a Consulting Engineer was retained to complete a preliminary and detailed design to refurbish Section 1 of the treatment plant to provide the required capacity. This is nearing a tender-ready state, but the timing of construction coincides with the timelines for the flood protection project, which provides an opportunity to consolidate the projects to reduce risk and save costs.

Linkage to the Corporate Strategic Plan

This report supports the 2023-2027 Corporate Strategic Plan in the following areas:

- Build infrastructure to support future development and protect the environment;

- Improve London's resiliency to respond to potential future challenges; and
- Conserve energy and increase actions to respond to climate change and severe weather.

Analysis

1.0 Background Information

1.1 Previous Reports Related to this Matter

Greenway and Adelaide Wastewater Treatment Plants Climat Change Resiliency Geotechnical Consultant Award. Civic Works Committee. April 12, 2023.

Greenway and Adelaide Wastewater Treatment Plants Climate Change Resiliency Detailed Design Consultant Award. Civic Works Committee. October 4, 2022.

Greenway WWTP Climate Change Resilience Class EA – Notice of Completion. Civic Works Committee. April 20, 2022.

Adelaide WWTP Climate Change Resilience Class EA – Notice of Completion. Civic Works Committee. April 20, 2022.

Disaster Mitigation and Adaptation Fund – Contribution Agreement. Civic Works Committee. March 29, 2022.

Greenway and Adelaide Wastewater Treatment Plants Climate Change Resiliency Class Environmental Assessment Consultant Award. Civic Works Committee. March 2, 2021.

Climate Emergency Action Plan – Update. Civic Works Committee. August 11, 2020.

Adelaide Wastewater Treatment Plant Upgrades Consultant Award. Civic Works Committee. May 26, 2020.

2.0 Discussion and Considerations

2.1 Project History – Adelaide WWTP Flood Protection

A Request for Proposal was issued for the design and contract administration of flood protection measures at the Greenway and Adelaide Wastewater Treatment Plants which followed Municipal Class Environmental Assessment recommendations accepted in 2022. A competitive bidding process was initiated for services at each plant and both design contracts were approved by Council on October 18, 2022 for award to CIMA Canada Inc. at a price of $1,003,068.00 for the Adelaide WWTP and $1,101,145.10 for the Greenway WWTP. Both prices include contingency and cash allowances. Although similar in scope, for tracking purposes each site is considered a separate project.

During the preliminary design and value engineering discussions, several items outside the original scope were identified as beneficial to include within this design. These items generally advance capital renewal and upgrades that would have been completed in the near future and the City will benefit from capital cost savings realized by completing these items alongside work already in design. In addition, an opportunity to construct another previously planned project at Adelaide WWTP was pursued in order to save on contract administration costs and reduce overall risk to the City. Further discussion on each additional scope item is detailed in the following sections. All items have the support of City staff for the incorporation into the overall design.

2.2 Project History – Adelaide WWTP Section 1 Restoration

The Adelaide Wastewater Treatment Plant currently provides sanitary servicing for north and northeast London. It has a rated capacity of 36,400 m^3/d, making it London's third-largest treatment plant. The majority of this capacity is through Section Two at the plant, and while Section One still forms part of the rated treatment capacity, it is older and requires upgrades to restore it to full treatment duty. Flows in the Adelaide sewershed have increased over the past five years as a result of increased wastewater from new development and unwanted water entering the sewer system. These flow increases mean that the treatment capacity of Section One will need to be fully restored in order to treat future flows. It is important that a plant has sufficient capacity both to comply with the plant's Provincial operating approval and to reduce the volume and frequency of wastewater by-passes to the Thames River.

In 2020, a Consultant was hired to provide the preliminary and detailed design services to restore Section One and allow the Section to return to service. The upgrades will include the removal of outdated and inoperable equipment, installation of a modern grit removal system, channel and piping modifications, new sludge pumps, new aeration equipment, and new settling tank equipment.

2.3 Adelaide WWTP Plant Electrical Upgrades

Through the preliminary design process for the flood protection project, it was determined that the proposed upgrades would need to include a considerable amount of retrofitting to the plant's main electrical equipment, which itself is nearing its end of service life. While it is possible to construct the new equipment in such a way that the existing electrical equipment could be used, retrofitting the new equipment to the existing equipment would not be cost effective and could reduce its reliability. The aging equipment will require full replacement in the near future and sourcing compatible repair components is becoming difficult and more costly when compared to servicing newer equipment.

The new electrical system is also required to accommodate a standby generator. While the treatment plant currently utilizes independent dual feeds from the electrical grid to reduce the risk of plantwide power loss, a recent power failure demonstrated this to be an incomplete strategy at this location. The installation of a standby generator would allow the treatment plant to operate independent of the power grid during times of power failure in the area, thereby protecting both the treatment plant equipment and upstream sewer users from backups.

The total fee request for this additional scope is $390,315.20, excluding H.S.T., and includes a 10% contingency.

2.4 Adelaide WWTP UV Channel Upgrades

The Adelaide WWTP utilizes a UV disinfection system for the disinfection of all wastewater prior to discharging to the Thames River. This system is aging, has become inefficient compared to newer UV disinfection systems, and obtaining replacement parts and materials is becoming increasingly difficult as the manufacturer is no longer supporting the model. As such, City staff's long-term plan is to construct and install a new UV disinfection system which can meet the disinfection needs for current and future flows. Since the new effluent pumping station at Adelaide will be in close proximity to the existing UV system, it is proposed that the structural elements required to accommodate a new UV treatment system be constructed now. By combining the UV channel construction with the effluent pumping station construction, overall costs are expected to be reduced since both the effluent pumping station and UV channel require similar materials and trades in the same location to complete the construction, thus reducing contractor effort, overhead and contract administration efforts. Risks associated with future construction activity is also significantly reduced.

The total request for this additional scope is $65,899.90, excluding H.S.T., and includes a 10% contingency.

2.5 Adelaide WWTP Effluent Water System Preliminary Review

The existing effluent water system at Adelaide WWTP provides non-potable water for treatment processes and washdown facilities. The system is currently able to provide process water to all areas of the plant; however, it has been noted that certain areas of the plant receive insufficient pressures during periods of high demand. Plans for a new equalization storage tank for peak flow management are anticipated to create additional effluent water demand, and the system may prove to be inadequate. Accordingly, City staff are recommending a preliminary design review of the system to determine how to provide adequate flow and pressure to all areas of the treatment plant under future flow conditions. Once this review is completed, City staff can better assess how to plan and provide long-term effluent plant water to all areas of the treatment plant.

The total request for this additional scope is $18,698.90, excluding H.S.T., and includes a 10% contingency.

2.6 Adelaide WWTP Section 1 Restoration Contract Administration

As previously discussed, City staff procured the services of a Consulting Engineer to provide a detailed design for the restoration of Adelaide WWTP's Section 1. That project began in 2020 and the last remaining design deliverables are expected to be complete and tender ready in August 2023.

This project was originally intended to be a standalone design and construction project. However, the restoration of Section One and the flood protection projects will both have long construction durations and significant overlap if tendered separately. City staff are recommending that the Section One restoration project be incorporated into the overall flood protection construction contract and consolidating contract administration services to be provided by one consultant (CIMA Canada Inc.). By creating one larger construction project, the overall risk to the City is reduced by eliminating two separate contractor staging and construction areas, reducing complexity associated with the sequencing of upgrades between each project, and utilizing a single Contract Administrator and Contractor at the site. The reduction in duplicated services is an overall benefit to the City in both cost and coordination capacity.

The total request to incorporate the design and contract administration services into the flood protection contract is $474,845.80, excluding H.S.T., and includes a 10% contingency. Staff note that if the projects were to remain separate, a Request for Proposal process would have been initiated to procure these services and this proposal aligns with the estimated cost.

3.0 Financial Impact/Considerations

The detailed source of financing is in included in Appendix A of this report. The additional engineering services scope can be funded from existing capital sources as shown.

Conclusion

The Adelaide Flood Protection project is a significant undertaking with a high level of complexity that provides essential protection against climate change for the existing treatment facilities. Through the preliminary design and value engineering exercises, additional capital investments have been identified as strategic additions to the project which will result in an overall net reduction in engineering and construction efforts. Treatment capacity is also currently reduced at that treatment plant, restricting the wastewater servicing that can be provided for important growth areas in north-east London. The upgrades described in this report will provide the City with a more robust and resilient treatment facility and are in-line with the City's long-term operation of the Adelaide Wastewater Treatment Plant. By completing both the flood protection and Section One restoration projects concurrently, the overall cost and risk to the City is expected to be reduced. It is recommended that additional fees for CIMA Canada Inc. in

the total amount of $949,759.80 plus HST be approved for this project to account for increased engineering design and contract administration services.

Prepared by:	**Kirby Oudekerk, MPA, P.Eng.** **Division Manager, Wastewater Treatment Operations**
Submitted by:	**Ashley Rammeloo, MMSc., P. Eng.** **Director, Water, Wastewater and Stormwater**
Recommended by:	**Kelly Scherr, P. Eng., MBA, FEC** **Deputy City Manager, Environment & Infrastructure**

Appendix ‘A’ Source of Financing

cc: Steve Mollon, Senior Manager, Procurement and Supply
Jason Davies, Manager III, Financial Planning and Policy
Zeina Nsair, Financial Business Administrator, Finance and Corporate Services

Appendix "A"

#23168
August 15, 2023
(Consulting Fee Increase)

Chair and Members
Civic Works Committee

RE: Greenway and Adelaide Wastewater Treatment Plants Climate Change Resiliency Consulting Fees Value Increase
(Subledger FS220002)
Capital Project ES5234 - Adelaide WWTP Flood Protection and Capacity Improvements to Reduce Sewage Bypasses
Capital Project ES3231 - DMAF Adelaide WWTP Flood Protection
CIMA Canada Inc. - $949,759.80 (excluding HST)

Finance Supports Report on the Sources of Financing:
Finance Supports confirms that the cost of this project can be accommodated within the financing available for it in the Capital Budget and that, subject to the approval of the recommendation of the Deputy City Manager, Environment and Infrastructure, the detailed source of financing is:

Estimated Expenditures	**Approved Budget**	**Committed To Date**	**This Submission**	**Balance for Future Work**
ES5234 - Adelaide WWTP Flood Protection and Capacity Improvements to Reduce Sewage Bypasses				
Engineering	935,988	402,183	483,203	50,602
Construction	9,486,506	12,980	0	9,473,526
ES5234 Total	10,422,494	415,163	483,203	9,524,128
ES3231 - DMAF Adelaide WWTP Flood Protection				
Engineering	1,728,636	1,245,363	483,273	0
City Related Expenses	3,107	3,107	0	0
ES3231 Total	1,731,743	1,248,470	483,273	0
Total Expenditures	$12,154,237	$1,663,633	$966,476	$9,524,128
Sources of Financing				
ES5234 - Adelaide WWTP Flood Protection and Capacity Improvements to Reduce Sewage Bypasses				
Debenture By-law No. W.-5611-33	1,000,000	0	0	1,000,000
Drawdown from Sewage Works Renewal Reserve Fund	9,422,494	415,163	483,203	8,524,128
ES5234 Total	10,422,494	415,163	483,203	9,524,128
ES3231 - DMAF Adelaide WWTP Flood Protection				
Drawdown from Sewage Works Renewal Reserve Fund	1,039,045	749,081	289,964	0
Federal DMAF Funding	692,698	499,389	193,309	0
ES3231 Total	1,731,743	1,248,470	483,273	0
Total Financing	$12,154,237	$1,663,633	$966,476	$9,524,128

Financial Note:	**ES5234**	**ES3231**	**Total**
Contract Price	$474,846	$474,914	$949,760
Add: HST @13%	61,730	61,739	123,469
Total Contract Price Including Taxes	536,576	536,653	1,073,229
Less: HST Rebate	-53,373	-53,380	-106,753
Net Contract Price	$483,203	$483,273	$966,476

Alan Dunbar
Manager of Financial Planning & Policy

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