

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: Award of Consulting Services for Detailed Design and
Tendering for a New Landfill Gas Flaring Station

Date: March 2, 2021

Recommendation

That, on the recommendation of the Managing Director, Environmental and Engineering Services & City Engineer, the following actions BE TAKEN with respect to the award of consulting engineering services for the *Environmental Protection Act* approval, detailed design and tendering for a new landfill gas flaring station at the W12A Landfill:

- a) Comcor Environmental Ltd. **BE APPOINTED** to carry out the *Environmental Protection Act* approval, detailed design and tendering for a new landfill gas flaring station, in the total amount of \$221,029, including contingency of \$28,830, excluding HST, in accordance with Section 15.2 (g) of the City of London's Procurement of Goods and Services Policy;
- b) The flaring station be designed assuming that the landfill expansion proceeds **BE APPROVED**;
- c) Design and tendering for the new flaring station be initiated prior to receiving *Environmental Protection Act* approval for the project **BE APPROVED** noting that the tender will include clauses that the award is subject to *Environmental Protection Act* approval;
- d) the financing for the work identified in (a), above, **BE APPROVED** in accordance with the "Sources of Financing Report" attached hereto as Appendix "A";
- e) Civic Administration **BE AUTHORIZED** to undertake all the administrative acts that are necessary in connection with these purchases; and
- f) the Mayor and City Clerk **BE AUTHORIZED** to execute any contract or other documents, if required, to give effect to these recommendations.

Executive Summary

The existing W12A Landfill Gas (LFG) collection and flaring system has a designed maximum gas burning capacity of 1,700 standard cubic feet per minute (scfm) and was expected to reach capacity by approximately 2027. Since the completion of the most recent LFG collection system expansion in Spring 2020, the observed LFG flow has increased almost 50% and reached the maximum designed capacity of the flare system earlier than expected.

The increased gas collection has contributed to a reduction in odour at the W12A Landfill. It also provides further evidence of the gas supply for conversion into renewable natural gas (RNG) as part of upcoming negotiations for the establishment of an RNG facility at the landfill. These negotiations have been on hold due to the pandemic and the impacts and uncertainties occurring in energy markets.

The construction of a new flaring station will need to proceed sooner than planned in the existing 10-year capital budget. The current station was constructed in 2004 and minor upgrades were completed in 2013 to meet Technical Standards and Safety Authority (TSSA) compliance changes for digester-gas, bio-gas and landfill gas installations.

The required adjustments to the capital budget to accommodate the construction portion of this project will be addressed as part of the budget update process and brought forward as a budget amendment in 2022 for Committee and Council approval as part of the annual budget update.

This report seeks approval from Committee and Council to retain Comcor Environmental Inc. to carry out the EPA approval, detailed design and tendering of a new larger LFG flaring station. Funds for the initial engineering assignment for this project are available within the 2021 Solid Waste Management capital budget.

Linkage to the Corporate Strategic Plan

Municipal Council continues to recognize the importance of solid waste management and the need for a more sustainable and resilient city in the development of its 2019-2023 - Strategic Plan for the City of London. Specifically, London's efforts in solid waste management address three Areas of Focus, at one level or another:

- Building a Sustainable City
- Growing our Economy
- Leading in Public Service

On April 23, 2019, the following was approved by Municipal Council with respect to climate change:

Therefore, a climate emergency be declared by the City of London for the purposes of naming, framing, and deepening our commitment to protecting our economy, our eco systems, and our community from climate change.

The LFG collection and flaring system at the W12A Landfill is a key component of London's upcoming Climate Emergency Action Plan. LFG is approximately 50% methane gas which is 25 times more potent greenhouse gas (GHG) than carbon dioxide. In 2020, the existing LFG collection and flaring system captured and destroyed 151,000 tonnes CO_{2eq} of GHG. This GHG reduction is equivalent to removing 38,000 cars from the streets of London for the year.

Analysis

1.0 Background Information

1.1 Previous Reports Related to this Matter

Relevant reports that can be found at www.london.ca under City Hall (Meetings – Council and Standing Committees) include:

- Environmental Assessment – Updates and Preferred Method to Expand the W2A Landfill (September 22, 2020 meeting of the Civic Works Committee (CWC), Item #2.11)
- Landfill Gas (LFG) Utilization: Next Steps in the Development of a Renewable Natural Gas (RNG) Facility (September 24, 2019 meeting of the CWC, Item #2.4)

1.2 Existing Landfill Gas Generation

The W12A Landfill operates an enclosed LFG flare system that is sized to combust a maximum of approximately 1,700 scfm of LFG. The LFG collection system and flare are approved under ECA No. A042102.

The flare began operation on June 30, 2004 and initially burned approximately 500 scfm of LFG. The amount of LFG that is captured has increased over the years as the area of completed landfill within the approved waste disposal footprint has increased and new LFG wells were installed. In 2019, an average of approximately 1,200 scfm of LFG was captured and flared. This is approximately 60% of the LFG generated which is a

typical capture rate for a landfill. The increase in LFG from 500 scfm in 2004 to 1,200 scfm in 2019 translates into an average increase of approximately 45 scfm per year.

Analysis undertaken for the environmental assessment (EA) for the proposed expansion of the W12A Landfill in early 2020 concluded that the capacity of the flare would be exceeded by about 2027. This was based on the expected future LFG collection system efficiency and the proposed timeline for future LFG collection system expansions. The estimated LFG being captured was estimated to increase from approximately 1,200 scfm in 2019 to approximately 1,700 scfm in 2027 for an average increase of approximately 60 scfm per year.

Prior to 2020, the LFG collection system relied mainly on vertical extraction wells to capture LFG being generated in the waste. In the spring of 2020, the latest LFG collection system expansion was completed. This expansion included horizontal collection pipes as well as vertical collection wells. This is the type of LFG collection system that is proposed for the landfill expansion and is expected to be able to capture a higher percentage of LFG in the areas where it is installed.

By June 2020 the amount of LFG being collected increased to approximately 1,500 scfm. By October 2020 the amount of LFG being collected increased to approximately 1,700 scfm which is the maximum capacity of the existing flare. In total the amount of LFG being collected increased almost 50% (500 scfm) in one year.

The increase in the amount of landfill gas being collected appears to have had a direct effect on reducing odours from the landfill. Total verified odour complaints were 45 in 2019. Verified complaints in 2020 were 19 with only 3 in the second half of the year. A verified odour complaint is a complaint received either directly by the City or forwarded to the City from the MECP where the wind direction and speed as observed from the landfill's onsite weather station indicate the landfill is the likely source of odour.

There have been no complaints since October 2020 when the maximum capacity of the flare was reached. It is recognized that one complaint may represent more than one person experiencing an odour episode. Verbal and written comments shared with City staff have also supported a noticeable reduction in odour episodes. Any concerns or comments raised by MECP regulatory staff have been addressed. There are no outstanding concerns.

1.3 Future Landfill Gas Generation

Often the increase in the amount of LFG being collected is initially higher in the first few months after an expansion than in the longer term. That notwithstanding, the amount of LFG currently being collected has not been observed to decrease and the flare continues to run at its maximum capacity of 1,700 scfm. It is assumed that the use of horizontal collectors in addition to the traditionally used vertical extraction wells in the most recent LFG collection system expansion has increased the collection efficiency of the collection system. This may explain a portion of the unexpected increase in LFG volumes being collected.

LFG generation modelling was completed as part of the EA for the proposed expansion of the W12A Landfill. The modelling estimates that the amount of LFG to be flared will peak in 2049 at approximately 3,700 scfm.

1.4 Status of Renewable Natural Gas (RNG) Negotiations

On October 1, 2019, Council directed staff to potentially supply renewable natural gas (RNG) to FortisBC Energy Inc. through a future facility at the landfill, subject to the outcome and Council approval through a request for proposal (RFP) process. Further discussions with FortisBC have been on hold due to regulatory discussion in British Columbia, the pandemic and the impacts and uncertainties occurring in energy markets. These discussions are scheduled to resume in March or April.

2.0 Discussion and Considerations

2.1 The Need to Expedite Project

The existing LFG flaring station is at capacity and will not be able to destroy more landfill gas until a new larger flaring station is constructed. It would normally takes up to three years to get approvals and construct a larger flaring station.

The next LFG collection system expansion will likely need to occur no later than early 2022, possibly sooner assuming existing volumes of waste received for disposal do not change. Although the LFG flaring system has reached its current volumetric capacity, the well field can be rebalanced after the next expansion to maximize odour control until the new flaring station is available. This can be accomplished by maximizing LFG capture in the waste tipping area and other areas with newer waste.

Changes to the existing flaring station or installation of a new flaring station will require the City to amend the Waste Disposal Site Environmental Compliance Approval No. A042101 (Waste ECA) under Part 5 of the of the EPA and ECA No. 4183-78XHLX (Air ECA) for the W12A landfill site under Part 9 of the EPA. It is expected it will take two to three months to prepare the applications to amend the ECAs including the supporting documentation.

The expected time for the MECP to approve any amendments to the landfill's ECAs is approximately one year or longer.

Detailed design and tendering of the project would normally begin after MECP approval and is expected to take six to eight months to complete.

Construction of a new flaring station cannot occur until after the amendments to the landfill's ECAs have been approved. The time to construct the new flaring station, including fabrication of equipment, will take eight to 12 months.

The total time of the above tasks to have a new larger flaring station operational is 28 to 35 months from the time work starts on preparing the ECA amendment applications. Since the LFG collection system will be expanded in less than 12 months, the City should undertake all reasonable actions to expedite the installation of a larger flaring station.

Awarding the engineering services contract in accordance with Section 15.2 (g) of the City of London's Procurement of Goods and Services Policy (see Section 2.3) allows engineering work to begin immediately.

It is proposed the detailed design and tendering process be initiated prior to receiving the amended waste and air ECAs for the project. Design of LFG flaring stations is specialized work and it is expected that the MECP review of the waste and air ECA applications will only have minor comments. The tender will include clauses noting that the award is subject to MECP approval of the waste and air ECA applications. This action is expected to shorten the time to get the new LFG flaring station operational by six to eight months.

Other actions to expedite the process could include:

- asking the local MECP office to approach the Approvals Branch to prioritize the ECA approval process for this project; and,
- approach the local MECP office to see if they would issue a Preventative Measures Order which potentially could allow for construction of the larger flaring station prior to ECA approval.

Subject to Committee and Council direction on this report, City staff will meet with MECP local staff to discuss these opportunities and will take all appropriate actions that are expected to assist in expediting the process based on these discussions.

2.2 Design Capacity

The City is nearing completion of the technical studies as part of the EA for the proposed expansion of the W12A Landfill and is currently preparing the draft Environmental Assessment Study Report which will document the EA process and be submitted to the MECP for approval.

The EA recommends that the W12A Landfill be expanded vertically over the existing waste footprint. The vertical expansion will increase the maximum height of the landfill by 26 metres and the disposal volume of the landfill by 13,800,000 m³. It is expected the landfill expansion will accommodate 9,800,000 tonnes of waste and take 25 years to fill.

As noted previously, the LFG collection and flaring station is expected to require a maximum capacity of approximately 3,700 scfm if the expansion is approved.

It is recommended that the flaring station be designed assuming that the landfill expansion will be approved.

2.3 Appointment of Comcor Environmental Ltd.

Comcor Environmental Limited (Comcor) has specialized experience in the field of design, installation and operation of LFG flaring stations. The firm has provided these specialized services since 1985 and is located in Cambridge, Ontario with operations staff also based out of satellite offices in Mississauga, Niagara Falls, Ottawa and Moose Creek, Ontario and Winnipeg, Manitoba. Comcor currently operates and maintains over 20 landfill gas collection, flaring and/or utilization facilities across Canada, with 16 of these projects being located in Ontario. Comcor has also completed design work, on-site supervision and commissioning as associated with the majority of these facilities.

Comcor Environmental Ltd. completed the design and oversaw installation of the existing LFG collection and flaring system and several LFG collection system expansions at the W12A landfill site. Comcor Environmental Ltd. is also currently under contract by the City to operate and maintain the existing LFG flaring station.

Using Comcor Environmental Ltd. will expedite the project because the work can commence immediately. No time will be lost seeking and reviewing alternative proposals. Comcor has specific knowledge of this project whereas other consultants would need time to review the W12A landfill site specific details.

Considering the above, Comcor Environmental Ltd. was invited to submit a proposal to carry out the EPA approval, detailed design and tendering process for the project. Staff have reviewed the fee submission in detail considering the various activities, time allotted to each project task and related hourly rates provided. The review supports the hiring of Comcor Environmental Ltd. on this project.

The continued use of Comcor Environmental Ltd. on this project for the detailed design and tendering process is of financial advantage to the City because the firm has specific knowledge of the project and has undertaken work for which duplication would be required if another firm were to be selected.

In accordance with Section 15.2 (g) of the Procurement of Goods and Services Policy, Civic Administration is recommending Comcor Environmental Ltd. be authorized to carry out the EPA approval, detailed design and tendering process for this project for a fee estimate of \$221,029 (excluding HST). The fee includes a 15% contingency of \$28,830.

For this type of work, there is uncertainty as to the duration of construction prior to the start of detailed design. Due to this, construction administration fees are not included in this award and will be awarded at a future Civic Works Committee meeting.

3.0 Financial Impact/Considerations

3.1 Capital Budget

A new larger flaring station would be required as part of the landfill expansion if approved. The estimated cost of the new flaring station in the EA was \$2.3 million including contingencies. It should be noted that much of the existing flaring station, including the enclosed flare, is reaching the end of its useful life and would have to be replaced even if the landfill was not expanded as the landfill will continue to generate LFG for many years after the landfill is closed.

As discussed in Section 2.0, the rapid increase in the amount of LFG being collected means this project will need to proceed sooner than anticipated. The required adjustments to the capital budget to accommodate the construction portion of this project will be addressed as part of the budget update process and brought forward as a budget amendment in 2022 for Committee and Council approval as part of the annual budget update.

Funds for the initial engineering assignment for this project are available within the 2021 Solid Waste Management capital budget. The Sources of Financing Report” to pay for the initial engineering assignment is attached hereto as Appendix “A”.

3.2 Operating Budget

It is expected there will be no increases in annual operating costs for the landfill associated with operation of the new LFG flaring station. This is expected as the installation of new equipment such as centrifugal fans and variable frequency drives will be more efficient even though the overall system will have more volumetric capacity.

Conclusion

Comcor Environmental Ltd. has demonstrated an understanding of the City requirements for this project and hiring Comcor Environmental Ltd. will expedite completion of the project. It is recommended that this firm be authorized to carry out the Environmental Protection Act approval, detailed design and tendering for a new larger LFG flaring station at the W12A Landfill site as it is in the best financial, community and technical interests of the City.

Prepared by: Mike Losee, B.SC
Division Manager, Solid Waste Management

Submitted by: Jay Stanford, MA, MPA
Director, Environment, Fleet & Solid Waste

Recommended by: Kelly Scherr, P. Eng., MBA, FEC
Managing Director, Environmental and Engineering
Services and City Engineer

Appendix A – Source of Financing

Appendix "A"

#21027

March 2, 2021

(Appointment of Consultant)

Chair and Members

Civic Works Committee

RE: Award of Consulting Services for Detailed Design and Tendering for a New Landfill Gas Flaring Station

(Subledger LF210001)

Capital Project SW604016 - Landfill Gas Collection

Comcor Environmental Ltd. - \$221,029.00 (excluding HST)

Finance and Corporate Services Report on the Sources of Financing:

Finance and Corporate Services confirms that the cost of this purchase can be accommodated within the financing available for it in the Capital Budget, and that, subject to the approval of the Managing Director, Environmental and Engineering Services, and City Engineer, the detailed source of financing is:

Estimated Expenditures	Approved Budget	Committed To This Date	This Submission	Balance for Future Work
Engineering	399,751	174,832	224,919	0
Construction	695,182	617,273	0	77,909
Total Expenditures	\$1,094,933	\$792,105	\$224,919	\$77,909

Sources of Financing

Federal Gas Tax	1,043,358	740,530	224,919	77,909
Other Contributions	51,575	51,575	0	0
Total Financing	\$1,094,933	\$792,105	\$224,919	\$77,909

Financial Note:

Contract Price	\$221,029
Add: HST @13%	28,734
Total Contract Price Including Taxes	249,763
Less: HST Rebate	-24,844
Net Contract Price	\$224,919

Jason Davies

Manager of Financial Planning & Policy

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