Organics Processing Facilities
P3 Business Case

Recommendation

1. That the Organics Processing Facilities project, as outlined in the May 11, 2020, Integrated Infrastructure Services report CR_7991, be approved for delivery as a Public-Private Partnership (P3) per City Policy C555.

2. That the Organics Processing Facilities key commercial and financial terms, as outlined in Attachment 3 of the May 11, 2020, Integrated Infrastructure Services report CR_7991, be approved.

3. That the Organics Processing Facilities funding plan, as outlined in Attachment 6 of the May 11, 2020, Integrated Infrastructure Services report CR_7991, be approved.

4. That Attachments 2, 3, 4, 5 and 6 of the May 11, 2020, Integrated Infrastructure Services report CR_7991 remain private pursuant to sections 24 (advice from officials) and 25 (disclosure harmful to economic and other interests of a public body) of the Freedom of Information and Protection and Privacy Act.

Executive Summary

In September 2019, City Council received Integrated Infrastructure Services report CR_7340 Organics Processing Facilities - P3 Secondary Screening for information, with a commitment from Administration to return with a Business Case regarding the use of the P3 delivery method in accordance with City Policy C555 Public-Private Partnership (P3). Attachment 1 provides a guide to P3 delivery, with specific reference to the Organics Processing Facilities Project.

Administration has developed the P3 Business Case as detailed in Attachment 2, which confirms that the Organics Processing Facilities project meets the requirements of City Policy C555.

Further investigation into the project focused on:

- Validation of the Organics Quantity projection
- Verifying anaerobic digestion technology concepts
- Consultation with municipalities nationwide on similar projects
- Operational integration with the surrounding facilities
- Review of Renewable Natural Gas market opportunities
- Early engagement with key project stakeholders
The P3 Business Case recommends the Design-Build-Finance-Operate-Maintain (DBFOM) delivery method to deliver the new OPF. The project will incorporate a fully integrated set of organics facilities and consider total cost of ownership, focus on early operational engagement and produce renewable and sustainable outputs while remaining fiscally responsible and aligned with the Waste Services Utility financial projections.

This project contributes to the 25-year Waste Strategic Outlook, a strategic action outlined in the City of Edmonton’s 2019-2022 Corporate Business Plan. The Organics Processing Facilities allow for future improvement to waste diversion and support the City’s environmental stewardship outcome.

Attachments 2, 3, 4, 5 and 6 are required to remain in private because they contain advice from officials regarding Administration’s recommendations and analysis on the anticipated technical, commercial and financial terms. Public disclosure may interfere with contractual negotiations, prejudice the Waste Services Utility’s competitive position and compromise the procurement process.

**Report**

**Background**

At the February 5, 2019, City Council meeting, the following motion was passed: *That the new organic waste management approach based on Alternative 3B, as outlined in the February 1, 2019, City Operations report CR_6669, be approved.* The approach outlined corresponds to the Project Development and Delivery Model (PDDM) Checkpoint #1 per the Capital Governance Policy (C591) of the Organics Processing Facilities (OPF) Project.

CR_6669 confirmed the direction of the project to replace the Edmonton Composting Facility (ECF) with a new anaerobic digestion facility generating Renewable Natural Gas on the site of the existing ECF at the Edmonton Waste Management Centre. Based on this approval, Administration initiated project development, advanced facility planning and design, and assessed potential procurement models including Public Private Partnership (P3) procurement.

On September 27, 2019, Utility Committee received Report CR_7340 Organics Processing Facilities - P3 Secondary Screening for information, with a commitment from Administration to return with a Business Case regarding the use of the P3 delivery method for this project, in accordance with City Policy C555 Public-Private Partnership.
Alignment with P3 Guiding Principles from City Policy C555

Based on the scope and direction approved by Council in February 2019, the Organics Processing Facilities Project aligns with the following sections Policy C555.

2.1.a Alignment with City priorities is achieved

The OPF Project is being developed in line with Waste Services Utility 25-year Waste Strategy, ConnectEdmonton and the City Plan. The OPF Project executes part of the strategy to process source-separated organics collected from residential households once the program is fully implemented. The intent of the project is to process organics and produce Renewable Natural Gas as a byproduct, which may provide an opportunity to offset conventional natural gas demand for City operations (i.e., City facilities) and associated greenhouse gas emissions, in alignment with the approved 2019-2030 Greenhouse Gas Management Plan for Civic Operations.

2.1.b Public Interest is protected

The City has engaged extensively with the public in the development of the 25-year Waste Strategy and the implementation of this project is necessary to achieve Waste Strategy objectives within the committed utility rates. This project will allow the City to efficiently implement source-separated organics to divert organic waste from landfills and produce environmentally and financially sustainable outcomes and byproducts.

The P3 Project Agreement will document the private sector’s commitment to deliver specified outcomes based on key commercial and financial terms (Attachment 3). After the contract is awarded, a redacted version of the Project Agreement will be made public, allowing the community to be informed about the obligations of Waste Services Utility and the private sector.

2.1.c Value for money is demonstrated

The business case determines that the P3 delivery approach would provide 13.8 percent Value for Money (VFM) compared to the closest public sector alternative delivery method comparator, Construction Manager at Risk (CMAR). These procurement models were assessed through an analysis of the projects’s quantitative and qualitative elements.

The approach for the delivery of the project allows VFM to be demonstrated through the integration of maintenance and operations requirements during the design and construction phase, ensuring that a whole lifecycle approach is taken. Private sector financing will allow the Waste Services Utility to postpone capital payments until the
facility is operational, thus allowing a more gradual accumulation of funds to finance the facility.

2.1.d **Risks are identified, effectively shared and managed**

Administration identified and assessed key project risks for the Construction Manager At Risk and P3 project delivery methodologies during a detailed risk workshop. Attachment 4 identifies the approach to retained, shared and transferred risks. This analysis contributed to the VFM analysis as part of the risk adjusted net costs to the Waste Services Utility. Under a P3 deliver approach, the retained risks for the Waste Services utility are significantly lower compared to the Construction Manager at Risk approach. These risks will be managed as part of an ongoing approach to risk management during the project.

2.1.e **Private sector is appropriately engaged**

Extensive (non committal) engagement with the private sector has occurred through a formal market sounding presentation delivered at the Canadian Council of Public-Private Partnerships (CCPPP). Further, Administration developed a standard script to collect information from interested private sector parties. A total of 21 entities have been interviewed, including financiers, contractors, designers, legal service providers and operators. The summary report for the Industry Consultation is included as an appendix to the Business Case (Attachment 2).

During this process, Administration gathered data from the private sector that confirmed interest in the project and P3 approach, and will help inform the procurement process. As per Policy C555, the project will be competitively tendered and will not be single sourced. The procurement will be collaborative, open and transparent.

2.1.f **Appropriate governance and accountabilities are established**

Administration has established an integrated Steering Committee for the project that sets the strategic direction and oversight required to meet Policy C555 and other relevant City policies. Steering Committee members have been selected based on their relevant perspective, knowledge, experience and role on the project.

The Project Plan (Attachment 5) outlines the key execution approach to meet City standards and policies. This is a live document that will be updated with approval from the Steering Committee as needed during the project period.
Validation of the Business Case

In addition to compliance with the Policy, there has been additional work completed to validate the Project approach and the P3 Business Case, as documented below.

Validation of Organics Quantity

As part of the Business Case development, Administration used data from the Source Separated Organics (SSO) pilot program and projected growth in participation and population to validate the original quantity of organic material anticipated to be processed at the OPF. This determined that the new facility would need to meet a processing capacity of 60,000 tonnes in 2025, growing to 100,000 tonnes in 2045.

Technology

The main focus of the concept design was to determine the feasibility of different types of anaerobic digestion. Administration visited dry and wet digestion facilities and determined that both technologies are feasible, which maximizes opportunities for the private sector to propose an innovative solution that will save the City money.

The main differences between a wet and a dry anaerobic digestion facility are how the feedstock is prepared, the method of moving material and the stage at which pathogens are killed in the process. For the dry technology, food waste is maintained in its solid form and wood chips may be added to ensure the feedstock remains dry and solid. Dry anaerobic digestion is a batch process in which material moves as a group from one step to the next. In the wet technology, food waste is liquified by adding water before being processed and the higher temperatures allow pathogens to be killed without composting. Wet anaerobic digestion uses pumps to move the material from one stage to the next. Both wet and dry anaerobic digestion produce gas.

The concept design allows an estimated price of between -30% and +20 percent, which is reflected in the Net Present Value (NPV) calculation as part of the Business Case.

Consultation with municipalities nationwide on similar projects

Administration consulted the cities of Surrey, Toronto and Calgary, Victoria Capital Region District and Regions of Peel and Halifax; these municipalities are delivering similar projects through a P3 approach. The lessons shared by these cities will help Administration understand the similarities and differences in procurement and contractual approach, as well as structure the project for success.

Integration with surrounding facilities
Administration reviewed requirements to integrate the new organics processing facility with surrounding facilities at the Edmonton Waste Management Centre (EWMC) and determined that the operations and maintenance of the existing Tip Floor, High Solids Anaerobic Digestion Facility (HSADF) and Cure Site should be integrated into the P3 project scope. In advance of the project, key structures of the existing Edmonton Composting Facility are being removed to clear the site and maximize future operational integration and layout.

Review of Renewable Natural Gas opportunities

The business case identified Renewable Natural Gas (RNG) as being a main potential revenue driver for the project. The biogas released by decomposing organic waste will be captured and cleaned to create carbon neutral RNG.

Administration undertook further work to understand the RNG market. RNG currently has a limited market in Alberta. Assessments of fair market value within the regulated markets of British Columbia and the United States are used in the Business Case. The relatively new market for RNG is a key opportunity and risk for the project. Renewable Natural Gas marketing will be determined during the RFP. Should the City consider the purchase of RNG from the P3, the higher cost of RNG would impact the City’s operating budget funded from tax levy and would be subject to a separate approval by Council.

Early consultation with key project stakeholders

To ensure project success, Administration consulted Alberta Environment and Parks (AEP), the Alberta Energy Regulator (AER), EPCOR Utilities Inc. and ATCO to identify any permit, regulatory or logistical concerns in advance of project procurement.

Development of Key Commercial and Financial Terms

Administration has developed potential commercial and financial terms pertaining to the following topics, which are detailed in Attachment 3 and will be used during the development of the P3 Project Agreement.

1. Contract type and term
2. Risk allocation
3. Asset ownership
4. Technology and expansion of the facility
5. Change Mechanism
6. Environmental Matters
7. End of term hand back
8. Payment Mechanism structure
9. Revenue risk and opportunities
10. Supervening or relief events
11. Non-performance, default and termination
12. Compensation on termination

P3 Business Case Conclusion

The P3 Business Case recommends the Design-Build-Finance-Operate-Maintain (DBFOM) delivery method to deliver the new OPF. The project will incorporate a fully integrated set of organics facilities and consider total cost of ownership, focus on early operational engagement and produce renewable and sustainable outputs while remaining fiscally responsible and aligned with the Waste Services Utility financial projections.

Funding Plan

In accordance with Policy C555, Council approval of the funding plan is required prior to awarding the P3 contract. The funding plan (Attachment 6) anticipates that the OPF project will be funded through Waste Services Utility rates.

Next Steps

Funding for Phase 1 of the OPF Project which consists of the initial project screening, secondary screening and P3 Business Case development, is approved in capital profile 19-81-2049 - Organics Processing Facilities (OPF). Upon approval of the Business Case, Administration will bring budget adjustments to fund Phases 2 and 3 of the OPF Project to Council for approval.

Phase 2 will include activities required to advance the project up to contract award, such as project development, request for qualification, request for proposal and other procurement activities required prior to contract award. Administration will also review the requirement for a borrowing bylaw and the strategy for Renewable Natural Gas, engage a Legal Advisor and Fairness Monitor and commence procurement for the P3 partner. The forecasted timetable is outlined below:

- Request for Qualification - 2020
- Request for Proposal - 2020 to 2021
- P3 Contract Award - 2021

Phase 3 will consist of contract management, ongoing performance management and end of contract strategy. Anticipated milestones are listed below:

- Design and Construction - 2022 to 2025
Facility Operation - 2025

Project delivery costs will require Council approval prior to contract execution. An amendment to the existing borrowing bylaw (Bylaw 18735) will also be required and brought forward for Council consideration at the same time the additional budget adjustments are brought forward.

Public Engagement

Administration did not undertake public engagement for the development of the P3 Business Case. Comprehensive citywide public engagement was undertaken for the 25-year Waste Strategy, which guides the work around the replacement of the Edmonton Composting Facility and the development of the Organics Processing Facilities. This public engagement was designed to seek input from residents, multi-unit stakeholders, non-residential stakeholders and employees on the proposed waste management program and service changes.

Corporate Outcomes and Performance Management

| Corporate Outcome(s): Edmonton is an environmentally sustainable and resilient city |
|-----------------------------------------------|---------------------------------|----------------|-----------------|
| Outcome(s) | Measure(s) | Result(s) | Target(s) |
| Edmonton is an environmentally sustainable and resilient city | Single Unit Residential Diversion Rate | 21% (2019) | 50% (2020) |
| | | | 64% (2021) |
| | | | 66% (2022) |
| Edmonton’s waste services utility rates are fair, equitable and value-driven. | Stable Rates | 2.5% (2019) | 0.3% (2020) |

Risk Assessment

<table>
<thead>
<tr>
<th>Risks if P3 Delivery approved:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk Element</td>
</tr>
<tr>
<td>Project Management</td>
</tr>
</tbody>
</table>
### Technology/Equipment

<table>
<thead>
<tr>
<th>Risk Element</th>
<th>Risk Description</th>
<th>Likelihood</th>
<th>Impact</th>
<th>Risk Score (with current mitigations)</th>
<th>Current Mitigations</th>
<th>Potential Future Mitigations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incorrect or incompatible technology chosen</td>
<td>2 - Unlikely</td>
<td>4 - Severe</td>
<td>8 - Medium</td>
<td>No unproven technology will be allowed. Teams will be assessed on the quality of current facilities.</td>
<td>Incorporation of the operations and maintenance requirements into the design will address this. Full responsibility of the P3 Proponent.</td>
<td></td>
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</table>

### Economic

<table>
<thead>
<tr>
<th>Risk Element</th>
<th>Risk Description</th>
<th>Likelihood</th>
<th>Impact</th>
<th>Risk Score (with current mitigations)</th>
<th>Current Mitigations</th>
<th>Potential Future Mitigations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Currency and interest rate fluctuations</td>
<td>3 - Possible</td>
<td>2 - Moderate</td>
<td>6 - Low</td>
<td>Require bids and contracts in Canadian dollars</td>
<td>Set achievable project schedule to have a projected duration for an estimate of potential fluctuations</td>
<td></td>
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</tbody>
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### Risks if P3 Delivery not approved:

<table>
<thead>
<tr>
<th>Risk Element</th>
<th>Risk Description</th>
<th>Likelihood</th>
<th>Impact</th>
<th>Risk Score (with current mitigations)</th>
<th>Current Mitigations</th>
<th>Potential Future Mitigations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial</td>
<td>Insufficient public funding for the size of the facility required</td>
<td>4 - Likely</td>
<td>4 - Severe</td>
<td>16 - High</td>
<td>Allowance for expansion as part of the design to align with funding</td>
<td>Reduce the size of the facility by expanding regional focus to share organic material to other facilities.</td>
</tr>
<tr>
<td>Project Management</td>
<td>Impact to project timeline due to revised tendering and design strategy</td>
<td>5 - Almost Certain</td>
<td>3 - Major</td>
<td>15 - High</td>
<td>Contingency being developed to minimize the potential impact</td>
<td>Assess potential opportunities to recover any lost time through the construction period.</td>
</tr>
</tbody>
</table>

### Attachments

1. Organics Processing Facilities Project - Guide to P3
2. Organics Processing Facilities Project - P3 Business Case - Private
3. Organics Processing Facilities Project: Key Commercial and Financial Terms - Private
4. Organics Processing Facilities Project: Risk Allocation Listing (DBFOM) - Private
5. Organics Processing Facilities: Project Plan - Private
6. Organics Processing Facilities: Funding Plan - Private

### Others Reviewing this Report

- G. Cebryk, Deputy City Manager, City Operations
- M. Persson, Chief Financial Officer and Deputy City Manager, Financial and Corporate Services
• B. Andriachuk, City Solicitor
• C. Owen, Deputy City Manager, Communications and Engagement