PW14-28

December 4, 2014

To: Members,
Public Works and Infrastructure Committee

Re: Septage Receiving Station (SRS)

RECOMMENDATION

1. That the Administration proceed with the design and construction of a new septage receiving station (SRS) that is capable of meeting existing customer service levels and that can be expanded based on future growth needs as outlined in Option 3. The current estimated cost of this facility is $10.0 million and the annual operating cost is estimated at $258,000, including costs for permit management related to the facility.
2. That the Administration return to Council in 2016 to recommend a permit system and septage user rates based on actual construction costs and amendments to both *The Sewer Service Bylaw, No. 5601* (the "Bylaw") and the City's Extra Municipal Servicing Policy.
3. That this report be forwarded to the December 15, 2014, meeting of City Council.

CONCLUSION

Both the current SRS facility and the City's internal hydrovac site provide services to City operations, customers within Regina, and regional customers. The closure of these facilities requires alternative solutions to ensure current customers are provided with septage disposal services. Not only is there an increased risk of illegal dumping if the City does not find alternative local solutions, and decides to discontinue these services, but also existing customers, including the City itself, would be required to send septage to another municipality. Although this is still an option, there are a number of concerns with relying on another municipality for this service. These primary concerns are:

- The abandonment of existing septage customers would likely increase the risk of illegal dumping in and around Regina.
- An estimated cost of $22.00/m³ would be incurred, on top of lost productivity, to send septage to another municipality.
- Dependency on another municipality's services creates inherent vulnerabilities to uncontrollable price increases and service-level interruptions.

The Administration feels that these concerns warrant continued City involvement in the septage receiving business. Consequently, the Administration recommends the construction of a new SRS facility capable of accepting septage from existing regional customers (at a cost of $10.0M) and accepting high grit loads from the City's sewer cleaning program (at a cost of $3.8M). To address the closure of the City's hydrovac site, a further $1.2M would be allocated to design and construct a solution for (City only) non-contaminated hydrovac waste. The total estimated cost of these recommendations is $15.0M. The proposed 2015 Utility Budget includes a capital request that would accommodate this work.

Administration is recommending that a new SRS operate on a cost recovery basis. Initial estimates suggest that rates will need to be between $14.25/m³ to $15.10/m³ based on current usage and levels of service. It is important to note that it is unlikely that a new SRS would be in a position to operate on a cost recovery basis without accepting septage from regional customers. The rates necessary to achieve cost recovery would need to be set too high and would be cost prohibitive. Final recommended septage rates will depend on final construction costs and will be presented to Council in 2016.

While also creating economies of scale to sufficiently allow for full cost recovery, a regional design for septage allows for the optimization of infrastructure and construction costs as well as the capacity to manage emergencies during wet weather years. Although other options were considered, they pose significant environmental, business, and financial risks. These reasons and the significant benefits of a regional facility make this the recommendation going forward.

Use of the recommended facility will be controlled through a permitting process that will manage both the end users and the type of effluent disposed of at the site. In conjunction with a broader source control program, to be developed through 2015 and 2016, this recommended solution will help to ensure that the wastewater influent characteristics are in line with the Wastewater Treatment Plant (WWTP) P3 agreement and the need to protect the WWTP process and the wastewater collection system.

BACKGROUND

The City has accepted septage from a number of sources originating within Regina and the surrounding area for many years. Prior to 2010, septage was received at the McCarthy Boulevard Pumping Station (MBPS). In 2010, the SRS was relocated to the WWTP to accommodate construction needs at the MBPS. Due to exclusion of the SRS and the corporate grit management site from the new WWTP, the current SRS and Hydrovac site will no longer be available after the WWTP upgrades are completed in late 2016. With respect to odour control issues and the volume of resident concerns surrounding odour, returning the SRS to the MBPS was not considered a viable option.

An important issue to be addressed and incorporated into any new SRS facility is the very limited on-site monitoring at the current SRS site. Only limited resources have been made available to control and monitor the current site and the City relies on the honour system with its customers. The lack of monitoring has resulted in haulers discharging liquid waste loads that do not comply with the Bylaw. Another outcome of this practice has been a sizeable gravel deposit, which further confirms regular illegal dumping of hydrovac and car wash pit loads. Recent sampling and analysis of loads being dumped reveals that other load parameters such as heavy metals and hydrocarbon are, at times, also being exceeded.

A project was established to explore alternatives for a new septage and hydrovac waste solution, prior to closure of the temporary site, to maintain levels of service for the following:

Septage

- Golf courses
- Campground
- Construction sites, festivals & outdoor events
- Local emergencies

Hydrovac Waste (internal City operation needs only)

- Sewer cleaning
- Clean mud/water mixture

Annual operating and maintenance costs for the current site at the WWTP are approximately $20,000 to $40,000, excluding treatment costs. The City currently operates the septage receiving facility at a level below full cost recovery. Current licensing and permit fees for liquid waste haulers do not cover the expenses associated with operating, maintaining and treating the current septage and hydrovac receiving station at the WWTP. Based on annual volumes and revenues, current liquid waste permit fees are approximately equivalent to $0.55/m³ making the City's current rate/m³ an industry low.

DISCUSSION

Septage Management

The current SRS is, effectively, a regional solution with approximately 85 per cent of the septage volume currently received at the WWTP originating from outside city boundaries, 10 per cent from City activities, and 5 per cent from private enterprise within city boundaries. Due to the distribution of sources of septage, the Administration feels that any solution needs to consider the cost effectiveness of a regional facility versus a City-only solution. Additionally, not only does a regional facility allow for full cost recovery, but it also signifies the City's commitment in supporting regional development and the desire for complementary regional growth.

Current revenues collected from septage are set too low to provide full cost recovery. This means that utility customers are subsidising the costs of providing current septage services. Fees are collected solely by annual permits issued to hauling companies and are issued to haulers on a per truck basis. When compared to other municipalities on a unit basis, the City's current revenues are the lowest (see Appendix A). Therefore, when looking for a new solution for regional septage, a full cost recovery model needs to be considered.

The Administration has explored several options for the replacement of the City's existing SRS site. The following considerations were used to evaluate and inform the options presented in this report.

Full Cost Recovery

In evaluating options, a key consideration was to establish a full cost recovery business model through user fees. The calculation of fees was based on the estimated construction and operating costs for each option. The portion of the facility designed to handle high grit loads from the City's sewer cleaning program was excluded from the calculation ensuring that the benefits of service directly attributed to specific customers will be paid by those customers through user fees. Fees were further evaluated for feasibility through comparison with other Western Canadian municipalities, whose fees range from $6.60/m³ to $15.04/m³ (see Appendix A).

Source Control

Wastewater collection and treatment systems are intended for the disposal and treatment of human waste. Disposal of substances such as fats, oils and greases, commonly referred to as FOG, or material with large amounts of dirt and grit, such as hydrovac waste, can impair the functioning of both collection and treatment systems and substantially increase cost to manage those systems. Efforts to manage the quality and type of liquid waste deposited into the wastewater system is commonly referred to as "Source Control". Appendix B provides a summary of liquid waste materials.

A significant challenge today is the City's inability to maintain appropriate levels of source control at its SRS. Currently FOG and hydrovac waste material is being deposited alongside septage. Not accepting this material at the front end of a WWTP is a best practice that has been adopted by many major cities across Canada. The Administration will be contacting other municipalities to determine best practices and other options for FOG and hydrovac material and will develop and implement an improved source control program through 2015 and 2016.

Industry Change Management

Changes to the existing SRS can be managed with continued engagement with the hauling industry and businesses, including consultation and advanced notice on:

- Site layout;
- Fee increases;
- Source control; and,
- Identified options in the industry to accept hydrovac waste and FOG.

Any significant rate increase would necessitate an effective change management process in conjunction with the enforcement of source controls for hydrovac and FOG. Changing the way the service is provided will result in substantial changes for certain industries including: haulers, construction companies, restaurants (including hotels), and businesses with car/truck wash bays (car/truck wash stations, car and equipment dealer, vehicle repair shops). Regardless of which option is chosen, a change management process will be undertaken with these stakeholders to provide adequate notice.

Regional Considerations

Constructing an SRS will enable the City to encourage complementary growth in the region. For regional developers, septage hauling is often the most feasible solution. By implementing a permit system that requires permits for both the haulers and the end users, the City can encourage complementary development. The process for permitting end users is new to both the City and to the end users, making change management processes essential to the development of a permit system.

The recommended SRS provides a regional solution on a user pay and cost recovery basis that meets the City's own operational needs for disposal of hydrovac sewer cleaning materials. Still, constructing a new SRS does not preclude neighbouring municipalities from developing their own septage solution. Any new facilities built by neighbouring municipalities would reduce the volume of material coming into the SRS facility and as a result, adversely impact the facility's cost recovery model.

The Administration has explored several options for the replacement of the SRS. The options were evaluated based on how they addressed the need for:

- Septage management; and,
- Hydrovac sewer cleaning material management (City Operations only).

Option 1 – No New Build, Rely on Alternative Service Provider for Septage and Hydrovac

This option would involve closing down the existing SRS and not constructing a new facility. A few distant municipalities have receiving capacity at modest dumping rates and may choose to

receive Regina's septage. This option would cost end users approximately $22.0/m³ due to local dumping rates and longer driving times. This estimate does not account for the cost of reduced hauler productivity. Based on the City's septage volumes, this option would have an internal operating cost of approximately $237,000 per year.

Advantages:

- No capital investment needed.
- No expenses incurred to operate an SRS facility.

Disadvantages:

- Increased operating costs, not including lost productivity, due to driving further and paying local dumping fees estimated to be $22.00/m³.
- Increased risk of illegal dumping in and around Regina due to lack of local alternatives.
- Dependency on another municipality for access to service places the City in a vulnerable position with respect to a lack of control over costs and changes to service levels.
- City does not act as a regional leader by not supporting complementary growth within the region.

Option 2 – Construct a Lagoon

This option involves building a lagoon to accommodate septage from Regina with very limited capacity to accept septage from the surrounding region. The process would involve haulers discharging septage into the lagoon and the solid debris would settle to the bottom allowing the liquid waste to be pumped to the WWTP. Dredging the solid debris from the lagoon would need to occur on an annual basis. This option would require approximately $4.2M in capital and $129,000 per year in O&M. The cost recovery rate is estimated to be $11.25/$m^3$.

This option could accommodate the material from the City's sewer cleaning program. The proposed location for the SRS is south of the existing WWTP. The proximity to the EPCOR operated WWTP creates the risk for odour nuisance issues (or development restrictions) and risks nullifying odour performance standards established for EPCOR's operation at the WWTP. Alternative locations were investigated; however, the Administration was not able to locate any land owned by the City that could accommodate potential odour concerns from a lagoon option.

Advantages:

- Limited capital investment.
- Simple operation and maintenance.

Disadvantages:

- High possibility of odour concerns for residents and the local area.
- Development restrictions to adjacent properties.
- Insufficient capacity for existing septage customers.
- Abandons existing septage customers.
- Does not enable the City to support complementary growth within the region.

Option 3 –Existing Regional Septage (Recommended Option)

This option entails building a mechanical SRS facility to serve existing city and regional use volumes. A mechanical facility can be built to meet existing requirements to reduce capital costs and provide a cost recovery option that would be affordable for existing users, but also be located to facilitate expansion as required. Basis for expansion might include full cost born by potential customers. The process would involve haulers discharging septage into manholes/chutes. The mechanical process will separate the solids and liquids through a screening process. The liquids will be pumped to the WWTP and the solids will be deposited into containers and hauled to the Landfill. The facility will be able to control odour and limit any odour concerns from residents or the local area. This option would require approximately $8.62M to $10.0M in capital and $258,000 per year in O&M for septage.

An additional $3.8M is required to process high grit loads from the City's sewer cleaning program. This option would take advantage of site servicing costs required for the new SRS facility, reducing capital costs. Another benefit is that the mechanical processing and odour would be contained and managed through an enclosed building. The estimated total cost of this initiative is $13.8M. The cost recovery rate is estimated to be $14.25/m³ to $15.10/m³.

Advantages:

- Design will monitor septage quantity and quality.
- Odours from facility will be managed and controlled.
- Maintains level of service for existing septage customers at cost recovery rates.
- Would enable the City to support some complementary growth within the region.

Disadvantages:

- Significant capital investment.
- Ongoing operation and maintenance costs.

Option 4 – Existing Regional Septage + Growth Ready

This option is to build a mechanical SRS station that is capable of providing service for existing and regional use as well as future increased service levels. This option uses the same process as described in Option 3. However, building a facility that is larger than required creates a potential risk to the cost recovery model, particularly during years of reduced demand. This option would require approximately $10.0M to $12.0M in capital and $258,000 per year in O&M. An additional $3.8M is recommended to process high grit loads from the City's sewer cleaning program. The estimated total cost of this initiative is $15.8M. The cost recovery rate is estimated to be $15.10/m³ to $16.50/m³.

Advantages:

- Design will monitor septage quantity and quality.
- Odours from facility will be managed and controlled.
- Maintain level of service for existing septage customers.
- Would enable the City to support considerable complementary growth within the region.

Disadvantages:

- Even greater capital investment required than Option 3.
- Ongoing operating and maintenance costs.
- Cost recovery may not be possible during years of reduced demand.
- There is no guarantee that the extra building space will ever be utilized.

Hydrovac Construction Material Management

The design scope for the new SRS excludes the management of hydrovac waste generated from construction activity. Construction hydrovac should be managed separately from septage because this material may damage the WWTP equipment and process. It may be possible to use existing City infrastructure to support construction hydrovac waste disposal (at the landfill or a site on Toronto Street) while another option could be to find a private service provider. The Administration will be conducting further analysis to determine the most appropriate method for dealing with hydrovac disposal. The estimated capital cost to provide a solution for construction hydrovac material is $1.2 million.

Extension of Existing Design Contract

Based on the need to have a new SRS ready in 2016, the Administration has advanced detailed design for a new mechanical SRS by amending an existing consulting engineering commission with Associated Engineering Ltd (Associated). The City contracted Associated through a public procurement process to complete pre-design, detail design, and construction engineering of a new SRS. The initial design concept was for a smaller SRS facility that was estimated to cost $5.0 million with typical design costs being 10 per cent of the total project costs. Therefore, a larger SRS with regional capacity would require design work totalling approximately $1.5 million. As per *The Regina Administration Bylaw No. 2003-69*, notification to City Council is required as the commission will now exceed $500,000. If Council does not approve the recommendations within this report, this design work would cease, which could impact the ability to meet the deadline to deliver a new SRS.

The City will engage a contractor through a public procurement process to construct the new SRS.

RECOMMENDATION IMPLICATIONS

Financial Implications

A $15 million budget request, sufficient to accommodate a range of solutions, has been included in the proposed 2015 Utility Budget.

Environmental Implications

In the absence of tighter monitoring and stronger penalties, higher dumping costs and septage fees create an incentive to dump illegally. Recommendations to address this risk will be included in the 2016 Council Report setting the initial rates, and updating the Bylaw and the City's Extra Municipal Servicing Policy. Part of the strategy to address this risk will be the inclusion of change management processes.

Completing this project will improve the environmental aspects of the current septage handling practice. The new facility will properly handle and convey septage to the WWTP for treatment.

Policy and/or Strategic Implications

This SRS upgrade initiative is consistent with the City's Official Community Plan as it will "support a more sustainable and beneficial approach to growth within the region through collaborative regional planning and service delivery". The new SRS will enable the City to maintain service for all existing customers, but has limited built-in capacity for new developments. The Administration will bring forward amendments to the Bylaw, including setting user dumping rates, and the City's Extra Municipal Servicing Policy in 2016. A key objective for the project is to ensure that it is developed using a cost recovery business model using user fees. This is in further alignment with the Official Community Plan as the benefits model will be "where the benefits of a program or service are directly attributable to specific beneficiaries, the costs are to be paid through user fess, or other similar charges."

Other Implications

Developing a long-term plan to manage City sewer cleaning and hydrovac waste supports continuity of levels of service from the City's Transportation and Utility Division.

To ensure the WWTP processes are protected, it is important to enforce the existing Bylaw and as such an improved source control program will be developed throughout 2015 and 2016.

Accessibility Implications

None with respect to this report.

COMMUNICATIONS

The City has had an initial open house with the industry and haulers. The City plans to engage the haulers during the detailed design process to ensure there is user input for the following:

- Site layout;
- Fee increases;
- Source control; and,
- Identified options in the industry to accept hydrovac waste and FOG.

The City will notify septage haulers prior to the changes to ensure they have sufficient time to adjust their business models.

DELEGATED AUTHORITY

City Council approval is required through the proposed 2015 Utility Budget.

Respectfully submitted,

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