

Sanitary Servicing Strategy Fund Integrated Planning

1. Recommendation

Utility Committee receive this report for information.

2. Background

The Sanitary Servicing Strategy Fund (SSSF) is a mechanism for combining the financial resources of the developers, new home construction industry and the Drainage utility to build trunk sewers larger than 1050 mm diameter serving areas greater than 1400 hectares. The SSSF Management Committee collects revenue ahead of expenditures to ensure financing for major sewer trunk construction to service growth areas within the City and in new development areas.

The City of Edmonton manages the SSSF and Chairs the SSSF Management Committee. EPCOR is a member of the SSSF Management Committee.

3. SSSF Integrated Planning Report

In 2016, the City of Edmonton Drainage Planning in collaboration with the SSSF Management Committee initiated a review of the overall SSSF trunk system. The City of Edmonton, EPCOR and the Alberta Capital Region Wastewater Commission (ACRWC) participated in the review. The key objectives of this review were to:

- Review the existing SSSF implementation plan and construction timelines for the remaining trunks.
- Finalize an option between Gold Bar Wastewater Treatment Plant (GBWWTP) and Alberta Capital Region Wastewater Treatment Plant (ACRWWTP) for treating sanitary flows from the southern part of the City.

An external consultant was retained by the City of Edmonton with funding from the SSSF Management Committee to conduct the review. The final SSSF Integrated Planning Report included the following major findings:

1. Treating sanitary flows from south Edmonton (including potential annexed lands) at GBWWTP is a more cost effective option than treating flows at the ACRWWTP. Treatment at the GBWWTP reduces capital costs by \$160 M due to the reduced length of the final segments of the South Edmonton Sanitary Sewer (SESS).
2. Directing flows to the GBWWTP was rated higher for all criteria evaluated including cost, constructability, environmental impact, operability and flexibility.

As such, the previously planned 18 km of trunk sewer line to the ACRWWTP (shown in Appendix A as “SSSF Original Concept 1999”) will be replaced with 7 km of trunk sewer required to convey south Edmonton flows to the GBWWTP.

The SSSF Integrated Planning Report and recommendations was accepted by the SSSF Management Committee in June 2017. A copy of the SSSF Integrated Planning Report is being made public by the SSSF Management Committee as part of City Administration’s covering report.

4. Gold Bar Wastewater Treatment Plant – Planning Overview

4.1. SSSF Original Concept 1999

Based on the technologies available at the time, the 1999 original concept assumption was that the GBWWTP would be able to handle growth in flows until the 2040s. After that time, growth in flows would be directed to the ACRWWTP.

Observation #1
*Under the original 1999 Plan, the GBWWTP was **always expected to increase its processing capacity over time to handle increased wastewater flows from population growth up until the 2040s timeframe.***

4.2. Gold Bar Integrated Resource Plan – 2016

Between 2012 and 2016, EPCOR completed a number of studies as part of an initiative to update the long term plan for the GBWWTP, referred to as Gold Bar Integrated Resource Plan (IRP). The Gold Bar IRP looks at the short, medium and long term options and requirements for the Plant. More specifically, the IRP includes a detailed review of the supply side, the demand side, and other external issues such as potential changes to regulatory requirements as well as new technologies.

These studies determined that the ultimate capacity of the GBWWTP can be significantly greater than the previously assumed limit of 510 MLD. Current full treatment capacity is 420 MLD compared to current average day flows of 265 MLD. With technologies not available in 1999, but now commonly in use in the wastewater industry (e.g. membrane bioreactors and advanced digestion), the ultimate treatment capacity of Gold Bar could be as high as 1,200 MLD.

Observation #2
With the addition of modern technology (not available in 1999), the GBWWTP can treat increased flows from South Edmonton for the foreseeable future.

This was a key consideration in the June 2017 SSSF Management Committee decision to direct the long-term flows from south Edmonton to the GBWWTP for treatment.

EPCOR will continue working with the surrounding community to minimize potential impacts from increased flows.

4.3. Relocation of Non-Processing Buildings - 2009 Land Swap Agreement

There has been a longstanding plan to relocate non-processing buildings (maintenance, administration, operations/ control) from the centre of the plant to the land outside of the fence line at the south edge of the plant. This relocation would open up space in the very congested solids treatment part of the plant which improves site safety.

Observation #3

Under all planning scenarios, there will be a need to relocate non-processing buildings from the center of the GBWWTP to make room for increased processing capacity and to improve staff safety.

The re-location of non-processing buildings to the land outside of the fence line at the south edge of the plant was recognized and provided for in the 2009 Gold Bar Transfer Agreement. A land swap agreement was determined and agreed to between EPCOR and the City of Edmonton in the 2009 Gold Bar Transfer Agreement and this agreement remains in effect today. Appendix B shows the lands involved in that agreement.

4.4. Operations Centre

As part of the EPCOR Water Services 2017 – 2021 Performance Based Regulation (PBR), Edmonton City Council approved funding for the Operations Centre Project and associated parking.

The \$19 M Project entailed development of a new non-processing building to house control room staff and locker facilities. The building is to be located at the south edge of the plant ***inside*** the current fence line. Re-locating staff functions from the center of the plant is consistent with the long term plan for the GBWWTP as it frees up space at the center of the plant and improves staff safety. Adding proper locker facilities addresses a hygiene study recommendation.

The project also included funding to relocate staff parking to the land between Gold Bar Park Road and the paved multi-use trail on the parcel of land that is to be transferred to EPCOR as part of the 2009 Gold Bar Transfer agreement. The relocation of staff vehicle parking from inside the current fence line addresses significant ongoing congestion and safety concerns. Currently staff vehicle parking is in close proximity to processing infrastructure and ongoing construction activity at the plant.

The parcel of land identified for staff parking currently houses a City of Edmonton Parks Yard and some Nordic Ski Club assets, which will need to be relocated. Over the years, the grassed area at the west end of this parcel, closer to 50th Street, was used by the City for several years as construction lay down space for the GBWWTP. EPCOR has been working with City Parks and the Nordic Ski Club on a plan to

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accommodate their facilities as part of completing the land swap agreement. These discussions are ongoing.

Development on this land parcel requires re-zoning approval from City Council. As part of the development process, EPCOR has been engaging the surrounding community through a mail out notification, an open house, a pop-up open house, stakeholder emails and phone calls, and one-to-one stakeholder meetings. There has been concern that the parking lot, as currently proposed, would take up some of the existing green space east of the current Parks Yard and west of 50th Street. We are presently developing additional options to address this concern. We will be seeking community feedback on the alternatives in late 2018 or early in 2019. It's important to note that our plan has always been to maintain the current paved multi-use recreational trail in the area which connects Capilano and Gold Bar Parks and this will not change.

Once a final project design is developed (a milestone that occurs after public consultation) and field assessments are complete, EPCOR will complete and file an Environmental Impact Assessment (EIA) with the City of Edmonton as part of a re-zoning application. As options are still under development, the re-zoning application and associated EIA has not been finalized. Once filed, the City Planning Department will review the re-zoning application and associated EIA. These documents will be made public in advance of a public hearing by City Council where it will consider the re-zoning application.

Observation #4

As part of the re-zoning process, EPCOR will commit that no wastewater processing infrastructure will be located on the parcel of land being transferred to EPCOR by the City under the 2009 Gold Bar Transfer Agreement.

We have also heard the comment “why do any expansion at the GBWWTP and instead send all additional wastewater flows to the ACRWWTP?”

The GBWWTP has co-existed with the community since it was put into service in 1956. We pride ourselves on being a good neighbour in the community. As explained above, and under all scenarios, the GBWWTP can handle all wastewater flows from South Edmonton for many decades to come and will continue working with the surrounding community to minimize potential impacts.

We are committed to ongoing open and respectful dialogue with the community. We look forward to sharing some additional ideas about how to address continued plant development and obtaining further feedback on the options in late 2018 or early in 2019.

4.5. Gold Bar Integrated Resource Plan – 2019 Update

EPCOR is in the process of updating the GBWWTP IRP and plan to table this with Utility Committee for feedback in March or April of 2019. As noted above, the IRP is a comprehensive road map for future capital planning at the GBWWTP. It will inform capital plans for the 2022-2026 PBR and the next PBR cycle after that.

With the adoption of modern wastewater treatment technology, the IRP confirms that the GBWWTP will be able to treat increased flows from south Edmonton for the foreseeable future. This can be accomplished by maintaining all wastewater processing infrastructure within the current fence line of the GBWWTP.

5. Additional Gold Bar Updates

5.1. Odour Management

Since 2016, when odour concerns were raised by local residents, Gold Bar has made significant efforts to quantify, reduce and improve odour control at the Plant.

Working with Alberta Environment and Parks, the GBWWTP has rebalanced the odour ducting, added redundancy in the chemical scrubbers and added new covers on the tanks inside the Enhanced Primary Treatment facility. We have also tested new chemical treatment, new ionization air treatment and are planning to add a continuous odour monitoring system to assist in continuing to improve our management of odours.

In 2017 Gold Bar received the lowest number of odour complaints from the public since 2010. Of the 24 odour complaints in the greater Gold Bar area received through 311, 11 were linked to the GBWWTP and 7 of the 11 were from the same nearby residence. Up until April 2018 we had received 6 odour complaints. Since April we have received almost 50 additional odour complaints from a limited number of individuals. We continue to review each call, call back if a number is left and see if there are operational activities we can do to minimize the odours.

5.2. Redirection of Sanitary Sewer Lines near the South Fence line of the GBWWTP

As part of the GBWWTP rehabilitation initiatives funded in the 2017-2021 PBR Capital Plan, a sanitary sewer line coming into the plant from 21 residences near the plant needs to be redirected to a new lift station being constructed inside the fence line of the plant. The redirection work will take place along the utility corridor just outside the south fence line of the plant and is expected to be completed between November 2018 and February 2019. The multi-use trail will remain open and this project should have limited impact on the community besides some construction activity and tree removal in

the construction area. We are initiating public engagement with the surrounding community as we move forward through the development of this project.

5.3. Diversion Structure Structural Rehabilitation near 50th Street

The Diversion Structure transports raw wastewater from the EPCOR Drainage Services collection system to the GBWWTP influent channels. This project will rehabilitate and upgrade the concrete structural components of the Diversion Structure. To safely isolate the structure, the construction area will extend towards 50th street outside the current fence line. Capilano Park access will be maintained. Construction will be phased over the next two to three years and will be done between September & May each year.

5.4. Biogas Capture and Cleaning Infrastructure

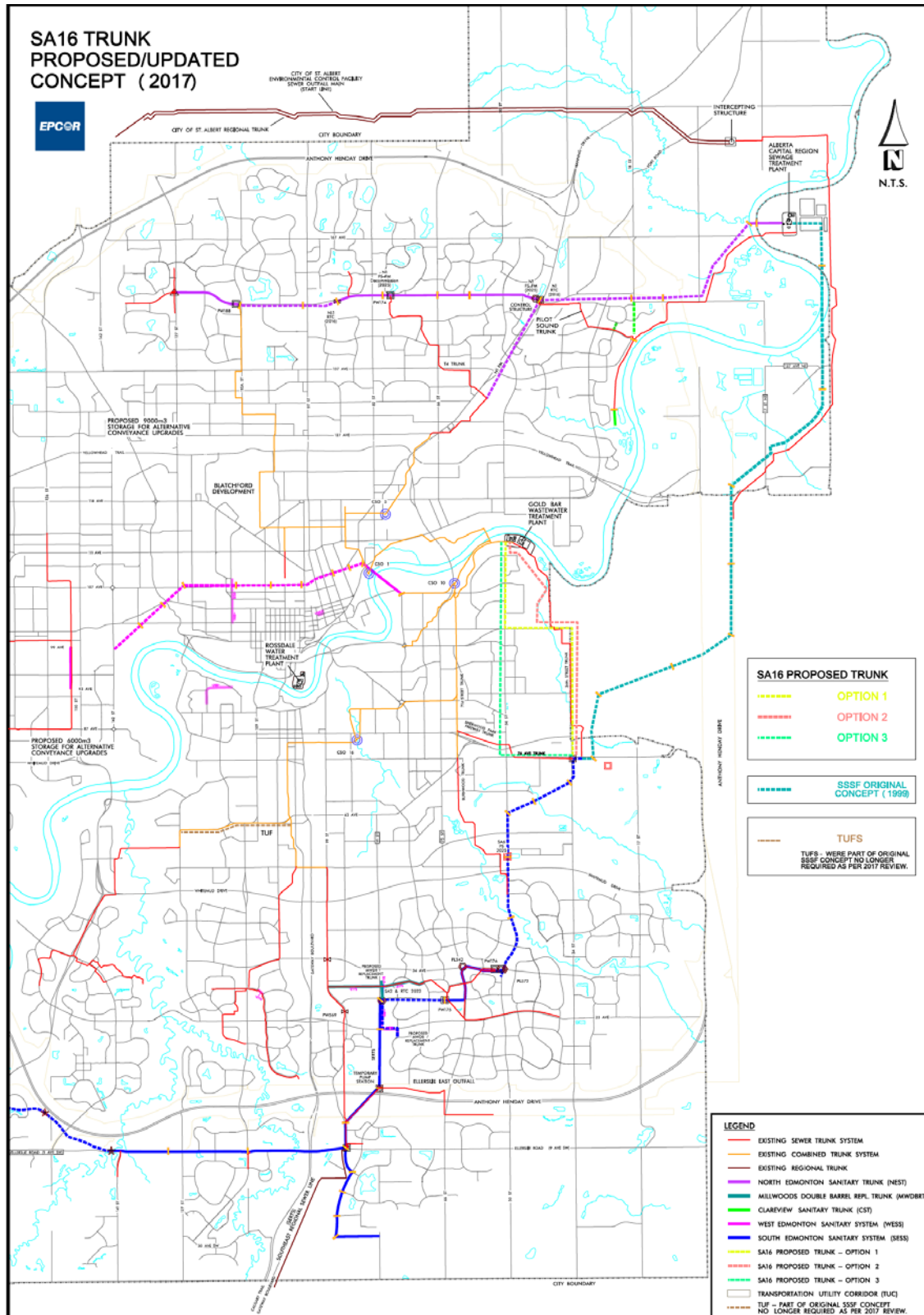
Large wastewater treatment facilities use biological anaerobic treatment processes to break down solids in the wastewater stream. A byproduct of this process, called biogas, is composed of methane and carbon dioxide. The methane produced by this process is considered a renewable source of natural gas or “green gas”. At the GBWWTP, we capture this biogas and use it for process heating year round and plant heating in the winter. This reduces the amount of non-renewable natural gas we buy to heat the plant and thereby reduces our operating costs to the benefit of rate payers.

Currently, the balance of biogas produced in the digestion process that is not used for plant heating, is released into the atmosphere through the GBWWTP flare stack. We view this biogas as an environmentally friendly source of renewable energy and have been looking for ways to utilize it rather than flare it. A common approach is to add cleaning infrastructure to remove impurities from the biogas stream and then use the gas to fire an electric turbine (co-generation unit) to make renewable electricity that could be used at the plant or sold into the electric grid. More recently, a market has emerged for the purchase and sale of renewable natural gas or green gas.

EPCOR has been exploring opportunities to clean and utilize the biogas that is currently being flared at the GBWWTP to make renewable electricity. More recently, we have expanded our focus to explore a green gas alternative. This necessitates further cleaning infrastructure (to remove carbon dioxide) such that the green gas could be injected into the natural gas distribution system and sold to buyers seeking green gas. If a commercial business case for this project is viable, we will be looking to move forward with this project in 2019. Current plans are to locate this biogas cleaning facility within our fence line at the east end of the existing GBWWTP. As we move forward through the development and permitting process for this facility, we will be initiating a public engagement process with the surrounding community.

Like the Ostara phosphorus and nitrogen removal facility that was officially opened at EPCOR’s Clover Bar facility on September 12, 2018, a green gas capture and cleaning facility would further demonstrate what can be done to capture valuable and renewable products from the waste stream.

APPENDIX A



APPENDIX B

