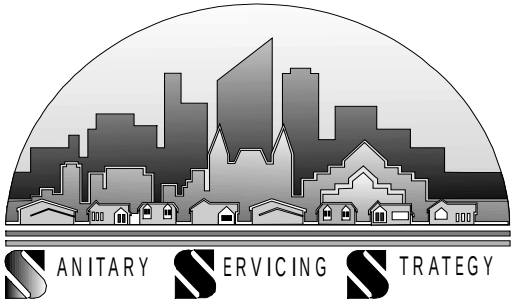
THE CITY OF EDMONTON

SANITARY SERVICING STRATEGY FUND



2016 ANNUAL REPORT

June 2017

Prepared by:

City of Edmonton
Network Integration, Growth Coordination
City Planning Branch, Sustainable Development Department

MESSAGE FROM THE CHAIR OF THE MANAGEMENT COMMITTEE

Since its inception in 1999, the Sanitary Servicing Strategy (SSS) has been remarkably successful in its mandate to encourage growth and facilitate new developments within the City limits through the Sanitary Servicing Strategy Fund (SSSF). This is the 18th annual report of the SSSF. The 2016 SSSF activities included; design stage for SA10a and construction stages for SA1a, SW4 tunnels, and SA1c RTC Gate in the South Edmonton Sanitary Sewer (SESS) system; detailed design and construction of NC2/NC3 tunnel and N1 RTC Gate in the North Edmonton Sanitary Trunk (NEST) system; and post construction works for segments W1, W13 and W14 in the West Edmonton Sanitary Sewer (WESS) system.

The SSSF Management and Operational Committees met four times throughout the year as a combined committee to approve design, construction schedules, and budgets for various segments to be constructed, approved revenue rates for 2017, monitored construction progress, and reviewed the financial status of the Fund.

Since the start of the program, about 38.2 km of offsite tunnels have been constructed to support new developments including single family, multi-family residential, commercial and industrial lots.

In 2016, the SSSF recorded revenue of $20.8 million and a total expenditure of about $15.8 million resulting an addition of $4.9 million to the fund. The closing balance at the end of 2016 was $65.9 million as compared to the 2015 year-end balance of $60.9 million. The actual revenue collected this year was lower than anticipated revenue of $30.5 million because of the economic downturn. However, with the current positive balance and based on future revenue forecast, it is anticipated that SSSF will be able to meet short-term development needs within the City. This year the expenditure was $15.8 million which was less as compared to the $28.0 million forecast, and this was due to some delays in three major projects; SA1a, SW4 and NC2/NC3.

Although the cash flow model shows positive fund balance over the next fifteen (15) years, the trend is generally decreasing and will reach to a negative fund balance of approximately $13.5 million by year 2035. The SSSF Committee continues to work with its stakeholders to refine project costs and cash flows, and rationalize the increase in revenues needed to continue the construction. The fund is projected to recover into a positive balance by year 2038.

The focus in 2017 will be to finish the remaining construction works for SESS Stage SA1a; continue construction of SESS Stage SW4, and NEST Stage NC2/NC3; start construction of N1 RTC Gate at downstream end of existing NEST N1 storage tunnel; start construction of SA1c RTC Gate; and carry out all the on-going planning and planned studies for the current year which includes the SSSF Integrated Planning Study, SESS Flow Control Monitoring, Riverview Planning, CST Planning Study and Condition Assessment, etc.

Todd Wyman, P. Eng.
Chair, SSSF Management Committee

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TABLES

FIGURES

1.0 PLANNING & CONSTRUCTION ACTIVITIES IN 2016

The following is a summary of the planning and construction activities completed under the Sanitary Servicing Strategy (SSS) in 2016 with some construction photos shown:

North Edmonton Sanitary Trunk (NEST) - Stage NC2/NC3

The NEST NC2/NC3 Phase 1 project was recommended by the management committee to provide emergency storage to alleviate immediate flood risk in the service area.

The NEST NC2/NC3 project includes the design and construction of a 2.7 km long 2340 mm diameter tunnel to connect to the existing NC1 and NL1 tunnels. This segment will provide sanitary servicing to new neighborhoods north of 153 Avenue between Castledowns Road and 88 Street.

The project is approved to be constructed in two phases. The objective is to provide emergency storage to alleviate immediate flood risk in the area through construction and commissioning of initial 360.0 m length under Phase 1, and then to continue constructing the remaining 2.34 km under Phase 2 through in-house tunneling to complete the project by 2020. Some construction photos are shown on pages 7 to 10.

North Edmonton Sanitary Trunk (NEST) Stage N1 RTC

The N1 Real Time Control (RTC) gate was proposed to control flow from the existing NL2/NL3/N1 trunk to drain into the Clareview Sanitary through the Pilot Sound trunk.

This project involves design and construction of a Real Time Control (RTC) gate at 153 Avenue and Manning Drive. This gate will engage the storage capacity in the NL1/NL2/NL3/N1 tunnel segments. This gate will also control flow into the Clareview Sanitary Trunk (CST) system en route to Capital Region treatment facility.

SSSF Committee has approved a $1,614,000 budget for this project. Construction

is targeted to start by May 2017 and anticipated for completion by October 2017.

South Edmonton Sanitary Sewer (SESS) – Stage SA1a

SESS Stage SA1a tunnel construction was completed this year and final connection works to divert flow into the newly built segment will be completed by fall of 2017.

SESS Stage SA1a involves construction of a 2.16 km (2100 mm to 2300 mm diameter) trunk sewer which will connect the SW1 pump station at Ellerslie Road and Parsons Road to Stage SA1b at 91 Street and 9 Avenue N.W. When completed, this segment will allow the SESS flow to bypass the South East Regional Trunk Sewer (SERTS) so that it is no longer limited by SERTS available capacity.

The construction was started in 2014. As of July 2015, the south portion approximately 0.81 km was completed by the City in-house tunneling. Additional section of hand tunnel connection to the north portion of tunnel was completed in July 2016.The remaining 1.3 km north portion was awarded to Shanghai Construction Group and was completed in June 2016. Final connection to divert the flow into the newly constructed trunk as well as manholes installation and site restoration will be completed by fall of 2017.

South Edmonton Sanitary Sewer (SESS) – Stage SW4

Construction of segment SW4/SW5 was splitted into two stages. SW4 started in 2017; and SW5 is targeted to commence by 2022.

Following the proposed split of SW4/SW5 tunnel in February 2015, construction of SESS SW4 was approved to proceed in 2015 as Phase 1, while segment SW5 was decided to be delayed until 2021-2022 and will be constructed separately.

The SESS SW4 project involves construction of a 1.6 km, 2,940 mm diameter tunnel, which extends from Ellerslie Road S.W. at Whitemud Creek to Windermere Boulevard west of the Anthony Henday/Rabbit Hill Road interchange. Construction started in October 2015 through in-house tunneling and project is anticipated to be completed by 2018. Some construction photos are shown on pages 11 to 14.

South Edmonton Sanitary Sewer (SESS) Stage SA10a with PS & FM

SESS Stage SA10a project involved construction of a 3050 mm diameter tunnel, a pump station, and a force main to provide services to the south east industrial areas including Pylypow and Maple Ridge.

This section of SESS will be constructed along 34 Street south of 76 Avenue to approximately 68 Avenue to provide services for Pylypow Industrial Area, Southeast Industrial and Maple Ridge Industrial Areas. The project includes design and construction of a 740 m long, 3050 mm diameter sanitary trunk including connections to manhole/inlet structures. Tunnel construction is scheduled to begin by late Fall of 2017 and completion is anticipated by mid-2019.

In addition, part of the scope is construction of pump station, installation of a 200 m long, 250 mm diameter force main including connections to pump well, existing sanitary sewer, and new sanitary tunnel.

South Edmonton Sanitary Sewer (SESS) – Stage SA1c RTC Gate

Construction of the SA1c RTC gate started this year and completion is anticipated before end of 2017.

This project includes design and construction of a Real Time Control (RTC) Gate at 28 Avenue/91 Street. The gate will control flow into the existing MWDB trunk system and can thus induce flow storage in the SA1a/SA1b/SA1c tunnel segments.

The design of the gate was completed in 2016. Construction and installation of the gate is expected for completion by 3rd quarter of 2017.

WESS Planning Update Study

The WESS system staging and alignment were changed to allow continuous development in Edmonton without increasing the risk of CSO and basement flooding.

The WESS Planning update study was completed in 2016. The intent of the study was to update the West Edmonton Sanitary Sewer (WESS) implementation plan for the remaining WESS system, including developing a detailed concept for the Terwillegar University Farms Sewer (TUFS) sanitary sewer implementation plan.

Final report was received in October 17, 2016 and the project is now closed.

SSSF Program Review

A thorough review of the SSSF program was completed this year which included: updating of the segments' cost estimates based on current values; developing various scenarios based on current data for setting up rate; and evaluation of construction schedule to determine fund performance.

The SSSF program review was completed in November 2016 and final report received in January 2017. The primary objective was to review the financial and technical components of the program, to fully understand its history and progression which is critical in making informed recommendations that benefit the future of the Program. The Program Review builds on the knowledge gained to provide recommendations for improvements to efficiency, accuracy and methodology which enhances the short and long term viability. This includes recommendations to establish future rates based on various factors such as segment timing adjustments, borrowing money to fund projects, or allowing rates to cover some or all of the construction costs projected.

SSSF Financial Model Update- Phase 1

The updated version of the model considered the City's remaining developable land inventory in the calculation of projected revenue considering the neighborhood capacity planned through ASPs and NSPs.

The first phase of the SSSF Financial Model update was initiated at the same time during the course of the 2015 Program Review. The objectives are: to have the financial model reflect the latest program information; to incorporate updated population and growth projections; and to validate the model's results based on current studies and growth projections data.

Currently, full build out of the City is anticipated by 2059, instead of 2075 as originally projected.

The model was originally projected based on the assumptions linked to population growth with full development of the SSSF system expected by 2075; however, with the incorporation of the ASP and NSP population projections and the City's updated projected growth rates, full build out is now anticipated by 2059.

The updated version of the financial model was completed in June 2016.

Integrated Planning Study

Part of the scope of this planning study is to assess the capacity of the Gold Bar WWTP and ACRWWTP to determine ultimate connection point for the SESS service area of south Edmonton.

The project also included a brief assessment of SESS capacity to accommodate proposed south annexation.

The rate of development in the recent years has been much higher than anticipated, resulting in increased revenue and an increased demand for projects. The key objective of the SSSF Integrated Planning study is to refine the overall servicing concept of the SSSF program by prioritizing and updating the future segment timelines and also to make collaborative effort with regional waste water agreements, waste water treatment facilities and other stakeholders of the project, to come up with a plan that is the most feasible and cost effective solution in terms of diverting flows. It will also review the applicability of the program (in terms of its original intent) and recommend appropriate amendments to facilitate sustainable growth.

The project was approved during the first quarter of 2015; however, its implementation began in June 2016 and currently in progress. Some coordination works with other on-going planning studies have caused a bit delay in the project completion. Draft report is anticipated by end of April 2017.

CST Functional Planning Update & Condition Assessment

Some of the major tasks to be completed under the CST functional Planning included existing system performance assessment, full development system performance assessment, and development of service level goals and system performance criteria.

The project has two components; the functional planning study and the condition assessment component.

The functional planning component is to refine the overall integration concept of Clareview Sanitary Trunk (CST) with the downstream segments of North Edmonton Sanitary Trunk (NEST).

The study shall develop a detailed hydrologic and hydraulic model of the CST system including NEST, and calibrate based on the available flow monitoring data under both dry and wet weather flow conditions.

A complete hydraulic system performance assessment for existing and full development condition shall be conducted under various design rainfall events.

The study shall also determine the available capacity and identify the constraints in the system to ensure that the level of service is available to meet the future requirements.

For condition assessment, a multi-sensor inspection was performed by Redzone Robotics using a profiler unit to collect multi-sensor data for rehabilitation strategy.

For the condition assessment part, the key objective is to examine the physical/structural condition of CST so that the information could be utilized to develop a strategy in regards to rehabilitation and /or finalizing the long-term plan for the downstream segments of NEST/CST.

Laser profiling was used to measure corrosion within the pipelines.

The project started in September 2016 and currently in progress. Draft report is anticipated by end of April 2017.

Riverview Servicing Study

The SESS SW6 wet weather storage was preferred by the City over Riverview on-site storage for ultimate servicing due to its ability to make use of SW6 storage and flexibility in servicing potential annexation land development.

The servicing study was initiated to refine the ultimate servicing concept for Riverview developments and update the timelines for the SESS segments related to Riverview servicing. Also, the study was expected to review the SSSF cash flow to support the proposed timelines and evaluate its impact on the overall program.

Project started in October 2016 and is expected to be completed in first quarter of 2017.

SESS Flow Control Planning Study

SESS flow control planning study includes: review and refine the proposed flow control philosophy at various SESS SA stages; identify the interim connections and future requirements to manage flows; and update the strategy of diverting flows

The project was started in mid-2016. The focus of the study was to update flow control philosophy for the SESS system in order to manage the flows effectively and utilize the available storage to its maximum capacity.

from SE and SW segments into the existing MWDB trunk.	The study is expected to be completed by the end of first quarter 2017.

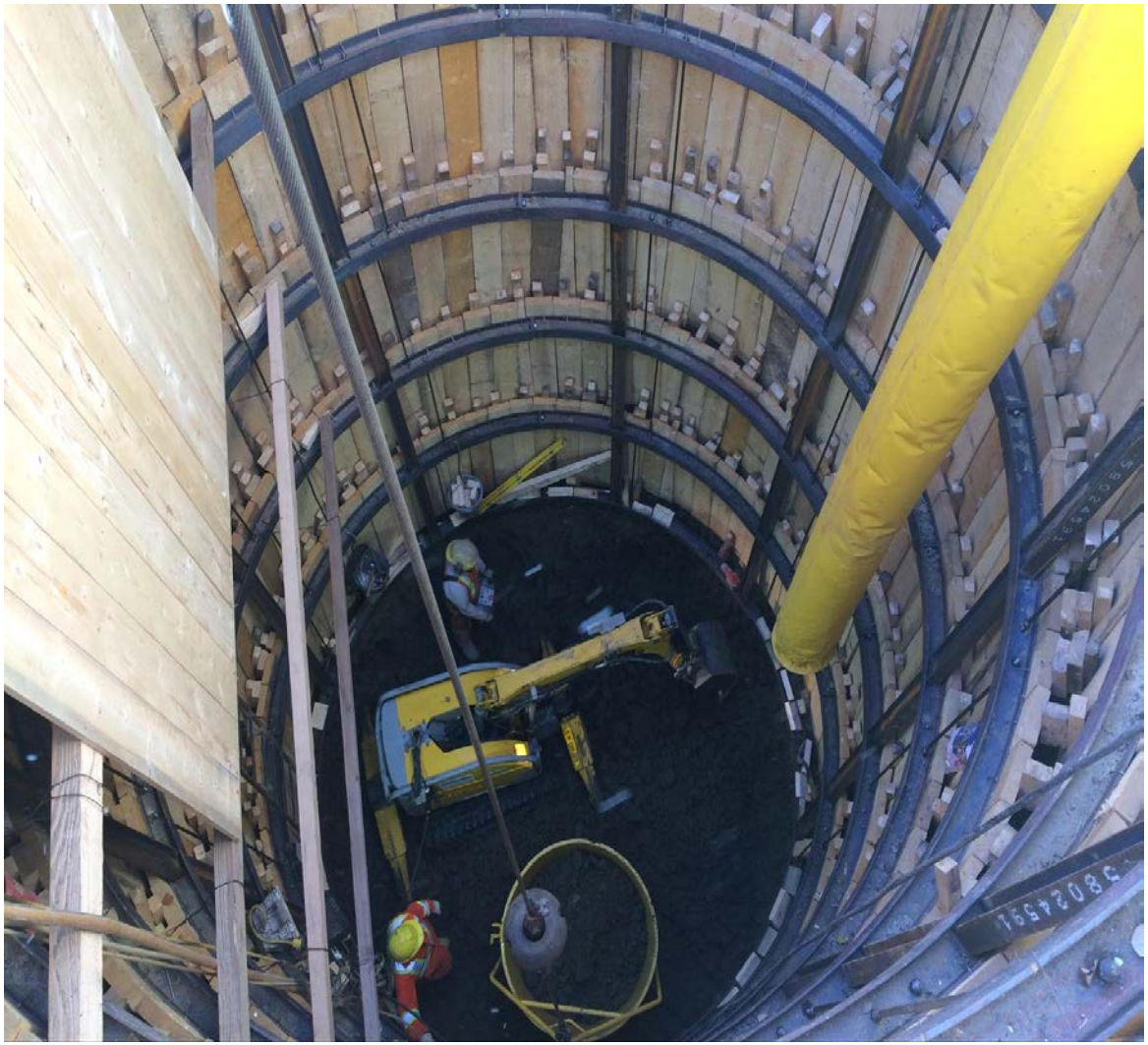

Figure 1a: NEST Stage NC2/NC3- Excavation of the main working shaft

Figure 1b: NEST Stage NC2/NC3- Completed Undercut

Figure 1c: NEST Stage NC2/NC3- Trailing gear which includes the gantry & conveyor of the TBM

Figure 1d: NEST Stage NC2/NC3- Back end of the M100 TBM with a section of completed tunnel

Figure 1e: SESS Stage SW4- Tunnel undercut, total length of 32 m, dirt cars on rail switch set-up

Figure 1f: SESS Stage SW4-TBM M126 Gantry & Trailing Shield- Tools, electrical equipment, ventilation, and all hydraulic components

Figure 1g: SESS Stage SW4- Pre-cast concrete liner segments, 2.9 m panels- Transported from working shaft to TBM using segment carrier cars

Figure 1h: SESS Stage SW4- 16’-6” diameter Working Shaft, depth of 18.0 m below ground elevation

2.0 MANAGEMENT AND OPERATIONAL COMMITTEES

The role of the **SSSF Management Committee** is to make decisions regarding revenues and expenditures that best meet the long-range plan of all the stakeholders. The Committee has six members:

Chair: Director, Drainage Planning & Engineering – Todd Wyman
Members: Director, Utility Infrastructure Services – Albert Kwan
UDI Representative – Dave Kinders
UDI Representative – Wade Zwicker
Senior Planner, City Planning – Tim Ford
General Supervisor, Infrastructure Planning- Fernando Sacluti
(Secretary & Non-voting Member)

Major accomplishments by the Management Committee in 2016 were:

- *NC2/NC3 construction approval*
- *SA10a construction approval*
- *Various planning studies approval*
- *N1 RTC and SA1c RTC gate construction approval*
- *No increase for 2017 revenue rates*
- *Governance review of the SSSF committee structure*

The Management Committee met four times in 2016 at joint sessions with the SSSF Operational Committee. Some of the major decisions made are listed below:

- Approved proposed budget of $350K for SESS Flow Control, Riverview Servicing, and CST Functional planning studies.
- Initially approved a total budget of $41.9M in March 2016 to complete and commission the NC2/NC3 tunnel.
- Approved the NC2/NC3-Phase 1 construction in June 2016 to be done through in-house tunneling including undercut of Phase 2 construction in the current scope of work. Further analysis had been required for cost efficient delivery method before making a decision for Phase 2.
- Approved the SSSF Financial Model update (Phase 2) with a required budget of $12K in June 2016.
- Finally approved Phase 2 construction of NC2/NC3 tunnel in September 2016 also through in-house resources, following Phase 1 construction, with a total required budget of $41.9M including 15% contingency.

- Approved a budget increase of $1.6M for SA1a construction due to power line conflict and external contractor's settlement claim.
- Approved a budget of $1.61M to complete design and installation of N1 RTC gate during the 3rd quarter's meeting.
- Approved the total estimated cost of $1.7M to complete design and installation of the SA1c RTC gate during the 3rd quarter 2016 session.
- Approved the amended motion of 0% increase for 2017 SSSF revenue rates from the original 3.22% proposed rate increase in September 2016.
- Approved in December 2016 a total estimated cost of $22.6M for construction and commissioning of SA10a tunnel including installation of a pump station and force main.
- Approved a budget of $20K to complete a governance review of the SSSF committee structure through a third party consultant.

The Operational Committee discussed technical issues and recommended solutions for the Management Committee's approval.

The **SSSF Operational Committee** provides recommendations to the Management Committee regarding the timing and capacity requirements for new trunk construction, and flags relevant issues for consideration by the Management Committee. The Committee is composed of seven members:

Chair: General Supervisor, Infrastructure Planning – Fernando Sacluti
Members: Director, Utility Infrastructure Services – James Tan
Land Development Engineer, Sustainable Development – Jim Wood
UDI Representative – Leo Levasseur
UDI Representative – Dylan Hunchak
Financial Coordinator, Utility Services-Drainage– Melanie Ha
Program Manager, Infrastructure Planning– Khalid Aziz (Secretary & Member)

The Operational Committee met four times in 2016 at joint sessions with the Management Committee and one time as alone committee with the following major accomplishments:

- Recommended a motion to approve the proposed $350K budget for three SSSF planning studies.
- Recommended a budget increase to complete the SA1a project due to change in scope caused by some major delays.
- Recommended a motion to approve $22.6M construction budget including contingency and risk allocation for SA10a trunk with pump station & force main project.
- Recommended Phase 1 and Phase 2 construction stages for NC2/NC3 trunks through in-house tunneling with a completion budget of $41.9M.
- Recommended a motion to approve a budget of $1.6M for the construction of N1 RTC Gate.
- Recommended a Phase 2 financial model update to further enhance the functionality of the model.
- Recommended a motion to approve a budget of $1.7M to complete design and installation of the SA1c RTC gate.
- Recommended a 3.2% increase for 2017 revenue rate.
- Recommended a motion to approve governance review with a proposed budget of $20K for the current SSSF management and operational committees.

3.0 FIVE YEAR CONSTRUCTION PLAN

The following section outlines the proposed major SSSF construction program for the next five years (2017-2021). This proposed program is developed to support orderly development throughout the City of Edmonton in a cost effective manner, using latest population and employment projections available to the City, as well as input from the development industry. It also strives to meet the important objective of maintaining a positive balance for the Fund. The locations of the construction projects are shown in Figure 2 on page 23**.**

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2017 – North Edmonton Sanitary Trunk (NEST) Stage N1 RTC

N1 RTC gate construction will commence in June 2017.

Preliminary design of this project was completed and entered into detailed design stage. Detailed design is expected to be completed in May 2017 and construction of the gate follows in June to October 2017.

2017 to 2020 – North Edmonton Sanitary Trunk (NEST) Stages NC2 & NC3

NC2/NC3 Phase 1 construction will commission an initial 360 m section of the tunnel to mitigate flood risk in the area.

Phase 1 construction of the NEST NC2/NC3 started in April 2016 and is 68% completion as of the end of 2016. Remaining works for Phase 1 is expected to be completed by July 2017.

The Phase 2 tunneling works, which started in June 2017, is anticipated to complete the remaining 2.3 km of the segments until December 2020.

2017 – South Edmonton Sanitary Sewer (SESS) Stage SA1a

Tunnel commissioning of SA1a is anticipated

for completion by Fall of 2017.

Construction of 2.3 km long sanitary sewer, comprising both of TBM tunnel and micro-tunneling sections, started in 2014 and project commissioning is anticipated by summer of 2017. The City in-house tunneling crews undertake the 1 km long TBM tunnel construction while an external contractor constructs the remaining 1.3 km of work. It is anticipated that project will be completed within its $27.5 million budget.

2017 - South Edmonton Sanitary Sewer (SESS) – Stage SA1c RTC Gate

Installation of the SA1a RTC gate is also targeted for completion by Fall of 2017.

The SSSF Committee has approved the design and installation of SA1c RTC gate for $1.725 million. Construction and installation of the gate is expected for completion by 3rd quarter of 2017.

2017 to 2019 – South Edmonton Sanitary Sewer (SESS) Stage SA10a with Pump Station & Force Main

SA10a construction through the City's in-house tunneling can be completed in 2.5 years.

The project was put on hold for more than three years due to pending agreement signing with the developers. At present, the project is under series of evaluation and reviews to prepare start of construction. Overall project completion is anticipated by 2020.

2017 to 2018 – South Edmonton Sanitary Sewer (SESS) Stages SW4

Completion of the split SW4/SW5 will provide gravity conveyance for the Windermere sewage flow, and increase the wet weather flow storage capacity in the SW trunk for both the Heritage Valley and Windermere areas.

Construction of Stage SW4 started in October 2015 and as of the end of 2016, about 24% or 0.36 km of the 1.6 km tunnel has been completed. Completion of the project is expected by December 2018.

2017- SSSF Financial Model Update- Phase 2

Financial Model Phase 2 update will further enhance its performance through the proposed additional functions and features.

With more in depth testing of the financial model, more areas have been identified that can further enhance performance to make the model robust. The Phase 2 update of the financial model was proposed to further increase its functionality with some outputs that will add value to its current settings.

The Phase 2 update was approved by the SSSF committee during its 2nd quarter meeting with a budget of $12 K**.** Procurement through limited competition is currently underway and project completion is targeted by end of September 2017.

2017- Governance Review/SSSF Committee Structure

Governance review of the SSSF Committee structure will provide an overview of the current processes and governing structure of the SSSF program, and propose necessary changes to align the committee's structure in a way that improves the overall program management performance and transparency.

For the last two years, the Committee was in discussion about the need to complete an SSSF program governance review. The work was started, however; due to organizational changes within the City, the process was temporarily put on hold. Currently, as the re-organization is almost complete, the committee has recommended conducting a third party governance review for the overall SSSF program.

The scope of work includes review of existing committee structures for both management & operational committee and suggests changes to enhance effective communication & collaboration between the City and stakeholders. It also includes review of the existing processes & policies and recommend improvements in the process, policies, as well as define clear management principles for decision making to manage the SSSF program in a more transparent and effective manner.

2017 to 2018- W3,4,5 Functional Planning Study

W3, 4, 5 functional planning will be carried out tentatively in the last quarter of 2017.

Functional planning for this WESS segment is required for its alignment and pipe sizing based on current growth projections.

2019 to 2021 – West Edmonton Sanitary Sewer (WESS) Stage W3, 4, 5 and Connection Structure to Combined trunk to the 1650mm Comb Trunk

Construction of the W3, 4, 5 tunnels will include a W5 connection structure to the 1650 mm combined trunk for interim discharge.

These segments when connected together would ultimately increase the conveyance capacity of the sewer network from West Edmonton, through downtown and to the Gold Bar Waste Water Treatment Plant (GBWWTP). Construction of a 2340 mm, 2.6 km long tunnel along 142 Street to 125 Street is recommended to begin in 2022; however, constructing them sooner will help relieve a bottleneck found in the combined trunk between 142 Street and 125 Street. The combined segments are expected to provide sufficient storage to serve new developments.

A connection structure is proposed to connect Stages W3, 4, 5 segments to the combined 1500 to 1650 mm combined trunk between 142 Street and 125 Street to help relieve an existing bottleneck issue.

Construction of the segments is not expected until 2019 or 2020. However, the functional planning study is targeted to be carried out early next year.

2020- South Edmonton Sanitary Sewer (SESS) Stages SW1 PS (1st Upgrading)

SW1 pump station upgrading will be done in two stages based on the 2014 SESS Planning Update. The first stage will start in 2020 with a goal to

To meet the projected flow increases during dry weather and the storage drawdown requirements, ISL has recommended pump station capacity increases proposed under the 2014 SESS Planning Update Study. During

increase pump capacity to 500 L/s. The next stage will follow in 2040, aiming to increase capacity to 650L/s.

the first stage, the existing SW1 pump station is to be upgraded to 500 L/s capacity and is targeted by year 2020. The second pump station upgrade will increase its capacity to 750 L/s and is proposed for commissioning by 2040.

The proposed increases are based on the hydraulic modeling carried out during the study. However, the staging of the SW1 pump station will be further investigated during the SSSF Integration Planning Study.

2021 to 2022- South Edmonton Sanitary Sewer (SESS) Stage SA2

SA2 tunnel is both storage and conveyance to the SA system.

SA2 is a 2340 mm diameter trunk planned to connect SA1 to the Millwoods storage tunnel (SA3 &4). This segment provides additional storage but the primary driver is conveyance to SA system. It must be constructed to convey flows to SA5/SA6.

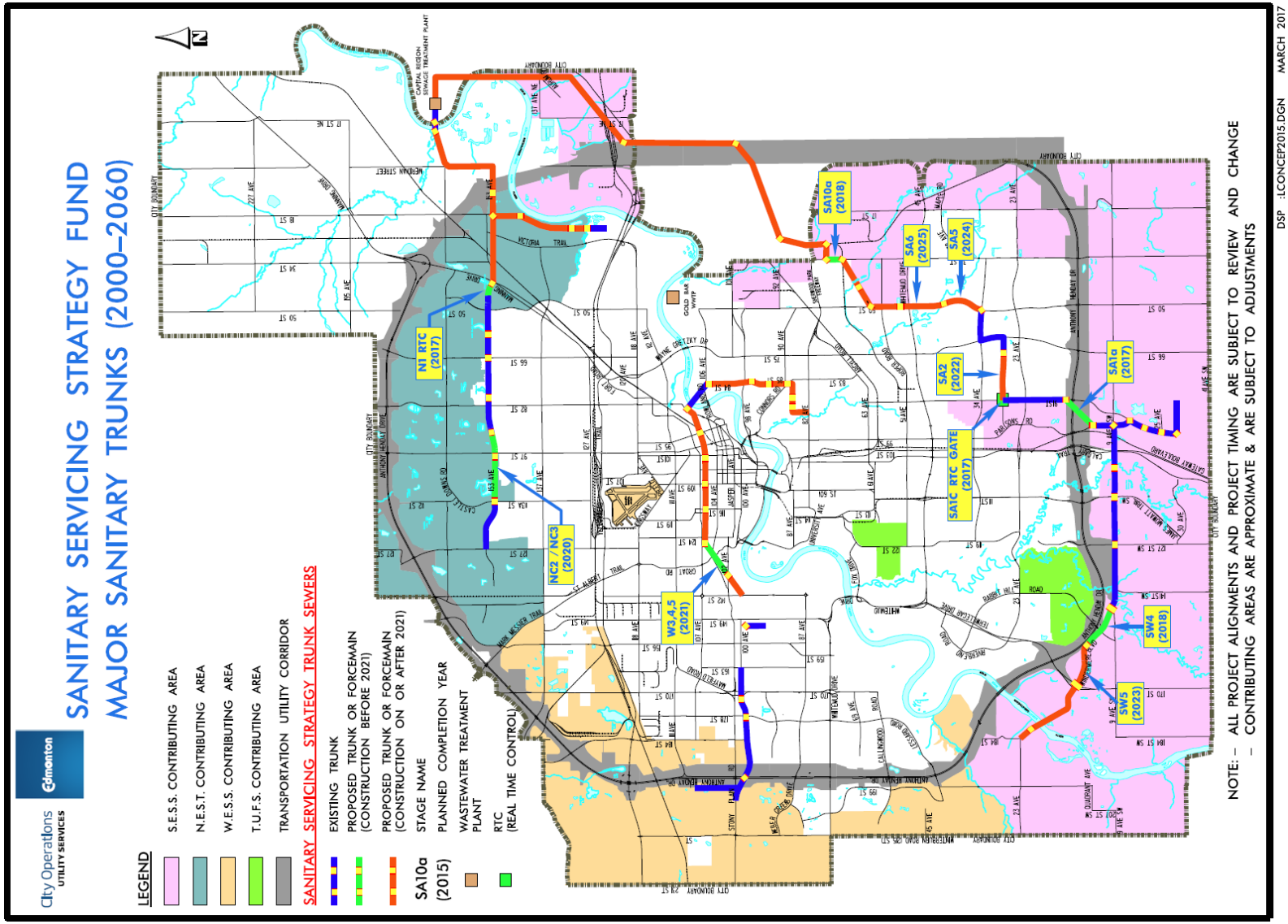
SANITARY SERVICING STRATEGY FUND
MAJOR SANITARY TRUNKS (2000–2060)
City Operations
UTILITY SERVICES
LEGEND
S.E.S.S. CONTRIBUTING AREA
N.E.S.T. CONTRIBUTING AREA
W.E.S.S. CONTRIBUTING AREA
T.U.F.S. CONTRIBUTING AREA
TRANSPORTATION UTILITY CORRIDOR
SANITARY SERVICING STRATEGY TRUNK SEWERS
EXISTING TRUNK
PROPOSED TRUNK OR FORCEMAIN (CONSTRUCTION BEFORE 2021)
PROPOSED TRUNK OR FORCEMAIN (CONSTRUCTION ON OR AFTER 2021)
SA10a
STAGE NAME
(2015)
PLANNED COMPLETION YEAR
WASTEWATER TREATMENT PLANT
RTC (REAL TIME CONTROL)
N1 RTC (2017)
NC2 / NC3 (2020)
W3,4,5 (2021)
SA10a (2018)
SA6 (2025)
SA5 (2024)
SA2 (2022)
SA1C RTC GATE (2017)
SA1a (2017)
SW4 (2018)
SW5 (2023)
NOTE: – ALL PROJECT ALIGNMENTS AND PROJECT TIMING ARE SUBJECT TO REVIEW AND CHANGE
– CONTRIBUTING AREAS ARE APPROXIMATE & ARE SUBJECT TO ADJUSTMENTS
DSP :LCONCEP2015.DGN MARCH 2017

Figure 2

4.0 FUND BALANCE

4.1 TWENTY FIVE YEAR HISTORY & PROJECTION

Several scenarios were developed using the updated financial model to determine future recommended revenue rates.

Since the inception of SSSF program in 1999, the fund has successfully achieved its desired objective to support growth within City of Edmonton boundaries. The program has been able to maintain a healthy fund balance throughout the past 18 years. Currently the fund has balance of positive $ 65.86M.

A detailed financial review of the SSSF program was completed in 2016 by the assigned consultant (AECOM). This along with the recently updated and enhanced financial model provided added leverage to the program managers to predict future economic scenarios more accurately.

As part of the program review exercise, several financial scenarios were developed to simulate the existing as well as future economic conditions.

During the process, latest growth projections along with the most suitable economic and non-economic variables such as inflation index, interest rates in the economy, construction cost inflation was incorporated into the financial model.

The following list of assumptions have been adopted in the current version of the Model as provided by the City of Edmonton Sustainable Department and Finance Department:

a) Population projections were based on the 2012-2047 CRB Traffic population and employment forecasting data.
b) City of Edmonton Land Supply reports for low density residential and industrial.

c) City of Edmonton Employment and Population forecasts by traffic zone.
d) City of Edmonton NSP/NASP statistics
e) Expenditure Inflation Rate of 3% compounded annually.
f) Economic inflation rate of 3% in the long run.
g) Interest earning rate of 1% per annum.

Financial projection shows that the fund balance will remain in the positive zone until 2033 and will then enter into the negative for the next 5 years. (Ref: Figure 3 on page 26)

Based on extensive scenario analysis, the management reviewed several revenue rate increase proposals for the year 2017.

However in the end; the Management Committee decided to keep the revenue rates unchanged for year 2017. The decision was based on the prevailing economic conditions in Alberta as well as the feedback received from development industry.

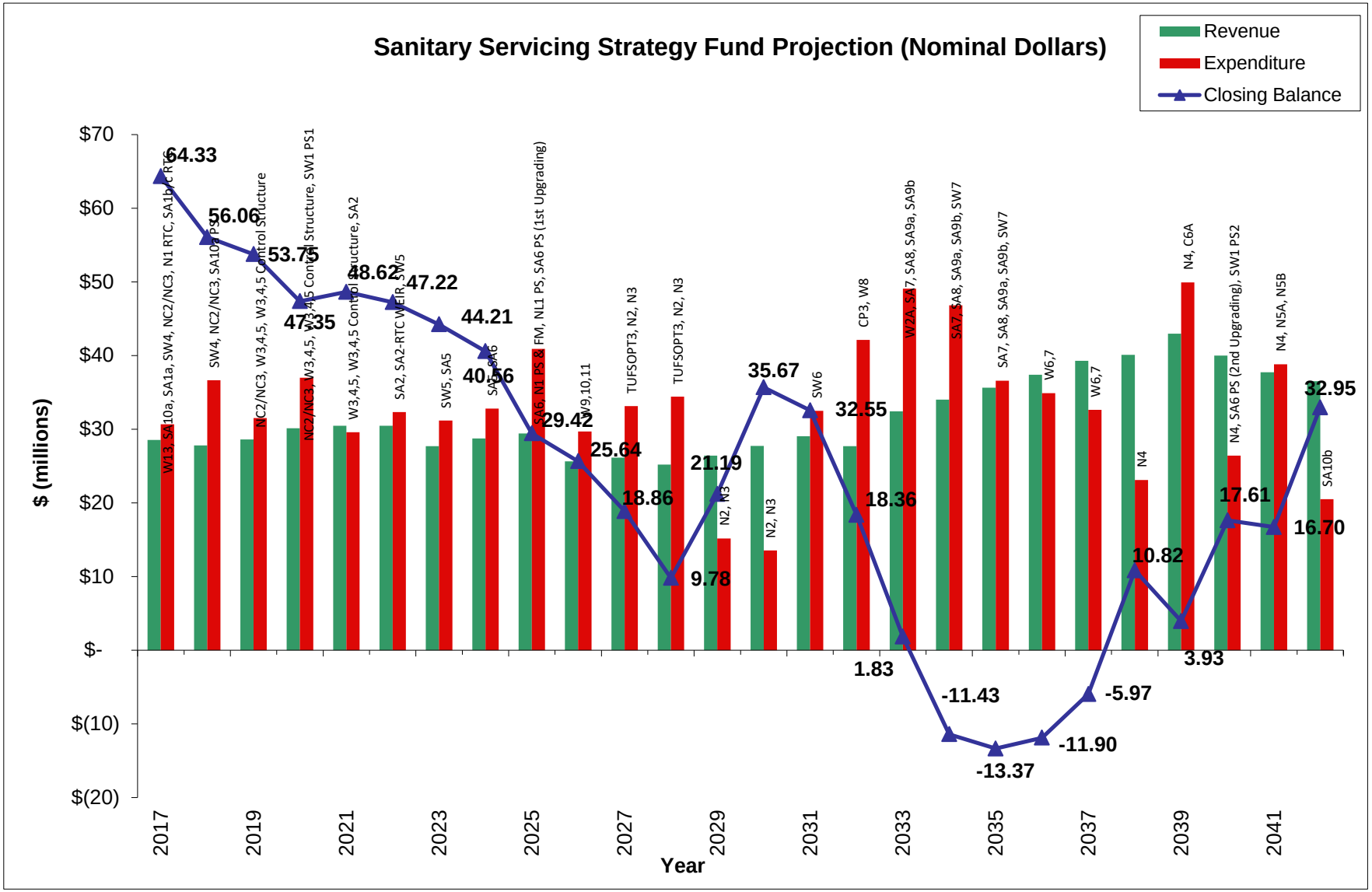
Sanitary Servicing Strategy Fund Projection (Nominal Dollars)
Revenue
Expenditure
Closing Balance
$ (millions)
$70
$60
$50
$40
$30
$20
$10
$-
$(10)
$(20)
Year
2017
2019
2021
2023
2025
2027
2029
2031
2033
2035
2037
2039
2041
64.33
56.06
53.75
47.35
48.62
47.22
44.21
40.56
29.42
25.64
18.86
9.78
21.19
35.67
32.55
18.36
1.83
-11.43
-13.37
-11.90
-5.97
10.82
3.93
17.61
16.70
32.95
W13, SA10a, SA1a, SW4, NC2/NC3, N1 RTC, SA1b, C RTC
SW4, NC2/NC3, SA10b PS
NC2/NC3, W3,4,5, W3,4,5 Control Structure
NC2/NC3, W3,4,5, W3,4,5 Control Structure, SW1 PS1
W3,4,5, W3,4,5 Control Structure, SA2
SA2, SA2-RTC WEIR, SW5
SW5, SA5
SA5, SA6
SA6, N1 PS & FM, NL1 PS, SA6 PS (1st Upgrading)
W9,10,11
TUFSOPT3, N2, N3
TUFSOPT3, N2, N3
N2, N3
N2, N3
SW6
CP3, W8
W2A, SA7, SA8, SA9a, SA9b
SA7, SA8, SA9a, SA9b, SW7
SA7, SA8, SA9a, SA9b, SW7
W6,7
W6,7
N4
N4, C6A
N4, SA6 PS (2nd Upgrading), SW1 PS2
N4, N5A, N5B
SA10b

Figure 3

4.2 FIVE YEAR PROJECTION

Table 1 on page 29 shows the five-year revenues and expenditures (2017-2021) projections for the Sanitary Servicing Strategy Fund based on the currently updated financial model.

REVENUES

*The closing reserve balance as of December 2016 was **$65.9 million which** is the opening balance for 2017.*

Opening Balance for 2017 – The SSSF closing reserve balance as of December 31, 2016.

Revenues and Expenditures for 2016 – These are based on actual values recorded.

Interest (2017-2021) – Interest rate assumed at 1% per annum was used.

Utility Contribution – This amount represents contributions from the Sanitary Utility for diversion of sanitary flows from serviced City lands to the new trunk system constructed under the SSSF. These lands are located in Mill Woods and in Castle Downs. The amount is calculated based on an estimate of the SSTC these lands would have to pay. Based on results of the lot counts conducted in 2000, the Sanitary Utility would make annual contributions of $2.6 million to the SSSF until 2014. In March 2006, City Council approved the recommendation to change the Utility Contribution amount to $1.3 million commencing on January 1, 2007.

Sanitary Sewer Trunk Charge – The SSTC is collected when an application is made for a development permit or sanitary service connection. This charge applies to all new and re-developments in the City.

The following are the SSTC rates for 2016 and 2017:

Type of development	2016	2017
Single-family/Duplex Residential	**$1,566/dwelling**	**1,566/dwelling***
Secondary, garage & garden **suite**	**$ 693/dwelling**	**$ 693/dwelling**
Multi-family Residential	**$1,118/dwelling**	**$1,118/dwelling**
Commercial, Industrial, Institutional	**$7,832/ha**	**$7,832/ha**

Estimated SSTC revenues from 2017 to 2021 were based on the current development growth projections provided by Sustainable Development Department.

Expansion Assessment (EA) – The EA is an area-based assessment that is collected at the time of subdivision, development permit application or sanitary service connection application. The EA applies to those areas of the City that did not have an approved Neighborhood Structure Plan (NSP) before January 1,1999.

As stated earlier, there is no increase for 2017 revenue rates for both SSTC and EA. The 2016 and 2017 rates will remain the same as follows:

Contributing Area	2016	2017
North Edmonton Sanitary Trunk (NEST)	**$22,367/ha**	**$22,367/ha**
South Edmonton Sanitary Sewer (SESS)	**$22,367/ha**	**$22,367/ha**
Terwillegar and University Farms (TUFS)	**$22,367/ha**	**$22,367/ha**
West Edmonton Sanitary Sewer (WESS)	**$27,962/ha**	**$27,962/ha**

EXPENDITURES

Estimated Construction Costs – Construction cost estimates for the 2017 to 2021 time frame were based on the updated segment costs provided as a result of the recent program review.

SANITARY SERVICING STRATEGY FUND-5 YEAR PROJECTION

	2016 (Actual)	2017	2018	2019	2020	2021
Opening Balance	**$ 60,928,997**	**$ 65,859,443**	**$ 64,326,730**	**$ 56,059,585**	**$ 53,746,723**	**$ 47,352,772**
Interest earned	499,718	614,170	590,692	571,641	476,269	403,117
Sanitary Utility Contribution	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000	1,300,000
Sanitary Sewer Trunk Charge	12,701,704	15,418,565	15,742,644	16,024,657	16,921,880	17,123,927
Expansion Assessment	6,272,602	11,811,754	10,733,662	11,291,637	11,886,676	12,029,016
Total Revenues	**20,774,024**	**29,144,489**	**28,366,998**	**29,187,935**	**30,584,825**	**30,856,060**
Estimated Construction Costs	(15,304,357)	(30,177,202)	(36,134,143)	(31,000,797)	(36,478,776)	(29,091,898)
Preliminary Studies	(539,221)	(500,000)	(500,000)	(500,000)	(500,000)	(500,000)
Total Expenditures	**(15,843,578)**	**(30,677,202)**	**(36,634,143)**	**(31,500,797)**	**(36,978,776)**	**(29,591,898)**
Closing Reserve Balance	**$ 65,859,443**	**$ 64,326,730**	**$ 56,059,585**	**$ 53,746,723**	**$ 47,352,772**	**$ 48,616,934**

Construction Costs (Nominal Dollars)

	Total 2017-2021	2017	2018	2019	2020	2021
W13	-	-	-	-	-	-
W1-Rem	-	-				
SA1a	1,583,606	1,583,606	-	-	-	-
SW4	22,718,657	9,858,501	12,860,156	-	-	-
Sa1b/c RTC	1,718,272	1,718,272				
SA1d	-	-	-	-	-	-
SA10a	10,640,515	10,640,515		-	-	-
SA10a PS & FM	9,947,072	-	9,947,072	-	-	-
SW1 PS (1st Upgrading)	10,117,000	-	-	-	10,117,000	-
NC2/NC3	38,565,796	6,376,308	13,326,915	10,000,797	8,861,776	-
N1 RTC	-	-	-	-	-	-
W3,4,5	46,140,990	-	-	18,000,000	14,500,000	13,640,990
W3,4,5 Control Structures	8,050,000	-	-	3,000,000	3,000,000	2,050,000
SA2	13,400,908					13,400,908
Total	**$ 162,882,816**	**$ 30,177,202**	**$ 36,134,143**	**$ 31,000,797**	**$ 36,478,776**	**$ 29,091,898**

Table 1- Five Year Revenues and Expenditures Projection

4.3 STATEMENT OF FUND ACTIVITIES AND BALANCE

The Statement of Fund Activities and Balance for 2016 are shown on Table 2 (on page 32), while Figure 4 (on page 33) shows each revenue component as a percentage of the total 2016 revenues. Figure 5 (on page 34) shows the historical SSSF revenue breakdown, whereas; Figure 6 (on page 35) shows the historical SSSF expenditures.

REVENUES:

Total revenues for 2016 were $20.8 million which is lower than the amount of $27.8 million collected in 2015.

- **Sanitary Sewer Trunk Charge (SSTC)** – For 2016, SSTC revenues totaled $12.7 million, lower by $2.7 million than the $15.4 million collected in 2015. Again, single-family/duplex developments contributed more than the multi-family developments, with the respective revenues being $6.5 million versus $ 7.9 million. For the multi-family residential, total collection this year was $4.7 million which is $1.7 million higher than the $6.4 million collection in 2015. The remaining SSTC revenues, $1.5 million came from commercial, industrial, and institutional sector, is $0.5 million higher than the $1.03 million marked in 2015.
- **Expansion Assessment (EA)** - For 2016, the total EA collected was $6.3 million, down from the $10.7 million collected in 2015.
- **Utility Contribution –** Total Utility contribution in 2016 was $1.3 million.
- **Interest Earned –** Total interest earned during 2016 was $0.50 million compared to $0.47 million in 2015. This was due to the lower cash balance in 2015.

EXPENDITURES:

The largest expenditure item in 2016 was $5.1 million for the construction of SESS (Stage SW4). Another $4.1 million was spent for the construction of SESS (Stage SA1a), while the rest were spent on NEST (Stage NC2/NC3),

SESS (SA1c RTC gate), post construction activities for WESS (Stages W1 & W13) as well as several on-going planning studies.

Sanitary Servicing Strategy Fund
Statement of Fund Activities and Balance
For the Period Ending December 31, 2016

	2015 Actual	2016 Actual	2016 Budget	2016 Variance
REVENUES				
Sanitary sewer trunk charge - single/duplex revenue	7,934,122	6,455,391	4,861,836	1,593,555
Sanitary sewer trunk charge - multi family revenue	6,386,353	4,717,331	2,916,123	1,801,208
Sanitary sewer trunk charge - commercial/industrial/institutional revenue	1,034,399	1,528,982	1,376,515	152,467
Expansion assessment	10,673,208	6,272,602	7,349,609	(1,077,007)
	26,028,082	**18,974,306**	**16,504,083**	**2,470,223**
Sanitary Utility Contribution	1,300,000	1,300,000	1,300,000	0
Interest earned	466,264	499,718	911,160	(411,442)
Total Revenues	**27,794,346**	**20,774,024**	**18,715,243**	**2,058,781**
		A		
EXPENDITURES				
NEST NC2/NC3	447,099	2,887,105	5,172,294	(2,285,189)
NL1 PS Concept Study	219,829	(219,829)	(219,829)	0
NL1 PS Piping Repairs	137,565	(137,565)	(137,565)	0
N1RTC Gate	-	76,291	700,000	(623,709)
SESS SA1a	11,693,491	4,098,618	4,476,932	(378,314)
SESS SA1c RTC Gate	-	6,728	-	6,728
SESS SA1d	-	3,500,000	3,500,000	0
SESS SA10a	94	536	39,906	(39,370)
SESS SW4	1,133,012	5,120,470	19,023,172	(13,902,702)
WESS W1-Rem	93	28,415	(93)	28,508
WESS W13	69,740	(56,412)	(4,740)	(51,672)
WESS W14	34,857	-	(11,857)	11,857
Preliminary Studies	244,296	539,221	1,047,704	(508,483)
Future Projects			3,500,000	(3,500,000)
Total Expenditures	**$13,980,076.00**	**$15,843,578.00**	**$37,085,924.00**	**$(21,242,346.00)**
		B		
Opening Balance	**$ 47,114,728.00**	**$ 60,928,998.00**	**60,928,998**	$ -
Excess of Revenues over Expenditures	**$ 13,814,270.00**	**$ 4,930,446.00**	**(18,370,681)**	**$ 23,301,127.00**
Ending Balance	**$ 60,928,998.00**	**$ 65,859,444.00**	**42,558,317**	**$ 23,301,127.00**
		C		

Table 2-Statement of Fund Activities and Balance

2016 SSSF Revenues (20.8 M)

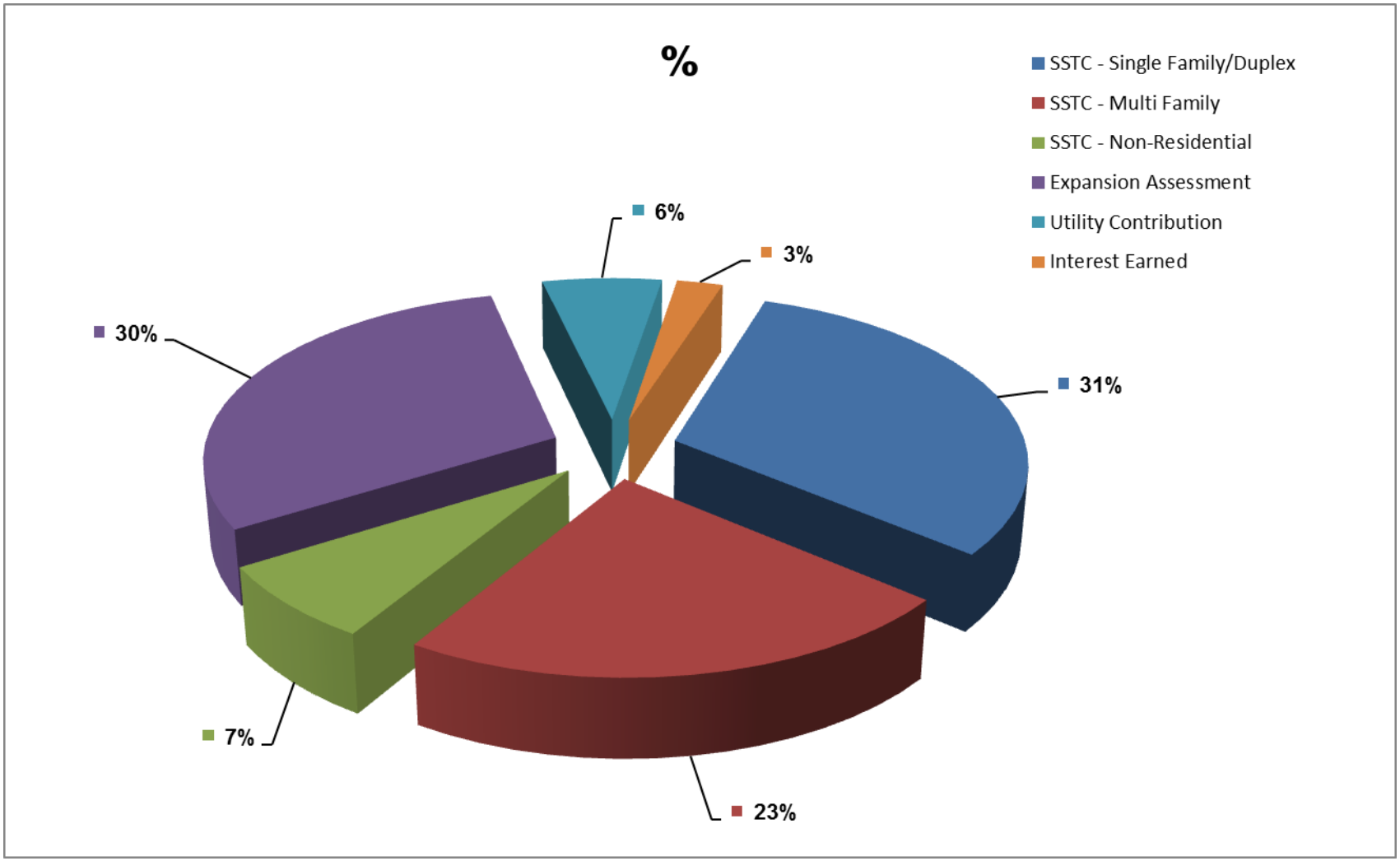

Figure 4

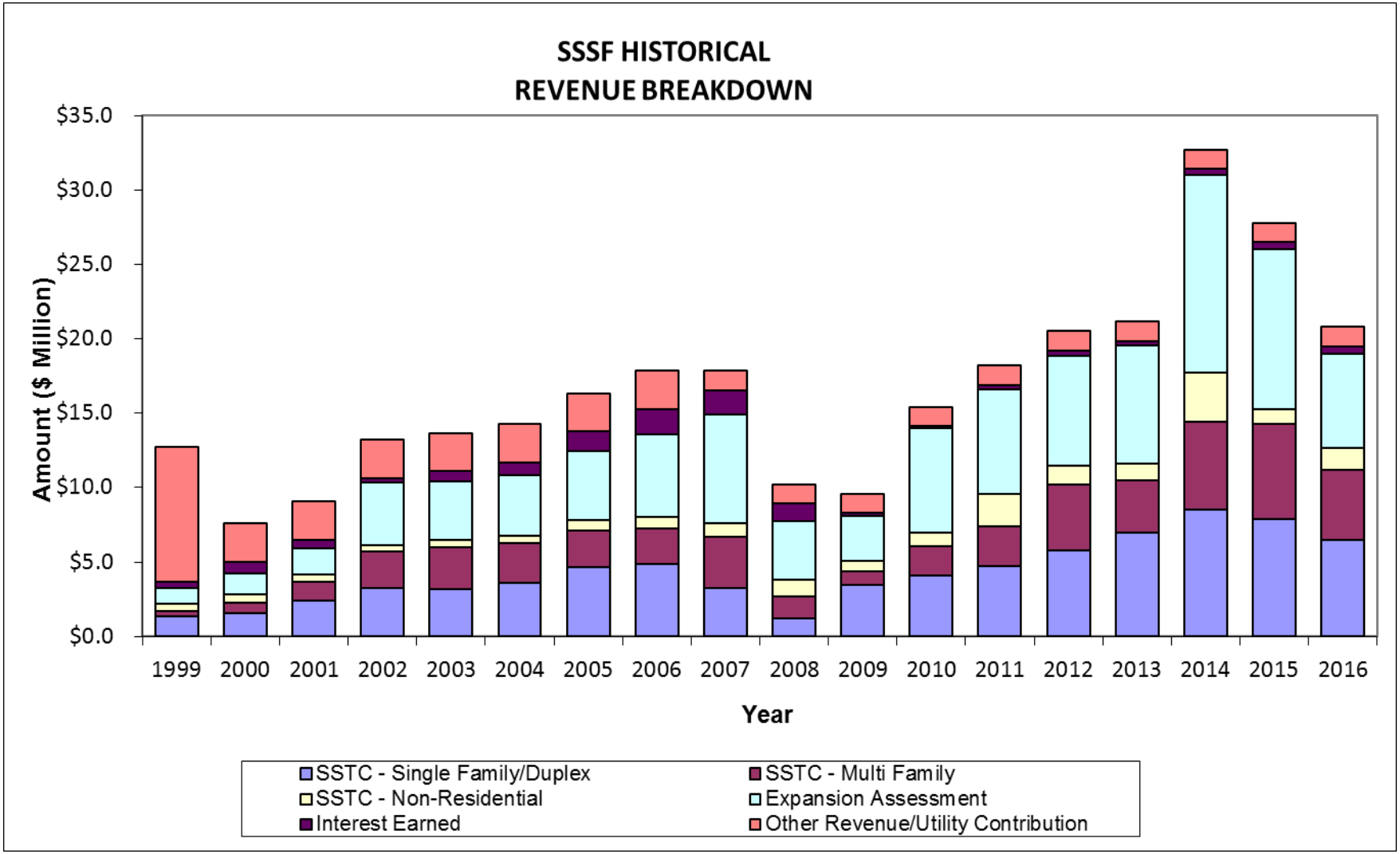
SSSF HISTORICAL
REVENUE BREAKDOWN
Amount ($ Million)
$35.0
$30.0
$25.0
$20.0
$15.0
$10.0
$5.0
$0.0
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
Year
SSTC - Single Family/Duplex
SSTC - Multi Family
SSTC - Non-Residential
Expansion Assessment
Interest Earned
Other Revenue/Utility Contribution

Figure 5

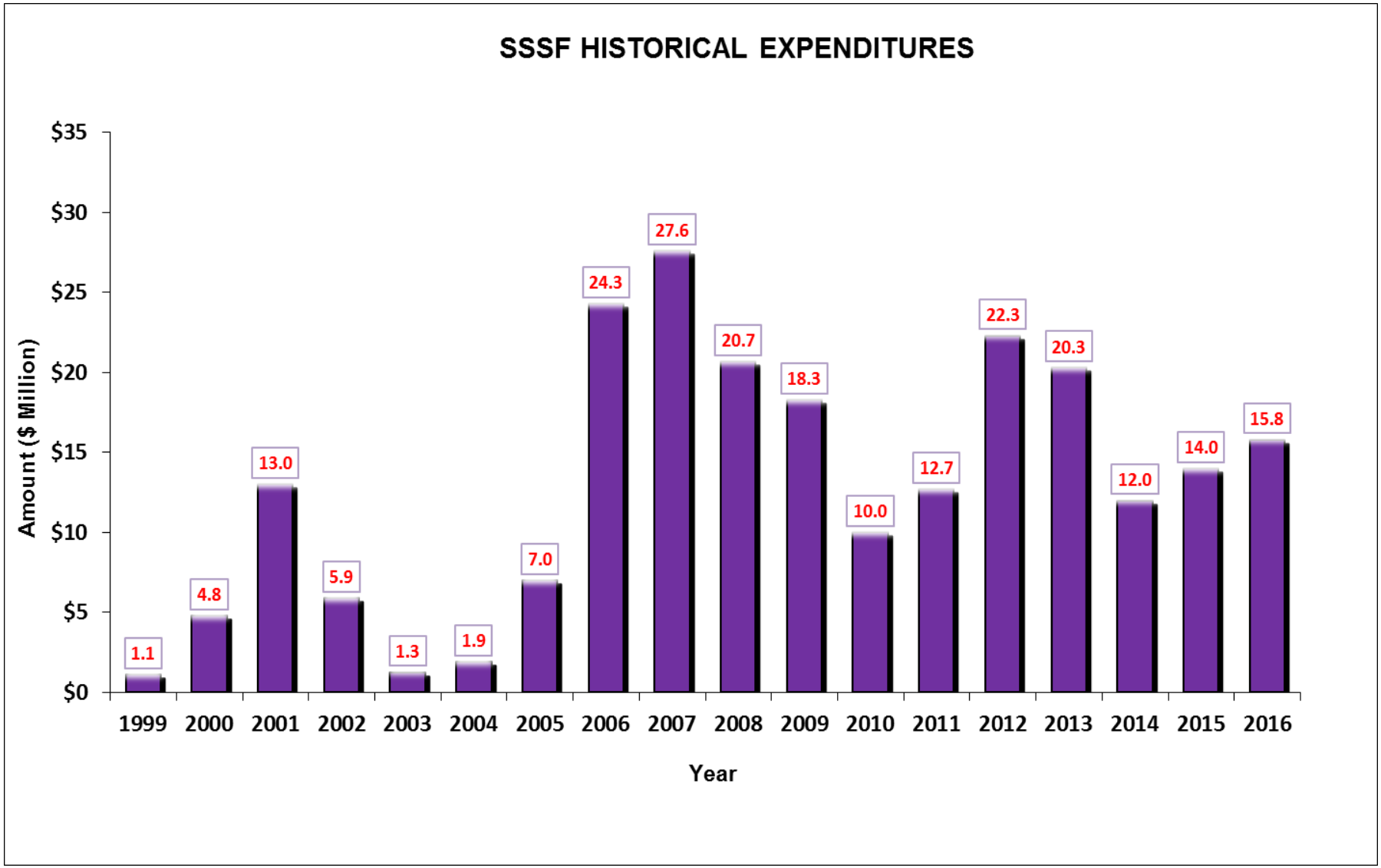
SSSF HISTORICAL EXPENDITURES
Amount ($ Million)
$35
$30
$25
$20
$15
$10
$5
$0
1.1
4.8
13.0
5.9
1.3
1.9
7.0
24.3
27.6
20.7
18.3
10.0
12.7
22.3
20.3
12.0
14.0
15.8
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
Year

Figure 6

For more information, please:

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