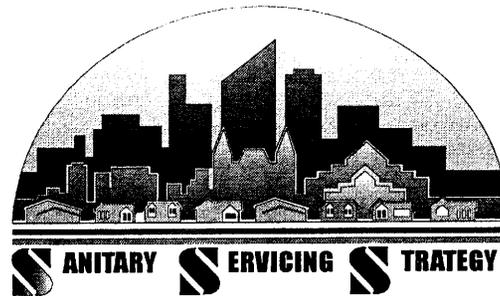


THE CITY OF EDMONTON  
SANITARY SERVICING STRATEGY FUND



2001 ANNUAL REPORT

February, 2002

Prepared by:  
City of Edmonton  
Asset Management and Public Works  
Drainage Services

**DRAINAGE BRANCH  
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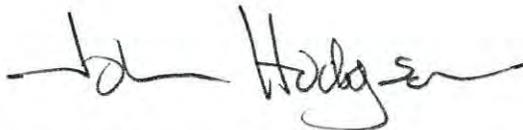
MESSAGE FROM THE MANAGEMENT COMMITTEE

This is the third annual report of the Sanitary Servicing Strategy Fund (SSSF). Activities in 2001 included revenue collection, the completion of tunnel construction for stage SW1 of the South Edmonton Sanitary Sewer (SESS), the completion of construction of the Clareview Sanitary Trunk - Stage C8, and the start of tunneling for stage NC1 of the North Edmonton Sanitary Sewer (NEST). The SSSF Management Committee and the SSSF Operational Committee, met throughout the year to approve design parameters, approve construction starts, review construction progress, and review the financial status of the fund.

At the end of 2001, the Sanitary Sewer Strategy Fund had a closing balance of \$10.4 million. Revenues totaled \$9.1 million, while expenditures were \$13.0 million. Due to the robust activity in the Edmonton housing market and local economy, revenues came in ahead of projections by approximately \$1.8 million. Expenditures were below projections mainly due to the SW1 and NC1 projects not incurring expenses in 2001 as anticipated. Some of these expenditures will be carried over into 2002. The higher than expected revenues during the year puts the SSSF in a strong financial position to meet the coming needs of development within the City.

Our focus in 2002 will be on completing the lift station for SW1, completing the tunnel and lift station construction for NC1, planning for future construction projects, and continued monitoring and review of the fund's financial status and rates.

Yours truly,



John Hodgson, Ph.D., P. Eng.  
Chair, Management Committee

Sanitary Servicing Strategy Fund  
Annual Report

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TABLE OF CONTENTS

	<u>Page</u>
Message from the Management Committee.....	i
Table of Contents.....	ii
1.0 CONSTRUCTION ACTIVITY IN 2001.....	1
2.0 MANAGEMENT AND OPERATIONAL COMMITTEES .....	2
3.0 FIVE YEAR CONSTRUCTION PLAN.....	4
4.0 FUND BALANCE	
.1 Twenty Year Projection.....	5
.2 Five Year Projection.....	6
.3 Statement of Equity.....	8

## 1.0 CONSTRUCTION ACTIVITY IN 2001

### **South Edmonton Sanitary Sewer (SESS), Southwest Stage 1 (SW1)**

*Tunnel construction for SW1 was completed in July.*

SW1 is part of the SESS system, which will service developments within South Edmonton. SW1 will provide wet weather storage for about 30 years of development within East Heritage Valley and the Ellerslie area. This 2.4km long, 2340mm diameter tunnel stretches from 111<sup>th</sup> Street along Ellerslie Road to approximately 97<sup>th</sup> Street. Construction began in February 2000 and the tunnel construction was completed in July 2001. Located at 97<sup>th</sup> Street is the related 40m deep pump station, which will pump sewage to the South East Regional Trunk Sewer (SERTS). The pump station is scheduled to be completed in the spring of 2002.

### **North Edmonton Sanitary Sewer (NEST), Castle Downs Stage 1 (NC1)**

*NC1 tunneling started in July and proceeds smoothly.*

NC1 is part of the NEST system, which will service developments in North and Northeast Edmonton. NC1 is a 1.54km long, 2940mm diameter sewer which extends from 127<sup>th</sup> Street along 153<sup>rd</sup> Avenue to just west of 113<sup>th</sup> Street. As part of NC1, a pump station is being constructed at the northwest corner of 153<sup>rd</sup> Avenue and Castle Downs Road (113A Street), which will lift sewage from NC1 to a sewer connecting to the Beaumaris Trunk. Excavation using a tunnel boring machine (TBM), started in July 2001. Excavation has proceeded smoothly with tunneling crews averaging nearly 9m of tunnel per shift. Tunnel construction achieved breakthrough at the 127<sup>th</sup> Street shaft on February 8, 2002. The tunnel and the pump station are expected to be in-service in the spring 2002. Project completion is expected by the end of June 2002. See Figures 1 & 1A for pictures relating to NC1.

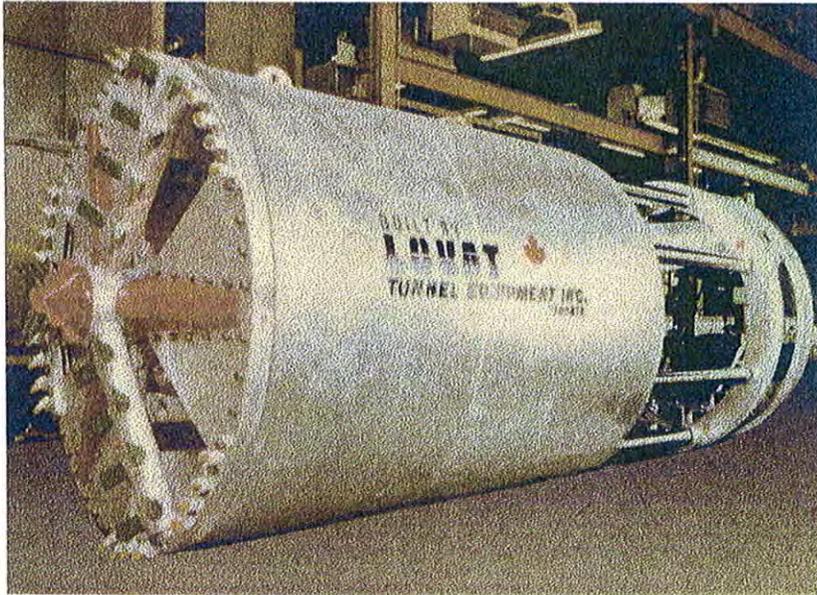
### **Clareview Sanitary Trunk, Clareview Stage 8 (C8)**

*C8 was completed under budget in February for \$0.52 million.*

The construction of C8 was completed in February 2001 for a cost of \$0.52 million. C8 is comprised of 375mm PVC pipe with one section of 250mm HDPE pipe at a ravine crossing. C8 diverts flows from the South Clareview trunk and will enable continued development in Pilot Sound, Casselman, and Clareview Extension.

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## FIGURE 1 – NC1 TUNNEL



The City's Tunnel Boring Machine (TBM) Model No. M-126 in the shop prior to construction. The TBM's 3.2m diameter cutting head is shown on the left side with the shield gate in the open position.



Drop shafts for NC1 located at NW corner of 153 Avenue & Castle Downs Road (113A Street). This is the location of the pump station. The right (east) shaft is the dry well, where the pumps will be located. The left shaft is the construction access shaft. After construction, it will be the wet well, where sewage is received from the tunnel to await pumping.

## FIGURE 1A – NC1 TUNNEL



A member of the NC1 tunneling crew guides tunnel sections to the back of the TBM for installation. Four precast concrete sections form a 1.0m length of tunnel. The completed tunnel can be seen in the background.



Completed section of the NC1 tunnel. Piping for ventilation and power cables can be seen on the top right and the right side of the picture. The railway track at the bottom of the picture allows rail cars to bring construction material in and take tunneling spoil out through the construction access shaft.

## 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 is composed of five members (three from the City and two from the Urban Development Institute):

Chair: Director of Drainage Planning – John Hodgson  
Members: Director of Drainage Design and Construction – K.C. Er  
Director of Development Coordination – Wayne Cameron  
Chair of UDI Drainage Committee – Bob Gomes  
Member of UDI Executive Committee – Peter Cavanagh

*Major accomplishments by the Management Committee in 2001 were:*

- *Approved west drop shaft location for NC1.*
- *Reviewed the 20 year financial model.*
- *Approved rate increase of 4%.*

The Cost Assessment Engineer (Clement Yong) provides support for this committee. The Management Committee met 5 times in 2001, once in a joint meeting with the SSSF Operational Committee. Below are the major accomplishments for the year:

- Approved the northeast corner of 127<sup>th</sup> Street & 153<sup>rd</sup> Avenue as the location for the west drop shaft for the North Edmonton Sanitary Trunk - Stage NC1.
- Approved the final configuration and costs for the South Edmonton Sanitary Sewer – Stage SW1 pump station.
- Approved revisions to the SSSF 20 year financial model and decided that inflation amounts to be used in the model will be based on the lower of the 2<sup>nd</sup> quarter Edmonton Non-residential Construction Price Increase or prime interest +1.0%.
- Approved a rate increase of 4% for 2002 to take effect on January 1, 2002.

The Committee thanks Jim Brown (UDI) and Paul Hoffart (City) for their support over the past years. They have been replaced by Peter Cavanagh and Clement Yong respectively.

Sanitary Servicing Strategy Fund  
Annual Report

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*The Operational Committee examines technical issues to support project implementation*

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 the Management Committee's consideration. The Committee is composed of 7 members (five from the City and two from UDI):

Chair: Senior Engineer, Strategic Planning – Paul Hoffart  
Members: Program Manager, Design and Construction – Siri Fernando  
Planning and Development Representative – Orest Gowda  
Drainage Financial Services – Lyle Windsor  
Member of UDI Committee – Ken Sadownyk  
Member of UDI Committee – Blaine Usenik  
Cost Assessment Engineer – Clement Yong

The Operational Committee met 3 times in 2001, including one joint meeting with the Management Committee. Major accomplishments for the year included:

*Major accomplishments included determining the location of the west NC1 drop shaft and the design configuration of the SW1 pump station.*

- Determining the final location of the west drop shaft for the North Edmonton Sanitary Trunk - Stage NC1.
- Recommending the South Edmonton Sanitary Sewer – Stage SW1 pump station design configurations.
- Recommending using the lesser of the 2<sup>nd</sup> quarter Edmonton Non-residential Construction Price Increase or prime interest + 1.0% as the basis for inflation in the SSSF 20 year financial model.

The Committee thanks Sid Lodewyk of the City for his work over the past few years. Sid was replaced by Paul Hoffart as the committee chair.

### 3.0 FIVE YEAR CONSTRUCTION PLAN

Shown below are the proposed major sanitary trunk construction projects for the next five years, as determined by Drainage Services, the City of Edmonton. This proposed schedule is based on the projected populations used in the 2001 Transportation Master Plan. The schedule was developed to support development throughout the City of Edmonton in a cost effective manner. The locations of the construction projects are shown on Figure 2.

#### **2003/2004 – West Edmonton Sanitary Sewer (WESS) - Stage W1**

This first stage of WESS will consist of a storage tank, pumpstation and forcemain. The storage tank and pumpstation will be located west of the existing Anthony Henday Drive. The forcemain will cross the Transportation Utility Corridor and proceed eastward to 163<sup>rd</sup> Street, before connecting to the existing 1900mm diameter major trunk sewer. This project will service lands in the North Lewis Farms and Winterburn Industrial areas. The estimated total cost, based on conceptual design, is \$8.0 million.

*W1 will open lands for development in North Lewis Estates and the Winterburn Industrial area.*

#### **2005 – West Edmonton Sanitary Sewer (WESS) - Stage W3**

Stage W3 is projected to be the first stage of upgrading for the existing inner City system in the WESS basin. This upgrading is required to maintain capacity in the combined system that currently services the WESS basin. Stage W3 is projected to be a 1650mm diameter trunk running from 102<sup>nd</sup> Avenue to 107<sup>th</sup> Avenue along 142<sup>nd</sup> Street. The scheduled year of construction is an estimate based on current flows and projected development. This schedule could be adjusted once a facility plan is completed. Total cost is estimated to be \$9.8 million based on a concept plan.

*W3 will enable continued development in the WESS basin.*

#### **2006 – West Edmonton Sanitary Sewer (WESS) – Stage W6**

W6 is projected to be the second SSSF project to maintain capacity in the existing combined sewers within the WESS basin. W6 is projected to be a 2340mm diameter trunk which will extend from approximately 115<sup>th</sup> Street to 124<sup>th</sup> Street along 107<sup>th</sup> Avenue. The scheduling of W6 was based on analysis of the existing flows within the combined sewer system and the projected SSSF cash flows.

*W6 is the second SSSF project to maintain capacity in the existing combined sewers.*

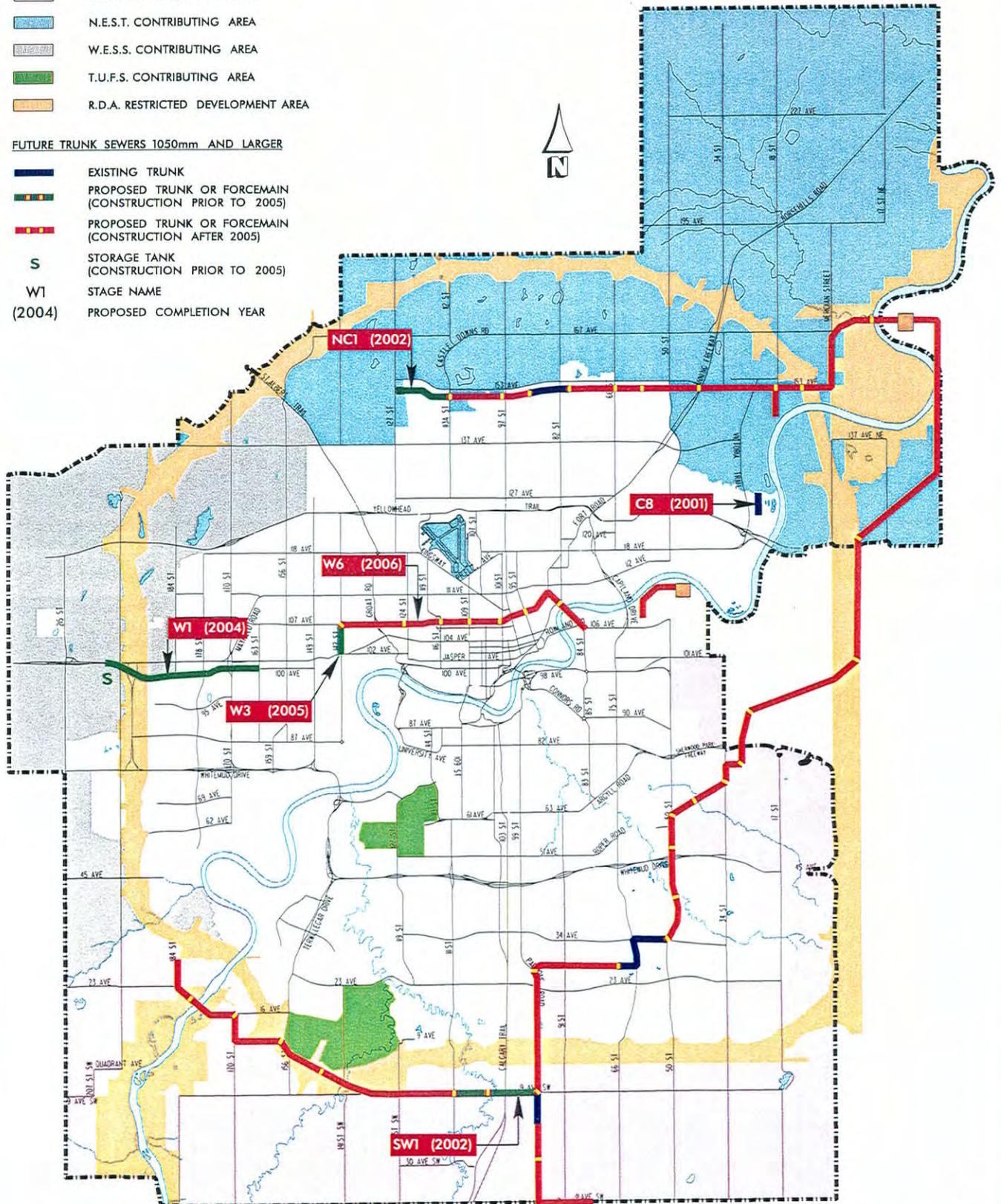
# SANITARY SERVICING STRATEGY FIVE YEAR FORECAST: 2002 – 2006

**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
-  R.D.A. RESTRICTED DEVELOPMENT AREA

**FUTURE TRUNK SEWERS 1050mm AND LARGER**

-  EXISTING TRUNK
-  PROPOSED TRUNK OR FORCEMAIN (CONSTRUCTION PRIOR TO 2005)
-  PROPOSED TRUNK OR FORCEMAIN (CONSTRUCTION AFTER 2005)
- S** STORAGE TANK (CONSTRUCTION PRIOR TO 2005)
- W1** STAGE NAME (2004) PROPOSED COMPLETION YEAR



NOTE: – ALL PROJECT ALIGNMENTS AND PROJECT TIMING ARE SUBJECT TO REVIEW AND CHANGE  
 – CONTRIBUTING AREAS ARE APPROXIMATE & ARE SUBJECT TO ADJUSTMENTS

FIGURE 2

## 4.0 FUND BALANCE

### 4.1 TWENTY YEAR PROJECTION

The SSSF 20 year cash flow projection, which is updated on an annual basis, provides a long-term estimate of revenues and SSSF project construction costs. Figure 3 shows the updated projection for 2001.

The following revisions were made to the model in 2001:

- a) Rates were increased by 4% for 2002 (based on the 2<sup>nd</sup> quarter Edmonton Non-residential Construction Price Increase),
- b) Population projections were based on the 2001 Transportation Master Plan.

The following assumptions in the model remain unchanged:

- a) Annual rate increases and construction cost increases of 2% after 2002,
- b) annual interest rate of 4.75%, and
- c) 15% rate increases in 2005, 2010, 2015, & 2020.

*The long term cash flow projection for the SSSF will be the main deciding factor for any increases to the SSTC and EA rates.*

In 2001, the Management Committee approved using the lower of the 2<sup>nd</sup> quarter Edmonton Non-residential Construction Price Increase or prime interest + 1.0% as the basis for inflation. After incorporating this and the other changes as noted above into the 20 year cash flow projection, the Management Committee decided that a 4% increase in the rates will be required for 2002. The 2002 Expansion Assessment and Sanitary Sewer Trunk Charge rates with the 4% increase are shown in section 4.2.

As the scope and schedule of future projects become better defined and new population projections become available, this information will be incorporated into the 20 year and long term models. The Management Committee will continue to adjust the rate increases accordingly and determine if the 15 % rate increases scheduled for 2005, 2010, 2015, & 2020 can be reduced or eliminated.

# Sanitary Servicing Strategy Fund 20 Year Cash Flow Projection 2002 to 2021

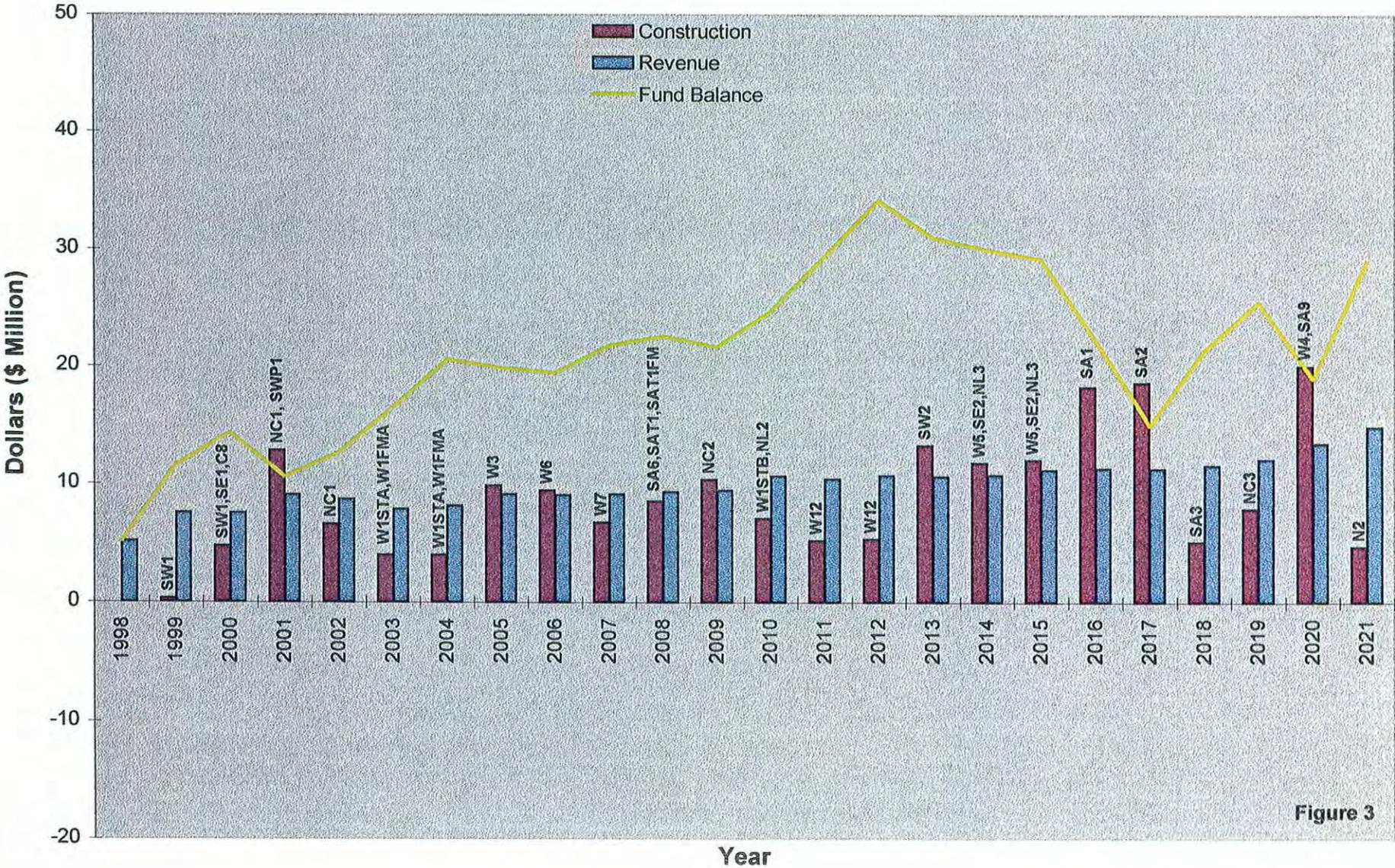


Figure 3

## 4.2 FIVE YEAR PROJECTION

Table 1 shows the Five Year projection for the Sanitary Sewer Strategy Fund (SSSF). This projection is based on the following assumptions:

- **Opening Balance for 2001** – The actual SSSF balance as of December 31, 2000.

### Receipts

- **Interest Accrual (2001 – 2006)** – The 2001 numbers are based on actual amounts. 2002-2006 amounts are based on an assumed 4.75% rate of return on the fund balance.
- **Utility Contribution** – This amount represents contributions from the Sanitary Utility for future diversion of sanitary flows from serviced City lands to the new trunk system constructed under the SSSF. These lands are located in Mill Woods, parts of the Meadows and in Castle Downs. The amount is calculated based on an estimate of the Sanitary Sewer Trunk Charge these lands would have to pay. Based on current projections, the Sanitary Utility will make these contributions to the SSSF from 1999 to 2014.
- **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 development and redevelopment in the City. The following are the SSTC rates for 2001 and 2002 (approved by City Council on December 17<sup>th</sup>, 2001):

*The Sanitary Utility is currently providing \$2.6 million per year to the SSSF.*

*The Sanitary Sewer Trunk Charge has increased by 4% for 2002.*

<u>Type of development</u>	<u>2001</u>	<u>2002</u>
Single-family/Duplex Residential	<b>\$735/dwelling</b>	<b>\$765/dwelling</b>
Multi-family Residential	<b>\$525/dwelling</b>	<b>\$546/dwelling</b>
Commercial, Industrial, Institutional	<b>\$3,675/ha</b>	<b>\$3,822/ha</b>

Estimated SSTC revenue from 2002 to 2006 are based on projected development within the City.

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**TABLE 1 - SANITARY SERVICING STRATEGY FUND - 5 YEAR PROJECTION**

	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>
<b>Opening Balance</b>	\$ 14,332,597	\$ 10,410,298	\$ 13,093,298	\$ 16,944,298	\$ 21,081,298	20,337,298
Interest Accruals	569,797	455,000	570,000	726,000	777,000	758,000
Utility System Contribution	2,600,000	2,600,000	2,600,000	2,600,000	2,600,000	2,600,000
Sanitary Sewer Trunk Charge	4,198,909	4,300,000	3,143,000	3,250,000	3,808,000	3,709,000
Expansion Assessment	1,724,072	2,000,000	1,800,000	1,823,000	2,133,000	2,176,000
<b>Total Receipts</b>	9,092,778	9,355,000	8,113,000	8,399,000	9,318,000	9,243,000
Estimated Construction Costs	(12,984,657)	(6,410,000)	(4,000,000)	(4,000,000)	(9,800,000)	(9,400,000)
OE Payback	(30,420)	(262,000)	(262,000)	(262,000)	(262,000)	(262,000)
<b>Total Disbursements</b>	(13,015,077)	(6,672,000)	(4,262,000)	(4,262,000)	(10,062,000)	(9,662,000)
<b>Closing Reserve Balance</b>	\$ 10,410,298	\$ 13,093,298	\$ 16,944,298	\$ 21,081,298	\$ 20,337,298	\$ 19,918,298

**Estimated Construction Costs**

	<b>Total Cost</b>	<i>Actual</i> <b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
SW1	9,389,045	7,739,045	1,650,000	-	-	-	-
SE1	-	-	-	-	-	-	-
C8	102,974	92,974	10,000	-	-	-	-
NC1	9,211,612	5,011,612	4,200,000	-	-	-	-
W1	8,691,026	141,026	550,000	4,000,000	4,000,000	-	-
W3	9,800,000	-	-	-	-	9,800,000	-
W6	9,400,000	-	-	-	-	-	9,400,000
	\$ 12,984,657	\$ 6,410,000	\$ 4,000,000	\$ 4,000,000	\$ 9,800,000	\$ 9,400,000	

Sanitary Servicing Strategy Fund  
Annual Report

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- **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. The 2001 rates and the 2002 rates for EA are as follows:

<u>Contributing Area</u>	<u>2001</u>	<u>2002</u>
North Edmonton Sanitary Trunk (NEST)	\$10,500/ha	\$10,920/ha
South Edmonton Sanitary Sewer (SESS)	\$10,500/ha	\$10,920/ha
Terwillegar and University Farms (TUFS)	\$10,500/ha	\$10,920/ha
West Edmonton Sanitary Sewer (WESS)	\$13,125/ha	\$13,650/ha

*The Expansion Assessment is collected from the four contributing areas as shown on Figure 2.*

**Disbursements**

- **Estimated Construction Costs** – The 2001 amounts are based on actual construction costs incurred. 2002 construction costs for SW1 and NC1 are estimated based on remaining construction. W1, W3, and W6 costs are based on conceptual designs. The timing of construction is a critical factor for the fund balance.
- **Over-expenditure Payback** – The over-expenditure (OE) payback is payable to the City for the construction of two sanitary trunk lines: the N.W. Annexation Area South Sanitary Trunk and the Clareview Interceptor. The OE payback in 2001 was \$30,420. The projected over-expenditure paybacks are based on anticipated developments within the benefiting areas.

*Over-expenditure Paybacks are payments made to the City for front-ending two sanitary sewers.*

### 4.3 STATEMENT OF EQUITY FOR 2001

The Statement of Equity for 2001 is shown on Table 2. Figure 4 shows each revenue component as a percentage of the total revenues.

#### **REVENUES**

*Total revenues were up 20% from 2000.*

Total revenues for 2001 were \$9,092,778, which is a 20% increase over the 2000 revenues.

*SSTC revenues were up from 2000 by 46% for single-family & duplex developments and 81% for multi-family developments.*

**Sanitary Sewer Trunk Charge (SSTC)** – For 2001, SSTC revenues totaled \$4,198,909, which equates to a 50% increase over the 2000 SSTC revenues. Revenues of \$2,381,795 from single-family and duplex residential developments were the biggest component of the amounts received. Based on the 2001 \$735 per dwelling rate, this represents approximately 3,240 combined single-family and duplex housing starts. This amounts to a 46% increase over the 2,219 starts in 2000.

The next largest component of SSTC income came from multi-family developments. The \$1,322,719 collected represents approximately 2,519 units being charged the \$525 per unit rate. Multi-family unit starts have grown at a healthy pace in 2001 and were up 81% from 2000.

The remaining \$494,395 of SSTC revenue came from commercial, industrial, and institutional developments, representing approximately 135 hectares of assessed development. This is slightly down from the 159 hectares assessed in 2000.

**Expansion Assessment (EA)** - For 2001, the total EA collected was \$1,724,072, up 20% from 2000. This represents approximately 160 hectares of assessed development.

**Utility Contribution** – Total Utility contribution in 2001 was \$2,600,000.

**Interest Earned** – Total interest earned for 2001 was \$569,797, down from \$755,044 in 2000. This is a result of lower interest rates and a lower fund balance

## TABLE 2 - STATEMENT OF EQUITY

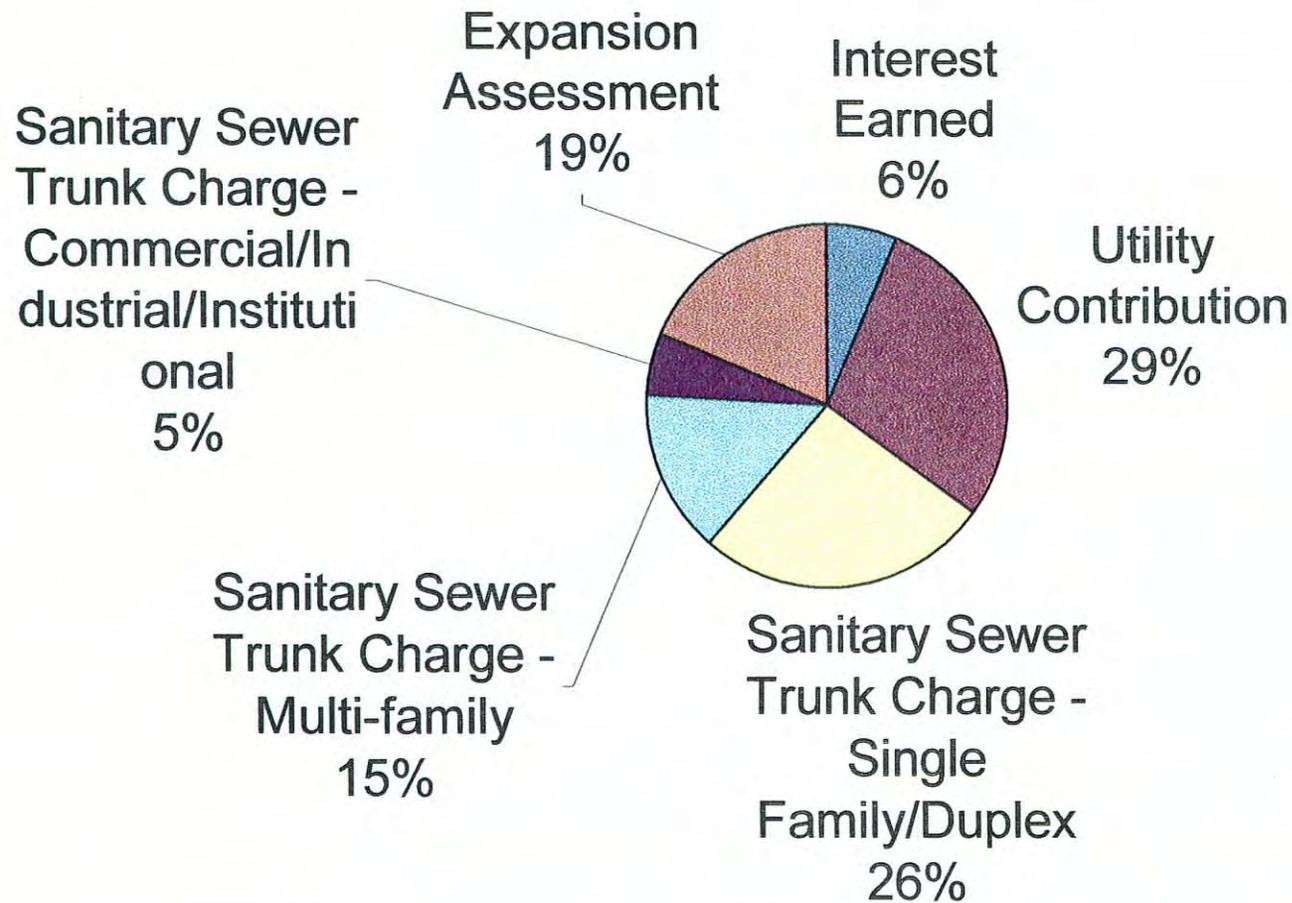
Sanitary Service Strategy Fund

Statement of Equity

For the period ending December 31, 2001

	2000 Actual	2001 Actual	2001 Budget	2001 Variance
<b>REVENUES</b>				
Sanitary sewer trunk charge - single/duplex revenue	1,553,600	2,381,795	1,540,000	841,795
Sanitary sewer trunk charge - multi family revenue	694,500	1,322,719	700,000	622,719
Sanitary sewer trunk charge - commercial/industrial/institutional revenue	557,399	494,395	560,000	(65,605)
Expansion assessment	1,431,395	1,724,072	1,350,000	374,072
	4,236,894	5,922,981	4,150,000	1,772,981
Utility system contribution	2,600,001	2,600,000	2,600,000	-
Interest earned	755,044	569,797	536,000	33,797
<b>Total Revenues</b>	<b>7,591,939</b>	<b>9,092,778</b>	<b>7,286,000</b>	<b>1,806,778</b>
<b>EXPENDITURES</b>				
SESS - SE 1	1,066,780	-	-	-
SESS - SW1	3,679,383	7,739,045	8,722,000	(982,955)
Clairview Sanitary Trunk - C8	78,667	92,974	724,000	(631,026)
NEST - NC1	-	5,011,612	6,439,000	(1,427,388)
WESS - W1	-	141,026	100,000	41,026
Over Expenditure Payback	-	30,420	200,000	(169,580)
<b>Total Expenditures</b>	<b>4,824,830</b>	<b>13,015,077</b>	<b>16,185,000</b>	<b>(3,169,923)</b>
<b>Excess of Revenues over Expenditures</b>	<b>2,767,109</b>	<b>(3,922,299)</b>	<b>(8,899,000)</b>	<b>4,976,701</b>
<b>Opening Balance (January 1, 2001)</b>	<b>11,565,488</b>	<b>14,332,597</b>	<b>14,332,597</b>	
<b>Closing Balance (December 31, 2001)</b>	<b>\$ 14,332,597</b>	<b>\$ 10,410,298</b>	<b>\$ 5,433,597</b>	<b>\$ 4,976,701</b>

**FIGURE 4 - SSSF Revenues for 2001 (\$9.1 million)**



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Annual Report

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throughout 2001 due to the higher amount of construction costs incurred.

**EXPENDITURES**

The major expenses in 2001 were \$7,739,045 for SW1 construction and \$5,011,612 for NC1 construction. Other expenses included \$141,026 for W1 land acquisition & conceptual work, \$92,974 for C8 construction, and \$30,420 for over-expenditure payback.