

Clarifier Mechanical Maintenance

220.1

Priority Score: 60.40

Project Type: Rehabilitation

Growth Related?: No

Estimated Useful Life (years): 15

Priority Level: High

Department: Public Works and Engineering

Staff Contact: Matt Prentice

Cash Flow Projection:	2023	2024	2025+
Studies			
In House Engineering			
Design or Engineering			
Communication / Signage			
Construction / Contractor		\$ 50,000	
Materials			
Equipment/Misc			
Contingency			
Total	\$ 0	\$ 50,000	\$ 0

Costs Incurred to 2022 Year End

Impact on Operating Budget \$ 0 \$ 0 \$ 0

Total Project Budget: \$ 50,000

Schedule:

Construction Start Date: 05/01/2024

Substantial Completion or
purchase date: 09/30/2024

Funding Sources:

Waste Water Rates	\$ 50,000
Please Select	\$ 0
Please Select	\$ 0
Please Select	\$ 0
Please Select	\$ 0
Capital Reserve	\$ 0

Description and Rationale:

Clarifier Mechanical Maintenance is required on an as-needed basis as wear and tear on the components progresses, but typically significant work is required every 3 to 5 years.

The budget for 2024 is for purchasing and replacing specific worn items, and and to stock spare parts (chain, flights, brackets, wear shoes, wear strips)

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Justification for Matrix Values

Score 0 - 5

Justification / Rationale for Rating

People	How many people will be directly impacted by the project?	5	This can affect the wastewater treatment train which affects the entire City
Health and Safety	What is the risk to the health and safety of the public or Staff if the project does not proceed?	3	This poses a risk to proper sewage treatment
Legislation	Is the project required for legislative/regulatory compliance?	5	Ontario Water Resources Act
Asset Management	Is the project a high priority for replacement in the asset management plan.	4	These are identified on the 10 year plan
Operational Performance	If the project proceeds (or fails to proceed), what will be the impact on operational performance? Comment on any impact on operating costs, staff time and maintenance.	3	A failure of a clarifier would decrease capacity by 25%, for an extended time while repairs are completed, which would be a concern if concurrent with high flows
Financing	Can the cost of investment be leveraged or are there partnership funds available?	1	No
Environment	Does the project address needs impacted by climate change?	3	Wet weather flows are now more frequent
Socio-Economic Factors	To what degree does the project support diversity and inclusion Initiatives?	1	N/A
Aesthetic Value	To what degree is the aesthetic value of the asset improved?	1	None
Strategic Plan	Does the project help to meet a Key Result in the Strategic Plan?	1	N:A : Core Service
Public Input	Has the project been identified through public engagement?	1	None

Digester Bio-Solids Cleanout

240.3

Priority Level:

B - high

Project Type:

Maintenance

Department:

Public Works and

Growth Related?

No

Staff Contact:

Matt Prentice

Cash Flow Projection:

	2023	2024	2025
Studies	\$ -	\$ -	\$ -
In House Engineering	\$ -	\$ -	\$ -
Design or Engineering	\$ -	\$ -	\$ -
Communication/Signage	\$ -	\$ -	\$ -
Construction	\$ -	\$ -	\$ -
Materials	\$ -	\$ -	\$ -
Equipment/Misc	\$ -	\$ -	\$ 300,000
Internal Staff Time/Equipment	\$ -	\$ -	\$ -
Contingency	\$ -	\$ -	\$ -
Total	\$ -	\$ -	\$ 300,000

Total Project Budget: \$ 300,000

Schedule:

Design Start Date:

Construction Start Date: July

Substantial Completion or purchase
date: August

Current Year Funding Sources:

Waste Water Rates	\$ 300,000
Select from List	
Select from List	
Select from List	
Select from List	
Taxation	\$ -

Description and rationale:

The digester, with a capacity of about 2000 cubic metres receives the biosolids from the clarifiers at the WWTP, and provides additional treatment, and produces biogas, prior to being stored on site in the two storage tanks, then land applied.

Approximately every five years deletrious materials in the digester must be cleaned out to allow for proper tank operation, especially the biosolids pumps and mixing system. Otherwise rags and other materials begin to clog those components, which could result in digester failure. Currently such clogging events are accelerating in frequency.



Storage Tank Biosolids Cleanout

230.2

Priority Score: 69.30

Project Type: Rehabilitation

Growth Related?: No

Estimated Useful Life (years): 50

Priority Level: High

Department: Public Works and Engineering

Staff Contact: Matt Prentice

Cash Flow Projection:

	2023	2024	2025+
Studies			
In House Engineering			
Design or Engineering			
Communication / Signage			
Construction / Contractor		\$ 150,000	
Materials			
Equipment/Misc			
Contingency			
Total	\$ 0	\$ 150,000	\$ 0

Costs Incurred to 2022 Year End

Impact on Operating Budget \$ 0 \$ 0 \$ 0

Total Project Budget: \$ 150,000

Schedule:

Construction Start Date: 05/31/2024

Substantial Completion or
purchase date: 09/01/2024

Funding Sources:

Waste Water Rates	\$ 150,000
Please Select	\$ 0
Please Select	\$ 0
Please Select	\$ 0
Please Select	\$ 0
Capital Reserve	\$ 0

Description and Rationale:

The biosolids storage tank (pictured) at the Wastewater Treatment Plant receives digested biosolids after treatment, and stores them for seasonal land application.

In time the tank accumulates sediment and debris and requires a cleaning for proper operation; especially mixing and pumping.

At this time it is expected that by 2024 this will be required again.

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Justification for Matrix Values

Score 0 - 5

Justification / Rationale for Rating

People	How many people will be directly impacted by the project?	5	This is the biosolids storage for the entire City
Health and Safety	What is the risk to the health and safety of the public or Staff if the project does not proceed?	5	Storage tank mixing or pumping failure could create adverse reactions in the tank, which could create dangerous and odorous gases.
Legislation	Is the project required for legislative/regulatory compliance?	5	Ontario Water Resources Act
Asset Management	Is the project a high priority for replacement in the asset management plan.	3	This is a recurring requirement for asset maintenance
Operational Performance	If the project proceeds (or fails to proceed), what will be the impact on operational performance? Comment on any impact on operating costs, staff time and maintenance.	4	This is a necessary regular activity in order to allow proper operation of the biosolids treatment train.
Financing	Can the cost of investment be leveraged or are there partnership funds available?	2	Reserves
Environment	Does the project address needs impacted by climate change?	1	Increased flows do not necessarily translate to increased biosolids production.
Socio-Economic Factors	To what degree does the project support diversity and inclusion Initiatives?	1	No public spaces adversely impacted
Aesthetic Value	To what degree is the aesthetic value of the asset improved?	3	Prevent a possible severe odour problem.
Strategic Plan	Does the project help to meet a Key Result in the Strategic Plan?	1	N/A : Core Service
Public Input	Has the project been identified through public engagement?	0	None

WWTP Site Building HVAC and Roof Repairs

230.3

Priority Score: 62.90

Project Type: Rehabilitation

Growth Related?: No

Estimated Useful Life (years): 50

Priority Level: High

Department: Public Works and Engineering

Staff Contact: Matt Prentice

Cash Flow Projection:	2023	2024	2025+
Studies			
In House Engineering			
Design or Engineering			
Communication / Signage			
Construction / Contractor	\$ 20,000	\$ 105,000	\$ 20,000
Materials			
Equipment/Misc			
Contingency			
Total	\$ 20,000	\$ 105,000	\$ 20,000

Costs Incurred to 2022 Year End

Impact on Operating Budget \$ 0 \$ 0 \$ 0

Total Project Budget: \$ 145,000

Schedule:

Construction Start Date: 05/31/2023

Substantial Completion or
purchase date: 09/01/2023

Funding Sources:

Waste Water Rates	\$ 145,000
Please Select	\$ 0
Please Select	\$ 0
Please Select	\$ 0
Please Select	\$ 0
Capital Reserve	\$ 0

Description and Rationale:

In 2020 a facility asset assessment for building-related items was undertaken by the Facilities Manager, and included an assessment of the roofs at the Wastewater Treatment Plant.

It was identified that the locations with the greatest roofing needs were the gas room roof, and the old bar screen building roof, shown on the attached pictures. As part of a rehabilitation schedule, it was proposed to undertake that work in 2024.

In 2023, minor repairs to the West Side Pumping Station roof are required.

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Images



Justification for Matrix Values

Score 0 - 5

Justification / Rationale for Rating

People	How many people will be directly impacted by the project?	5	This is the biosolids storage for the entire City
Health and Safety	What is the risk to the health and safety of the public or Staff if the project does not proceed?	4	A roof leak could create a health and safety risk to staff, especially if electrical equipment were affected
Legislation	Is the project required for legislative/regulatory compliance?	5	Ontario Water Resources Act
Asset Management	Is the project a high priority for replacement in the asset management plan.	3	This is a recurring requirement for asset maintenance
Operational Performance	If the project proceeds (or fails to proceed), what will be the impact on operational performance? Comment on any impact on operating costs, staff time and maintenance.	3	Roof leakage can damage equipment and disrupt operations
Financing	Can the cost of investment be leveraged or are there partnership funds available?	2	Reserves
Environment	Does the project address needs impacted by climate change?	2	Increased rainfall
Socio-Economic Factors	To what degree does the project support diversity and inclusion Initiatives?	1	No public spaces adversely impacted
Aesthetic Value	To what degree is the aesthetic value of the asset improved?	2	Existing roofs aesthetically displeasing but relatively minor issue here.
Strategic Plan	Does the project help to meet a Key Result in the Strategic Plan?	1	N/A : Core Service
Public Input	Has the project been identified through public engagement?	0	None

WWTP Instrumentation/SCADA

220.2

Priority Score: **66.40**

Project Type: Rehabilitation

Growth Related?: No

Estimated Useful Life (years): 5

Priority Level: High

Department: Public Works and Engineering

Staff Contact: Matt Prentice

Cash Flow Projection:	2023	2022	2025+
Studies			
In House Engineering			
Design or Engineering			
Communication / Signage			
Construction / Contractor			
Materials	\$ 40,000		\$ 40,000
Equipment/Misc			
Contingency			
Total	\$ 40,000	\$ 0	\$ 40,000

Costs Incurred to 2022 Year End

Impact on Operating Budget \$ 0 \$ 0 \$ 0

Total Project Budget: \$ 80,000

Schedule:

Construction Start Date: 05/01/2022

Substantial Completion or
purchase date: 09/30/2022

Funding Sources:

Waste Water Rates	\$ 40,000
Please Select	\$ 0
Please Select	\$ 0
Please Select	\$ 0
Please Select	\$ 0
Capital Reserve	\$ 0

Description and Rationale:

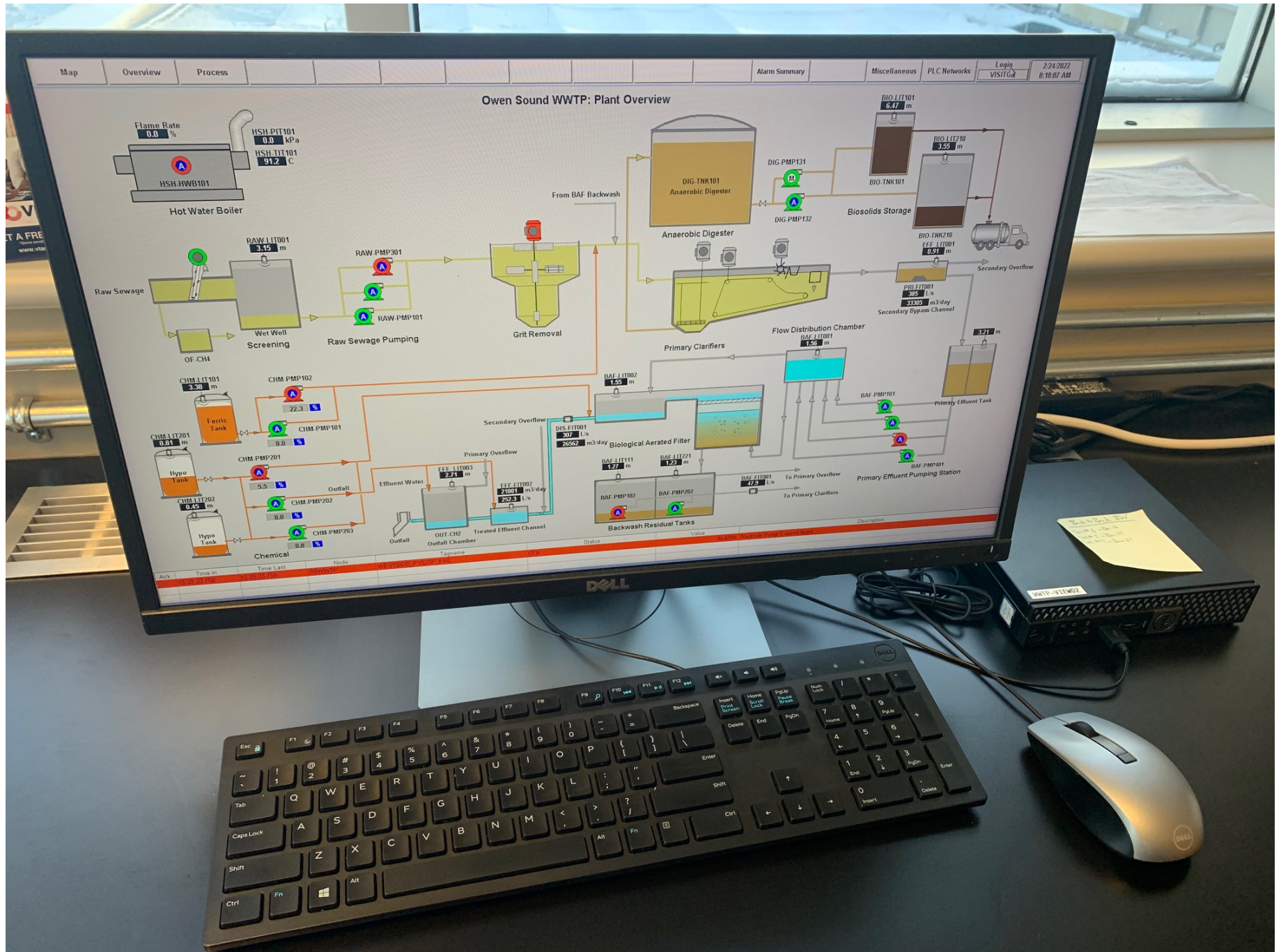
There is a need to replace electrical and SCADA equipment which have a short lifespan.

The equipment that was installed in 2016 and 2017 which requires replacement: the Uninterrupted Power Supplies (UPS's; 18 units) for the Programmable Logic Controllers (PLC's), as well as some SCADA View Nodes. These are on backorder due to supply chain issues and are carried over from 2022.

Other work totalling \$190,000 is in the ten year plan in 2024 and 2027. Exact timing may vary. This is currently being evaluated.

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Justification for Matrix Values

Score 0 - 5

Justification / Rationale for Rating

People	How many people will be directly impacted by the project?	5	This can affect the wastewater treatment train which affects the entire City
Health and Safety	What is the risk to the health and safety of the public or Staff if the project does not proceed?	4	PLC failure poses a considerable risk to proper sewage treatment
Legislation	Is the project required for legislative/regulatory compliance?	5	Ontario Water Resources Act
Asset Management	Is the project a high priority for replacement in the asset management plan.	4	These are identified on the 10 year plan
Operational Performance	If the project proceeds (or fails to proceed), what will be the impact on operational performance? Comment on any impact on operating costs, staff time and maintenance.	4	PLC failure would result in the plant control system "Crashing" and sewage treatment could partially or entirely cease, (There are alarms in place to alert the operators of this outcome)
Financing	Can the cost of investment be leveraged or are there partnership funds available?	1	No
Environment	Does the project address needs impacted by climate change?	2	Wet weather flows are now more frequent but this is not as relevant a factor for this project
Socio-Economic Factors	To what degree does the project support diversity and inclusion Initiatives?	1	N/A
Aesthetic Value	To what degree is the aesthetic value of the asset improved?	1	None
Strategic Plan	Does the project help to meet a Key Result in the Strategic Plan?	1	N:A : Core Service
Public Input	Has the project been identified through public engagement?	1	None

Process Mechanical I/C Biogas Equipment

220.3

Priority Score: 68.40

Project Type: Rehabilitation

Growth Related?: No

Estimated Useful Life (years): 5

Priority Level: High

Department: Public Works and Engineering

Staff Contact: Matt Prentice

Cash Flow Projection:

2023 2024 2025+

Studies			
In House Engineering			
Design or Engineering			
Communication / Signage			
Construction / Contractor			
Materials		\$ 40,000	
Equipment/Misc			
Contingency			
Total	\$ 0	\$ 40,000	\$ 0

Costs Incurred to 2022 Year End

Impact on Operating Budget \$ 0 \$ 0 \$ 0

Total Project Budget: \$ 40,000

Schedule:

Construction Start Date: 05/01/2024

Substantial Completion or
purchase date: 09/30/2024

Funding Sources:

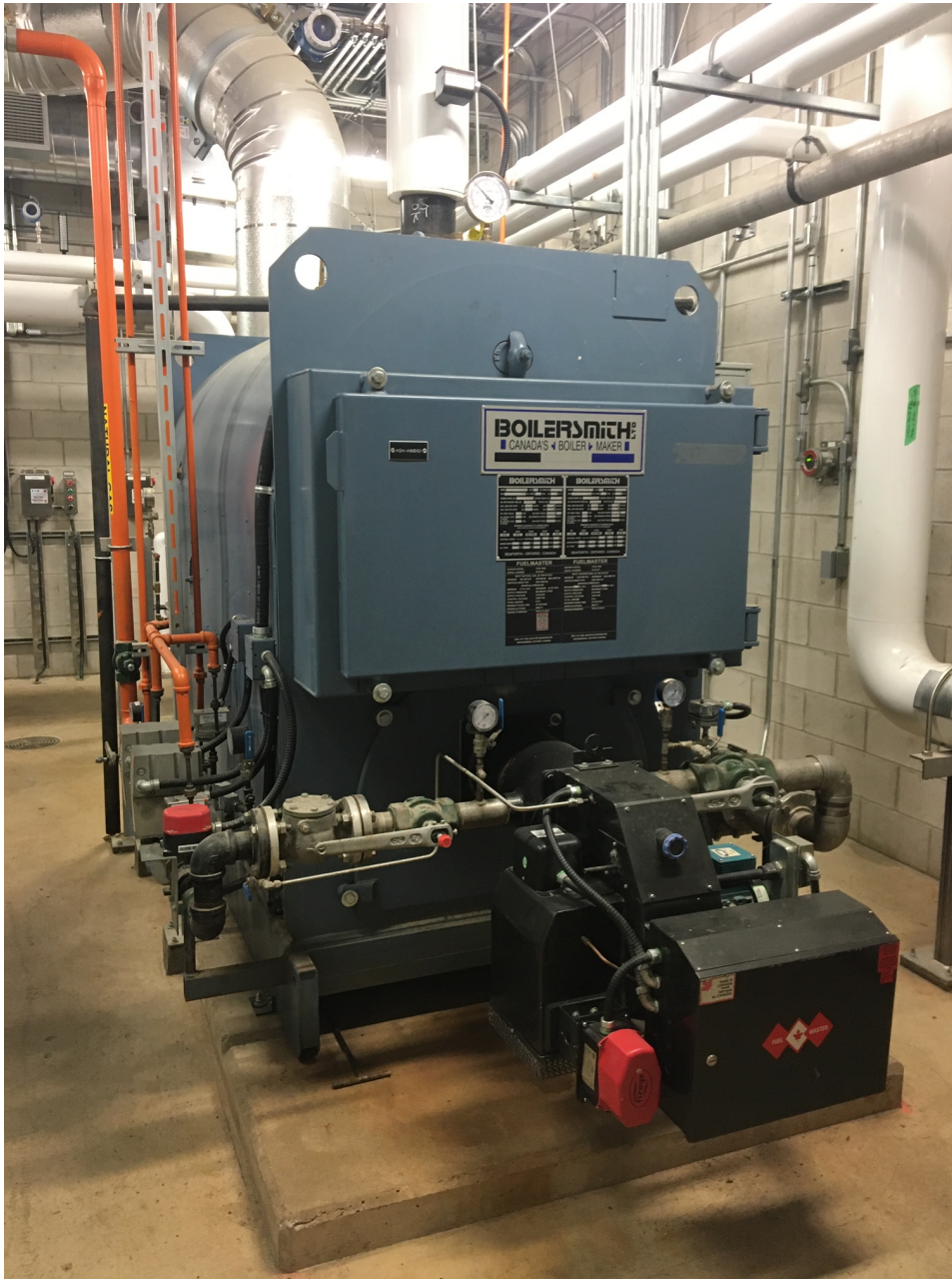
Waste Water Rates	\$ 100,000
Please Select	\$ 0
Please Select	\$ 0
Please Select	\$ 0
Please Select	\$ 0
Capital Reserve	\$ 0

Description and Rationale:

In 2024 it is intended to perform needed work on some of the biogas system safety components. It is necessary to replace worn digester gas safety devices. Some was performed in 2022 but more is outstanding, and due in 2024.

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Images



Justification for Matrix Values

Score 0 - 5

Justification / Rationale for Rating

People	How many people will be directly impacted by the project?	5	This can affect the wastewater treatment train which affects the entire City
Health and Safety	What is the risk to the health and safety of the public or Staff if the project does not proceed?	5	Components to be replaced include very significant pressure relief valves on the Digester. Failure could pose a significant risk.
Legislation	Is the project required for legislative/regulatory compliance?	5	Technical Standards and Safety Act (TSSA)
Asset Management	Is the project a high priority for replacement in the asset management plan.	4	These are identified on the 10 year plan
Operational Performance	If the project proceeds (or fails to proceed), what will be the impact on operational performance? Comment on any impact on operating costs, staff time and maintenance.	4	Failure of a portion of the biogas system could result in an unsafe condition, or improper operation of the boiler system and subsequent failure to heat the biosolids for digestion, and digestion failure.
Financing	Can the cost of investment be leveraged or are there partnership funds available?	1	No
Environment	Does the project address needs impacted by climate change?	1	Wet weather flows are now more frequent but this is not a relevant factor for this project
Socio-Economic Factors	To what degree does the project support diversity and inclusion Initiatives?	1	N/A
Aesthetic Value	To what degree is the aesthetic value of the asset improved?	1	None
Strategic Plan	Does the project help to meet a Key Result in the Strategic Plan?	1	N/A : Core Service
Public Input	Has the project been identified through public engagement?	1	None

Process Electrical i/c Gas Detection

230.1

Priority Score: 73.50

Project Type: Rehabilitation

Growth Related?: No

Estimated Useful Life (years): 50

Priority Level: Very High

Department: Public Works and Engineering

Staff Contact: Matt Prentice

Cash Flow Projection:	2023	2024	2025+
Studies			
In House Engineering			
Design or Engineering			
Communication / Signage			
Construction / Contractor	\$ 70,000		
Materials			
Equipment/Misc			
Contingency			
Total	\$ 70,000	\$ 0	\$ 0

Costs Incurred to 2022 Year End

Impact on Operating Budget \$ 0 \$ 0 \$ 0

Total Project Budget: \$ 70,000

Schedule:

Construction Start Date: 05/31/2023

Substantial Completion or
purchase date: 09/01/2023

Funding Sources:

Waste Water Rates	\$ 70,000
Please Select	\$ 0
Please Select	\$ 0
Please Select	\$ 0
Please Select	\$ 0
Capital Reserve	\$ 0

Description and Rationale:

It is also proposed to relocate the BAF influent on-line analyzers from the outside roof-top, to indoors of the BAF wet-well. This is primarily an electrical project. Performing analyzer maintenance at the current location is a safety concern, and not always possible in the winter. It is also undesirable for these instruments to be outdoors as the harsh environment shortens their useful life.

Additionally there is a need for transformer and pole mounted switch gear maintenance in 2023.

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Justification for Matrix Values

Score 0 - 5

Justification / Rationale for Rating

People	How many people will be directly impacted by the project?	5	This is the only transformer for the WWTP and thereby affects the entire City.
Health and Safety	What is the risk to the health and safety of the public or Staff if the project does not proceed?	5	A transformer failure could create a serious health and safety issue, and the rooftop work is specifically to address a health and safety issue.
Legislation	Is the project required for legislative/regulatory compliance?	5	Ontario Water Resources Act
Asset Management	Is the project a high priority for replacement in the asset management plan.	3	The transformer work is a recurring requirement for asset maintenance, and the other instruments will have useful life extended if relocated.
Operational Performance	If the project proceeds (or fails to proceed), what will be the impact on operational performance? Comment on any impact on operating costs, staff time and maintenance.	5	A properly operating transformer is necessary for plant operation, and the analyzers identified track important process variables.
Financing	Can the cost of investment be leveraged or are there partnership funds available?	2	Reserves
Environment	Does the project address needs impacted by climate change?	2	Necessary work on the transformer, and other works, required to ensure uninterrupted wastewater treatment.
Socio-Economic Factors	To what degree does the project support diversity and inclusion Initiatives?	1	No public spaces adversely impacted
Aesthetic Value	To what degree is the aesthetic value of the asset improved?	2	No adverse impact on aesthetic value
Strategic Plan	Does the project help to meet a Key Result in the Strategic Plan?	1	N/A : Core Service
Public Input	Has the project been identified through public engagement?	0	None

Intermediate Bar Screens

220.4

Priority Score: 64.40

Project Type: New Asset
Growth Related?: No
Estimated Useful Life (years): 25

Priority Level: High
Department: Public Works and Engineering
Staff Contact: Matt Prentice

Cash Flow Projection:	2023	2024	2025+
Studies			
In House Engineering			
Design or Engineering	\$ 100,000		
Communication / Signage			
Construction / Contractor		\$ 900,000	\$ 900,000
Materials			
Equipment/Misc			
Contingency			
Total	\$ 100,000	\$ 900,000	\$ 900,000

Costs Incurred to 2022 Year End

Impact on Operating Budget \$ 0 \$ 0 \$ 0

Total Project Budget: \$ 1,900,000

Schedule:

Construction Start Date: 09/01/2023

Substantial Completion or
purchase date: 12/31/2024

Funding Sources:

Waste Water Rates	\$ 100,000
Please Select	\$ 0
Please Select	\$ 0
Please Select	\$ 0
Please Select	\$ 0
Capital Reserve	\$ 0

Description and Rationale:

The existing Bar Screens at the Wastewater Treatment Plant provide pre-treatment removal of coarse materials before grit removal and clarification. Materials removed include rags, sticks, and other debris, which would damage downstream components if not removed. The biosolids removed in the clarifiers are pumped to the digester for further treatment, and then to storage tanks. However, because initial screening does not remove 100% of the coarse material, over time, rags and other items build up in the digester and storage tanks and need to be removed in a cleanout, which is an expensive process; \$150,000 + for a storage tank and \$300,000 + for the digester.

In 2021 the digester cleanout which was undertaken confirmed that excess materials are passing through the screening process, affecting the digestion process, and impacting cleanout costs

New Intermediate fine screening equipment, located between the grit building and the clarifiers, would mitigate the following risks:

- a-The decreased frequency of digester and storage tank cleanouts, which has an estimable monetary effect.
- b-The impacts the trash has had on our mechanical equipment, like pumps, drive sprockets, motors, drive chain, etc.
- c-The staff time required to deal with breakdowns in b above.
- d-The risk of digester failure due to trash content preventing recirculation (which had almost happened on previous occasions)
- e-The risk of rejection by one or more farmers, of our material.
- f-Rejection of material by Lystech, who receives our material during a cleanout,
- g-The risk to our BAF media, which would cost approximately \$1M.

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Justification for Matrix Values

Score 0 - 5

Justification / Rationale for Rating

People	How many people will be directly impacted by the project?	5	This can affect the wastewater treatment train which affects the entire City
Health and Safety	What is the risk to the health and safety of the public or Staff if the project does not proceed?	3	Failure of the bar screen system can have a significant environmental and health and safety impact if treatment failures result
Legislation	Is the project required for legislative/regulatory compliance?	5	Ontario Water Resources Act, Nutrient Management Act
Asset Management	Is the project a high priority for replacement in the asset management plan.	4	These are identified on the 10 year plan
Operational Performance	If the project proceeds (or fails to proceed), what will be the impact on operational performance? Comment on any impact on operating costs, staff time and maintenance.	4	Failure of the bar screen system poses a risk to both biological processes at the plant; digestion, and the BAF.
Financing	Can the cost of investment be leveraged or are there partnership funds available?	1	No
Environment	Does the project address needs impacted by climate change?	3	Wet weather flows are now more frequent; this is a relevant factor for this project since higher flows carry a higher debris load
Socio-Economic Factors	To what degree does the project support diversity and inclusion Initiatives?	1	N/A
Aesthetic Value	To what degree is the aesthetic value of the asset improved?	1	None
Strategic Plan	Does the project help to meet a Key Result in the Strategic Plan?	1	N/A : Core Service
Public Input	Has the project been identified through public engagement?	1	None

Wastewater Grant Projects

220.5,6,7

Priority Score: **72.80**

Project Type: Rehabilitation

Growth Related?: No

Estimated Useful Life (years): 50

Priority Level: Very High

Department: Public Works and Engineering

Staff Contact: Matt Prentice

Cash Flow Projection:

	2023	2024	2025+
Studies			
In House Engineering			
Design or Engineering			
Communication / Signage			
Construction / Contractor	\$ 180,000		
Materials			
Equipment/Misc			
Contingency			
Total	\$ 180,000	\$ 0	\$ 0

Costs Incurred to 2022 Year End

Impact on Operating Budget \$ 0 \$ 0 \$ 0

Total Project Budget: \$ 180,000

Schedule:

Construction Start Date: 06/01/2022

Substantial Completion or
purchase date: 12/31/2023

Funding Sources:

Waste Water Rates	\$ 0
Grant	\$ 190,000
Please Select	\$ 0
Please Select	\$ 0
Please Select	\$ 0
Capital Reserve	\$ 0

Description and Rationale:

In December 2021 the Ministry of the Environment, Conservation, and Parks notified the City that a new program was being implemented entitled "Improved Monitoring and Public Reporting of Sewage Overflows and Bypasses". The city is to receive a total of \$192,284 under the program.

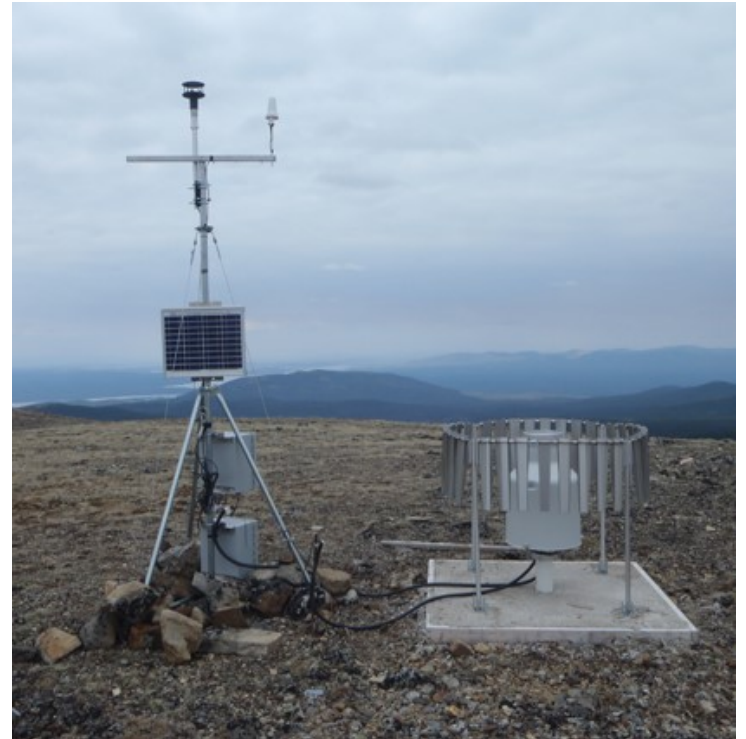
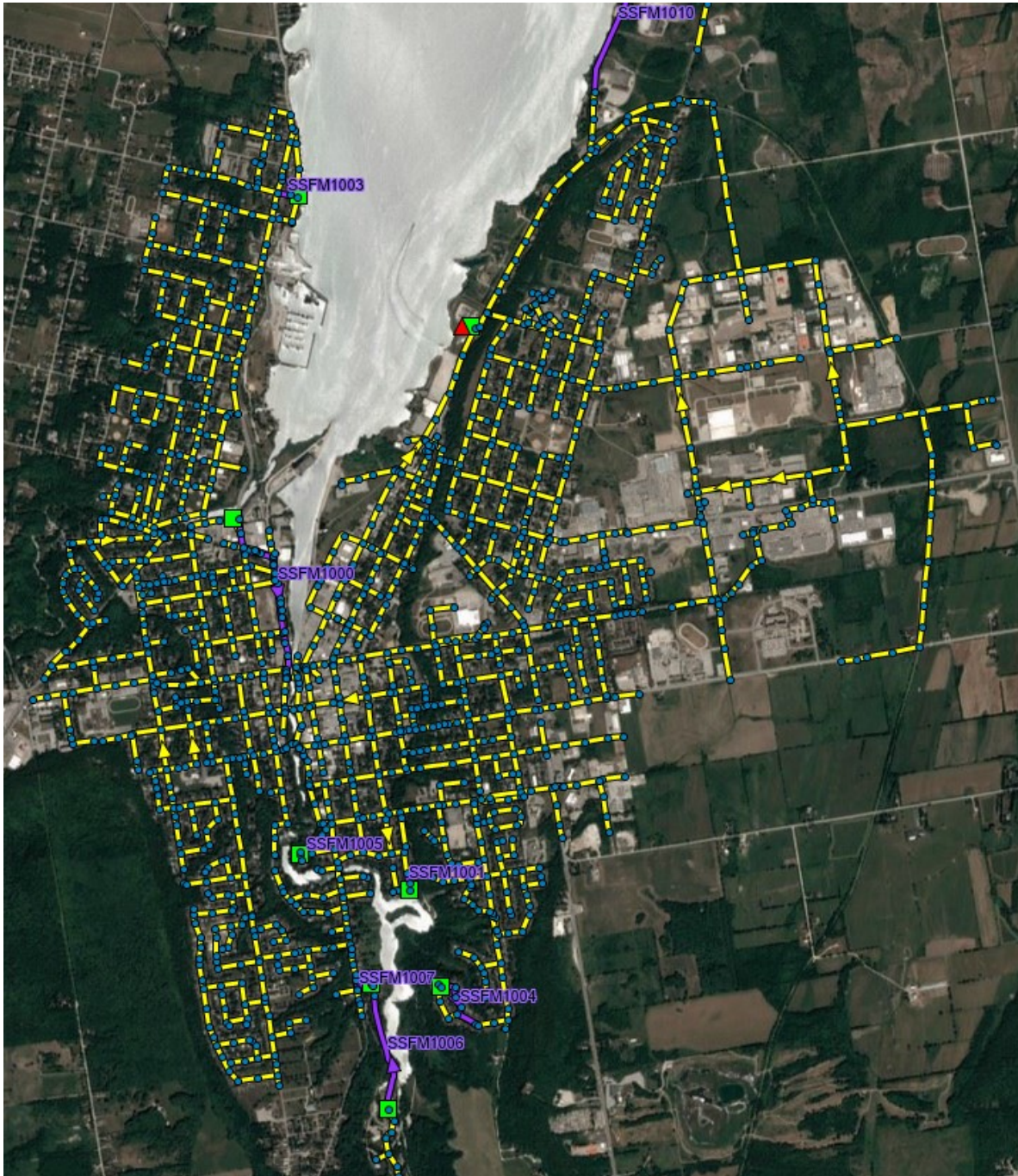
The stated purpose of the program is to provide support to municipalities to continue or start work to improve monitoring/modelling and real-time public reporting of sewage overflows and bypasses.

The following is a list of projects submitted for inclusion in the workplan.

- Replacing and improving the current real-time overflow monitoring units which are installed in five (5) bypass locations. Some of these units are showing signs of failure due to the environment and age.
- Improving the City's existing computer sanitary and storm sewer models.
- Equipment to improve real time precipitation data gathering. This would help the City more accurately characterize storms as 10-year, 25-year, or 100 year, etc., which is an important part of defence in flooding and other claims such as sewer backups. This equipment was installed in 2022.

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Wastewater Grant Projects

220.5,6,7

Priority Score: **72.80**

Justification for Matrix Values

Score 0 - 5

Justification / Rationale for Rating

People	How many people will be directly impacted by the project?	5	This monitoring and reporting piece would affect the entire City
Health and Safety	What is the risk to the health and safety of the public or Staff if the project does not proceed?	5	Combined Sewer Overflows are a continuing issue and have resulted in beach closures in the past
Legislation	Is the project required for legislative/regulatory compliance?	5	Ontario Water Resources Act
Asset Management	Is the project a high priority for replacement in the asset management plan.	2	These had been identified in the capital program in the past but never implemented in current year
Operational Performance	If the project proceeds (or fails to proceed), what will be the impact on operational performance? Comment on any impact on operating costs, staff time and maintenance.	3	These projects can have a positive impact on operational performance with respect to ease of reporting as well as accuracy and precipitation data usage for defence against claims
Financing	Can the cost of investment be leveraged or are there partnership funds available?	5	Fully Funded by province
Environment	Does the project address needs impacted by climate change?	5	Very relevant factor for this project
Socio-Economic Factors	To what degree does the project support diversity and inclusion Initiatives?	1	N/A
Aesthetic Value	To what degree is the aesthetic value of the asset improved?	1	None
Strategic Plan	Does the project help to meet a Key Result in the Strategic Plan?	1	N/A : Core Service
Public Input	Has the project been identified through public engagement?	1	None

4th Ave West 28th St Apartments Sewer

220.10

Priority Score: 59.80

Project Type: Rehabilitation

Growth Related?: No

Estimated Useful Life (years): 50

Priority Level: High

Department: Public Works and Engineering

Staff Contact: Matt Prentice

Cash Flow Projection:

	2023	2024	2025+
Studies			
In House Engineering			
Design or Engineering			
Communication / Signage			
Construction / Contractor	\$ 100,000		
Materials			
Equipment/Misc			
Contingency			
Total	\$ 100,000	\$ 0	\$ 0

Costs Incurred to 2022 Year End

Impact on Operating Budget \$ 0 \$ 0 \$ 0

Total Project Budget: \$ 100,000

Schedule:

Construction Start Date: 06/01/2023

Substantial Completion or
purchase date: 12/31/2023

Funding Sources:

Waste Water Rates	\$ 100,000
Please Select	\$ 0
Please Select	\$ 0
Please Select	\$ 0
Please Select	\$ 0
Capital Reserve	\$ 0

Description and Rationale:

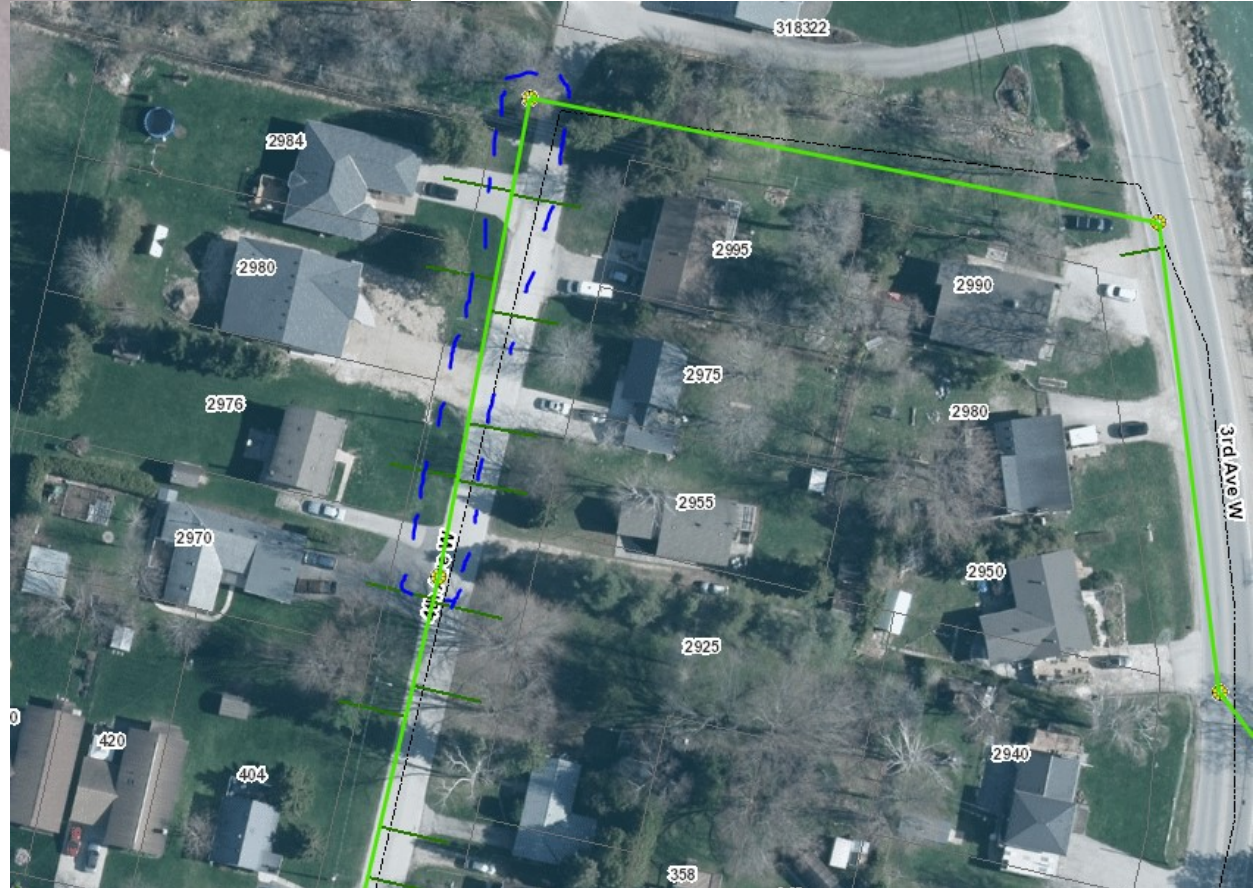
This project is to upgrade 70m of sanitary sewer along 4th Avenue West in the 2900 Block. This sewer upgrade is to accommodate a new apartment development on 28th Street West in the 500 Block.

The capacity and condition of a portion of the existing sewer are marginal for the proposed development.

This was carried over from 2022; the developer has not yet proceeded with construction of the sewer.

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Justification for Matrix Values

Score 0 - 5

Justification / Rationale for Rating

People	How many people will be directly impacted by the project?	3	This would affect the local serviced area
Health and Safety	What is the risk to the health and safety of the public or Staff if the project does not proceed?	4	Sewer backups could result
Legislation	Is the project required for legislative/regulatory compliance?	5	Ontario Water Resources Act
Asset Management	Is the project a high priority for replacement in the asset management plan.	2	Sewer replacement and lining is an ongoing program
Operational Performance	If the project proceeds (or fails to proceed), what will be the impact on operational performance? Comment on any impact on operating costs, staff time and maintenance.	4	Sewer backups and their after effects consume significant staff and private sector resources
Financing	Can the cost of investment be leveraged or are there partnership funds available?	1	No
Environment	Does the project address needs impacted by climate change?	3	Wet weather flows are now more frequent; this is a somewhat relevant factor for this project
Socio-Economic Factors	To what degree does the project support diversity and inclusion Initiatives?	1	N/A
Aesthetic Value	To what degree is the aesthetic value of the asset improved?	1	None
Strategic Plan	Does the project help to meet a Key Result in the Strategic Plan?	1	N/A : Core Service
Public Input	Has the project been identified through public engagement?	3	Land use development planning process

Stormwater Separation Program

160.4

Priority Score: **65.60**

Project Type: Rehabilitation

Growth Related?: No

Estimated Useful Life (years): 50

Priority Level: High

Department: Public Works and Engineering

Staff Contact: Matt Prentice

Cash Flow Projection:	2023	2024	2025+
Studies			
In House Engineering			
Design or Engineering			
Communication / Signage			
Construction / Contractor	\$ 50,000	\$ 25,000	\$ 30,000
Materials			
Equipment/Misc			
Contingency			
Total	\$ 50,000	\$ 25,000	\$ 30,000

Costs Incurred to 2022 Year End

Impact on Operating Budget \$ 0 \$ 0 \$ 0

Total Project Budget: \$ 105,000

Schedule:

Construction Start Date: 06/01/2023

Substantial Completion or
purchase date: 12/31/2023

Funding Sources:

Waste Water Rates	\$ 70,000
Please Select	\$ 0
Please Select	\$ 0
Please Select	\$ 0
Please Select	\$ 0
Capital Reserve	\$ 0

Description and Rationale:

Inflow and infiltration reduction works (aka stormwater separation) are undertaken with the funds set aside for this program and can include separation of stormwater catchbasins, public or private, which contribute to the extraneous flows, roof leader and sump pump diversion, and other works selected on a priority basis to reduce inflow and infiltration.

Currently, this years budget is tentatively focused on two significant roofs; the Post Office, and the Roxy theatre.

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Images



Justification for Matrix Values

Score 0 - 5

Justification / Rationale for Rating

People	How many people will be directly impacted by the project?	3	This would affect the local serviced area
Health and Safety	What is the risk to the health and safety of the public or Staff if the project does not proceed?	4	Combined Sewer Overflows are a consequence of stormwater connections
Legislation	Is the project required for legislative/regulatory compliance?	5	Ontario Water Resources Act
Asset Management	Is the project a high priority for replacement in the asset management plan.	3	This is an ongoing program in the 10 year plan
Operational Performance	If the project proceeds (or fails to proceed), what will be the impact on operational performance? Comment on any impact on operating costs, staff time and maintenance.	5	Combined Sewer Overflows are a result of stormwater connections, but also very high flows in the system can result in surcharging of the system which results in sewer backups during very high-flow events.
Financing	Can the cost of investment be leveraged or are there partnership funds available?	1	No
Environment	Does the project address needs impacted by climate change?	4	Wet weather flows are now more frequent; this is a very relevant factor for this project
Socio-Economic Factors	To what degree does the project support diversity and inclusion Initiatives?	1	N/A
Aesthetic Value	To what degree is the aesthetic value of the asset improved?	1	None
Strategic Plan	Does the project help to meet a Key Result in the Strategic Plan?	1	N/A : Core Service
Public Input	Has the project been identified through public engagement?	1	None

PLC and Communications Upgrades

180.3

Priority Score: 67.60

Project Type: Rehabilitation

Growth Related?: No

Estimated Useful Life (years): 50

Priority Level: High

Department: Public Works and Engineering

Staff Contact: Matt Prentice

Cash Flow Projection:

	2023	2024	2025+
Studies			
In House Engineering			
Design or Engineering			
Communication / Signage			
Construction / Contractor	\$ 75,000		
Materials			
Equipment/Misc			
Contingency			
Total	\$ 75,000	\$ 0	\$ 0

Costs Incurred to 2022 Year End

Impact on Operating Budget \$ 0 \$ 0 \$ 0

Total Project Budget: \$ 75,000

Schedule:

Construction Start Date: 06/01/2023

Substantial Completion or
purchase date: 12/31/2023

Funding Sources:

Waste Water Rates	\$ 75,000
Please Select	\$ 0
Please Select	\$ 0
Please Select	\$ 0
Please Select	\$ 0
Capital Reserve	\$ 0

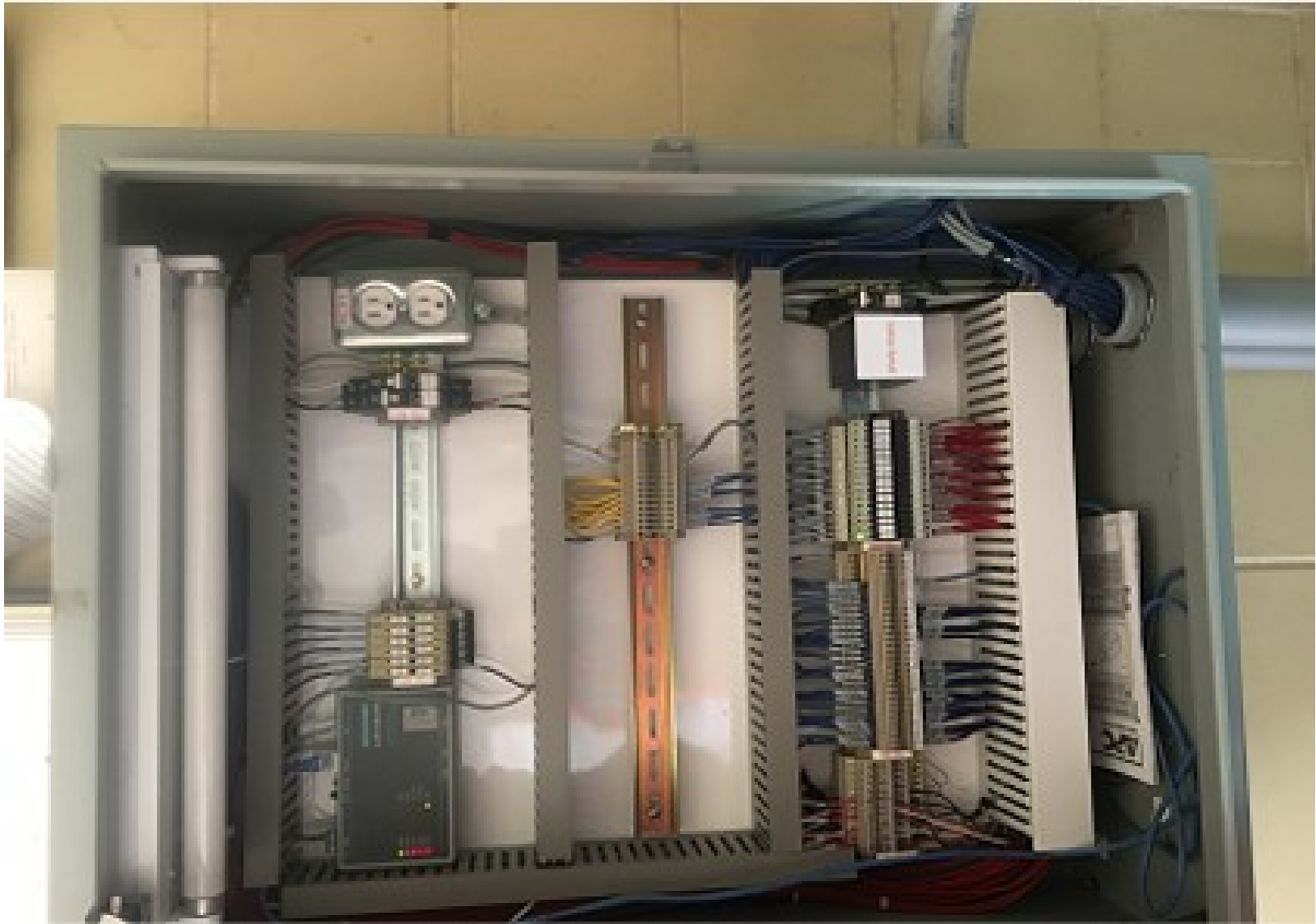
Description and Rationale:

The existing Westside Pumping Station PLC requires replacement and integration into the overall Wastewater Scada network, as the PLC is aged and replacement parts are impossible to find, and the program is obsolete and will need to be transferred and recoded.

This project was carried over from 2022. There are serious supply chain issues with respect to electronic controls.

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Justification for Matrix Values

Score 0 - 5

Justification / Rationale for Rating

People	How many people will be directly impacted by the project?	4	This would affect the serviced area for the Westside Sewage Pumping Station which is a quarter of the City
Health and Safety	What is the risk to the health and safety of the public or Staff if the project does not proceed?	4	Combined Sewer Overflows could result from station failure
Legislation	Is the project required for legislative/regulatory compliance?	5	Ontario Water Resources Act
Asset Management	Is the project a high priority for replacement in the asset management plan.	3	This has been identified in the 10 year plan
Operational Performance	If the project proceeds (or fails to proceed), what will be the impact on operational performance? Comment on any impact on operating costs, staff time and maintenance.	5	If the PLC fails and the station had to be run on manual mode, it is not clear how that would be possible without constant supervision.
Financing	Can the cost of investment be leveraged or are there partnership funds available?	1	No
Environment	Does the project address needs impacted by climate change?	4	Wet weather flows are now more frequent; this is a very relevant factor for this project
Socio-Economic Factors	To what degree does the project support diversity and inclusion Initiatives?	1	N/A
Aesthetic Value	To what degree is the aesthetic value of the asset improved?	1	None
Strategic Plan	Does the project help to meet a Key Result in the Strategic Plan?	1	N/A : Core Service
Public Input	Has the project been identified through public engagement?	1	None

Collection System Capital Reinvestment

210.1

Priority Score: **67.60**

Project Type: Rehabilitation

Growth Related?: No

Estimated Useful Life (years): 50

Priority Level: High

Department: Public Works and Engineering

Staff Contact: Matt Prentice

Cash Flow Projection:	2023	2024	2025+
Studies			
In House Engineering			
Design or Engineering			
Communication / Signage			
Construction / Contractor	\$ 40,000	\$ 350,000	\$ 350,000
Materials			
Equipment/Misc			
Contingency			
Total	\$ 40,000	\$ 350,000	\$ 350,000

Costs Incurred to 2022 Year End

Impact on Operating Budget	\$ 0	\$ 0	\$ 0
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Total Project Budget: \$ 740,000

Schedule:

Construction Start Date: 06/01/2023

Substantial Completion or
purchase date: 12/31/2023

Funding Sources:

Waste Water Rates	\$ 740,000
Please Select	\$ 0
Please Select	\$ 0
Please Select	\$ 0
Please Select	\$ 0
Capital Reserve	\$ 0

Description and Rationale:

This project is to continue with the rehabilitation of the sanitary sewer infrastructure with a focus on sanitary sewers, as well as manhole rehabilitation. This rehabilitation will be conducted through “cured in place pipe” (CIPP) technology. The city is planning to retender a 3 year contract to continue to rehabilitate sanitary sewer and manholes.

The budget shown for 2023 is reduced, because the City is between contracts, and further, monies from the 2023 budget were brought forward to complete increased efficiency of scale in 2022. (Less mobilization and demobilization costs.) In 2022, the City lined 4.6 km of sewer. In 2023, there is approximately \$32,000 of carried over costs for some manhole rehabilitation.

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Images



Justification for Matrix Values

Score 0 - 5

Justification / Rationale for Rating

People	How many people will be directly impacted by the project?	5	This would typically affect people in the project area which is usually one block at a time. But the program is City-wide
Health and Safety	What is the risk to the health and safety of the public or Staff if the project does not proceed?	5	Sewer bypasses from collapsed sewer have resulted
Legislation	Is the project required for legislative/regulatory compliance?	5	Ontario Water Resources Act
Asset Management	Is the project a high priority for replacement in the asset management plan.	3	This has been identified in the 10 year plan, as part of a multi-year program
Operational Performance	If the project proceeds (or fails to proceed), what will be the impact on operational performance? Comment on any impact on operating costs, staff time and maintenance.	4	Sewer backups consume considerable public sector and private sector resources
Financing	Can the cost of investment be leveraged or are there partnership funds available?	1	No
Environment	Does the project address needs impacted by climate change?	3	Wet weather flows are now more frequent; this is a somewhat relevant factor for this project
Socio-Economic Factors	To what degree does the project support diversity and inclusion Initiatives?	1	N/A
Aesthetic Value	To what degree is the aesthetic value of the asset improved?	1	None
Strategic Plan	Does the project help to meet a Key Result in the Strategic Plan?	1	N/A : Core Service
Public Input	Has the project been identified through public engagement?	1	None

Sewer Video Inspections

23XX

Priority Score: **64.30**

Project Type: Rehabilitation
Growth Related?: No
Estimated Useful Life (years): 50

Priority Level: High
Department: Public Works and Engineering
Staff Contact: Matt Prentice

Cash Flow Projection:	2023	2024	2025+
Studies			
In House Engineering			
Design or Engineering			
Communication / Signage			
Construction / Contractor	\$ 60,000		\$ 60,000
Materials			
Equipment/Misc			
Contingency			
Total	\$ 60,000	\$ 0	\$ 60,000

Costs Incurred to 2022 Year End

Impact on Operating Budget	\$ 0	\$ 0	\$ 0
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Total Project Budget: \$ 120,000

Schedule:

Construction Start Date: 06/01/2023

Substantial Completion or
purchase date: 12/31/2023

Funding Sources:

Waste Water Rates	\$ 60,000
Grant	
Please Select	\$ 0
Please Select	\$ 0
Please Select	\$ 0
Capital Reserve	\$ 0

Description and Rationale:

In 2013/14 ,the majority of the wastewater collection system was TV inspected. This information helped guide rehabilitation efforts since that time. Some annual TV inspection has been done on an ad-hoc basis yearly, but more of the system should be inspected to ensure structural integrity and to guide future rehabilitation work.

Detailed and current condition information facilitates the following:

- Ensuring rehab/replacement monies are spent in the most effieicnt way possible by guiding prioritization of projects, and selection of rehabilitation strategy.

- uncovers sources of extraneous flow which exacerbates potential for sewage surcharge, backups and overflows and taxes the treatment system.

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Images



Justification for Matrix Values

Score 0 - 5

Justification / Rationale for Rating

People	How many people will be directly impacted by the project?	4	The TV Inspection area will be a significant portion of the City
Health and Safety	What is the risk to the health and safety of the public or Staff if the project does not proceed?	3	This is intended to enhance protection of the public health and safety by ensuring poor condition assets are monitored and/or replaced, ultimately reducing occurrences of sewage blockages and overflows
Legislation	Is the project required for legislative/regulatory compliance?	5	Environmental Protection Act. Will ensure environmental approval compliance from MECP.
Asset Management	Is the project a high priority for replacement in the asset management plan.	4	This work will guide future replacement and rehabilitation, by providing detailed condition data for asset management purposes.
Operational Performance	If the project proceeds (or fails to proceed), what will be the impact on operational performance? Comment on any impact on operating costs, staff time and maintenance.	4	Operational Improvements have been realized via system rehab, ie manhole benching. By targeting asset rehabilitation on areas with high inflow and infiltration, system capacity and performance can be improved.
Financing	Can the cost of investment be leveraged or are there partnership funds available?	2	Reserves
Environment	Does the project address needs impacted by climate change?	2	Relevant factor for this project since flows can be associated with climate change, and reducing I/I will render the infrastructure more resilient to climate change-induced storm and snowmelt events.
Socio-Economic Factors	To what degree does the project support diversity and inclusion Initiatives?	1	N/A
Aesthetic Value	To what degree is the aesthetic value of the asset improved?	1	None
Strategic Plan	Does the project help to meet a Key Result in the Strategic Plan?	1	N/A : Core Service
Public Input	Has the project been identified through public engagement?	1	N/A

Minor Pumping Station Rehab

210.2

Priority Score: 61.00

Project Type: Rehabilitation

Growth Related?: No

Estimated Useful Life (years): 50

Priority Level: High

Department: Public Works and Engineering

Staff Contact: Matt Prentice

Cash Flow Projection:

	2023	2024	2025+
Studies			
In House Engineering			
Design or Engineering			
Communication / Signage			
Construction / Contractor		\$ 350,000	
Materials			
Equipment/Misc			
Contingency			
Total	\$ 0	\$ 350,000	\$ 0

Costs Incurred to 2022 Year End

Impact on Operating Budget \$ 0 \$ 0 \$ 0

Total Project Budget: \$ 350,000

Schedule:

Construction Start Date: 06/01/2024

Substantial Completion or
purchase date: 12/31/2024

Funding Sources:

Waste Water Rates	\$ 350,000
Please Select	\$ 0
Please Select	\$ 0
Please Select	\$ 0
Please Select	\$ 0
Capital Reserve	\$ 0

Description and Rationale:

The 27th Street Sewage Pumping Station has a number of issues which need to be addressed through considerable rehabilitation: (1) Very significant electrical deficiencies and (2) physical condition of station (3) pumps and associated mechanical.

The attached photo shows the ideal pumping station configuration; it does not represent the existing station.

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Images



Justification for Matrix Values

Score 0 - 5

Justification / Rationale for Rating

People	How many people will be directly impacted by the project?	2	This would typically affect people in the project area
Health and Safety	What is the risk to the health and safety of the public or Staff if the project does not proceed?	5	Sewer bypasses and backups from failed pumps
Legislation	Is the project required for legislative/regulatory compliance?	5	Ontario Water Resources Act
Asset Management	Is the project a high priority for replacement in the asset management plan.	3	This has been identified in the 10 year plan, as part of a multi-year program
Operational Performance	If the project proceeds (or fails to proceed), what will be the impact on operational performance? Comment on any impact on operating costs, staff time and maintenance.	4	This station requires frequent callouts to pull the pump for maintenance; since there is only one pump, any issue must be addressed quickly and often on overtime.
Financing	Can the cost of investment be leveraged or are there partnership funds available?	1	No
Environment	Does the project address needs impacted by climate change?	2	Wet weather flows are now more frequent; this is only a somewhat relevant factor for this project
Socio-Economic Factors	To what degree does the project support diversity and inclusion Initiatives?	1	N/A
Aesthetic Value	To what degree is the aesthetic value of the asset improved?	1	None
Strategic Plan	Does the project help to meet a Key Result in the Strategic Plan?	1	N/A : Core Service
Public Input	Has the project been identified through public engagement?	1	None

CLI Approval Requirements

230.6

Priority Score: **55.50**

Project Type: Rehabilitation

Growth Related?: No

Estimated Useful Life (years): 50

Priority Level: High

Department: Public Works and Engineering

Staff Contact: Matt Prentice

Cash Flow Projection:	2023	2024	2025+
Studies	\$ 20,000		\$ 30,000
In House Engineering			
Design or Engineering			
Communication / Signage			
Construction / Contractor			
Materials			
Equipment/Misc			
Contingency			
Total	\$ 20,000	\$ 0	\$ 30,000

Costs Incurred to 2022 Year End

Impact on Operating Budget \$ 0 \$ 0 \$ 0

Total Project Budget: \$ 50,000

Schedule:

Construction Start Date: 06/01/2023

Substantial Completion or
purchase date: 12/31/2023

Funding Sources:

Waste Water Rates	\$ 50,000
Grant	
Please Select	\$ 0
Please Select	\$ 0
Please Select	\$ 0
Capital Reserve	\$ 0

Description and Rationale:

In December 2022 the Ministry of Environment issued the City its first Consolidated Environmental Compliance Approval documents for both the Sanitary Sewage Collection System and the Storm Sewer system.

There are many implications for the system operations, maintenance, approvals, and capital planning. These were summarized in a report to the Operations Committee in March 2023.

With respect to the Sanitary requirements, there are various reports and studies required by the CLI-ECA at specific times in 2023, 2025, and 2027.

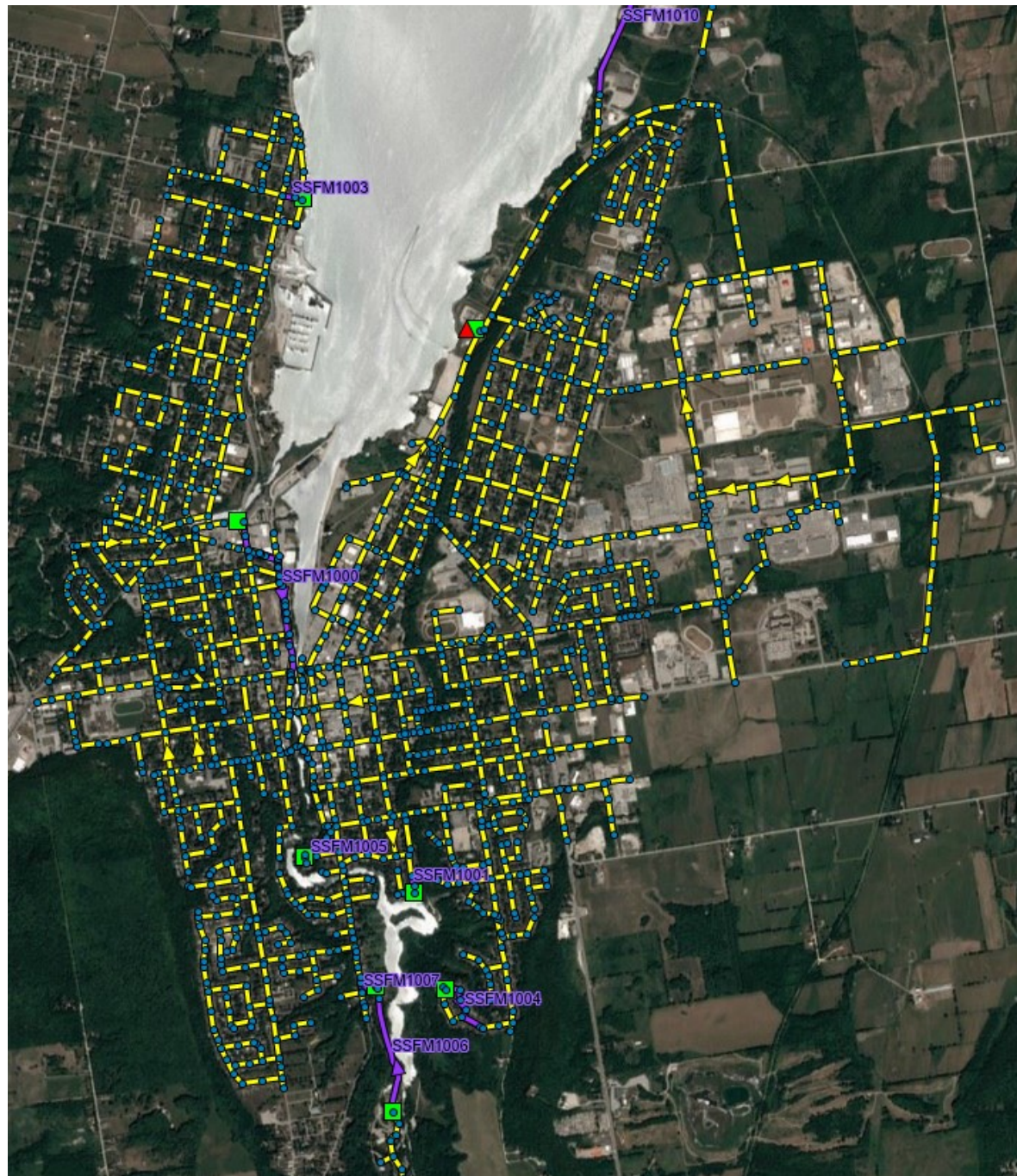
In 2023 there are two specific requirements:

-Preparation of a Significant Drinking Water Threat Assessment Report in relation to planned sanitary and storm sewer works.

-Assessment of Conformance to Procedures F-5-1 and F-5-5, which involves, among other things, an assessment of CSO controls and monitoring, and an assessment and evaluation of past overflow events.

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Images



CLI Approval Requirements

230.6

Priority Score: 55.50

Justification for Matrix Values

Score 0 - 5

Justification / Rationale for Rating

People	How many people will be directly impacted by the project?	5	The monitoring, reporting, maintenance, and capital requirements will affect the entire City
Health and Safety	What is the risk to the health and safety of the public or Staff if the project does not proceed?	3	This is intended to enhance protection of the public health and safety
Legislation	Is the project required for legislative/regulatory compliance?	5	Environmental Protection Act. These are requirements of the CLI-ECA.
Asset Management	Is the project a high priority for replacement in the asset management plan.	2	This will require some assessments and possibly enhancements to current infrastructure
Operational Performance	If the project proceeds (or fails to proceed), what will be the impact on operational performance? Comment on any impact on operating costs, staff time and maintenance.	2	Regulatory requirement with operational impacts
Financing	Can the cost of investment be leveraged or are there partnership funds available?	2	Reserves
Environment	Does the project address needs impacted by climate change?	4	Relevant factor for this project since the CSO's can be associated with climate change
Socio-Economic Factors	To what degree does the project support diversity and inclusion Initiatives?	1	N/A
Aesthetic Value	To what degree is the aesthetic value of the asset improved?	1	None
Strategic Plan	Does the project help to meet a Key Result in the Strategic Plan?	1	N/A : Core Service
Public Input	Has the project been identified through public engagement?	1	None