Town of Midland Asset Management Plan

Key Statistics

$450.7 million Replacement cost of core asset portfolio	$61,112 Replacement cost of infrastructure per household
65% Percentage of assets in fair or better condition	$950 Annual infrastructure deficit per household
28% Portion of total infrastructure funding that comes from the Gas Tax	

September 9, 2022

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Scope and Methodology

1.1 Asset Categories included in this AMP

This asset management plan has been written in compliance with Ontario Regulation 588/17. The first deadline under the regulation requires analysis of only core infrastructure assets (roads, bridges & culverts, water, wastewater and stormwater).

This AMP summarizes the state of the municipality's infrastructure assets, establishes current levels of service, addresses community and technical level of services as outlined in the regulation and, outlines current lifecycle strategies to optimize asset performance for the asset categories listed below.

Asset Category	Source of Funding
Road Network	Tax Levy
Stormwater Network	Tax Levy
Water Network	User Rates
Wastewater Network	User Rates

1.2 Determining Replacement Costs

This AMP relies on two replacement cost methods:

- Cost/unit: Based on costs provided in 2022 bid documents.
- CPI tables: Historical cost of the asset inflated based on Consumer Price Index or Non-Residential Building Construction Price Index.

Cost inflation is used in the absence of reliable replacement cost data. It is considered reasonably reliable for recently purchased or constructed assets where the total cost is reflective of what the municipality actually incurred. As assets age, and new technologies become available cost inflation becomes a less reliable method.

1.3 Estimated Useful Life and Service Life Remaining

The estimate useful life (EUL) of an asset is the period in which the municipality expects the asset to remain in service and be available for use before requiring replacement. The EUL assigned in this AMP was determined by staff expertise and industry standards.

The service life remaining can be calculated by using the assets in-service date and the EUL. Using both the service life remaining and any available condition data staff can better determine when the asset might need to be replaced.

1.4 Reinvestment Rate

The reinvestment of capital funds, through asset renewals, rehabilitation or replacement, is necessary to sustain an adequate level of service. As assets age over time they require additional funding to maintain a state of good repair. The reinvestment rate is a measurement of available funding relative to total replacement cost.

$$\text{Actual Reinvestment Rate} = \frac{\text{Annual Capital Funding}}{\text{Total Replacement Cost}}$$

1.5 Asset Condition

Accurate and reliable condition data helps to prevent premature and costly rehabilitation or replacement and ensures that lifecycle activities occur at the right time to maximize asset useful life. A standardized condition assessment rating system allows for benchmarking across the municipalities assets. The table below outlines the condition rating system used in this AMP. It is default within the Citywide Software we use for asset management and is aligned with the Canadian Core Public Infrastructure Survey. When assessed condition is not available, service life remaining is used to approximate condition.

Condition	Criteria	Service Life Remaining (%)
Very Good	Well maintained, good condition, new or recently rehabilitated	80-100
Good	Acceptable, generally approaching mid-stage of expected service life	60-80
Fair	Signs of deterioration, some elements exhibit significant deficiencies	40-60
Poor	Approaching end of service life, condition below standard, large potion of system exhibits significant deterioration	20-40
Very Poor	Near or beyond expected service life, advanced deterioration, some assets may be unusable	0-20

Analysis of Tax-funded Assets

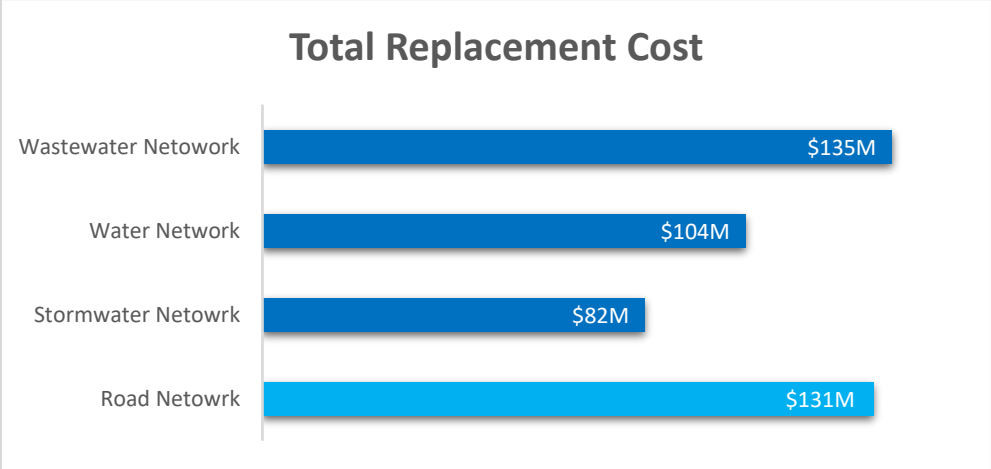
2.1 Road Network

The Road Network is a critical component for safe and efficient transportation services. It includes all municipally owned and maintained roadways. The roads are maintained by the Public Works department who is also responsible for all winter maintenance operations including snow plowing, ice control and snow removal.

2.1.1 Asset Inventory & Replacement Cost

The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the municipalities Road Network Inventory.

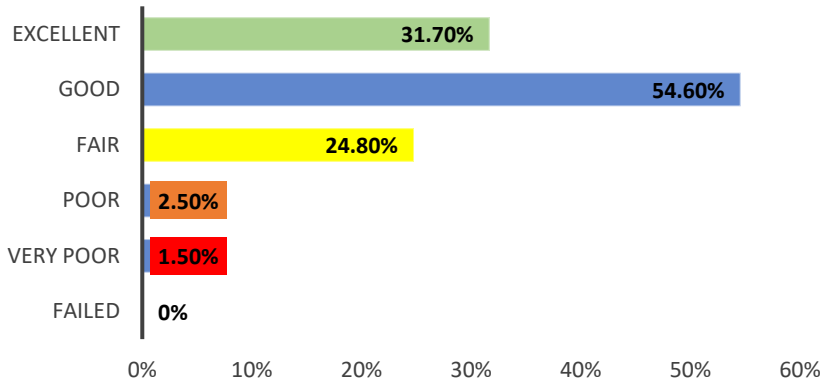
Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Paved Roads	115.1 km	Replacement Cost	$114.4 million
Sidewalks	99.7 km	Replacement Cost	$11.8 million
Surface Treated Roads	4.28 km	Replacement Cost	$3.4 million
Gravel Roads	1.41 km	Replacement Cost	$1 million
		Total	$130.6 million



2.1.2 Asset Condition

The table below identifies the current condition and source of available condition data for each asset segment. We do not perform condition assessments on surface treat or gravel roads.

Asset Segment	Average Condition Rating	Condition Source
Paved Roads	Good	100 % Assessed
Sidewalks	Poor	100 % Assessed
Surface Treated Roads	Good	Internal Inspection
Gravel Roads	Good	Internal Inspection



Current Approach to Asset Condition

Accurate and reliable condition data allows staff to determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The following describes the municipalities current approach:

- A Road Needs study was completed in 2018 that included a detailed assessment of the condition of each paved road segment.
- Currently waiting for report on 2022 Roads Needs. Trying to budget in capital plan for every 5 years to complete full network study. This year's report will also include sidewalks.
- Sidewalks, gravel and surface treated roads were assessed internally and this information is stored within our GIS or Asset Management software.
- Pothole patching is applied as per Minimum Maintenance Standards (MMS) requirements to repair and prevent pothole formations.
- Annual Winter Operations activities including snow plowing and snow removal are performed at Minimum Maintenance Standards (MMS).
- Staff have dedicated annual crack sealing program of $158,000.
- Staff have dedicated annual resurfacing budget equal to the annual OCIF grant which is approximately $500,000.
- Rehabilitation is prioritized using Pavement Condition Index (PCI), cost and socio-economic factors. Resurfacing projects are determined by PCI and deteriorating surfaces in an effort to extend the useful life of the asset and prolong the need for full reconstruction.

2.1.3 Estimated Useful Life & Average Age

The estimated useful life for Road Network assets has been determined according to industry standards and staff knowledge. The average age for each asset has been determined based on the assessed condition as in service dates are not available for the majority of our Road Network. The following assumptions were determined by our engineering staff.

Assessed Condition	Assumed Age (Years)
95%	< 5
85%	10
75%	15
50%	20

30%	25
Less than 30%	30 or >

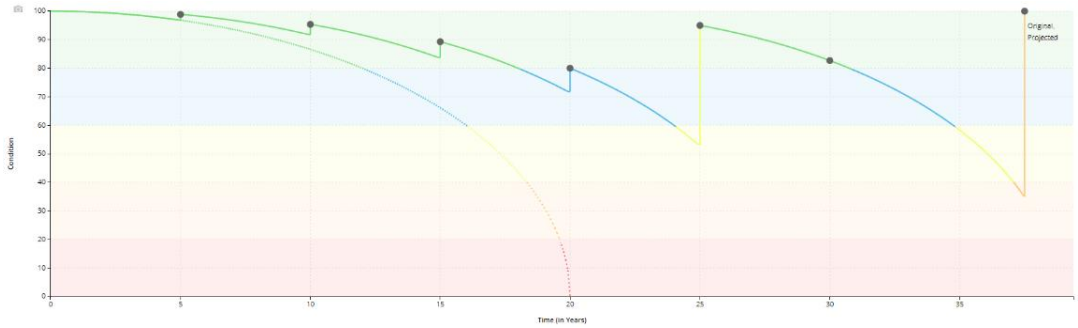
The average service life remaining represents the difference between the Estimated Useful Life and the Average Age.

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining.
Road Surface	25	20	-
Road Base	70	-	-
Sidewalks	40	45	5
Surface Treated Roads	12	6	6
Gravel Roads	100	-	-

2.1.4 Lifecycle Management Strategy

The following lifecycle strategies have been developed as a proactive approach to managing our road network. Instead of allowing the roads to deteriorate until replacement is required, strategic rehabilitation is expected to extend the service life of roads at a lower total cost.

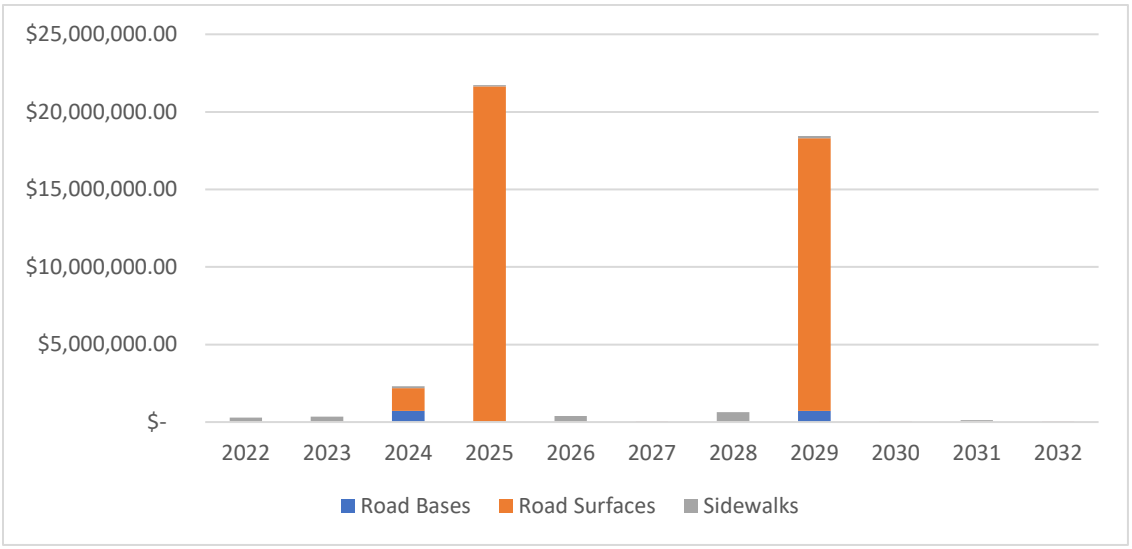
Event Name	Event Description	Event Class	Added Useful Life	Event Trigger
Crack Sealing	Route and Seal roads with light cracking	Preventative Maintenance	7	5-10 Years after resurfacing as needed
Tar and Chip (spot repair)	Spray with tar, cover with limestone chip	Preventative Maintenance	2	10-15 years after resurfacing as needed
Shave and Pave	Single Mill & Pave 50mm	Rehabilitation	15	15 Years after resurfacing
Full Depth Paving	Full Depth Mill & Pave 90mm	Rehabilitation	15	25 Years after resurfacing
Asphalt Granular Base (no excavation)	Pulverize, add 150mm gran 'a', 90mm asphalt (When base granular is poor)	Reconstruction	25	35 - 45% Condition
Asphalt Granular Base (excavation required)	Excavate 600mm, gran 'b', gran 'a', 90mm asphalt (When base granular is poor)	Reconstruction	25	35 - 45% Condition



Forecasted Capital Requirements

Based on the lifecycle strategies identified the following graph forecasts capital requirements for the Road Network. The annual capital requirement represents the average amount per year that the municipality should allocate towards funding rehabilitation and replacement needs to meet current Level of Service.

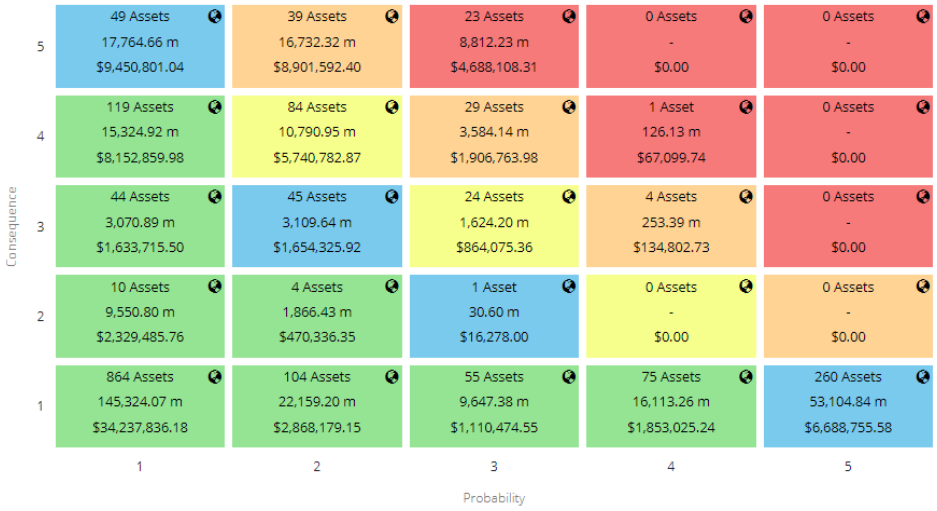
Average Annual Capital Requirement $6,000,000



The spike in year 2025 is due to a time-based lifecycle event, Crack Sealing and a Tar & Chip event creates the 2029 spike, this is due to a large number of assets having an in service date of 2009. In future plans these lifecycle events need to be condition based rather time-based.

2.1.5 Risk and Criticality

The following risk matrix is a visual representation of the relationship between the probability of failure and consequence of failure. Assets with a higher risk should be prioritized during rehabilitation and reconstruction projects.



2.1.6 Levels of Service

The following tables identify the municipalities current level of service for the Road Network. These metrics include the technical and community level of service metrics that are required as part of O. Reg. 588/17.

Community Level of Service

The following table outlines the qualitative descriptions that determine the community levels of service provided by the Road Network.

Service Attribute	Qualitative Description	Current LOS 2022
Scope	Description, which may include maps, of the road network in the municipality and its level of connectivity.	See Appendix A
Quality	Description or images that illustrate the different levels of road class pavement condition	The municipality completed a Roads Needs study in 2018 all paved sections received PCI rating between 1-100. <40 Pavement has endured significant structural damage and full reconstruction is required. 40-70 Pavement needs some form of resurfacing to mitigate the effects of rutting, cracking and other distresses.

	70-85 Pavement is in the early stages of its life-cycle. This is when repairs are most affordable, fastest and have greatest long term benefit. >85 Pavement is in good condition and does not require maintenance.

Technical Level of Service

The following table outlines the quantitative metrics that determine the technical level of service provided by the Road Network.

Service Attribute	Technical Metric	Current LOS (2018)
Scope	Lane km of arterial roads (MMS classes 1 & 2) per land area (km/km^2)	71
Scope	Lane km of collector (MMS classes 3 & 4) per land area (km/km^2)	1.99
Scope	Lane km of local (MMS classes 5 & 6) per land area (km/km^2)	5.51
Quality	Average pavement condition index for paved roads in municipality	77.6
Performance	Capital reinvestment rate for Paved roads	0.93%

2.2 Bridges & Culverts

The municipality does not own or maintain any bridges or structural culverts.

2.3 Stormwater Network

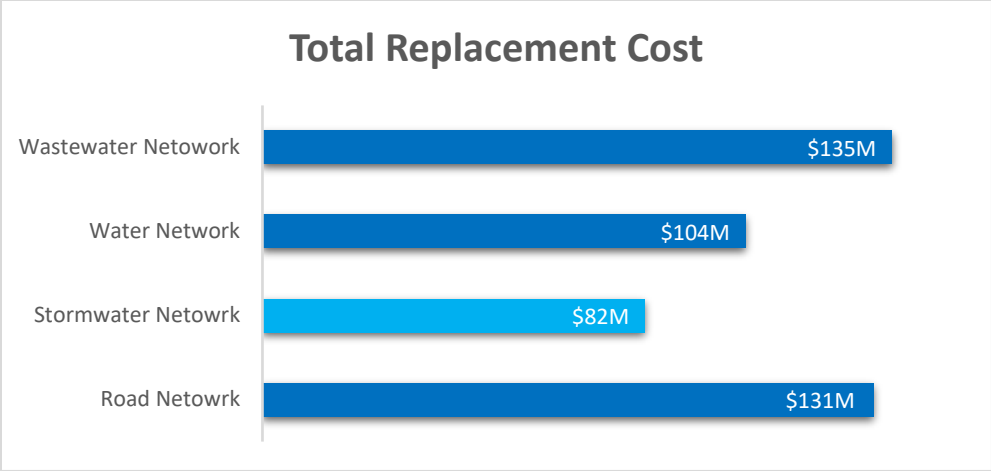
The municipality is responsible for owning and maintaining a stormwater network consisting of storm sewer mains, catch basins, culverts (less than 3m diameter) and other supporting infrastructure.

2.3.1 Asset Inventory & Replacement Cost

The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the municipalities Storm Network Inventory.

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Catch Basins	1,825	Replacement Cost	$17.5 million
Culverts	4,490 m	Replacement Cost	$1.6 million
Mains	62,028.5 m	Replacement Cost	$44.5 million
Manholes	1,039	Replacement Cost	$16.2 million
Stormwater Ponds	17	CPI Tables	$1.7 million
		Total	$81.5 million

*note Stormwater Pond replacement value does not take into consideration land costs

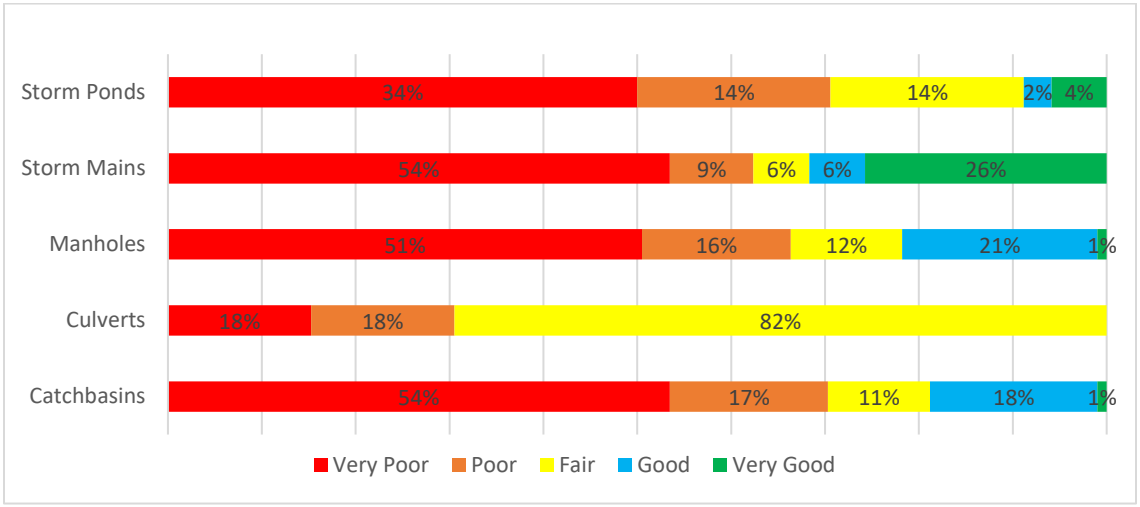


2.3.2 Asset Condition

The table below identifies the current average condition and source of available condition data for each asset segment.

Asset Segment	Average Condition Rating	Condition Source
Catch Basins	Poor	Age Based
Culverts	Fair	Age Based
Mains	Poor	Age Based
Manholes	Poor	Age Based
Stormwater Ponds	Fair	Age Based

*Information above is only as accurate as current data available.



Current Approach to Condition Assessment

Accurate and reliable condition data allows staff to determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The following describes the municipalities current approach:

- Flushing and Cleaning 25% of the total network per year
- CCTV/Zoom Camera Inspection 6.5% of total network per year.
- Trenchless re-lining activities are completed on select sewer mains in tandem with CCTV inspections.
- Catch basins are cleaned annually.
- Currently working with Sewer Rat technology to gain a full condition analysis of our storm sewer mains. Current condition age based.

2.3.3 Estimated Useful Life & Average Age

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining.
Catch Basins	50	53	-3
Culverts	30	109	-79
Mains	37	40	-3
Manholes	50	65	-15
Stormwater Ponds	20	20	-

*Information above is only as accurate as current data available.

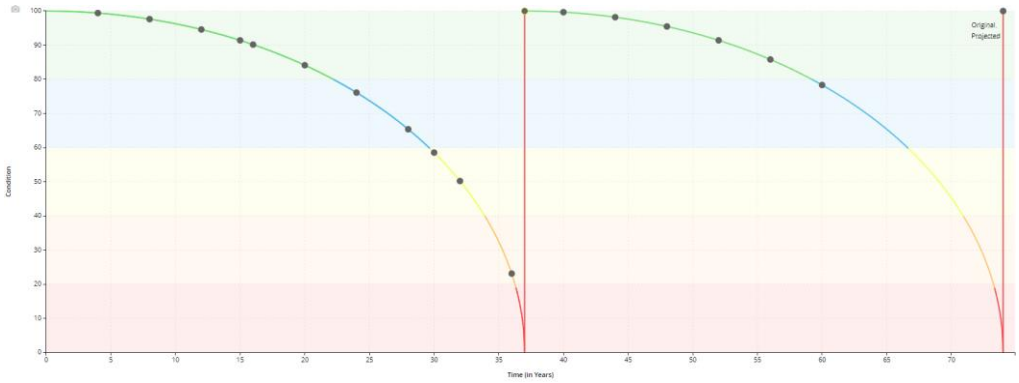
As part of our current Asset Management project we are working on disaggregating all of these asset categories as they are currently pooled.

2.3.4 Lifecycle Management Strategy

The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

Event Name	Event Description	Event Class	Added Useful Life	Event Trigger
Storm Main Flushing & Cleaning	25% of total network per year	Preventative Maintenance	No Impact	Every 4 years
Storm Main CTV/ Zoom Camera Inspection	6.5% of the total network per year	Preventative Maintenance	No Impact	Every 15 years
Storm Main Rodding/Boring	Allow for 2.9% of total network per year	Preventative Maintenance	No Impact	As required
Relining	One time rehabilitation event	Rehabilitation	37 years	0-10% condition
Catch basin cleaning	Basins vacuumed	Preventative Maintenance	No Impact	Annually
Catch Basin replace frame and grate	Replace catch basin frame and grate when found faulty	Preventative Maintenance	20 years	As required

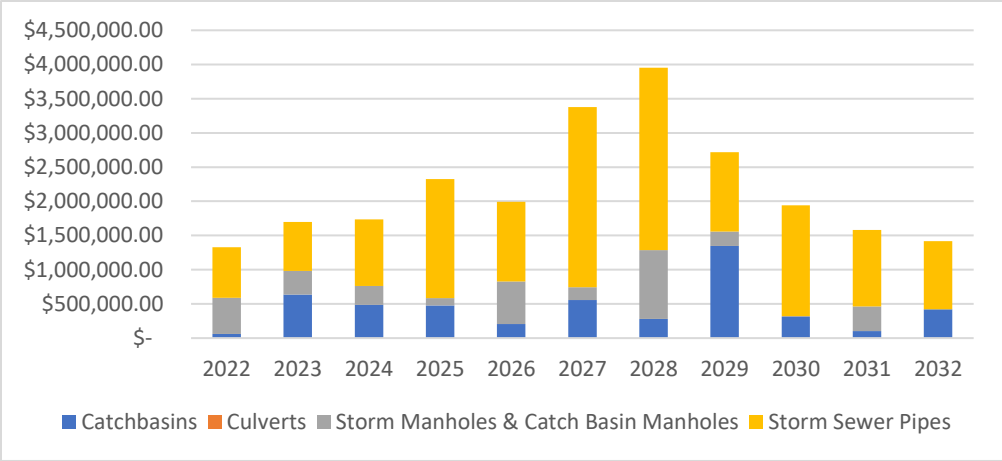
Culverts	Flushed	Preventative Maintenance	No Impact	Every 10 years
Storm Ponds	Cleaning	Maintenance		1 per year
Manholes	Inspected annually (visually & with zoom cameras)	Preventative Maintenance		25% of total network per year



Forecasted Capital Requirements

Based on the lifecycle strategies identified the following graph forecasts capital requirements for the Storm Network. The annual capital requirement represents the average amount per year that the municipality should allocate towards funding rehabilitation and replacement needs to meet current Level of Service.

Annual Average Capital Requirement $2,140,000



2.3.5 Risk & Criticality

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category. Assets with higher risk should be prioritized for rehabilitation or reconstruction projects.

2.3.6 Levels of Service

The following tables identify the municipalities current level of service for the Storm Network. These metrics include the technical and community level of service metrics that are required as part of O. Reg. 588/17.

Community Level of Service

The following table outlines the qualitative descriptions that determine the community levels of service provided by the Storm Network.

Service Attribute	Qualitative Description	Current LOS 2022
Scope	Description, which may include maps, of user groups or areas of the municipality that are protected from flooding, including the extent of protection provided by the municipal stormwater system.	See Appendix B

Technical Level of Service

The following table outlines the quantitative metrics that determine the technical level of service provided by the Storm Network.

Service Attribute	Qualitative Description	Current LOS 2022
Scope	% of properties in municipality resilient to a 100-year storm	Information not available
Scope	% of the municipal stormwater management system resilient to 5 year storm	100%
Performance	Capital reinvestment rate	0.34%

Analysis of Rate-funded Assets

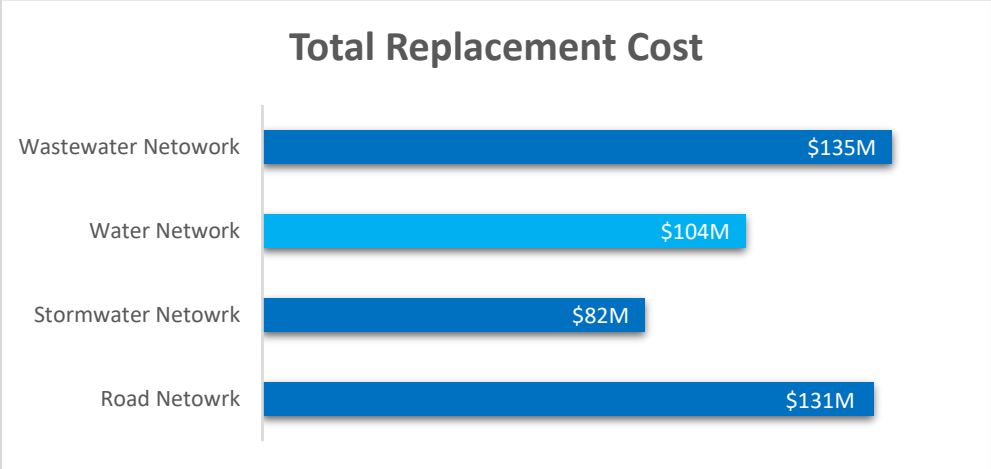
3.1 Water Network

The water services provided by the municipality are managed by the Environmental Services department. This department is responsible for watermains, hydrants, wells, pump houses, storage facilities and all drinking water related assets.

3.1.1 Asset Inventory & Replacement Cost

The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the municipalities Water Network Inventory.

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Hydrants	684	Replacement Cost	$10.1 million
Mains	118 Km	Replacement Cost	$70.3 million
Pump Houses	5	CPI Tables	$4.1 million
Wells & Water Storage Facilities	16	CPI Tables	$15 million
Valves	1,209	Replacement Cost	$4.1 million
		Total	$103.6 million

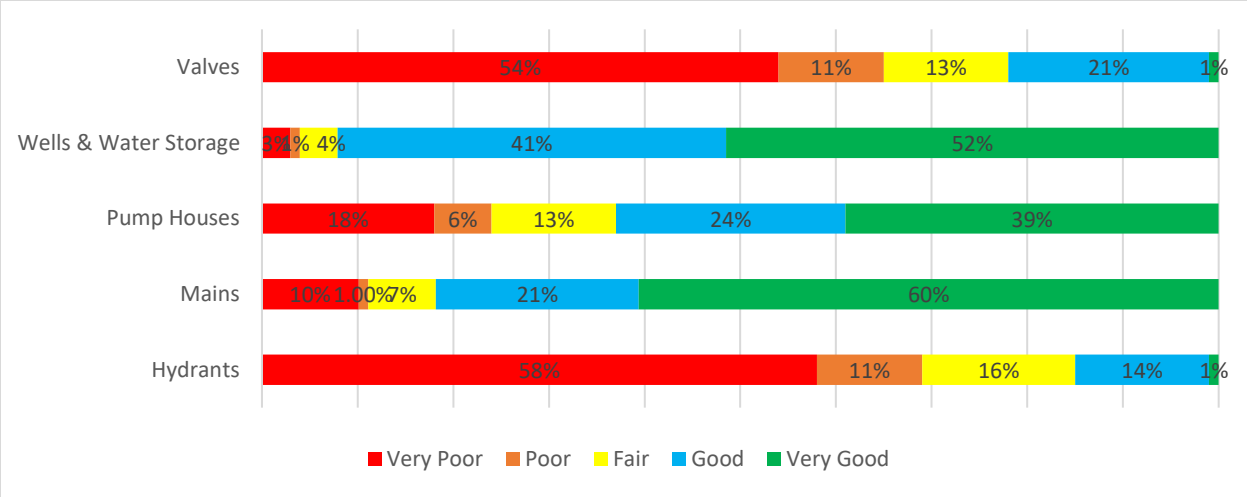


3.1.2 Asset Condition

The table below identifies the current average condition and source of available condition data for each asset segment.

Asset Segment	Average Condition Rating (out of 100)	Condition Source
Hydrants	Poor	Age Based
Mains	Good	Age Based
Pump Houses	Good	Age Based
Wells & Water Storage	Good	Age Based
Valves	Very Poor	Age Based

*Information above is only as accurate as current data available.



Current Approach to Condition Assessment

Accurate and reliable condition data allows staff to determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The following describes the municipalities current approach:

- Staff primarily rely on pipe age, material & break history to determine the projected condition of watermains.
- Uni-directional flushing of 100 % of the network is completed annually.
- Valve turning is completed at 70% per year and Hydrant valves are exercised regularly.

3.1.3 Estimated Useful Life & Average Age

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining.
Hydrants	40	43	-3
Mains	80	41	39
Pump Houses	50	34	16
Reservoir & Wells	48	38	10
Valves	40	45	-5

*Information above is only as accurate as current data available.

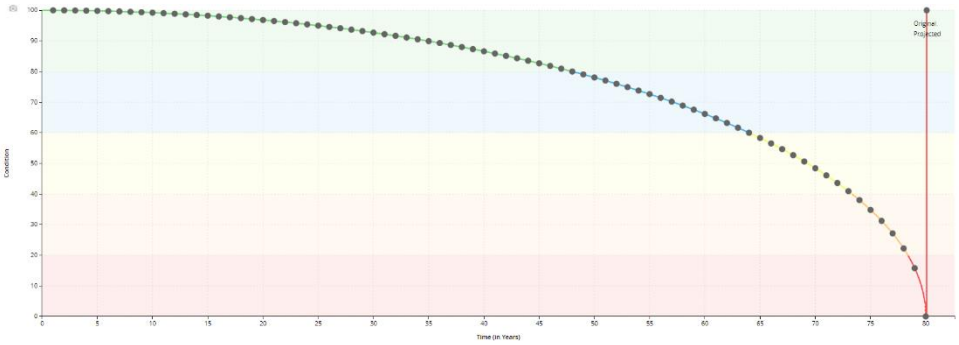
As part of our current Asset Management project we are working on disaggregating all of these asset categories as they are currently pooled.

3.1.4 Lifecycle Management Strategy

The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

Event Name	Event Description	Event Class	Added Useful Life	Event Trigger
Uni Directional Flushing	100% of total network per year	Preventative Maintenance	No Impact	Annually

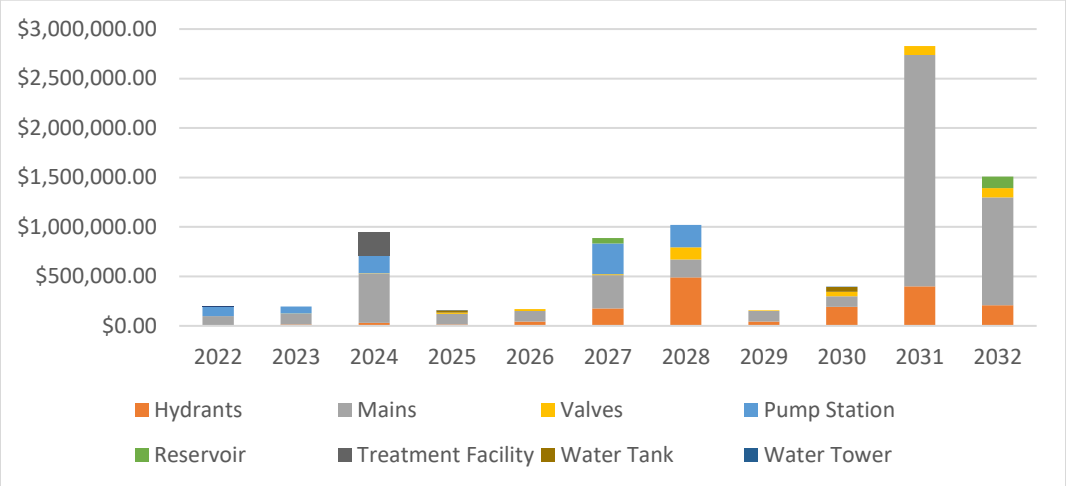
Hydrant Valves	100% of total network per year	Preventative Maintenance	No Impact	Annually
Valves	70% of total network per year	Preventative Maintenance	No Impact	Annually
Well Maintenance	Inspected every 4 years	Preventative Maintenance & Cleaning	No Impact	Every 4 years
Reservoir Cleaning	Dewatered & cleaned	Preventative Maintenance	No Impact	Every 2 years for older facilities and every 3 for newer



Forecasted Capital Requirements

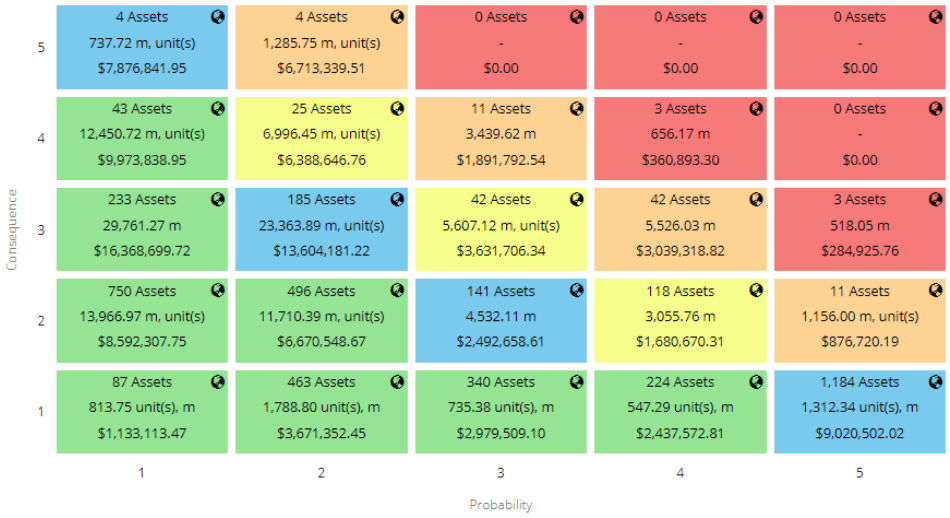
Based on the lifecycle strategies identified the following graph forecasts capital requirements for the Water Network. The annual capital requirement represents the average amount per year that the municipality should allocate towards funding rehabilitation and replacement needs to meet current Level of Service.

Average Annual Capital Requirement $1,693,000



3.1.5 Risk & Criticality

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category. Assets with a higher risk should be prioritized for rehabilitation and reconstruction projects.



3.1.6 Levels of Service

The following tables identify the municipalities current level of service for the Water Network. These metrics include the technical and community level of service metrics that are required as part of O. Reg. 588/17.

Community Level of Service

The following table outlines the qualitative descriptions that determine the community levels of service provided by the Water Network.

Service Attribute	Qualitative Description	Current LOS 2022
Scope	Description, which may include maps, of user groups or areas of the municipality that are connected to the municipal water system	See Appendix C
Scope	Description, which may include maps, of the user groups or areas of the municipality that have fire flow	See Appendix D
Reliability	Description of boil water advisories and service interruptions	No boil water advisories were issued within the last 2 years.

Technical Level of Service

The following table outlines the quantitative metrics that determine the technical level of service provided by the Water Network.

Service Attribute	Qualitative Description	Current LOS 2022
Scope	% of properties connected to the municipal water system	90%
Scope	% of properties where fire flow is available	90%
Reliability	# of connection-days per year due to water main breaks compared to the total number of properties connected to the municipal water system	0
Reliability	# of connection-days per year due to water main breaks compared to the total number of properties connected to the municipal water system	0
Performance	# of water quality customer complaints related to the water system	23
Performance	% of water network in good or very good condition	74%
Performance	% of water network in poor or very poor condition	17%
Performance	Capital re-investment rate	0.91%

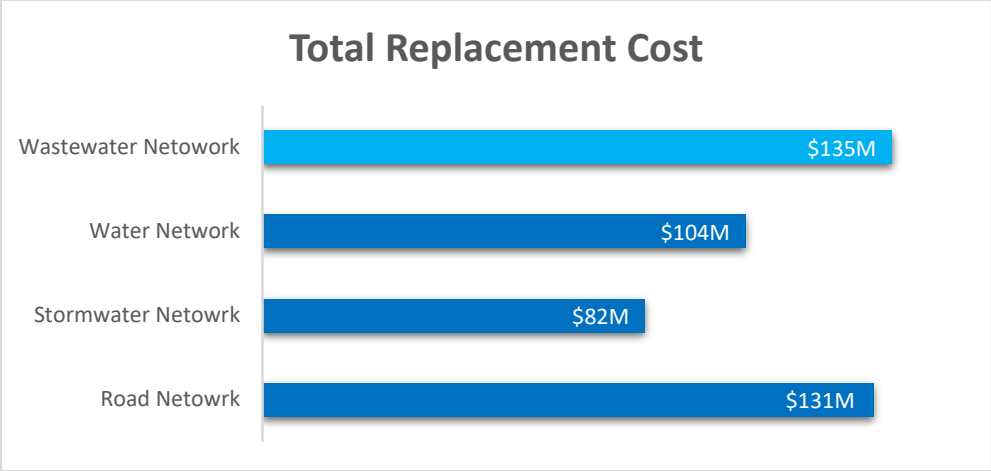
3.2 Wastewater Network

The wastewater services provided by the municipality are managed by the Environmental Services department. This department is responsible for sewer mains, sanitary pump stations, manholes and the Pollution Control Plant.

3.2.1 Asset Inventory & Replacement Cost

The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the municipalities Wastewater Network Inventory.

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Mains	95 Km	Replacement Cost	$64.3 million
Pump Stations	5	CPI Tables	$8.5 million
Manholes	1237	Replacement Cost	$20.2 million
Pollution Control Plant	1	CPI Tables	$41.8 million
		Total	$134 million

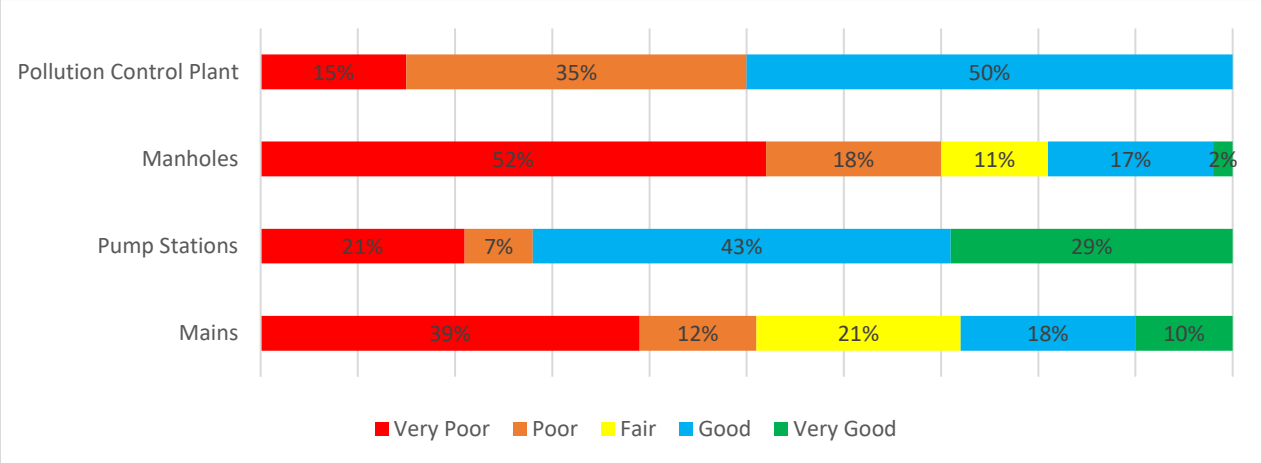


3.1.2 Asset Condition

The table below identifies the current average condition and source of available condition data for each asset segment.

Asset Segment	Average Condition Rating (out of 100)	Condition Source
Mains	Poor	Age Based
Pump Stations	Good	Age Based
Manholes	Very Poor	Age Based
Pollution Control Plant	Fair	Age Based

*Information above is only as accurate as current data available.



Current Approach to Condition Assessment

Accurate and reliable condition data allows staff to determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The following describes the municipalities current approach:

- Acoustic Rapid Assessment of 100% of gravity sewer per year.
- Pole Camera Inspection dependent on the results of the rapid assessment.

- Flushing dependent on the results of the rapid assessment.
- CCTV Camera inspection 1.5% network annually, completed before relining event.
- Pumping stations are inspected on a daily basis by internal staff. The stations were also assessed by an external consultant in 2019.

3.1.3 Estimated Useful Life & Average Age

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining.
Mains	61	42	19
Pump Stations	50	18	32
Manholes	50	42	8
Pollution Control Plant	50	25	25

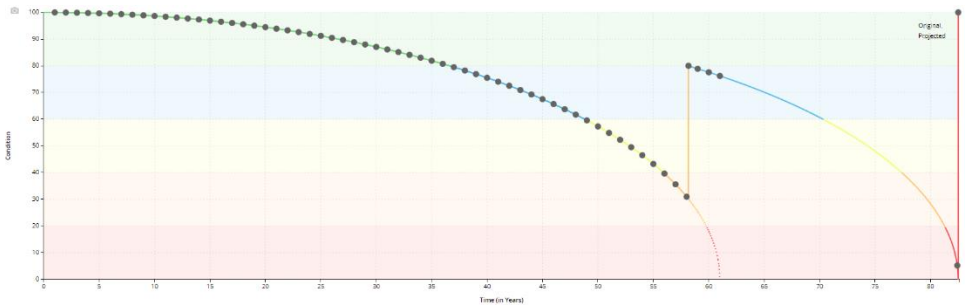
*Information above is only as accurate as current data available.

As part of our current Asset Management project we are working on disaggregating all of these asset categories as they are currently pooled.

3.1.4 Lifecycle Management Strategy

The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

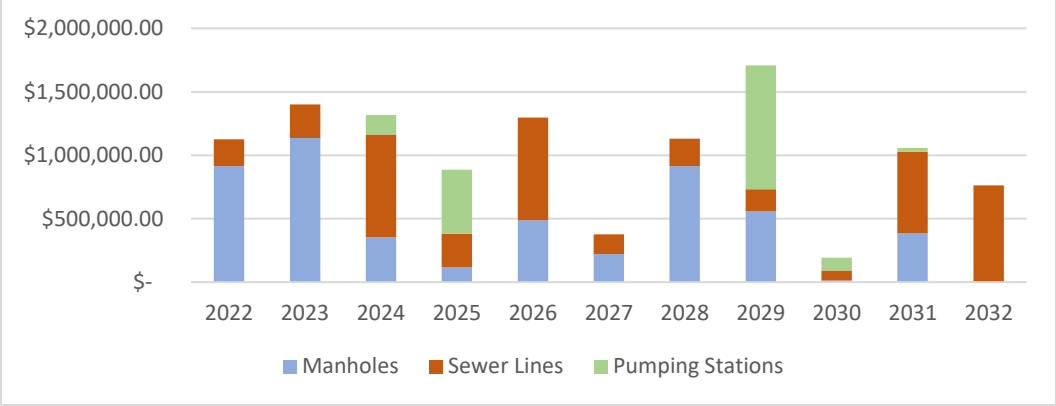
Event Name	Event Description	Event Class	Added Useful Life	Event Trigger
Acoustic Rapid Assessment	100% of total network per year	Preventative Maintenance	No Impact	Annually
Pole Camera Assessment	Dependent on results of Rapid Assessment	Preventative Maintenance	No Impact	Poor Rating on Rapid Assessment
Flushing	Dependent on results of Rapid Assessment	Preventative Maintenance	No Impact	Poor Rating on Rapid Assessment
CCTV Camera Inspection	1.5% complete before relining	Preventative Maintenance	No Impact	Suspected Defect
Manholes	Inspected annually during Acoustic Rapid Assessment	Preventative Maintenance	No Impact	Annually
Pump Stations	Station Checks	Preventative Maintenance	No Impact	Daily



Forecasted Capital Requirements

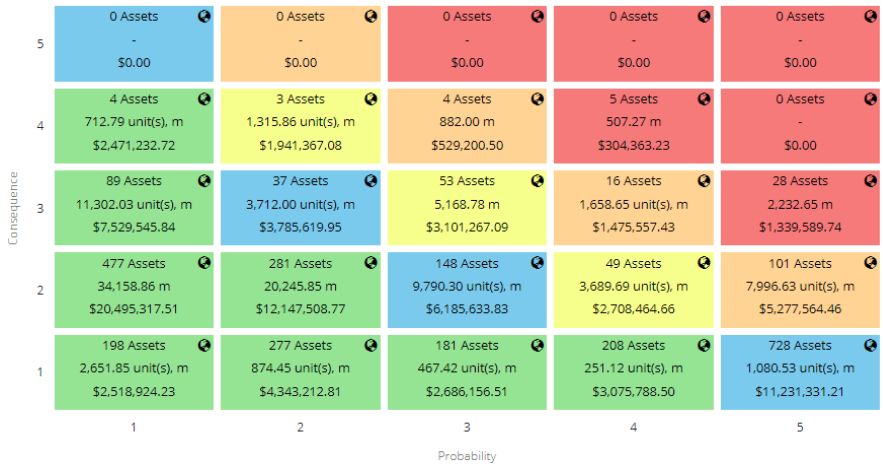
Based on the lifecycle strategies identified the following graph forecasts capital requirements for the Wastewater Network. The annual capital requirement represents the average amount per year that the municipality should allocate towards funding rehabilitation and replacement needs to meet current Level of Service.

Average Annual Capital Requirement $1,619,000



3.1.5 Risk & Criticality

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category. Assets with higher risk should be prioritized for rehabilitation and reconstruction projects.



3.1.6 Levels of Service

The following tables identify the municipalities current level of service for the Wastewater Network. These metrics include the technical and community level of service metrics that are required as part of O. Reg. 588/17.

Community Level of Service

The following table outlines the qualitative descriptions that determine the community levels of service provided by the Water Network.

Service Attribute	Qualitative Description	Current LOS 2022
Scope	Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal wastewater systems	See Appendix E.
Reliability	Description of how combined sewers in the municipal wastewater system are designed with overflow structures in place which allow overflow during storm events to prevent backups into homes	The Town is replacing combined sewers with separate sanitary and storm systems as reconstruction of the street occurs. Currently there are 24 combined systems remaining.
Reliability	Description of how stormwater can get into sanitary sewers in the municipal wastewater system, causing sewage to overflow into streets or backup into homes	Stormwater can enter sanitary sewers due to cracks in sanitary mains, manholes, private services or through indirect connections (e.g. weeping tiles). In the case of heavy rainfall events, sanitary sewers may experience a volume of water and sewage that exceeds its designed capacity. In some cases, this can cause water and/or sewage to backup into homes. The disconnection of weeping tiles from sanitary mains and the use of sump pumps and pits directing storm water to the storm drain system can help to reduce the chance of this occurring.
Reliability	Description of how sanitary sewers in the municipal wastewater system are designed to be resilient to avoid stormwater infiltration	If influent flow to the plant exceeds the primary treatment rated capacity, there is a storm detention/overflow tank with an approximate volume of 1400 m3 for combined sewage flow detention. The headworks has an overflow chamber with a motorized sluice gate and bypass

		sewer line which discharges to the tank in a storm event where flows exceed 290 L/s.
Reliability	Description of the effluent that is discharged from sewage treatment plants in the municipal wastewater system	Effluent refers to water pollution that is discharged from a wastewater treatment plant and may include suspended solids or total phosphorous. The Midland WWTC is operated in accordance with the Environmental Compliance Approval (ECA) Number 5708-A72SPG, dated July 20, 2016.

Technical Level of Service

The following table outlines the quantitative metrics that determine the technical level of service provided by the Wastewater Network.

Service Attribute	Qualitative Description	Current LOS 2022
Scope	% of properties connected to the municipal wastewater system	82%
Reliability	# of events per year where combined sewer flow in the municipal wastewater system exceeds system capacity compared to the total number of properties connected to the municipal wastewater system	1
Reliability	# of connection-days per year due to sanitary main backups compared to the total number of properties connected to the municipal wastewater system	Not Data Available
Reliability	# of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system	0
Performance	% of wastewater system in good or very good condition	36%
Performance	% of wastewater system in poor or very poor condition	51%
Performance	Capital re-investment rate	0.49%

Growth Assumptions

The demand for infrastructure services will change with time based on a combination of factors. Understanding the drivers for growth and demand will allow the municipality to plan for new infrastructure more efficiently as well as the upgrade or disposal of existing infrastructure.

4.1 Midland Official Plan (February 2021)

The first Official Plan of the Town of Midland was approved in 1961, the sixth and latest Official Plan was adopted and approved February 2021. The Official Plan is intended to reflect and build upon the character, identify and cultural and natural features of the community and surrounding area. This plan is also intended to provide guidance, encouragement and security concerning economic development and investment to the year 2031.

The Province and Simcoe County have provided population and employment forecasts for the Town of Midland that form the basis for the growth management strategy in the Official Plan. The Town of Midland is projected to grow to a total population of 22,500, with an employment target of 13,800 jobs within the next 10 years.

Year	Residential Population	Employment	Growth
2016	16,864	12,233	-
2031	22,500	13,800	33%
2041	26,881	16,487	19%

4.2 Water Servicing Master Plan (July 2019)

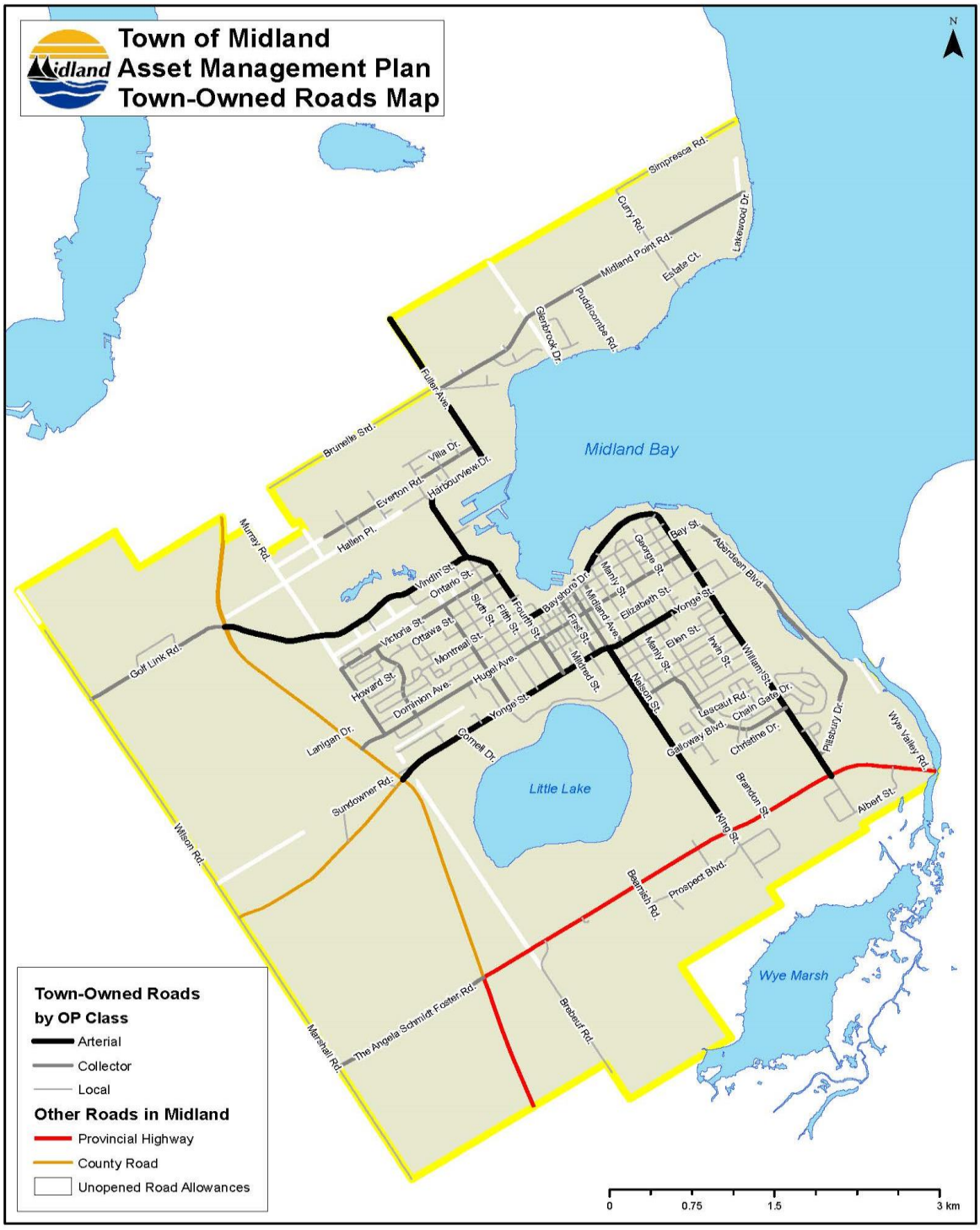
Moderate near and long term growth is expected in the Town of Midland. As such, there is a need for improving water production/supply and servicing in a sustainable manner that can be logically phased. Additional infrastructure and improvements to the existing system must be in place in a timely and orderly manner to service approved growth.

To improve storage capacity, a new water storage facility in the East pressure zone is required to provide sufficient fire, equalization and emergency storage in the future. To improve pump capacity, fire pumps at Hanly Booster Pump Station and Everton Booster Pump Station are required to provide sufficient fire flow supply. Lastly, to improve the overall security of groundwater supply, additional well supply is required. It is important to note that because the West pressure zone relies on the transfer of flow from the East Pressure zone, securing a groundwater well supply in the West pressure zone would significantly increase the security of water supply.

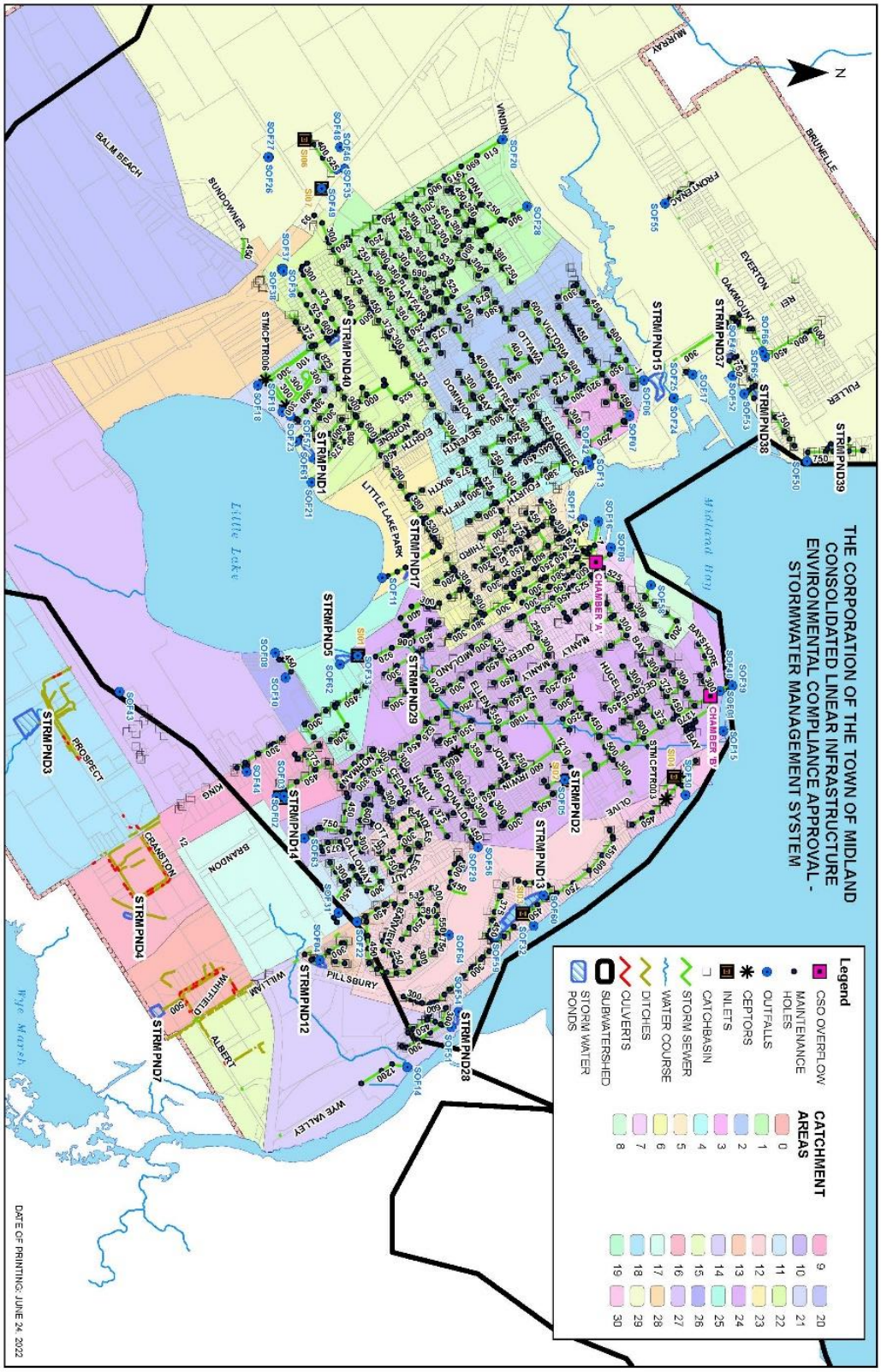
4.3 Impact of Growth on Lifecycle Activities

Planning for growth will require the expansion of existing infrastructure and services. As growth related assets are acquired they should be incorporated into the municipalities AMP so lifecycle planning and costing can begin. These additional costs will need to be considered in long term funding to maintain the current level of service, at minimum. While there will be additional assessment base to help fund the lifecycle costing, a full analysis should be completed prior to development approval.

Appendix A


Town of Midland
Asset Management Plan
Town-Owned Roads Map
N
Midland Bay
Little Lake
Wye Marsh
Simpresca Rd.
Curry Rd.
Midland Point Rd.
Estate Ct.
Lakewood Dr.
Puddicombe Rd.
Glenbrook Dr.
Fuller Ave.
Brunelle Strd.
Villa Dr.
Harbourview Dr.
Everton Rd.
Hallen Pl.
Murray Rd.
Golf Link Rd.
Jindin St.
Ontario St.
Victoria St.
Ottawa St.
Montreal St.
Howard St.
Dominion Ave.
Sixth St.
Fifth St.
Fourth St.
Bayshore Dr.
First St.
Hugel Ave.
Yonge St.
Mildred St.
Midland Ave.
Manly St.
Elizabeth St.
Ellen St.
Irwin St.
Nelson St.
Bay St.
George St.
Yonge St.
Aberdeen Blvd.
William St.
Lascaut Rd.
Chain Gate Dr.
Galloway Blvd.
Christine Dr.
Pittsburg Dr.
Wye Valley Rd.
Albert St.
Brandon St.
King St.
Prospect Blvd.
Beamish Rd.
Brebeuf Rd.
Lanigan Dr.
Sundowner Rd.
Cornell Dr.
Wilson Rd.
Marshall Rd.
The Angela Schmidt Foster Rd.
Town-Owned Roads
by OP Class
Arterial
Collector
Local
Other Roads in Midland
Provincial Highway
County Road
Unopened Road Allowances
0
0.75
1.5
3 km

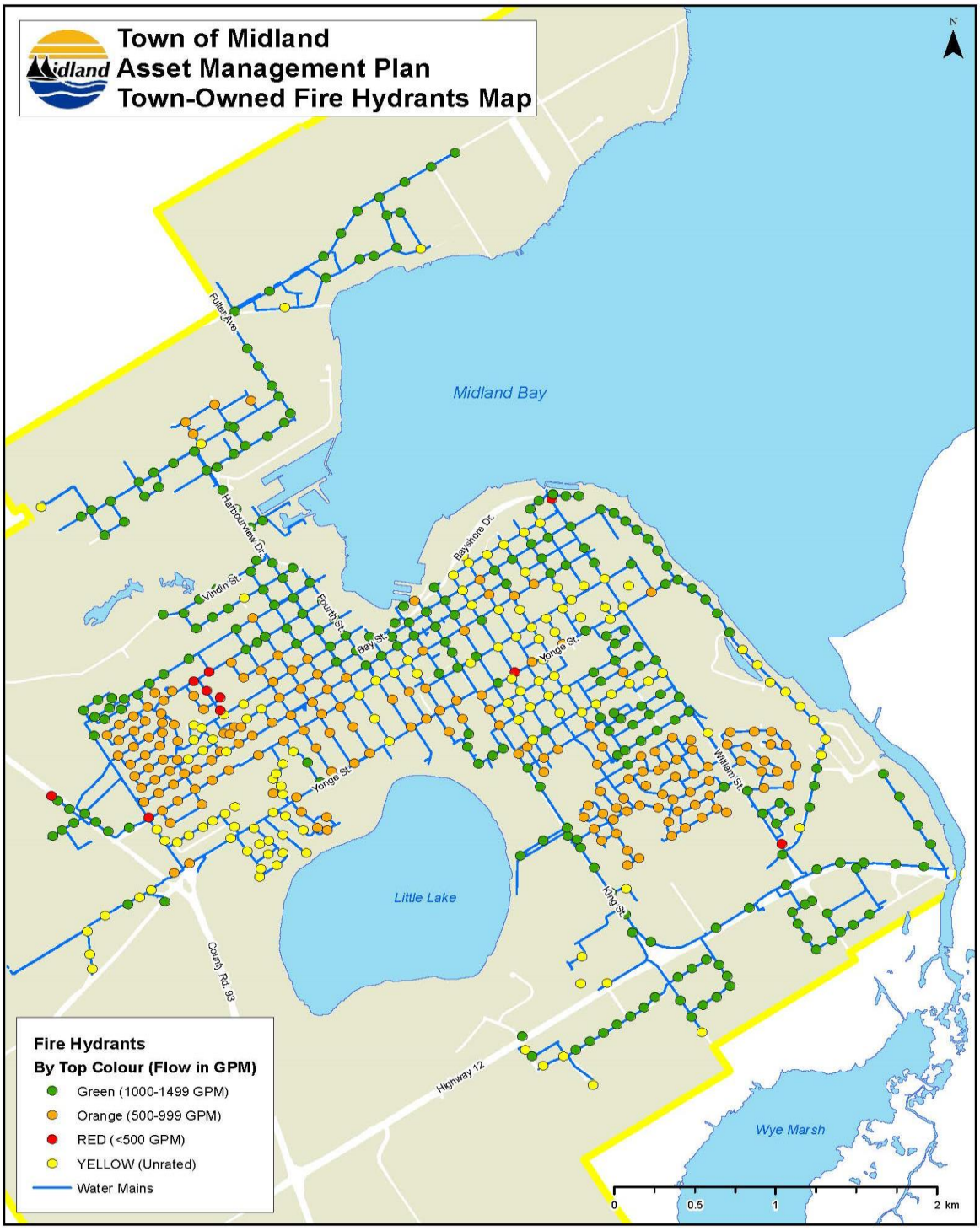
Appendix B


THE CORPORATION OF THE TOWN OF MIDLAND
CONSOLIDATED LINEAR INFRASTRUCTURE
ENVIRONMENTAL COMPLIANCE APPROVAL -
STORMWATER MANAGEMENT SYSTEM
Legend
CSO OVERFLOW
MAINTENANCE HOLES
OUTFALLS
CEPTORS
INLETS
CATCHBASIN
STORM SEWER
WATER COURSE
DITCHES
CULVERTS
SUBWATERSHED
STORM WATER PONDS
CATCHMENT AREAS
DATE OF PRINTING: JUNE 24, 2022

Appendix C


Town of Midland
Asset Management Plan
Town-Owned Water Systems Map
N
Midland Bay
Everton Booster Station
Harbourview Dr.
Fuller Ave.
Vindin Well #16
Vindin Well #17
Vindin Well #11
Vindin St.
Fourth Well #1A
Vindin Well #6
Vindin Well #12
Vindin Well #14
Fourth St.
Bayshore Dr.
Bay St.
Montreal Booster Station
Dominion Booster Station
Hanly Well #15
William St.
Penetanguishene Well #9
Yonge St.
Dominion/Penetanguishene Fire Booster Station
Little Lake
King St.
Balm Beach Rd. E.
Sundowner Booster Station
HWY 12 Well #7B
HWY 12 Well #7A
County Rd. 93
Sampling Well #1
Highway 12
Wye Marsh
Booster Stations
Water Storage Devices
Water Mains
Municipal Wells
by Well Type
Production
Sampling
0
0.5
1
2 km

Appendix D


Town of Midland
Asset Management Plan
Town-Owned Fire Hydrants Map
N
Midland Bay
Little Lake
Wye Marsh
Fuller Ave
Harbour View Dr
Bayshore Dr
Windin St
Fourth St
Bay St
Yonge St
William St
King St
County Rd. 93
Highway 12
Fire Hydrants
By Top Colour (Flow in GPM)
Green (1000-1499 GPM)
Orange (500-999 GPM)
RED (<500 GPM)
YELLOW (Unrated)
Water Mains
0
0.5
1
2 km

Appendix E


Town of Midland
Asset Management Plan
Town-Owned Sanitary Systems Map
N
Midland Bay
Harbourview Dr.
Vindin St.
Fourth St.
Bay St.
Bayshore Dr.
Yonge St.
William St.
King St.
Little Lake
Balm Beach Rd. E.
County Rd. 93
Highway 12
Wye Marsh
Sanitary Sewer Lines
0
0.5
1
2 km