



TOWNSHIP OF HURON-KINLOSS ASSET MANAGEMENT PLAN 2022



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Appendix A – 10-Year Capital Requirements

Appendix B – Levels of Service Photos and Maps

Appendix C – Growth Forecasting County of Bruce

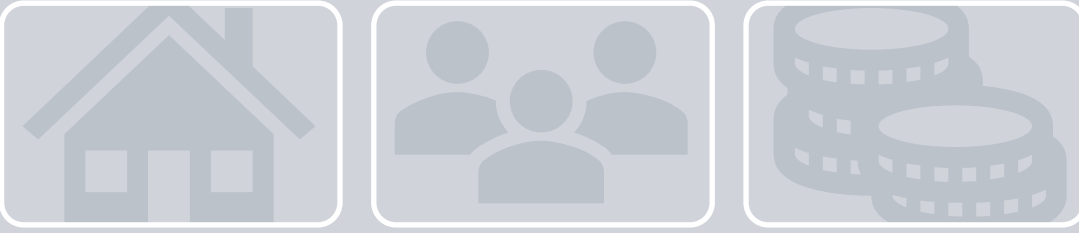
1.0 Executive Summary

The following is a summary of the key findings of the Township of Huron-Kinloss Asset Management Plan 2022. The plan was developed to be compliant with the requirements of *Ontario Regulation 588/17, Asset Management Planning for Municipal Infrastructure (O. Reg 588/17)* and in accordance with the Township’s Strategic Asset Management Policy. This version of the Asset Management Plan (AMP) uses the asset inventory and costs as of January 1, 2022 and includes the following asset categories:

-  Bridges and Culverts
-  Buildings
-  Machinery and Equipment
-  Fleet
-  Land Improvements
-  Roads
-  Sanitary Sewers
-  Storm Sewers
-  Drinking Water

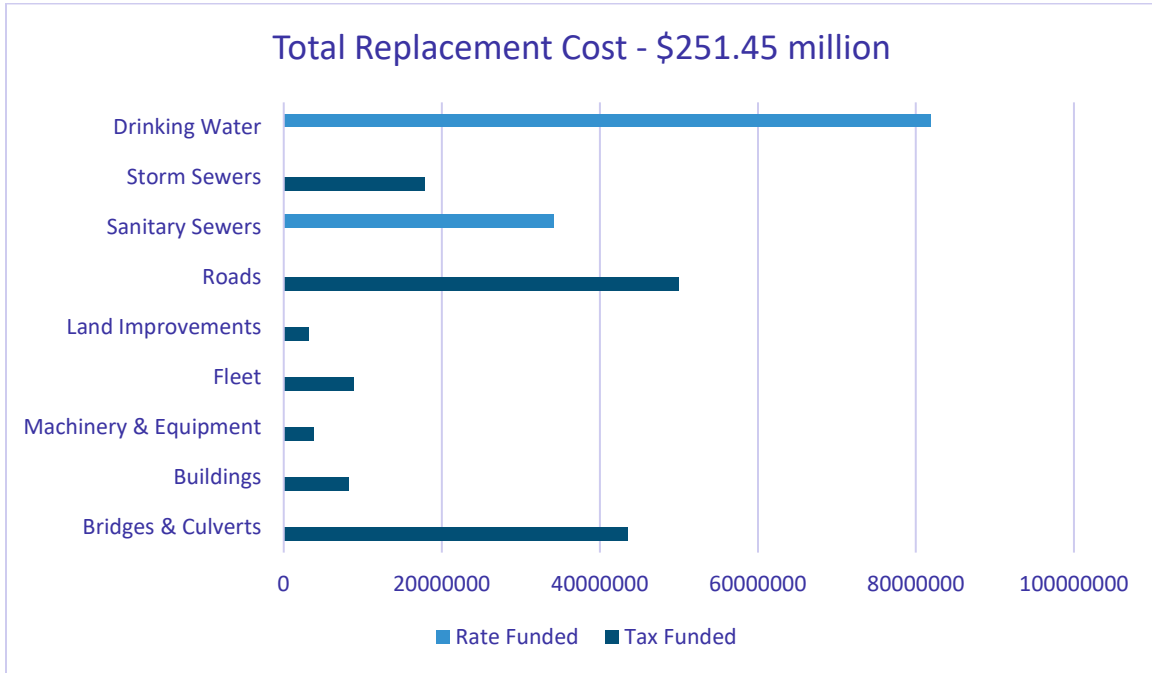
1.1 State of Current Infrastructure

The total replacement cost of the assets included in this AMP is \$251.45 million. 79% of all assets included in this AMP are in fair or better condition. The annual capital infrastructure investment to maintain the current inventory and level of service in all categories is \$6,602,754.00.



<p>Replacement Cost of Infrastructure per Household \$59,881</p>	<p>Replacement Cost of Infrastructure per Capita \$31,844</p>	<p>Target Reinvestment Rate 2.6%</p>
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The total replacement cost of the Township's assets is outlined below.



The total replacement cost of rate funded assets (drinking water and sanitary sewer) is \$116.17 million versus the total replacement cost of tax funded assets at \$135.28 million.

The annual capital infrastructure investment to maintain the current inventory and level of service for rate funded assets is \$1,902,404 compared to the annual requirement of \$4,700,350 for tax funded assets. Based on the current (2021) funding there is a shortfall of \$556,253 and \$1,095,755 for rate funded and tax funded assets, respectively. In the rate funded asset category the gap is almost entirely in the sanitary sewer asset class.

Rate of Reinvestment

Category	Target Reinvestment Rate	Actual Reinvestment Rate
Rate Funded Assets	1.64%	1.16%
Tax Funded Assets	3.47%	2.66%

The rates of reinvestment include sources of funding that are predictable and reliable. Grants that are dedicated to infrastructure such as the Ontario Community Infrastructure Fund (OCIF) and the Canada Community Building Fund (CCBF, formerly Federal Gas Tax) are included in the calculation. Competitive based grants are not included in the calculation.

The financial strategy implemented in the 2018 asset management plan was to increase taxes by 0.9% annually for 15 years to address the infrastructure shortfall. This plan also recommended increasing water rates by 0.8% for five years and sewer rates by 5.6% for 20 years to close the funding shortfall.

These strategies will remain until such time as the financial strategies are reviewed in conjunction with the next AMP by 2025 and the Water and Wastewater system financial plan for 2026 to 2031. It will also be critical to plan for growth and the impact on the rate funded assets at that time.

2.0 Background

2.1 Purpose

Municipalities are responsible for \$484 billion in infrastructure, critical to the delivery of services in Ontario. To ensure sustainability of public infrastructure, municipalities are required to have comprehensive asset management plans. The Township of Huron-Kinloss has committed to an asset management program that complies with provincial legislation. O. Reg 588/17 sets out specific requirements for municipal asset management plans.

AMP for core assets with the following:

- 1) Current levels of service
- 2) Inventory analysis
- 3) Lifecycle activities to maintain levels of service
- 4) Population and employment forecasts
- 5) Discussion of growth impacts

2022

Same as 2022, but must include ALL asset categories

2024

Review of Strategic Asset Management Policy and an updated AMP for ALL asset categories with the following additional items:

- 1) Proposed levels of service for a minimum of 10 years
 - 2) Updated inventory analysis
 - 3) Lifecycle management for a minimum of 10 years
 - 4) Financial strategy for a minimum of 10 years
 - 5) Discussion of growth assumptions on lifecycle and financial strategies.
-

2025

Preparation of this AMP satisfies the requirements of O. Reg 588/17 that must be completed by July 1, 2024. The next milestones must be met by July 1, 2025.

3.0 Key Terms and Methodology

3.1 Asset Management Planning

The main goal of asset management is to minimize the lifecycle costs of asset ownership over its useful life, manage the associated risk while maximizing the performance of the assets in the delivery of the services. To achieve this, municipalities have a variety of tools, including:

- 1) Asset Management Policy to provide clear roles and responsibilities related to asset management planning.
- 2) Asset Management Strategy to provide an overview of required activities to meet asset management objectives.
- 3) Asset Management Plan (AMP) to summarize the municipal asset management program results.

The AMP is a snapshot of the Township's progress in effective asset management and should be updated regularly.

3.2 Asset Inventory

The Township of Huron-Kinloss uses specialized software provided by Public Sector Digest psdCitywide™ to record information about municipal assets. The information is updated annually and as additional asset data becomes available through condition assessments or other information.

3.3 Estimated Useful Life

The estimated useful life (EUL) of an asset is the period over which the asset is expected to be in service before requiring replacement or disposal. The estimated useful life for each asset in this AMP has been assigned based on current asset management policies and determination of municipal staff and industry standards.

3.4 Funding

The two main sources of funding for municipal assets are property taxes and user rates. All asset categories in this AMP are funded by taxes, with the exception of Sanitary Sewers and Drinking Water assets which are funded through user rates.

3.5 Replacement Cost

There are a variety of methods available to determine replacement cost. This AMP uses two specific methods:

- 1) User Defined Cost and Cost per Unit – based on costs provided from recent engineering reports and recent contracts and asset replacement
- 2) Cost Inflation/CPI Tables – historical cost is inflated based on the Consumer Price Index or Non-Residential Building Construction Price Index

User-defined replacement costs are the preferred method and are typically more accurate. Cost inflation is used as an alternative but becomes less accurate as assets age.

3.6 Reinvestment Rate

The reinvestment rate is intended to measure the amount of available or required funding relative to the total replacement cost. In this AMP the reinvestment rate is calculated as follows:

$$\text{Target Reinvestment Rate} = \frac{\text{Annual Capital Requirement}}{\text{Total Replacement Cost}}$$

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

3.7 Asset Condition

The Township uses a combination of strategies to determine asset condition. The specific methods are outlined in each category section. Where specific condition data does not exist, assumptions are made based on age. This method has proven to be less reliable as many assets remain in service well past their estimated useful life, with proper maintenance.

3.8 Risk Strategies

Risk is generally defined as the probability of failure multiplied by the consequence of failure. Assets are assigned a score based on condition and cost to determine the risk rating for each asset. Identifying assets that are at high risk of failure, are critical to the operations of the Township, or both allows the Township to make decisions to avoid service disruptions and minimize costs.

3.9 Lifecycle Strategies

The Township's approach to lifecycle maintenance strategies is outlined in each category section. Proactive maintenance can extend the life and performance of assets and is generally considered a best practice in municipal asset management.

3.10 Levels of Service

A level of service is a measure of what is being provided to the community. Levels of service are divided into two categories:

- 1) Community Levels of Service – qualitative descriptions about the services the community receives for all asset categories, and
- 2) Technical Levels of Services – quantitative measures about the services the community receives for core asset categories (bridges and culverts, roads, sanitary sewers, storm sewers and drinking water) only.

The Township established a Levels of Service framework in 2018 with core values for service delivery in the core asset categories. The current levels of service are outlined in each category section. The proposed levels of service and strategies to close the gap between the current and proposed levels of service will be included in the July 1, 2025 AMP update.

4.0 Bridge and Culvert Assets

4.1 Summary

The Township of Huron-Kinloss is responsible for 43 bridges and 33 corrugated steel pipe (CSP) and 21 concrete culverts spanning 3 metres or greater within the local roads infrastructure network.

Total Replacement Cost	Average Condition	Annual Capital Requirement
\$43,498,109	Good (72%)	\$989,745

4.2 Inventory Breakdown and Cost

Bridges and Culverts are captured as follows:

Asset Segment	Number of Assets	Replacement Cost	Annual Capital Requirement
Bridges	43	\$28,076,800	\$745,812
Culverts	54	\$15,421,309	\$243,933
	Total	\$43,498,109	\$989,745

4.3 Asset Age and Condition

Bridges and Culverts are captured as follows:

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition	Percentage of Total Asset Inventory
Bridges	80	42.3	(Good) 71%	64.5%
Culverts	50-80	39.3	(Good) 75%	35.5%
	Total	40.7	(Good) 72%	100.0%

4.4 Condition Assessment Strategy

All structures are inspected every 2 years using the Ontario Structure Inspection Manual (OSIM). This plan uses the inspection ratings resulting from the 2021 Bridge Inspection Report prepared by B.M. Ross & Associates Ltd.

4.5 Risk

Risk is measured by multiplying the probability of failure by the consequence of failure. The table below represent the risk matrix for the Township’s bridges and culverts:

5	0 Assets - \$0.00	2 Assets 2.00 unit(s) \$3,572,400.00	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00
4	0 Assets - \$0.00	0 Assets - \$0.00	1 Asset 1.00 unit(s) \$520,000.00	0 Assets - \$0.00	0 Assets - \$0.00
3	3 Assets 3.00 unit(s) \$1,595,100.00	18 Assets 18.00 unit(s) \$13,340,600.00	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00
2	5 Assets 5.00 unit(s) \$1,790,600.00	28 Assets 27.00 unit(s) \$13,283,800.00	4 Assets 4.00 unit(s) \$1,359,200.00	0 Assets - \$0.00	0 Assets - \$0.00
1	7 Assets 7.00 unit(s) \$1,290,600.00	14 Assets 13.00 unit(s) \$4,402,400.00	8 Assets 8.00 unit(s) \$1,799,100.00	2 Assets 2.00 unit(s) \$494,000.00	1 Asset 1.00 unit(s) \$50,309.00
	1	2	3	4	5
	Probability				

Use of a risk matrix allows for easy identification of assets for consideration of risk mitigation strategies that may include:

- Lifecycle activities to repair or rehabilitate the asset,
- Condition assessment or review of existing assessments, or
- Replacement of the asset

There are limited risks associated with bridges and culverts such as deterioration due to extreme weather conditions or human caused damage, however these should be easily managed through routine inspection.

4.6 Lifecycle Maintenance and Capital Replacement Strategy

To maintain infrastructure in good working condition and limit service interruptions, the 2021 Bridge Report prepared by B.M. Ross and Associates Limited recommends routine maintenance activities that can be completed, such as:

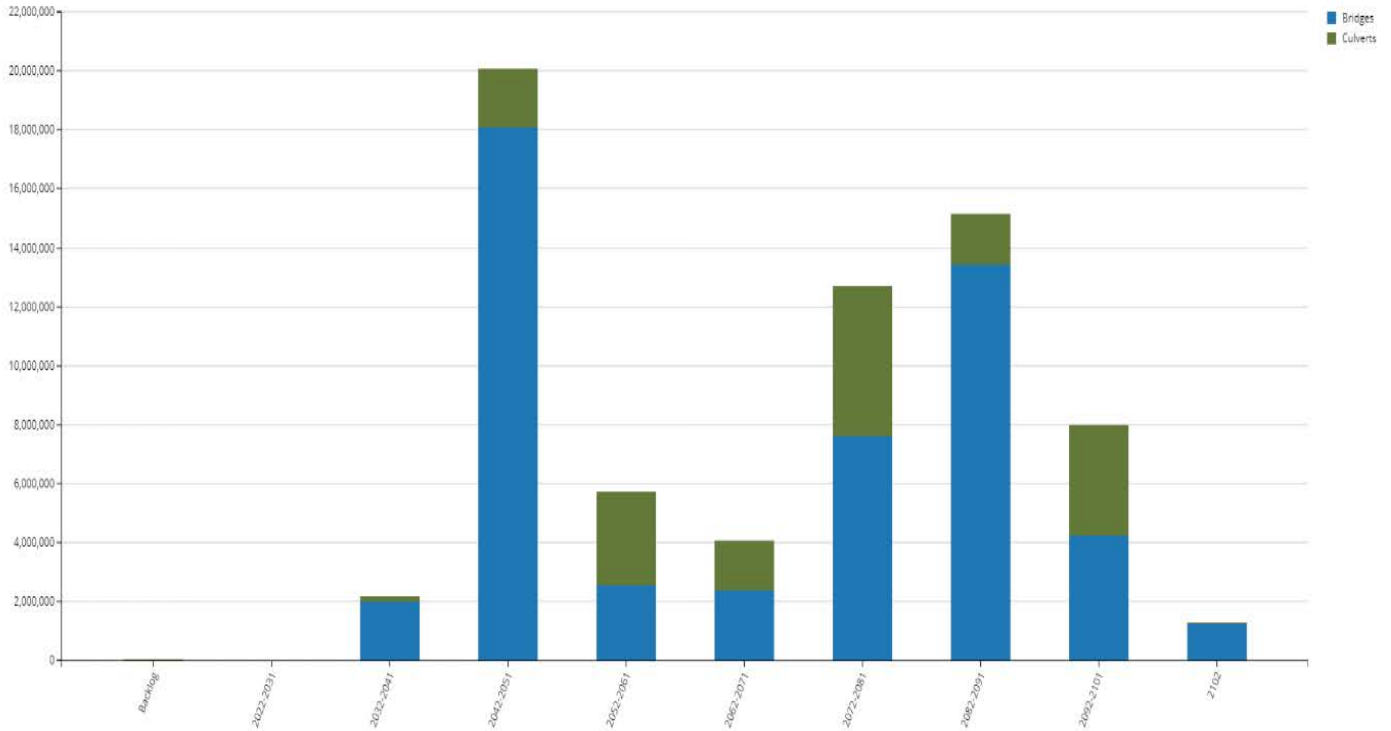
- Pressure wash expansion joints,
- Clean gravel off curbs and decks,
- Clean bearing seats to drain water away from girders,
- Re-seal joints with caulking,
- Grade shoulders to minimize washouts,
- Remove brush and logs blocking stream flow through, and
- Restore eroded stream banks and place rip rap.

Where rehabilitation activities are not possible or practical, assets are simply maintained with the goal of full replacement. The 2021 Bridge Report provides a list of recommended replacement priorities and municipal staff consider other factors such as road reconstruction and bundling of similar work to maximize cost efficiencies.

4.7 Capital Forecast

To maintain the existing asset inventory requires an investment of \$989,745 annually. The charts below outline the requirements over an 80-year forecasted period, which is reflective of the estimated useful life of the asset assuming that it would have gone through one complete lifecycle.

Capital Requirements 2022-2102



4.8 Levels of Service

Core Value	Level of Service Statement	Community Level of Service	Technical Level of Service	Current Level of Service (2021)
Accessible & Reliable	Bridges and culverts provide reliable access to the road network for vehicles and/or pedestrians	Description of the traffic that is supported by municipal bridges (e.g. heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists)	% of bridges in the municipality with loading or dimensional restrictions	4 structures with load limits and width limits plus 3 additional structures with width restrictions. All other structures including heavy transport, agricultural equipment, motor

				vehicles and cyclists can cross them
			# of unplanned bridge closures	None
Safe & Regulatory	Bridges and culverts provide safe vehicular and/or pedestrian passage, and all structures are fully compliant with regulatory requirements	Description of the OSIM inspection process	% of bridges inspected every two years	100% of bridges inspected every two years
Affordable	Bridges and culverts are managed cost-effectively for the expected level of service	What is the O&M cost to maintain bridges and culverts per household?	O&M costs for bridges & culverts / m ²	$(\$169,268/4,107) = \$41.21/\text{household}$ $(\$169,268/9,697) = \$17.46/\text{m}^2$
Sustainable	There are long-term plans in place for the sustainability of all bridges and culverts	When was the last time the Bridges & Culverts AMP was reviewed?	Bridges & Culverts AMP reviewed annually	Yes
		Description or images of the condition of bridges and how this would affect use of the bridges	Average bridge condition index value for bridges in the municipality	Images Appendix B Average BCI score for all structures = 71
		Description or images of the condition of culverts and how this would affect use of the culverts	Average bridge condition index value for structural culverts in the municipality	Images Appendix B Average BCI score for all structures = 71

5.0 Buildings

5.1 Summary

The Township owns and maintains various buildings including fire stations, municipal administration office, arenas, libraries, etc. Collection of building component data has proven to be challenging based on the lack of historical information. As building components are replaced, they are captured separately.

Total Replacement Cost	Average Condition	Annual Capital Requirement
\$8,252,030	Fair (55%)	\$339,593

5.2 Inventory Breakdown and Cost

Building assets are captured as follows:

Asset Segment	Number of Assets	Replacement Cost	Annual Capital Requirement
Buildings	95	\$7,623,781	\$308,320
Major Components	35	\$628,249	\$31,273
Total		\$8,252,030	\$339,593

5.3 Asset Age and Condition

Building assets are captured as follows:

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition	Percentage of Total Asset Inventory
Buildings	30	28.7	(Fair) 52%	92.3%
Major Components	15-30	32.9	(Good) 65%	7.7%
Total		27.2	(Fair) 55%	100.0%

5.4 Condition Assessment Strategy

The current methodology for determining asset condition relies on a combination of available tools and activities that include:

- Visual inspections, and
- Asset age

For the purposes of this plan the following rating scale is used to determine the current age-based condition of assets:

Condition	Description	Rating
Very Good	Fit for the future	80-100
Good	Adequate for Now	60-80
Fair	Requires Attention	40-60
Poor	Potential to affect service	20-40
Very poor	Unfit for sustained service	0-20

5.5 Risk

Risk is measured by multiplying the probability of failure by the consequence of failure. The table below represent the risk matrix for the Township’s building assets:

		1	2	3	4	5
5	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00
4	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00	1 Asset 1.00 unit(s) \$1,179,447.00
3	0 Assets -\$0.00	0 Assets -\$0.00	1 Asset 1.00 unit(s) \$671,511.00	1 Asset 1.00 unit(s) \$385,956.00	2 Assets 2.00 unit(s) \$913,707.00	
2	1 Asset 1.00 unit(s) \$214,129.00	1 Asset 1.00 unit(s) \$155,274.00	4 Assets 4.00 unit(s) \$1,000,431.00	4 Assets 4.00 unit(s) \$844,849.00	3 Assets 3.00 unit(s) \$825,972.00	
1	29 Assets 33.00 unit(s) \$581,466.00	33 Assets 53.00 unit(s) \$431,077.00	21 Assets 22.00 unit(s) \$276,121.00	13 Assets 13.00 unit(s) \$340,227.00	16 Assets 16.00 unit(s) \$431,863.00	
		1	2	3	4	5
		Probability				

Use of a risk matrix allows for easy identification of assets for consideration of risk mitigation strategies that may include:

- Lifecycle activities to repair or rehabilitate the asset,
- Condition assessment or review of existing assessments, or
- Replacement of the asset

There are assumptions used in the collection of asset data that impact risk. For example, major components that are not easily accessed are more difficult to obtain accurate assessments.

5.6 Lifecycle Maintenance and Capital Replacement Strategy

To maintain infrastructure in good working condition and limit service interruptions, the Township of Huron-Kinloss employs a combination of maintenance activities that includes:

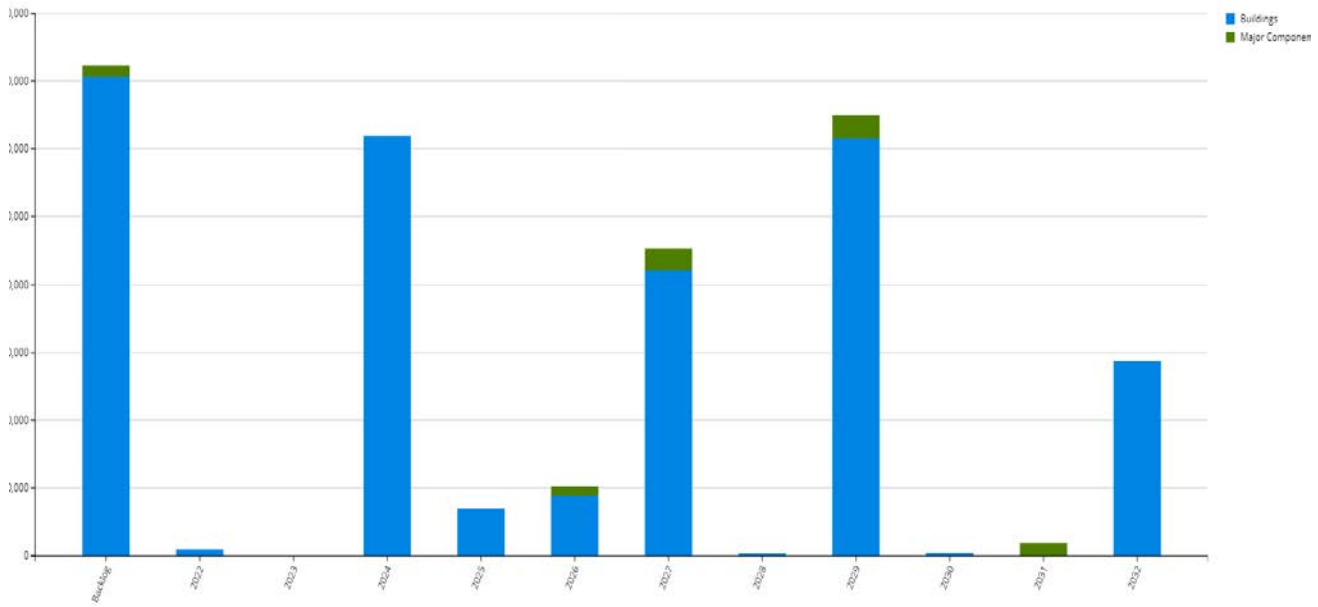
- Regular inspection and maintenance by staff, and
- Regular inspection and maintenance by third-party contractor

Where rehabilitation activities are not possible or practical, assets are simply maintained with the goal of full replacement or demolition. A review of the estimated useful life for buildings is recommended to improve accuracy of lifecycle strategies.

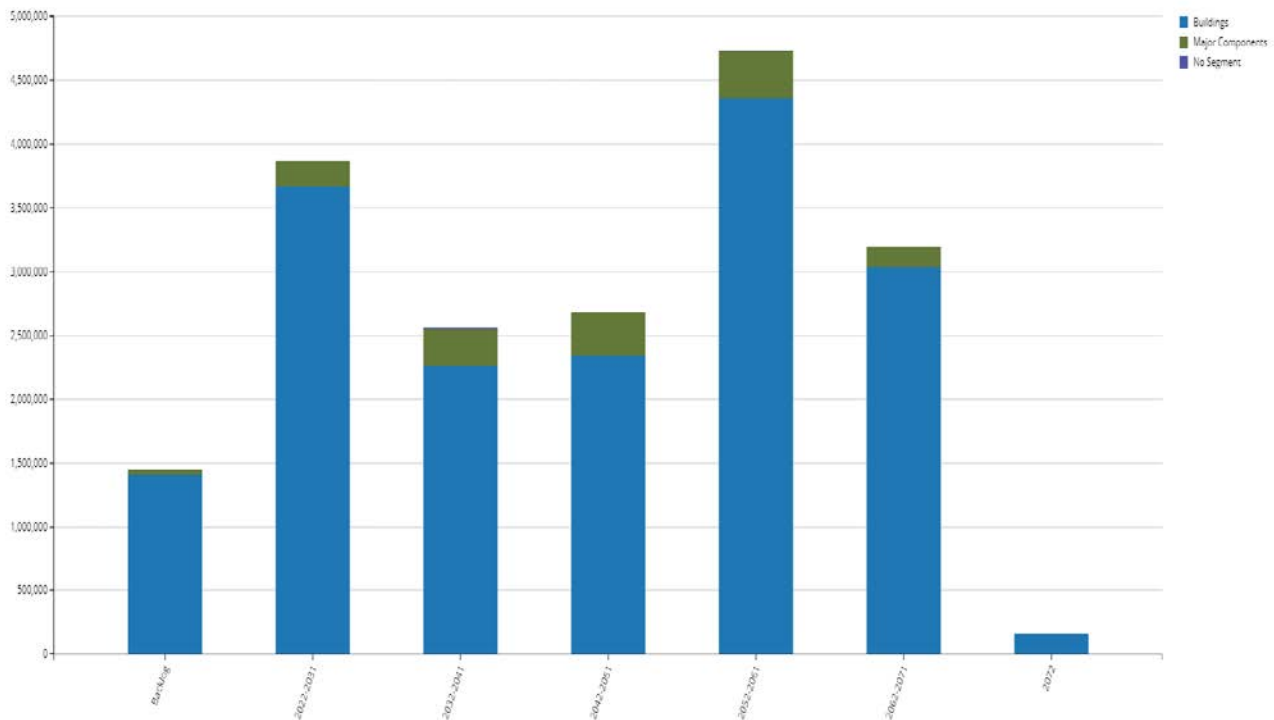
5.7 Capital Forecast

To maintain the existing asset inventory requires an investment of \$339,593 annually. The charts below outline the requirements both over a 10-year forecasted period and a 50-year forecasted period, which is reflective of the estimated useful life of the asset assuming that it would have gone through one complete lifecycle.

Capital Requirements 2022-2032



Capital Requirements 2022-2072



5.8 Levels of Service

Core Value	Community Level of Service	Technical Level of Service	Current Level of Service (2021)
Safe & Regulatory	Description of the current condition of municipal buildings Average is FAIR	% of facilities that are in good or very good condition	16.7%
		% of facilities that are in poor or very poor condition	59.6%

6.0 Machinery and Equipment

6.1 Summary

The Township owns and maintains various machinery and equipment to carry out the operations of the municipality. Many assets are pooled, as they do not meet the threshold for capitalization separately and are classified by function.

Total Replacement Cost	Average Condition	Annual Capital Requirement
\$3,749,381	Poor (33%)	\$393,703

6.2 Inventory Breakdown and Cost

Machinery and Equipment assets are captured as follows:

Asset Segment	Number of Assets	Replacement Cost	Annual Capital Requirement
General Government	pooled	\$556,297	\$80,708
Environmental Services	pooled	\$505,906	\$77,198
Protection Services	pooled	\$1,184,487	\$127,177
Recreation Services	pooled	\$1,435,285	\$97,649
Transportation Services	pooled	\$67,407	\$10,970
Total		\$3,749,381	\$393,703

6.3 Asset Age and Condition

Machinery and Equipment assets are captured as follows:

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition	Percentage of Total Asset Inventory
General Government	5-15	8.0	(Poor) 22.8%	14.8%
Environmental Services	5-20	12.0	(Very Poor) 2.3%	13.5%
Protection Services	5-20	5.6	(Poor) 38.4%	31.6%
Recreation Services	5-15	13.6	(Poor) 38.1%	38.3%
Transportation Services	5-20	7.8	(Poor) 32.3%	1.8%
Total		9.8	(Poor) 33.0%	100.0%

6.4 Condition Assessment Strategy

The current methodology for determining asset condition relies on a combination of available tools and activities that include:

- Visual inspections, and
- Asset age

For the purposes of this plan the following rating scale is used to determine the current age-based condition of assets:

Condition	Description	Rating
Very Good	Fit for the future	80-100
Good	Adequate for Now	60-80
Fair	Requires Attention	40-60
Poor	Potential to affect service	20-40
Very poor	Unfit for sustained service	0-20

6.5 Risk

Risk is measured by multiplying the probability of failure by the consequence of failure. The table below represent the risk matrix for the Township's machinery and equipment assets:

	1	2	3	4	5
5	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00
4	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00	1 Asset 1.00 unit(s) \$93,470.00	1 Asset 1.00 unit(s) \$80,100.00
3	0 Assets -\$0.00	0 Assets -\$0.00	1 Asset 1.00 unit(s) \$57,718.00	3 Assets 3.00 unit(s) \$193,213.00	1 Asset 1.00 unit(s) \$64,829.00
2	4 Assets 38.00 unit(s) \$126,974.00	2 Assets 13.00 unit(s) \$57,475.00	1 Asset 1.00 unit(s) \$28,544.00	2 Assets 3.00 unit(s) \$54,434.00	14 Assets 15.00 unit(s) \$513,365.00
1	51 Assets 393.00 unit(s), feet \$271,133.00	47 Assets 215.00 unit(s) \$264,802.00	39 Assets 205.00 unit(s) \$265,341.00	27 Assets 62.00 unit(s) \$156,811.00	153 Assets 1,316.00 unit(s) \$824,616.00
	1	2	3	4	5
	Probability				

Use of a risk matrix allows for easy identification of assets for consideration of risk mitigation strategies that may include:

- Lifecycle activities to repair or rehabilitate the asset,
- Condition assessment or review of existing assessments, or
- Replacement of the asset

Most machinery and equipment does not undergo rehabilitation due to its nature. However, it is important to provide accurate assessment data to ensure assets do not deteriorate faster than anticipated.

6.6 Lifecycle Maintenance and Capital Replacement Strategy

To maintain infrastructure in good working condition and limit service interruptions, the Township of Huron-Kinloss employs a combination of maintenance activities that includes:

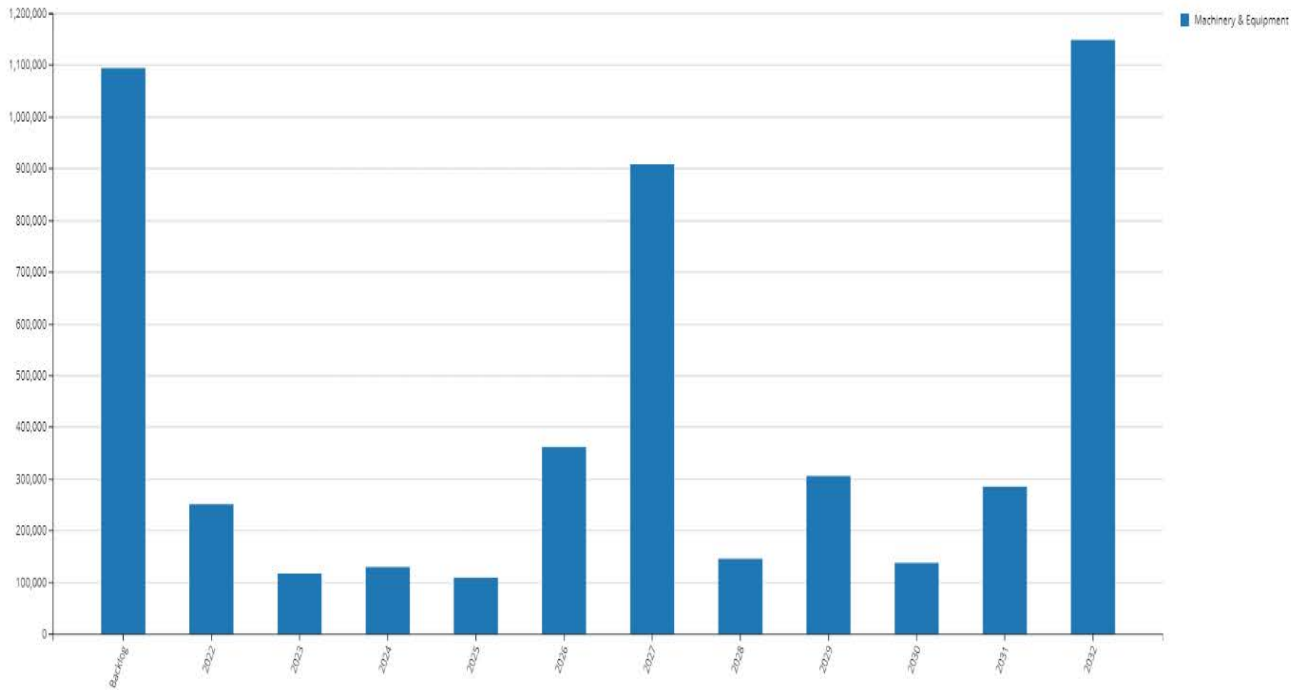
- Regular inspection and maintenance by staff, and
- Regular inspection and maintenance by third-party contractor

Where rehabilitation activities are not possible or practical, assets are simply maintained with the goal of full replacement. A review of the machinery and equipment inventory is recommended to improve accuracy of data.

6.7 Capital Forecast

To maintain the existing asset inventory requires an investment of \$393,703 annually. The charts below outline the requirements over a 10-year forecasted period.

Capital Requirements 2022-2032



6.8 Levels of Service

Core Value	Community Level of Service	Technical Level of Service	Current Level of Service (2021)
Sustainable	Description of the current condition of machinery & equipment Average is POOR	% of assets that are in good or very good condition	23.6%
		% of assets that are in poor or very poor condition	64.9%

7.0 Fleet

7.1 Summary

The Township owns and maintains a fleet of vehicles for municipal operations.

Total Replacement Cost	Average Condition	Annual Capital Requirement
\$8,813,839	Fair (47%)	\$610,029

7.2 Inventory Breakdown and Cost

Fleet assets are captured as follows:

Asset Segment	Number of Assets	Replacement Cost	Annual Capital Requirement
Fire Vehicles	9	\$2,426,673	\$180,170
Light Vehicles	29	\$642,752	\$128,550
Heavy Vehicles	48	\$5,587,928	\$290,876
Specialized Vehicles	2	\$156,486	\$10,433
Total		\$8,813,839	\$610,029

7.3 Asset Age and Condition

Fleet assets are captured as follows:

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition	Percentage of Total Asset Inventory
Fire Vehicles	15	12.0	(Fair) 46%	27.5%
Light Vehicles	5	10.9	(Very Poor) 20%	7.2%
Heavy Vehicles	20	10.0	(Fair) 58%	63.3
Specialized Vehicles	15	12.5	(Fair) 47%	2.0%
Total		10.2	(Fair) 55%	100.0%

7.4 Condition Assessment Strategy

The current methodology for determining asset condition relies on a combination of available tools and activities that include:

- Visual and mechanical inspections, and
- Asset age

For the purposes of this plan the following rating scale is used to determine the current age-based condition of assets:

Condition	Description	Rating
Very Good	Fit for the future	80-100
Good	Adequate for Now	60-80
Fair	Requires Attention	40-60
Poor	Potential to affect service	20-40
Very poor	Unfit for sustained service	0-20

7.5 Risk

Risk is measured by multiplying the probability of failure by the consequence of failure. The table below represent the risk matrix for the Township's fleet assets:

		1	2	3	4	5
5	0 Assets -	1 Asset 1.00 unit(s) \$471,957.00	0 Assets -	0 Assets -	2 Assets 2.00 unit(s) \$904,818.00	
4	2 Assets 2.00 unit(s) \$625,547.00	1 Asset 1.00 unit(s) \$255,658.00	5 Assets 5.00 unit(s) \$1,578,440.00	2 Assets 2.00 unit(s) \$550,445.00	1 Asset 1.00 unit(s) \$369,674.00	
3	5 Assets 5.00 unit(s) \$881,375.00	1 Asset 1.00 unit(s) \$156,621.00	1 Asset 1.00 unit(s) \$184,305.00	2 Assets 2.00 unit(s) \$335,572.00	7 Assets 7.00 unit(s) \$1,144,875.00	
2	1 Asset 1.00 unit(s) \$61,767.00	1 Asset 1.00 unit(s) \$97,598.00	2 Assets 2.00 unit(s) \$110,218.00	2 Assets 2.00 unit(s) \$114,254.00	2 Assets 2.00 unit(s) \$115,966.00	
1	18 Assets 21.00 unit(s) \$256,347.00	5 Assets 5.00 unit(s) \$85,917.00	3 Assets 3.00 unit(s) \$66,889.00	3 Assets 3.00 unit(s) \$60,522.00	21 Assets 21.00 unit(s) \$385,074.00	
		1	2	3	4	5
		Probability				

Use of a risk matrix allows for easy identification of assets for consideration of risk mitigation strategies that may include:

- Lifecycle activities to repair or rehabilitate the asset,
- Condition assessment or review of existing assessments, or
- Replacement of the asset

There are assumptions used in the collection of asset data that impact risk and it is important to review assessments to ensure assets do not deteriorate faster than anticipated, particularly when weather conditions and wear and tear impact their use.

7.6 Lifecycle Maintenance and Capital Replacement Strategy

To maintain infrastructure in good working condition and limit service interruptions, the Township of Huron-Kinloss employs a combination of maintenance activities that includes:

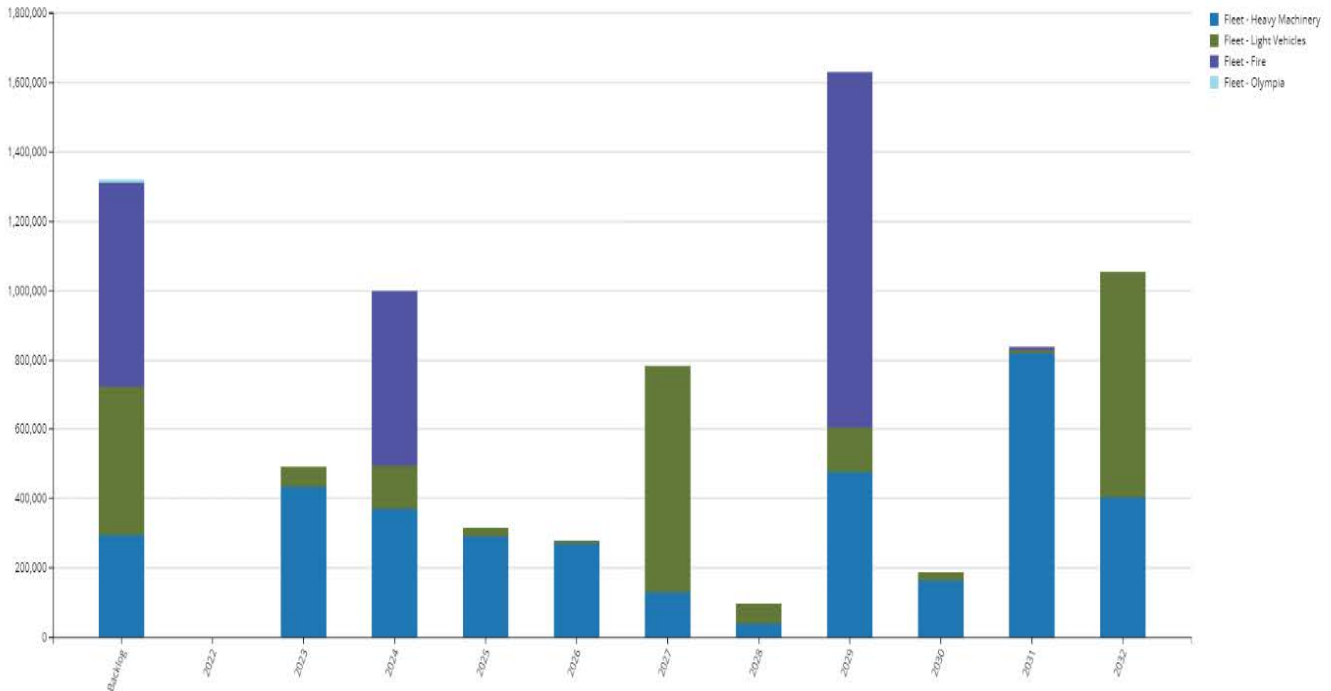
- Regular inspection and maintenance by staff, and
- Regular inspection and maintenance by third-party contractor

Where rehabilitation activities are not possible or practical, assets are simply maintained with the goal of full replacement. A review of the estimated useful life for light vehicles is recommended to improve accuracy of data and lifecycle strategies.

7.7 Capital Forecast

To maintain the existing asset inventory requires an investment of \$610,029 annually. The charts below outline the requirements over a 10-year forecasted period, which is reflective of the estimated useful life of the asset assuming that it would have gone through one complete lifecycle.

Capital Requirements 2022-2032



7.8 Levels of Service

Core Value	Community Level of Service	Technical Level of Service	Current Level of Service (2021)
Safe & Reliable	Description of fleet inspection process and licensing requirements	N/A	Fire vehicles adhere to National Fire Protection Association (NFPA) standards. Fleet vehicles are subject to regular inspection and maintenance by a certified mechanic in accordance with Commercial Vehicle Operator’s Registration (CVOR)
Sustainable	Description of the current condition of fleet Average is FAIR	% of assets that are in good or very good condition	32.8%
		% of assets that are in poor or very poor condition	45.2%

8.0 Land Improvements

8.1 Summary

Land improvements are items such as sports fields, tennis courts, fencing, trails, driveways, etc.

Total Replacement Cost	Average Condition	Annual Capital Requirement
\$3,180,311	Good (71%)	\$153,613

8.2 Inventory Breakdown and Cost

Land improvement assets are captured as follows:

Asset Segment	Number of Assets	Replacement Cost	Annual Capital Requirement
Land Improvements	103	\$3,180,2311	\$153,613
	Total	\$3,180,311	\$153,613

8.3 Asset Age and Condition

Land improvement assets are captured as follows:

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition	Percentage of Total Asset Inventory
Land Improvements	20-30	10.7	(Good) 71%	100.0%
	Total	10.7	(Good) 71%	100.0%

8.4 Condition Assessment Strategy

The current methodology for determining asset condition relies on a combination of available tools and activities that include:

- Visual inspections, and
- Asset age

For the purposes of this plan the following rating scale is used to determine the current age-based condition of assets:

Condition	Description	Rating
Very Good	Fit for the future	80-100
Good	Adequate for Now	60-80
Fair	Requires Attention	40-60
Poor	Potential to affect service	20-40
Very poor	Unfit for sustained service	0-20

8.5 Risk

Risk is measured by multiplying the probability of failure by the consequence of failure. The table below represent the risk matrix for the Township’s land improvement assets:



Use of a risk matrix allows for easy identification of assets for consideration of risk mitigation strategies that may include:

- Lifecycle activities to repair or rehabilitate the asset,
- Condition assessment or review of existing assessments, or
- Replacement of the asset

There are assumptions used in the collection of asset data that impact risk and it is important to review assessments to ensure assets do not deteriorate faster than anticipated, particularly when weather conditions impact their use.

8.6 Lifecycle Maintenance and Capital Replacement Strategy

To maintain infrastructure in good working condition and limit service interruptions, the Township of Huron-Kinloss employs a combination of maintenance activities that includes:

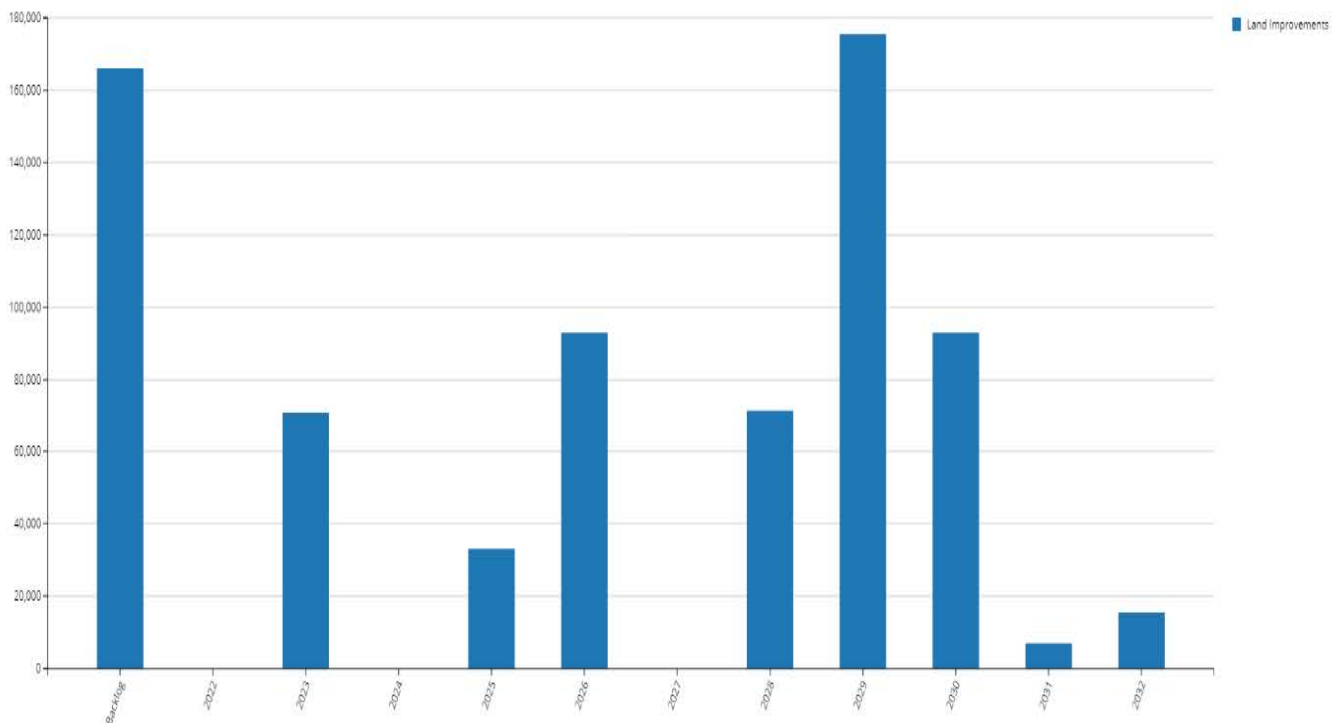
- Regular inspection and maintenance by staff, and
- Regular inspection and maintenance by third-party contractor (where applicable)

Where rehabilitation activities are not possible or practical, assets are simply maintained with the goal of full replacement.

8.7 Capital Forecast

To maintain the existing asset inventory requires an investment of \$153,613 annually. The chart below outlines the requirements over a 10-year forecasted period.

Capital Requirements 2022-2032



8.8 Levels of Service

Core Value	Community Level of Service	Technical Level of Service	Current Level of Service (2021)
Safe & Reliable	Description of land improvements inspection process	N/A	Trails, sports fields and tennis courts are inspected in accordance with regulatory requirements (CSA standards, AODA compliance)
Sustainable	Description of the current condition of land improvements Average is GOOD	% of assets that are in good or very good condition	70.2%
		% of assets that are in poor or very poor condition	15.4%

9.0 Roads Assets

9.1 Summary

The Township of Huron-Kinloss is responsible for 676 lane km of local roads, over 13 km of sidewalks and pooled roadside assets such as signs and streetlights.

Total Replacement Cost	Average Condition	Annual Capital Requirement
\$49,943,907	Good (65%)	\$1,975,971

9.2 Inventory Breakdown and Cost

Road assets are captured as follows:

Asset Segment	Number of Assets	Replacement Cost	Annual Capital Requirement
Hot Mix Surface	376 segments	\$41,004,159	\$1,637,735
Sidewalks	85 segments	\$2,787,750	\$69,694
Signs	pooled	\$298,748	\$29,875
Streetlights	pooled	\$957,042	\$63,803
Tar & Chip Surface	29 segments	\$4,896,208	\$174,864
Total		\$49,943,907	\$1,975,971

9.3 Asset Age and Condition

Road assets are captured as follows:

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition	Percentage of Total Asset Inventory
Hot Mix Surface	25	28.7	(Good) 67%	82.1%
Sidewalks	40	32.9	(Good) 71%	5.6%
Signs	10	9.6	(Poor) 38%	0.6%
Streetlights	15	8.0	(Good) 62%	1.9%
Tar & Chip Surface	20	14.6	(Fair) 54%	9.8%
Total		27.2	(Good) 65%	100.0%

9.4 Condition Assessment Strategy

The current methodology for determining asset condition relies on a combination of available tools and activities that include:

- Visual inspections
- Collection data by Street Scan in 2020 to assign current Pavement Condition Index (PCI) rating, and
- Asset age

For the purposes of this plan the following rating scale is used to determine the current age-based condition of assets:

Condition	Description	Rating
Very Good	Fit for the future	80-100
Good	Adequate for Now	60-80
Fair	Requires Attention	40-60
Poor	Potential to affect service	20-40
Very poor	Unfit for sustained service	0-20

9.5 Risk

Risk is measured by multiplying the probability of failure by the consequence of failure. The table below represent the risk matrix for the Township’s road infrastructure assets:

		0 Assets	0 Assets	0 Assets	0 Assets	0 Assets
	5	- \$0.00	- \$0.00	- \$0.00	- \$0.00	- \$0.00
	4	2 Assets 1.54 km \$278,664.00	2 Assets 0.26 km \$82,187.00	32 Assets 492.36 km, unit(s) \$806,525.00	9 Assets 0.23 km \$72,704.00	16 Assets 9.59 km \$1,630,194.00
Consequence	3	74 Assets 549.50 km, m, unit(s) \$12,847,342.00	46 Assets 57.19 km \$8,722,423.00	46 Assets 52.77 km, unit(s) \$5,569,314.00	13 Assets 18.41 km \$2,796,543.00	10 Assets 2,678.30 km, m \$1,182,485.00
	2	67 Assets 2,673.79 km, m \$4,693,786.60	41 Assets 21.59 km, unit(s) \$5,140,222.00	28 Assets 452.67 km, m \$1,661,128.00	34 Assets 9.40 km, unit(s) \$2,234,640.00	7 Assets 1,548.00 unit(s), m \$492,407.00
	1	21 Assets 1,584.32 m, unit(s), km \$373,986.00	8 Assets 428.00 m, unit(s) \$99,884.00	5 Assets 343.00 m, unit(s) \$79,109.00	0 Assets - \$0.00	64 Assets 5,080.00 unit(s), m \$1,165,869.00
		1	2	3	4	5
		Probability				

Use of a risk matrix allows for easy identification of assets for consideration of risk mitigation strategies that may include:

- Lifecycle activities to repair or rehabilitate the asset,
- Condition assessment or review of existing assessments, or
- Replacement of the asset

There are assumptions used in the collection of asset data that impact risk and it is important to review assessments to ensure assets do not deteriorate faster than anticipated, particularly when weather conditions are a factor.

9.6 Lifecycle Maintenance and Capital Replacement Strategy

To maintain infrastructure in good working condition and limit service interruptions, the Township of Huron-Kinloss employs a combination of maintenance activities that includes:

- Crack sealing
- Pulverize and pave (rural roads), and
- Mill and pave (urban roads)

Where rehabilitation activities are not possible or practical, assets are simply maintained with the goal of full replacement. Road replacement is prioritized based on asset performance and design capacity and co-ordinated with other replacement projects such as water main. The Township of Huron-Kinloss implemented a pavement preservation program in 2022, designed to extend the life of a surface treated road. Results from this program are expected to have an impact on future AMP and based on the graph below.

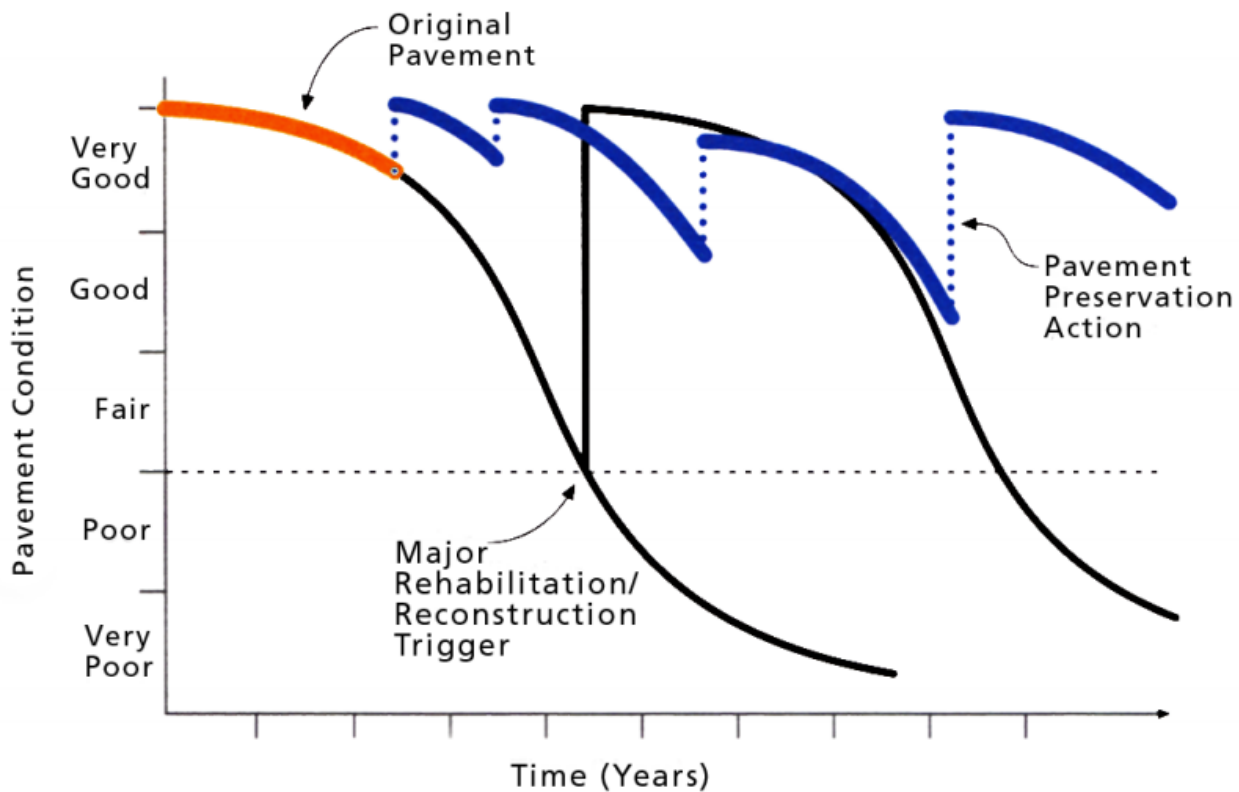
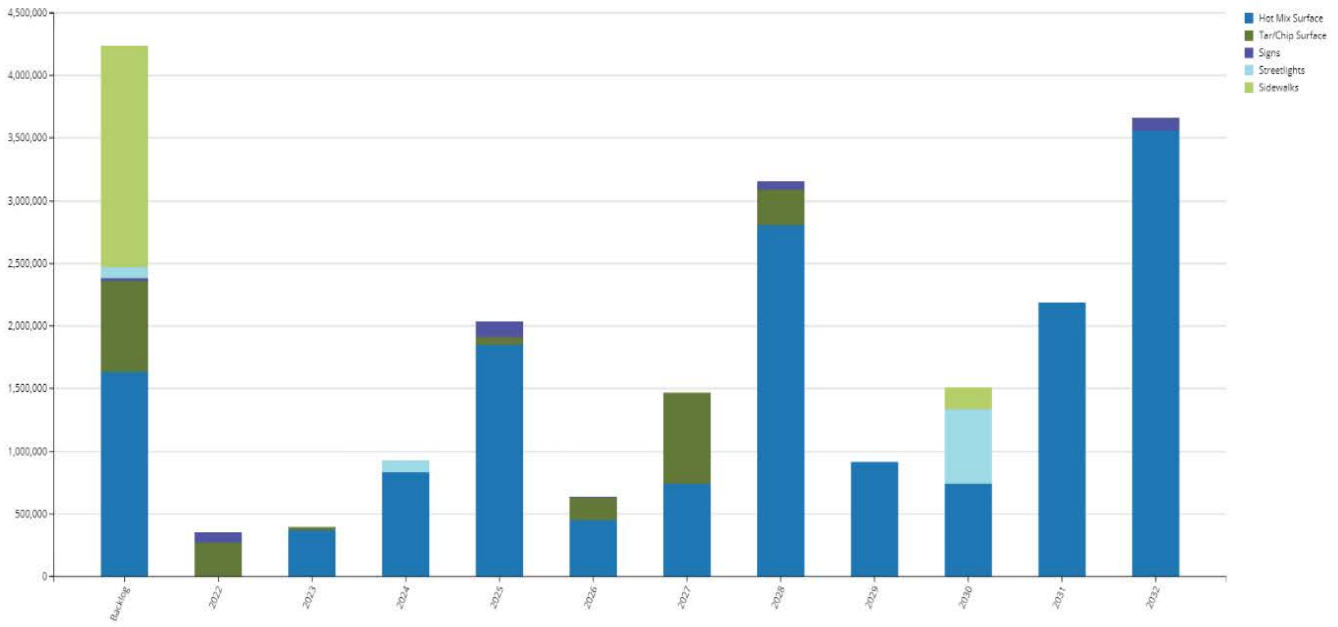


Image courtesy of nps.gov

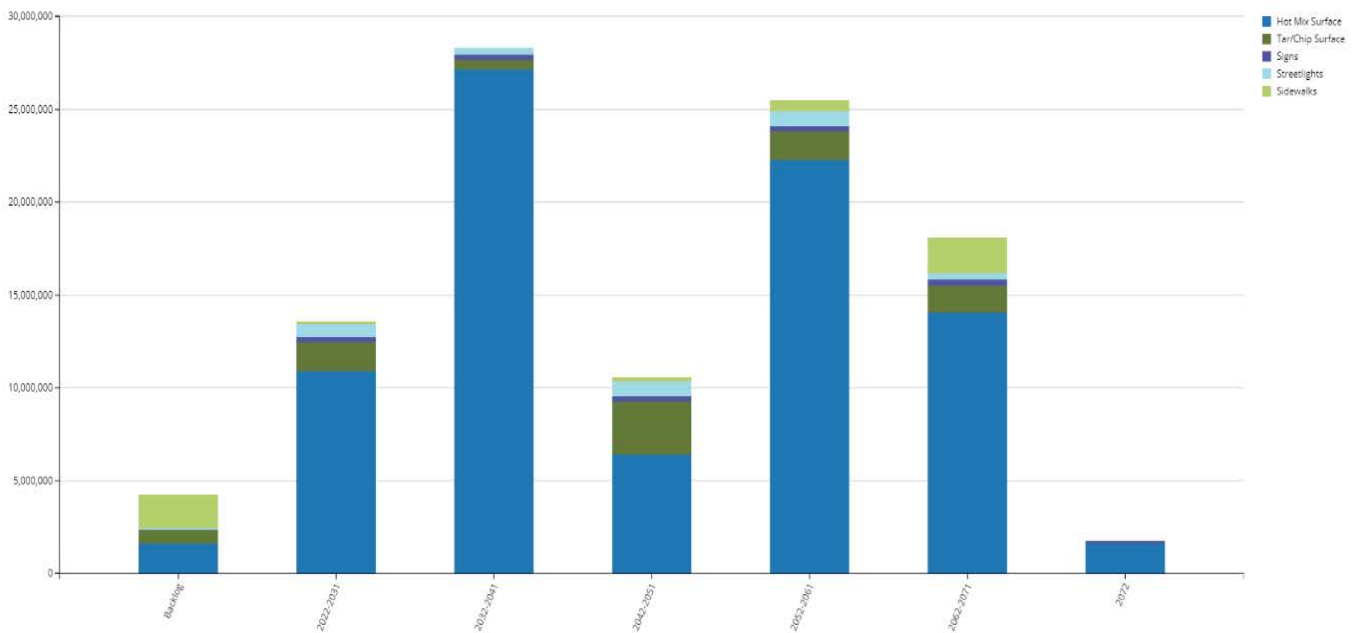
9.7 Capital Forecast

To maintain the existing asset inventory requires an investment of \$1.295 million annually. The charts below outline the requirements both over a 10-year forecasted period and a 50-year forecasted period, which is reflective of the estimated useful life of the asset assuming that it would have gone through one complete lifecycle.

Capital Requirements 2022-2032



Capital Requirements 2022-2072



9.8 Levels of Service

Core Value	Level of Service Statement	Community Level of Service	Technical Level of Service	Current Level of Service (2021)
Accessible & Reliable	The road network is convenient and accessible to the whole community with minimal service disruptions; service requests are responded to promptly	Description, which may include maps, of the road network in the municipality and its level of connectivity	Lane-km of arterial roads (MMS classes 1 and 2) per land area in the municipality (km/km ²)	See Appendix B for map of service area 0 per 440.73 m ²
			Lane-km of collector roads (MMS classes 3 and 4) per land area in the municipality (km/km ²)	15 per 440.73 m ²
			Lane-km of local roads (MMS classes 5 and 6) per land area in the municipality (km/km ²)	661 per 440.73
Safe & Regulatory	The road network meets all minimum maintenance standards	O. Reg 366/18 minimum maintenance standards for road network (road surfaces and sidewalks)	% of sidewalks inspected according to MMS	100%
			% of road network inspected according to MMS	100%
Affordable	The road network is managed cost-effectively for the expected level of service	What is the O&M cost to maintain the road network per household?	O&M costs for paved roads / lane-km (excluding winter control)	(\$1,758,562/676) =\$2,601
			O&M costs for unpaved roads / lane-km (excluding winter control)	(914,508/331) = \$2,763
Sustainable	There are long-term plans in place for the	When was the last time the Road Network AMP was reviewed?	Road Network AMP reviewed annually	Yes

sustainability of the road network	% of paved roads in good or very good condition	41%
	Average pavement condition index for paved roads in the municipality	73
	Average pavement condition index for sidewalks in the municipality	75

10.0 Sanitary Sewer Assets

10.1 Summary

The Township of Huron-Kinloss provides sanitary sewer services to residents through two municipally operated collection, storage and treatment systems in the communities of Lucknow and Ripley.

Total Replacement Cost	Average Condition	Annual Capital Requirement
\$34,240,128	Good (72%)	\$607,452

10.2 Inventory Breakdown and Cost

Sanitary sewer assets are captured as follows:

Asset Segment	Number of Assets	Replacement Cost	Annual Capital Requirement
Lagoons	2	\$7,031,114	\$189,621
Sanitary Laterals	pooled	\$2,661,565	\$35,488
Sanitary Mains	20.8 km	\$22,038,459	\$293,520
Pumping Stations	2	\$2,508,990	\$88,823
Total		\$34,240,128	\$607,452

10.3 Asset Age and Condition

Sanitary Sewer assets are captured as follows:

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition	Percentage of Total Asset Inventory
Lagoons	50	29.1	(Poor) 36%	22.1%
Sanitary Laterals	75	30.7	(Fair) 59%	8.5%
Sanitary Mains	75	29.7	(Very Good) 91%	61.5%
Pumping Stations	50	22.7	(Poor) 39%	7.9%
Total		29.4	(Good) 72%	100.0%

10.4 Condition Assessment Strategy

The current methodology for determining asset condition relies on a combination of available tools and activities that include:

- CCTV and visual inspections
- Collection of attribute data such as pipe material, diameter and soil conditions to project asset condition, and
- Asset age

For the purposes of this plan the following rating scale is used to determine the current age-based condition of assets:

Condition	Description	Rating
Very Good	Fit for the future	80-100
Good	Adequate for Now	60-80
Fair	Requires Attention	40-60
Poor	Potential to affect service	20-40
Very poor	Unfit for sustained service	0-20

10.5 Risk

Risk is measured by multiplying the probability of failure by the consequence of failure. The table below represent the risk matrix for the Township’s sanitary sewer assets:

		1	2	3	4	5
5	0 Assets -	0 Assets -	0 Assets -	1 Asset 1.00 unit(s)	0 Assets -	0 Assets -
4	2 Assets 129.00 m \$102,914.00	0 Assets -	1 Asset 524.00 m \$1,388,418.00	1 Asset 1.00 unit(s) \$1,139,813.00	0 Assets -	0 Assets -
3	44 Assets 3,716.00 m \$3,626,316.00	9 Assets 789.00 m \$1,179,393.00	1 Asset 143.00 m \$656,959.00	2 Assets 2.00 unit(s) \$1,266,259.00	1 Asset 1.00 unit(s) \$521,639.00	1 Asset 1.00 unit(s) \$521,639.00
2	234 Assets 18,622.80 m \$13,678,937.00	13 Assets 1,099.00 m \$968,225.00	1 Asset 1.00 unit(s) \$375,171.00	6 Assets 6.00 unit(s) \$2,083,028.00	1 Asset 1.00 unit(s) \$286,560.00	1 Asset 1.00 unit(s) \$286,560.00
1	9 Assets 467.00 m, unit(s) \$335,575.00	1 Asset 1.00 unit(s) \$8,182.00	3 Assets 275.00 m, unit(s) \$115,678.00	5 Assets 5.00 unit(s) \$536,436.00	12 Assets 12.00 unit(s) \$1,631,498.00	12 Assets 12.00 unit(s) \$1,631,498.00
		1	2	3	4	5
		Probability				

Use of a risk matrix allows for easy identification of assets for consideration of risk mitigation strategies that may include:

- Lifecycle activities to repair or rehabilitate the asset,
- Condition assessment or review of existing assessments, or
- Replacement of the asset

There are assumptions used in the collection of asset data that impact risk. For example, sanitary sewer infrastructure assets that are located underground are more difficult to obtain accurate assessments.

10.6 Lifecycle Maintenance and Capital Replacement Strategy

To maintain infrastructure in good working condition and limit service interruptions, the Township of Huron-Kinloss employs a combination of maintenance activities that includes:

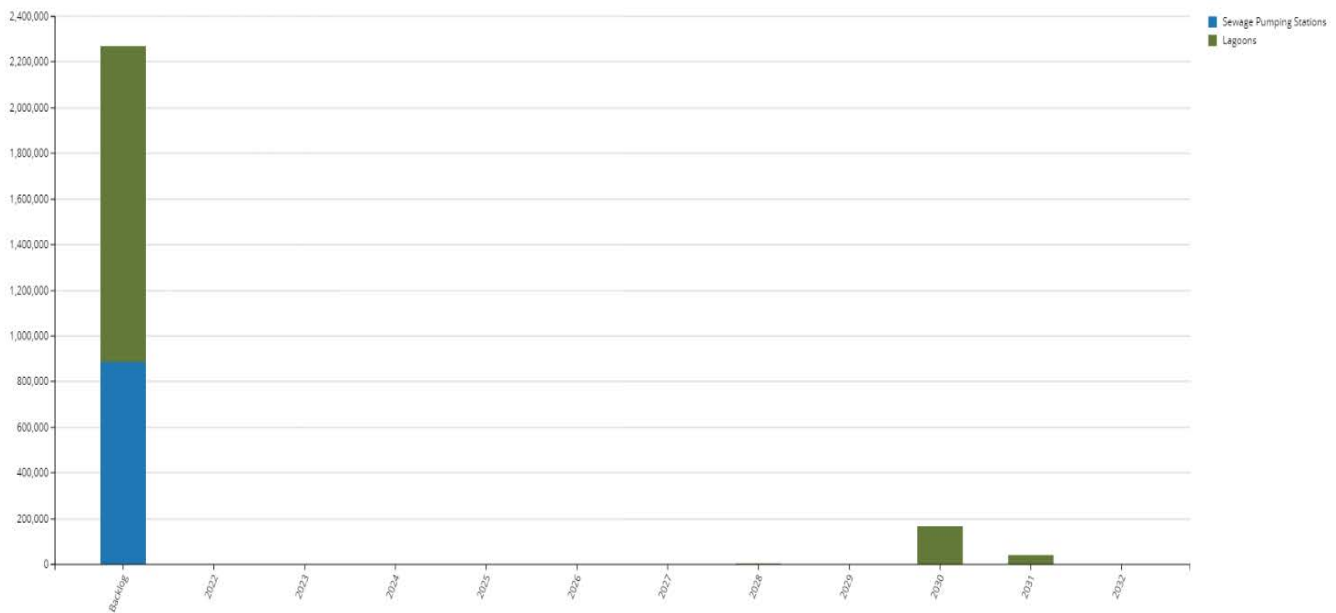
- Regular system flushing
- Regular inspection and maintenance of pumps, manholes and hydrants, and
- On-going monitoring through use of a SCADA system

Where rehabilitation activities are not possible or practical, assets are simply maintained with the goal of full replacement. Sanitary sewer infrastructure replacement is prioritized based on asset performance and design capacity and co-ordinated with other replacement projects such as road reconstruction.

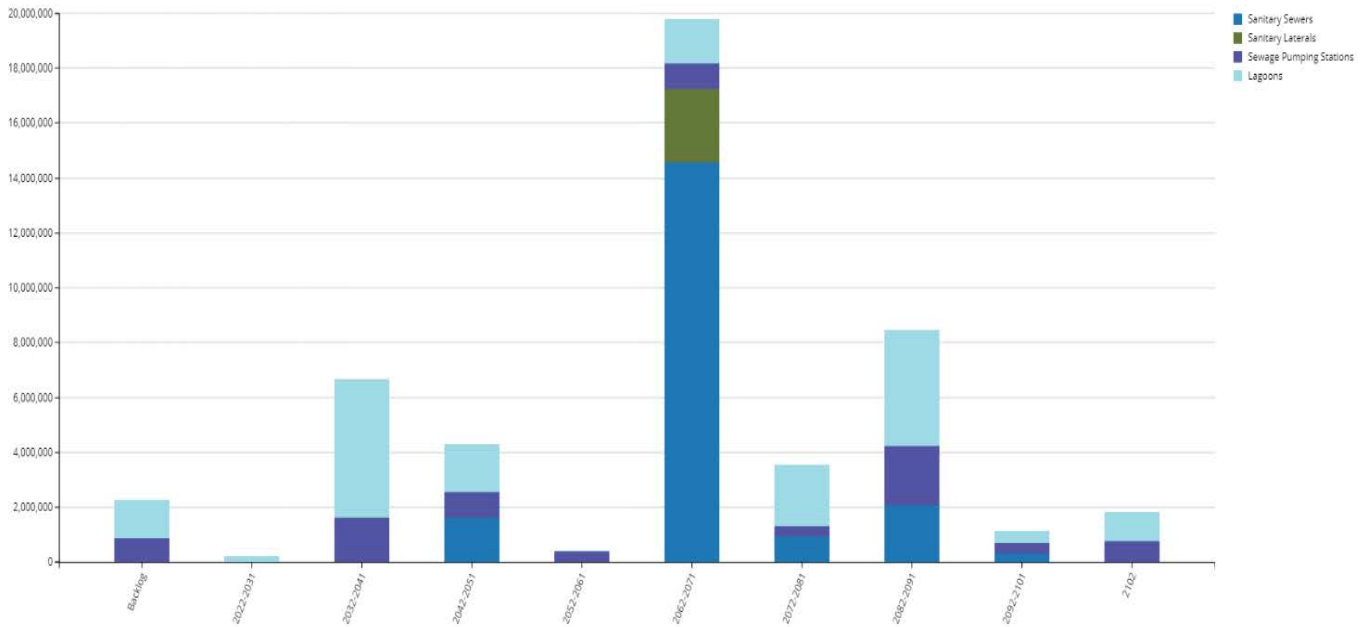
10.7 Capital Forecast

To maintain the existing asset inventory requires an investment of \$1.295 million annually. The charts below outline the requirements both over a 10-year forecasted period and an 80-year forecasted period, which is reflective of the estimated useful life of the asset assuming that it would have gone through one complete lifecycle.

Capital Requirements 2022-2032



Capital Requirements 2022-2102



10.8 Levels of Service

Core Value	Level of Service Statement	Community Level of Service	Technical Level of Service	Current Level of Service (2021)
Accessible & Reliable	A reliable wastewater service is provided with minimal service disruptions; system failures and service requests are responded to promptly; sanitary connections are available and accessible to all properties within	Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal wastewater system	% of properties connected to the municipal wastewater system	See Appendix B for map of service area 25% of properties connected to sewer system
			# of sanitary sewer backups	None

	the public sewer network			
Safe & Regulatory	Wastewater is managed without risk or hazard to public health; there is full compliance with all regulatory requirements	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	# 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	None
		Description of the frequency and volume of overflows in combined sewers in the municipal wastewater system that occur in habitable areas or beaches		N/A
		Description of how stormwater can get into sanitary sewers in the municipal wastewater system, causing sewage to overflow into streets or backup into homes	# of connection-days per year due to wastewater backups compared to the total number of properties connected to the municipal wastewater system	N/A
		Description of how sanitary sewers in the municipal wastewater system are designed to be resilient to avoid sewage overflowing into streets or backups into homes		N/A

		Description of the effluent that is discharged from sewage treatment plants in the municipal wastewater system	# of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system	None
Affordable	Wastewater services are affordable and household charges are fair and reasonable; infrastructure is managed cost-effectively for the expected level of service	What is the amount of the annual residential sewer bill?	(Average annual residential sewer bill / average household income) * 100	$(\$440/56,800)*100 = \0.70
			O&M Cost (includes treatment and collection) / km pipe length	$(\$783,642/19) = \$41,244$
Sustainable	Wastewater resources are used efficiently, and long-term plans are in place for the sustainability of wastewater treatment and infrastructure	When was the last time that the Wastewater System AMP was reviewed?	% of the wastewater system assets in good or very good condition	63.4%
			% of the wastewater system assets in poor or very poor condition	28.7%
			Wastewater System AMP reviewed annually	Yes

11.0 Storm Water Assets

11.1 Summary

The Township of Huron-Kinloss is responsible for a network of over 20 km of storm water infrastructure critical to protect persons and property from the risks of flooding.

Storm water management has not historically been a major portion of the Township’s infrastructure, however with increasing development and to prepare for and manage the impacts of climate change, storm water infrastructure needs are expected to increase.

Total Replacement Cost	Average Condition	Annual Capital Requirement
\$17,846,997	Very Good (93%)	\$237,696

11.2 Inventory Breakdown and Cost

Storm water assets are captured as follows:

Asset Segment	Number of Assets	Replacement Cost	Annual Capital Requirement
Storm Mains	287 segments	\$17,846,997	\$237,696
Total		\$17,846,997	\$237,696

11.3 Asset Age and Condition

Storm water assets are captured as follows:

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition	Percentage of Total Asset Inventory
Storm Mains	75	23.2	93%	100.0%
Total		23.2	93%	100.0%

11.4 Condition Assessment Strategy

The current methodology for determining asset condition relies on a combination of available tools and activities that include:

- CCTV and visual inspections
- Collection of attribute data such as pipe material, diameter and soil conditions to project asset condition, and
- Asset age

For the purposes of this plan the following rating scale is used to determine the current condition of assets:

Condition	Description	Rating
Very Good	Fit for the future	80-100
Good	Adequate for Now	60-80
Fair	Requires Attention	40-60
Poor	Potential to affect service	20-40
Very poor	Unfit for sustained service	0-20

11.5 Risk

Risk is measured by multiplying the probability of failure by the consequence of failure. The table below represent the risk matrix for the Township’s storm water assets:



Use of a risk matrix allows for easy identification of assets for consideration of risk mitigation strategies that may include:

- Lifecycle activities to repair or rehabilitate the asset,
- Condition assessment or review of existing assessments, or
- Replacement of the asset

There are assumptions used in the collection of asset data that impact risk. For example, Storm water infrastructure assets that are located underground are more difficult to obtain accurate assessments.

11.6 Lifecycle Maintenance and Capital Replacement Strategy

To maintain infrastructure in good working condition and limit service interruptions, the Township of Huron-Kinloss employs a combination of maintenance activities that includes:

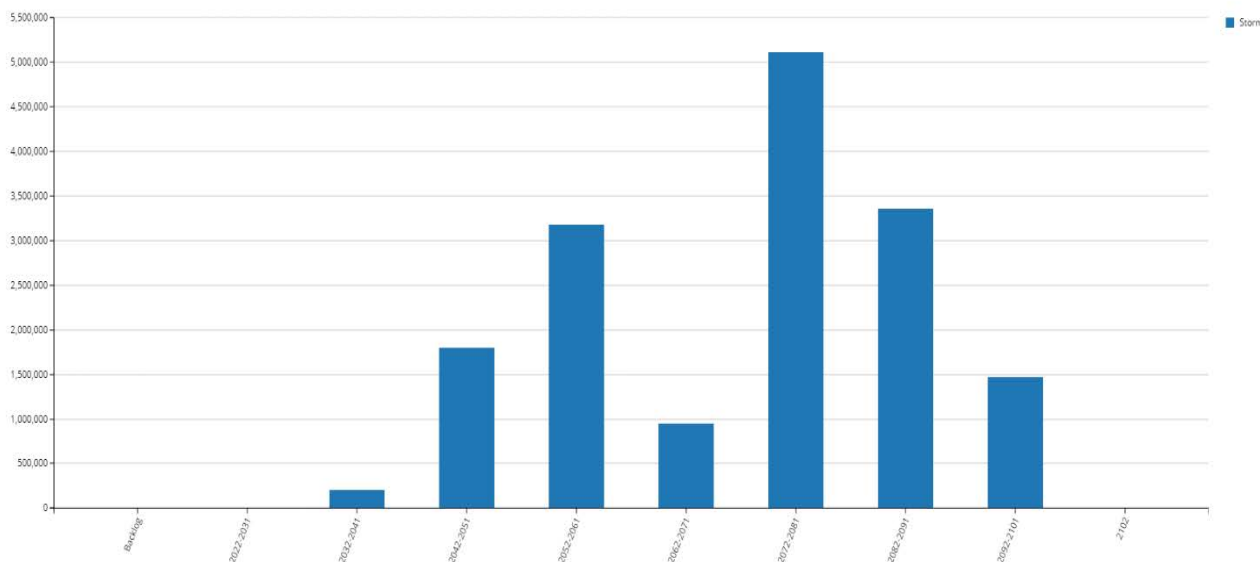
- Regular flushing program, and
- Investigate reports of blockages and initiate reactive maintenance.

Where rehabilitation activities are not possible or practical, assets are simply maintained with the goal of full replacement. Storm infrastructure replacement is prioritized based on asset performance and design capacity and co-ordinated with other replacement projects such as road reconstruction.

11.7 Capital Forecast

To maintain the existing asset inventory requires an investment of \$237,696 annually. None of the existing inventory has been identified as a priority for replacement in the next 10-years. The chart below outlines the requirements over an 80-year forecasted period, which is reflective of the estimated useful life of the asset assuming that it would have gone through one complete lifecycle.

Capital Requirements 2022-2102



11.8 Levels of Service

Core Value	Level of Service Statement	Community Level of Service	Technical Level of Service	Current Level of Service (2021)
Accessible & Reliable	Stormwater system is reliable and provided with minimal service disruptions; service requests are responded to promptly within the municipal stormwater network	Description, which may include map, of the user groups or areas of the municipality that are protected from flooding, including the extent of protection provided by the municipal stormwater management system		See Appendix B for catch basin map of storm network
			% of catch basins cleaned	Not Available
Safe & Regulatory	Stormwater system protects property and people from the impacts of flooding and minimizes exposure to risk	What level of storm intensity is the municipal stormwater network designed to handle (e.g. 1 in 5-year)?	% of properties in municipality resilient to a 100-year storm	TBD
			% of the municipal stormwater management system resilient to a 5-year storm	TBD
Affordable	Stormwater system is affordable and managed cost-effectively for the expected level of service	What is the O&M cost to maintain the stormwater network per household?	O&M Cost / km of stormsewer and urban ditches	(\$99,825/21) = \$4,754

Sustainable	Stormwater assets are managed efficiently and long-term plans are in place for the sustainability of stormwater infrastructure	When was the last time that the Stormwater System AMP was reviewed?	% of the stormwater system that is in good or very good condition	98.7%
			Stormwater System AMP reviewed annually	Yes

12.0 Drinking Water Assets

12.1 Summary

The Township of Huron-Kinloss provides drinking water services to residents through four municipally operated supply, storage and over 100 km of distribution pipe in the communities of Whitechurch, Lucknow, Ripley and along the Lakeshore.

Total Replacement Cost	Average Condition	Annual Capital Requirement
\$81,928,547	Very Good (85%)	\$1,294,952

12.2 Inventory Breakdown and Cost

Drinking water assets are captured as follows:

Asset Segment	Number of Assets	Replacement Cost	Annual Capital Requirement
Hydrants	444	\$2,772,848	\$84,804
Standpipes	3	\$9,399,543	\$128,627
Water Connections	pooled	\$845,214	\$11,270
Water Mains	597 segments	\$61,557,211	\$820,762
Water Pumphouses	56 incl components	\$6,567,611	\$230,440
Water Wells	13	\$786,120	\$19,049
Total		\$81,928,547	\$1,294,952

12.3 Asset Age and Condition

Drinking water assets are captured as follows:

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition	Percentage of Total Asset Inventory
Hydrants	30	30.1	(Poor) 24%	3.4%
Standpipes	90	20.8	(Very Good) 93%	11.7%
Water Connections	75	22.9	(Good) 69%	1.0%
Water Mains	75	28.1	(Very Good) 89%	74.7%
Water Pumphouses	60	20.2	(Good) 68%	8.1%
Water Wells	50	21.7	(Good) 70%	1.0%
Total		27.2	85%	100%

12.4 Condition Assessment Strategy

The current methodology for determining asset condition relies on a combination of available tools and activities that include:

- CCTV and visual inspections
- Collection of attribute data such as pipe material, diameter and soil conditions to project asset condition, and
- Asset age

For the purposes of this plan the following rating scale is used to determine the current age-based condition of assets:

Condition	Description	Rating
Very Good	Fit for the future	80-100
Good	Adequate for Now	60-80
Fair	Requires Attention	40-60
Poor	Potential to affect service	20-40
Very poor	Unfit for sustained service	0-20

12.5 Risk

Risk is measured by multiplying the probability of failure by the consequence of failure. The table below represent the risk matrix for the Township’s drinking water assets:

		1 Asset 97.00 m \$45,919.00	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00	1 Asset 1.00 unit(s) \$4,780,876.00
5						
	4	72 Assets 13,640.00 m, unit(s) \$6,200,445.00	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00
	3	289 Assets 48,240.20 m \$29,749,626.00	18 Assets 2,412.00 m, unit(s) \$4,148,751.00	2 Assets 58.00 m \$55,169.00	0 Assets - \$0.00	29 Assets 3,532.00 unit(s), m \$5,038,228.00
	2	6 Assets 38.00 unit(s), m \$1,657,991.00	8 Assets 349.00 m, unit(s) \$1,848,083.00	4 Assets 4.00 unit(s) \$650,569.00	1 Asset 1.00 unit(s) \$152,445.00	11 Assets 62.00 unit(s) \$2,657,989.00
	1	50 Assets 5,107.96 m, unit(s) \$3,389,792.00	66 Assets 5,336.00 m, unit(s) \$4,188,814.00	18 Assets 747.00 unit(s), m \$667,102.00	8 Assets 8.00 unit(s) \$300,689.00	25 Assets 314.00 unit(s), m \$912,122.00
		1	2	3	4	5
		Probability				

Use of a risk matrix allows for easy identification of assets for consideration of risk mitigation strategies that may include:

- Lifecycle activities to repair or rehabilitate the asset,
- Condition assessment or review of existing assessments, or
- Replacement of the asset

There are assumptions used in the collection of asset data that impact risk. For example, water infrastructure assets that are located underground are more difficult to obtain accurate assessments.

12.6 Lifecycle Maintenance and Capital Replacement Strategy

To maintain infrastructure in good working condition and limit service interruptions, the Township of Huron-Kinloss employs a combination of maintenance activities that includes:

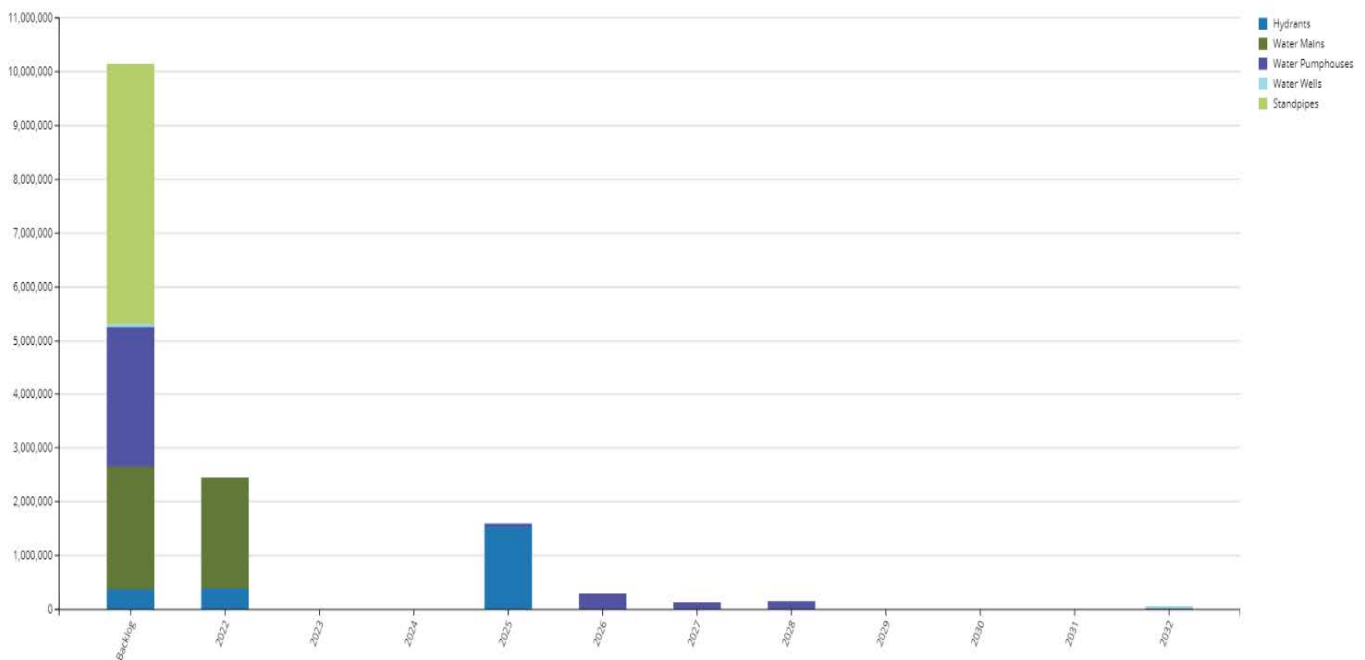
- Semiannual system flushing
- Regular inspection and maintenance of valves, pumps and hydrants, and
- Periodic pressure testing to identify potential leaks or poor performance

Where rehabilitation activities are not possible or practical, assets are simply maintained with the goal of full replacement. Water infrastructure replacement is prioritized based on asset performance and design capacity and co-ordinated with other replacement projects such as road reconstruction.

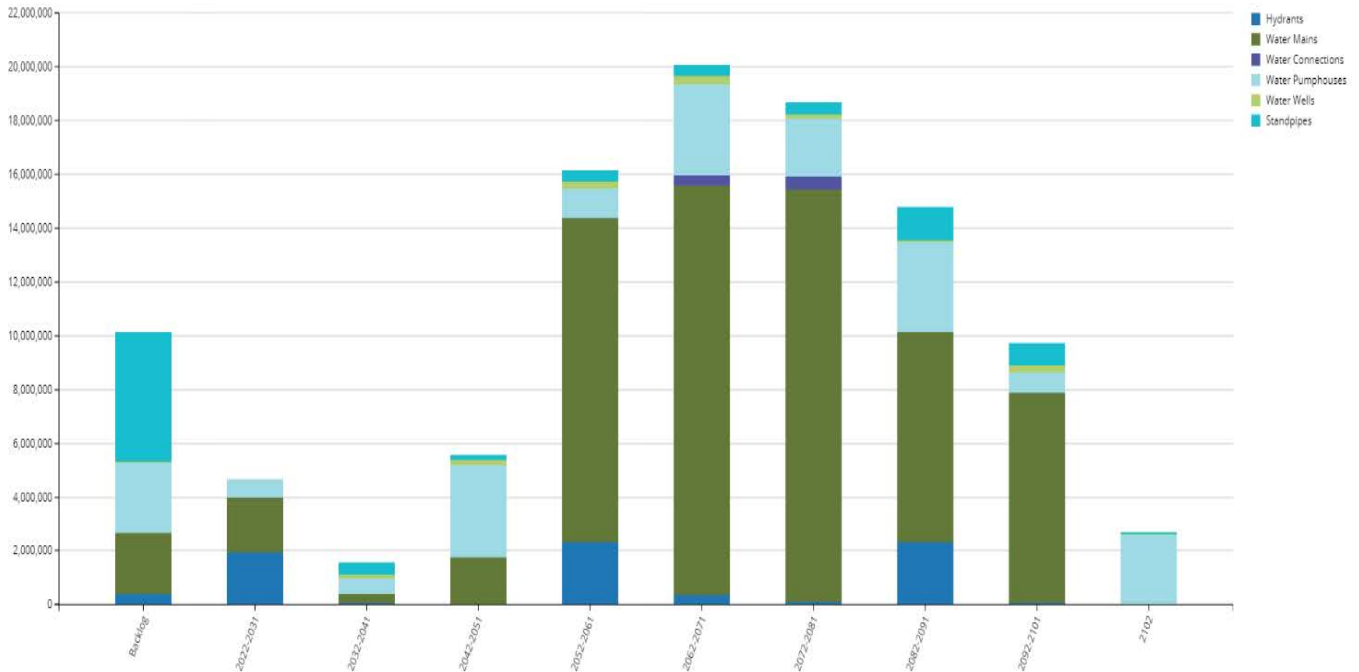
12.7 Capital Forecast

To maintain the existing asset inventory requires an investment of \$1.295 million annually. The charts below outline the requirements both over a 10-year forecasted period and an 80-year forecasted period, which is reflective of the estimated useful life of the asset assuming that it would have gone through one complete lifecycle.

Capital Requirements 2022-2032



Capital Requirements 2022-2102



12.8 Levels of Service

Core Value	Level of Service Statement	Community Level of Service	Technical Level of Service	Current Level of Service (2021)
Accessible & Reliable	A reliable water supply is provided with minimal service disruptions; system failures and service requests are responded to promptly; water connections are available	maps of the areas of the Township that are connected to the municipal water system	% of properties connected to the municipal water system	See Appendix B for map of service area 86% of properties connected to municipal drinking water system
		areas of the Township that have fire flow	% of properties where fire flow is available	86%
			# of connection-days per year due to water main breaks compared to the total number of properties connected to the municipal water system	5:3,531

	and accessible to all properties within the public water network			
Safe & Regulatory	Water supply is safe to drink and meets all regulatory requirements	Description of boil water advisories and service interruptions	# of connection-days per year where a boil water advisory notice is in place compared to the total number of properties connected to the municipal water system	0:3,531
Affordable	Water services are affordable; household charges are fair and reasonable; infrastructure is managed cost-effectively for the expected level of service	What is the amount of the annual residential water bill?	(Average annual residential water bill / average household income) * 100	$(\$480/56,800)*100 = \0.80
			O&M Cost (includes treatment and distribution)/ pipe km length	$(\$1,685,496/102) = \$16,524$
Sustainable	Water resources are used efficiently and long-term plans are in place for the sustainability of the water supply and all water infrastructure	When was the last time that the Water System AMP was reviewed?	% of the water system assets in good or very good condition	79.6%
			% of water system assets in poor or very poor condition	18.6%
			Water System AMP reviewed annually	Yes

13.0 Asset Management and Growth

13.1 Growth Assumptions

Growth can increase the demand for infrastructure and services and understanding the relationship between growth and asset management is a critical factor to effectively plan for infrastructure renewal, replacement, or expansion to provide the appropriate service levels to meet demand.

13.2 Development Charges Background Study 2019

The Township of Huron-Kinloss approved a background study under Section 10 of the Development Charges Act, 1997 prepared by B.M. Ross and Associates Limited. The study analyzed growth to forecast the population as outlined below:

Population Forecast 2019-2044			
Huron-Kinloss	2019	2034	2044
Including Seasonal Residents	10,043	11,342	12,177
Excluding Seasonal Residents	7,290	7,949	8,434

The background study outlines the capital projects associated with growth and the assets to be funded in whole or in part by development charges.

13.3 Official Plan

The Township of Huron-Kinloss official plan approved in 2016 set out the goal of concentrating development in the existing settlement areas to maximize the existing infrastructure.

The County of Bruce is currently reviewing its official plan to guide long-term growth and development until 2046. The growth amendment, adopted in 2022, forecasts population and employment as outlined in Appendix C.

13.4 Impact of Growth

By July 1, 2025, the Township's asset management plan must include an analysis of the assumptions that changes in population have on the asset lifecycle management and financial strategy. Planning for forecasted growth may require additional infrastructure or investment to expand or maintain existing infrastructure, resulting in changes to lifecycle maintenance and these costs should be considered in long-term funding strategies to maintain a minimum level of service. The Township of Huron-Kinloss Growth Water and Wastewater Servicing Master Plan has identified the following growth-related projects for consideration in the next 5-10 years:

- a) Additional water storage for the lakeshore water system,
- b) Replacement of Well 5 in Lucknow, and
- c) Increased capacity for both the Ripley and Lucknow wastewater treatment plants

14.0 Conclusion and Next Steps

14.1 Overall Asset Management Goals

Based on the information reviewed in the development of this version of the Township of Huron-Kinloss Asset Management Plan, the following actions are recommended to improve the quality of the asset management data used for decision making in all asset categories:

- 1) Maintain a comprehensive asset inventory using a specialized software to ensure complete and accurate asset information is available for forecasting,
- 2) Review and update replacement costs periodically to align with recent market conditions and industry trends,
- 3) Consider implementing or updating condition assessments for assets, particularly those with high value and/or high risk of failure,
- 4) Continue collecting data on the metrics associated with the current levels of service and add new metrics that contribute to measuring performance,
- 5) Collaboratively identify proposed levels of service and develop strategies required to reach proposed levels of service in accordance with O. Reg 588/17.

TOWNSHIP OF HURON-KINLOSS ASSET MANAGEMENT PLAN 2022



Appendix A 10-Year Capital Requirements

Appendix A - 10-Year Capital Requirements

Capital Cost Requirements 2022-2032 to Maintain Current Levels of Service

Asset Category	Backlog	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Bridges & Culverts												
Culverts	50,309	0	0	0	0	0	0	0	0	0	0	0
Bridges & Culverts Total	50,309	0	0	0	0	0	0	0	0	0	0	0
Buildings												
Buildings	1,413,502	18,776	0	1,239,528	138,781	176,932	841,654	6,905	1,229,316	9,847	0	571,651
Major Components	33,730	0	0	0	0	27,795	66,074	0	71,618	0	37,213	4,398
Buildings Total	1,447,232	18,776	0	1,239,528	138,781	204,727	907,728	6,905	1,300,934	9,847	37,213	576,049
Machinery & Equipment												
General Government	240,552	35,764	14,552	50,623	18,881	30,751	244,403	21,972	40,660	20,878	38,405	252,971
Environmental Services	284,672	121,027	0	6,220	0	0	325,599	0	6,220	0	0	325,599
Protection Services	309,761	67,057	34,157	41,807	78,425	59,814	229,856	90,585	124,219	73,071	219,243	347,945
Recreation Services	230,899	28,151	68,647	30,954	1,198	266,630	79,059	33,403	133,357	33,125	14,334	194,119
Transportation Services	29,376	0	0	1,178	11,646	5,358	29,376	0	1,178	11,646	12,684	29,376
Machinery & Equipment Total	1,095,260	251,999	117,356	130,782	110,150	362,553	908,293	145,960	305,634	138,720	284,666	1,150,010
Fleet												
Fleet - Fire	590,274	0	0	504,315	0	0	0	0	1,027,048	0	8,841	0
Fleet - Heavy Machinery	296,324	0	435,571	369,674	291,208	269,544	132,070	40,294	477,820	164,879	820,946	403,373
Fleet - Light Vehicles	426,296	0	57,848	125,431	24,074	9,103	649,965	57,848	125,431	24,074	9,103	649,965
Fleet - Other	6,745	0	0	0	0	0	0	0	0	0	0	0
Fleet Total	1,319,639	0	493,419	999,420	315,282	278,647	782,035	98,142	1,630,299	188,953	838,890	1,053,338
Land Improvements												
Land Improvements	166,040	0	70,616	0	33,036	93,027	0	71,428	175,480	92,861	7,169	15,596
Land Improvements Total	166,040	0	70,616	0	33,036	93,027	0	71,428	175,480	92,861	7,169	15,596

Appendix A - 10-Year Capital Requirements

Capital Cost Requirements 2022-2032 to Maintain Current Levels of Service

Asset Category	Backlog	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Roads												
Hot Mix Surface	1,633,355	0	369,844	831,361	1,850,877	451,519	740,236	2,803,215	912,251	743,135	2,186,443	3,560,176
Sidewalks	1,763,580	0	0	0	0	0	0	0	0	169,470	0	0
Signs	22,147	81,542	0	0	121,843	5,501	0	67,715	0	0	0	103,689
Streetlights	86,789	0	0	96,288	0	0	0	2,418	0	596,406	0	0
Tar/Chip Surface	728,421	273,360	25,288	0	63,221	180,181	730,205	284,495	0	0	0	0
Roads Total	4,234,292	354,902	395,132	927,649	2,035,941	637,201	1,470,441	3,157,843	912,251	1,509,011	2,186,443	3,663,865
Sanitary												
Lagoons	1,385,220	0	0	0	0	0	0	6,426	0	168,366	42,537	0
Sewage Pumping Stations	886,111	0	0	0	0	0	0	0	0	0	0	0
Sanitary Total	2,271,331	0	0	0	0	0	0	6,426	0	168,366	42,537	0
Water												
Hydrants	377,371	399,100	0	0	1,546,744	0	0	0	0	0	0	0
Standpipes	4,844,492	0	0	0	0	0	0	0	0	0	0	0
Water Mains	2,271,136	2,049,738	0	0	0	0	0	0	0	0	0	0
Water Pumphouses	2,606,977	0	12,869	0	47,637	304,698	142,046	152,445	0	0	0	28,229
Water Wells	49,835	0	0	0	0	0	0	0	0	0	0	37,023
Water Total	10,149,811	2,448,838	12,869	0	1,594,381	304,698	142,046	152,445	0	0	0	65,252
Cumulative Total	20,733,914	3,074,515	1,089,392	3,297,379	4,227,571	1,880,853	4,210,543	3,639,149	4,324,598	2,107,758	3,396,918	6,524,110

TOWNSHIP OF HURON-KINLOSS ASSET MANAGEMENT PLAN 2022



Appendix B **Levels of Service** **Images and Maps**

TOWNSHIP OF HURON-KINLOSS

BRIDGE CONDITION PHOTOS (2021 INSPECTION REPORT)



Good Condition BCI 70+



Structure H1 – Concession 2



Structure K1 – South Kinloss Ave.

TOWNSHIP OF HURON-KINLOSS

BRIDGE CONDITION PHOTOS (2021 INSPECTION REPORT)



Poor Condition BCI >40



Structure H28 – Sideroad 20

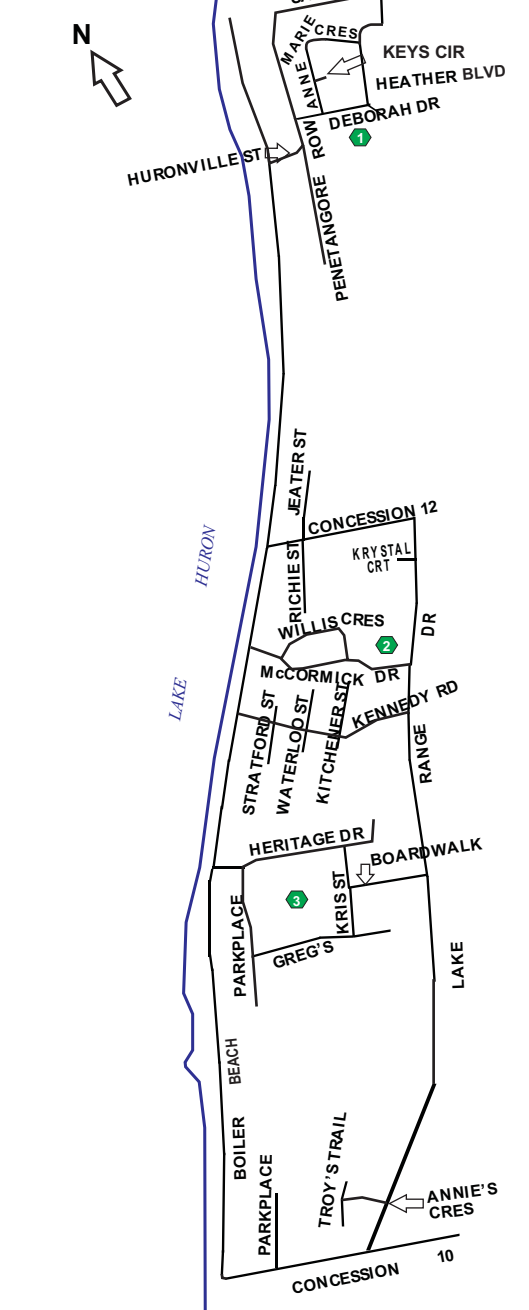


Structure K19 – Kincardine-Kinloss Boundary

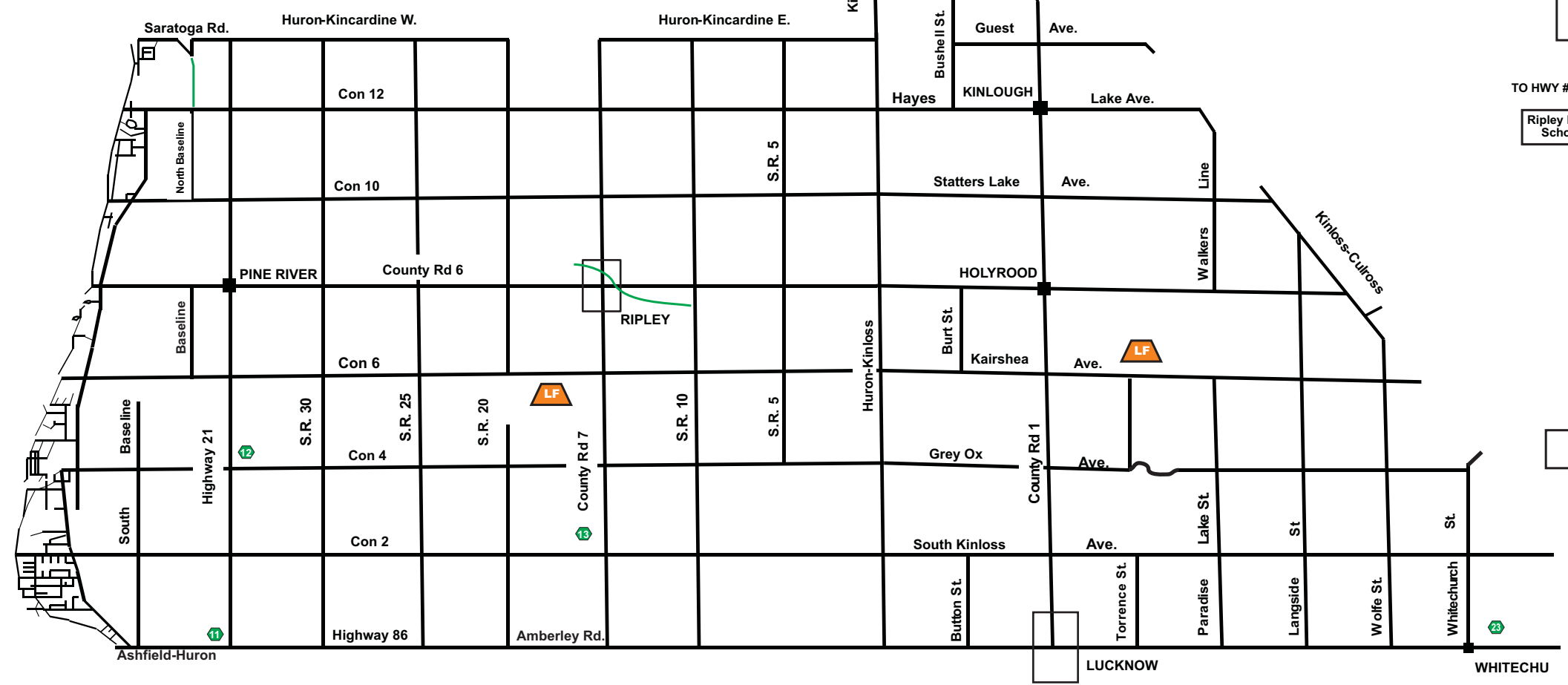
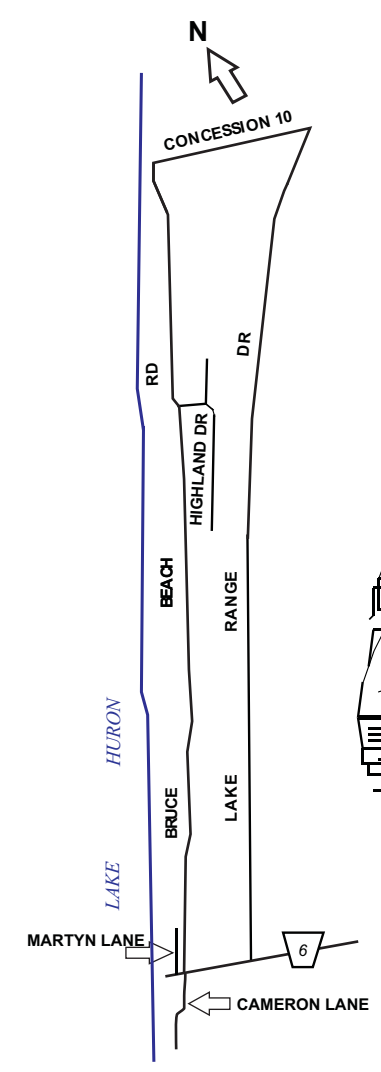


TOWNSHIP OF HURON-KINLOSS

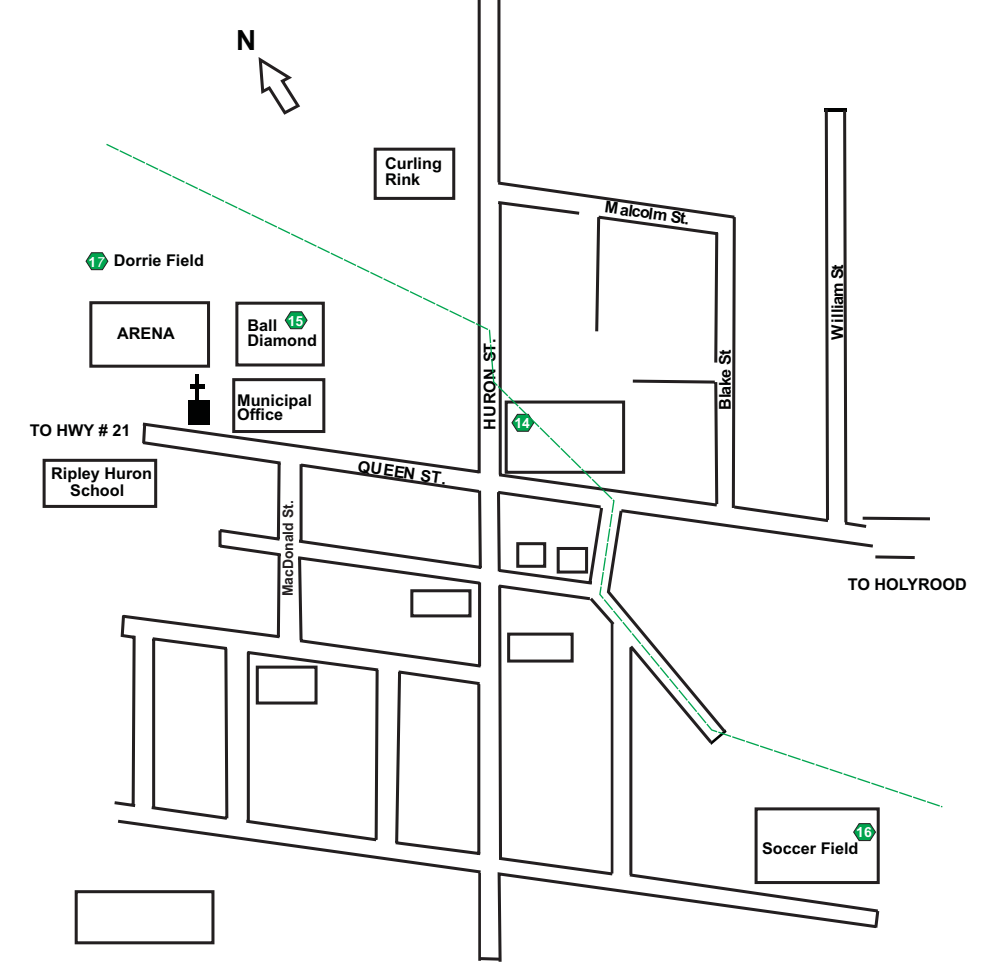
Detail #1



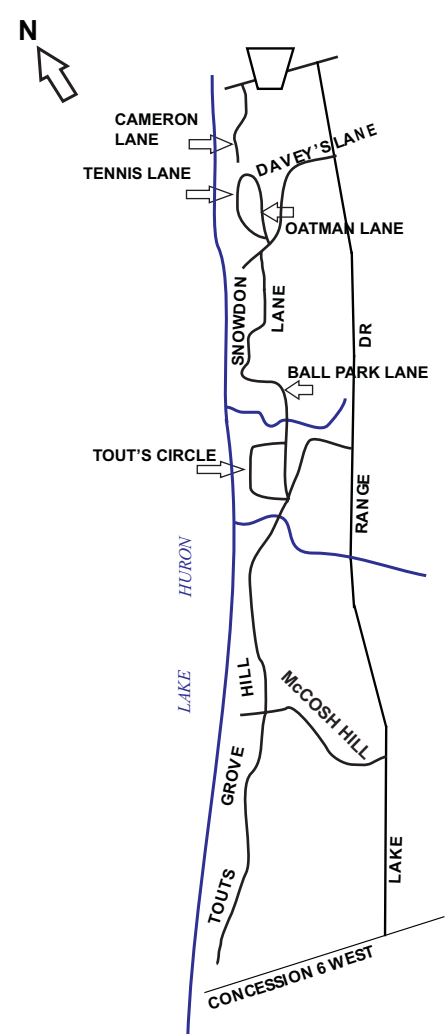
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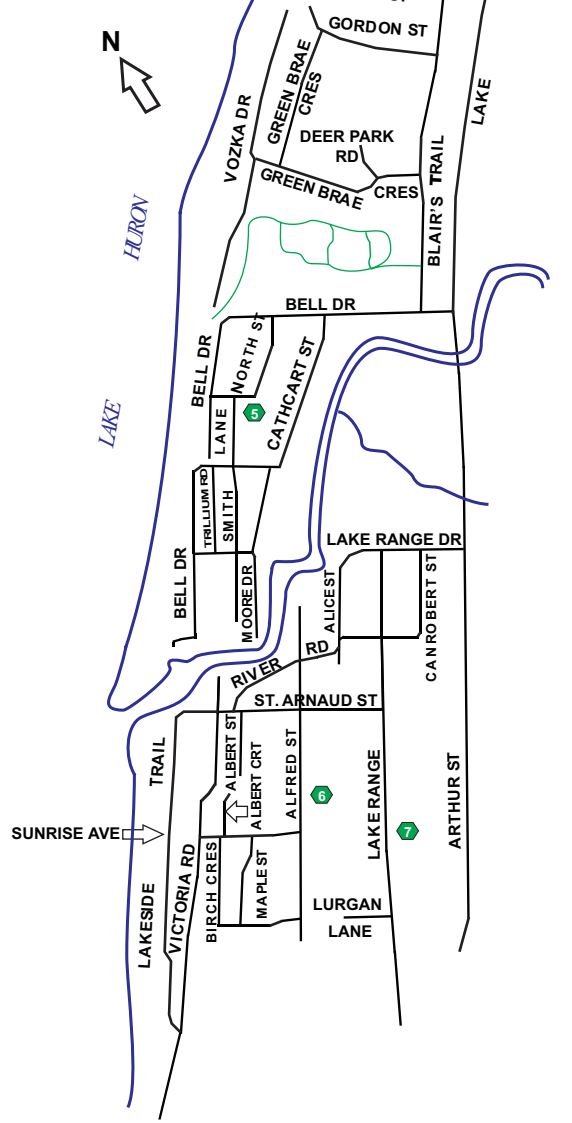
Detail #6



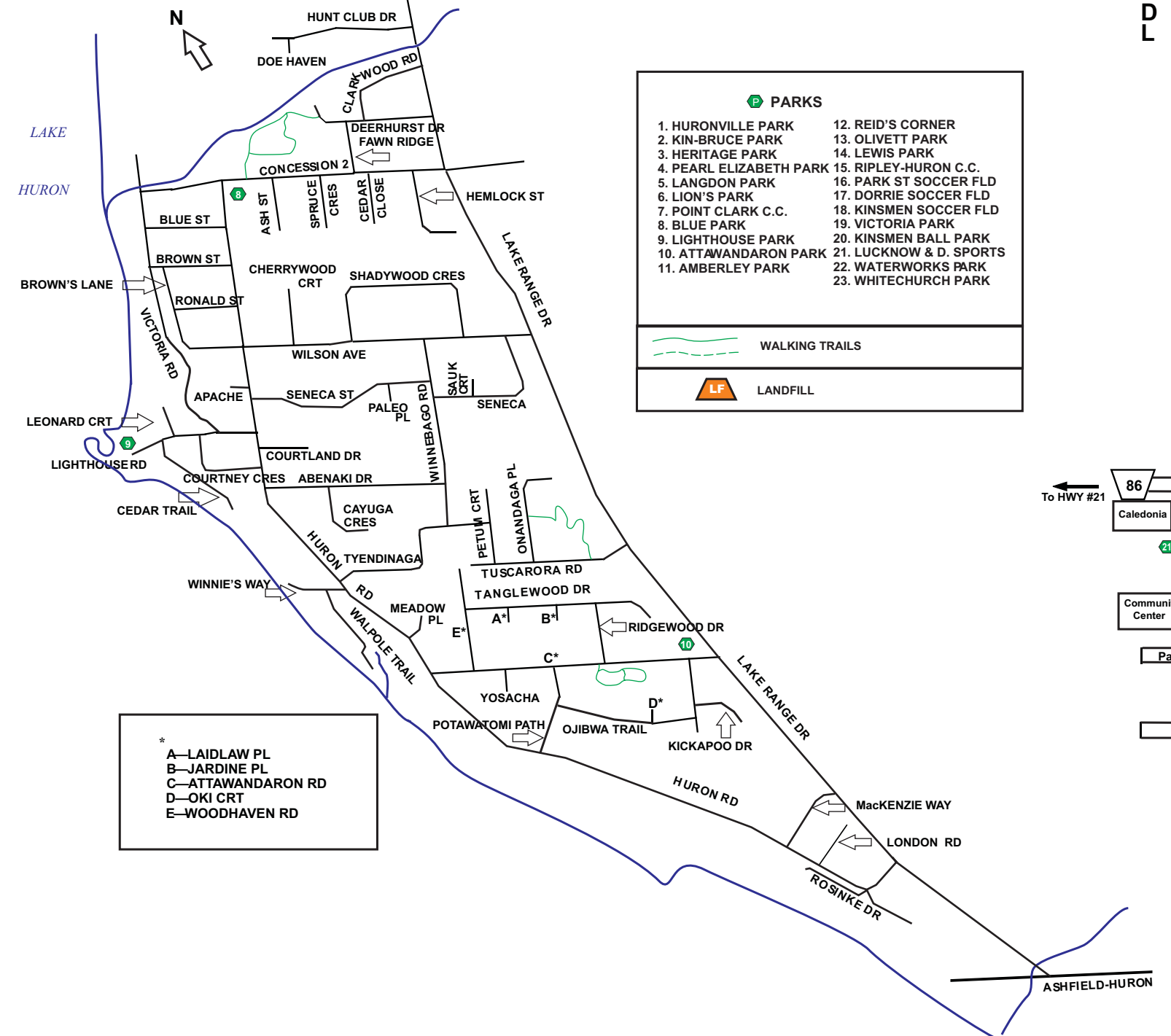
Detail #3



Detail #4



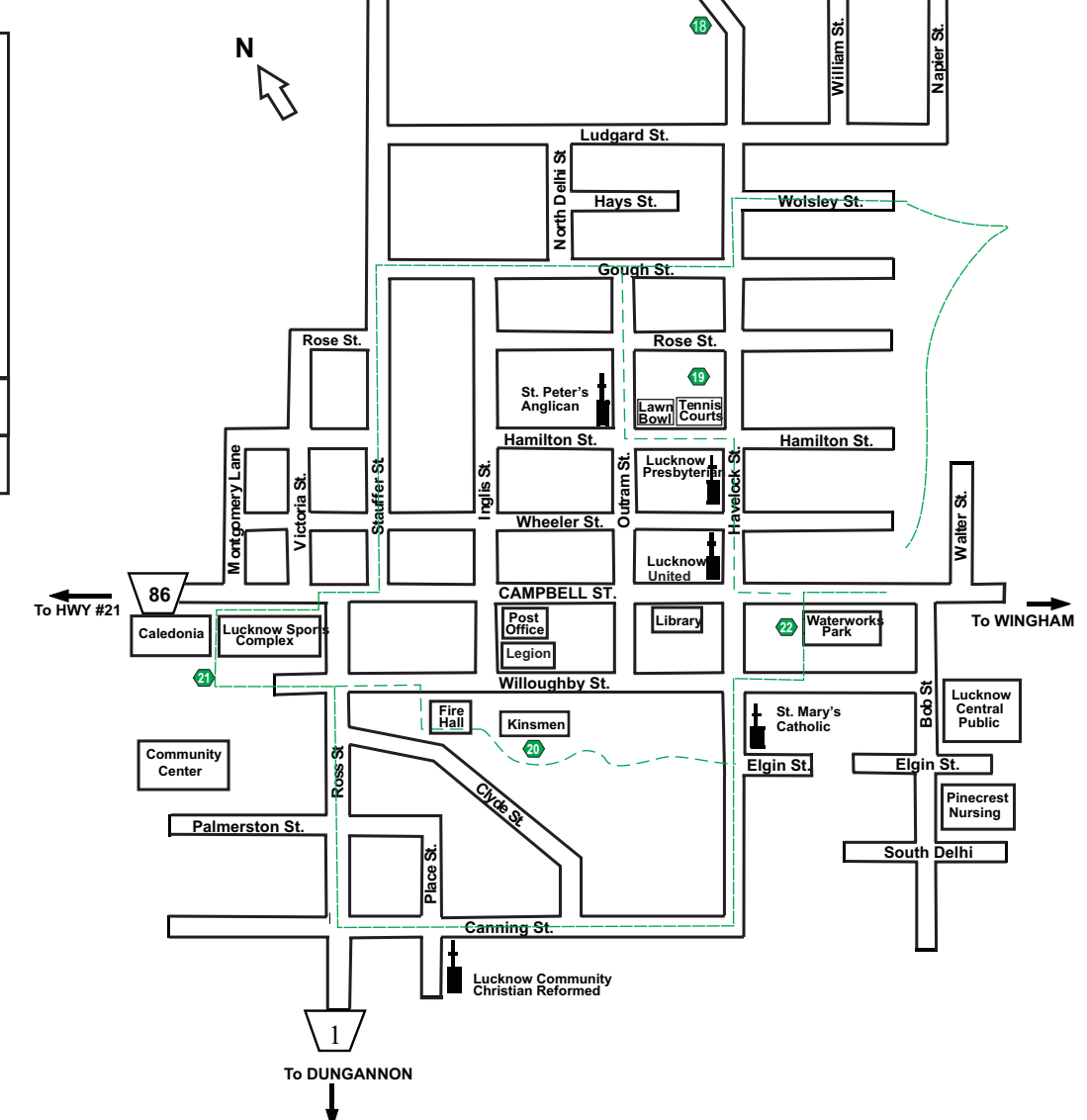
Detail #5



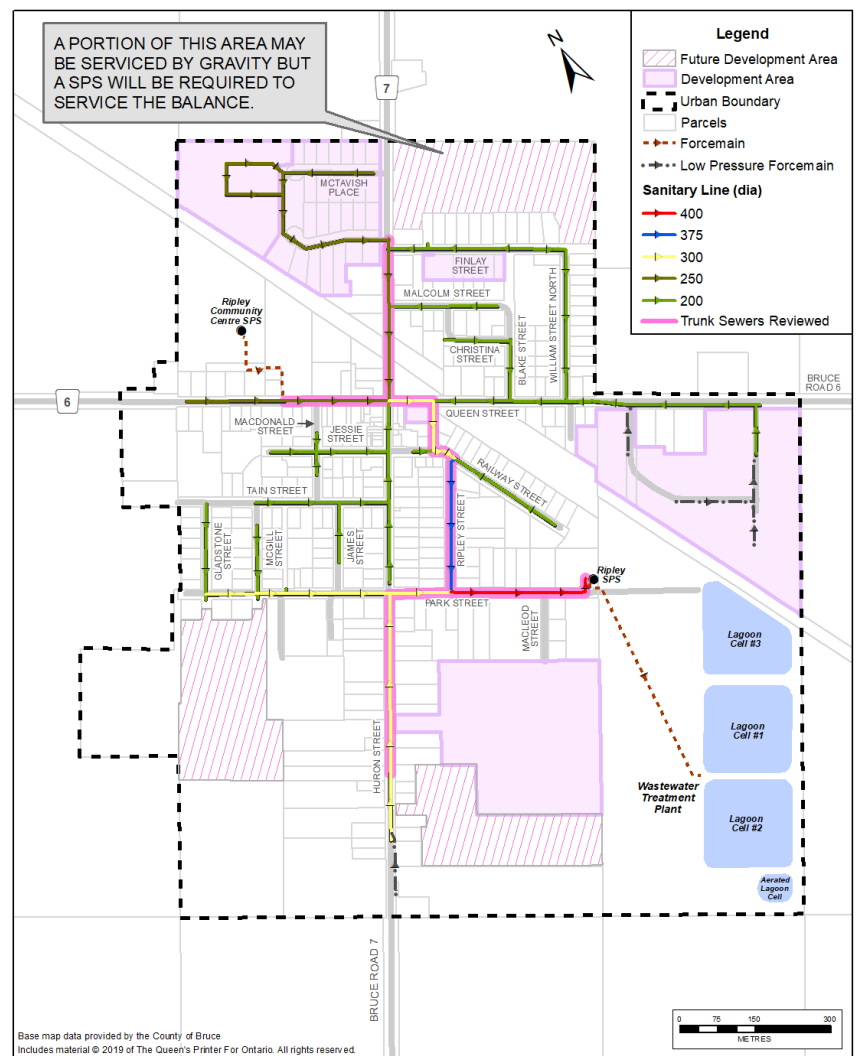
- PARKS**
- Huronville Park
 - Kin-Bruce Park
 - Heritage Park
 - Pearl Elizabeth Park
 - Langdon Park
 - Lion's Park
 - Point Clark C.C.
 - Blue Park
 - Lighthouse Park
 - Attawandaron Park
 - Amberley Park
 - Reid's Corner
 - Olivet Park
 - Lewis Park
 - Ripley-Huron C.C.
 - Park St Soccer Fld
 - Dorrie Soccer C.C.
 - Kinsmen Soccer Fld
 - Victoria Park
 - Kinsmen Ball Park
 - Lucknow & D. Sports
 - Waterworks Park
 - Whitechurch Park
- WALKING TRAILS**
- LANDFILL**

- LAIDLAW PL**
JARDINE PL
ATTAWANDARON RD
OKI CRT
WOODHAVEN RD

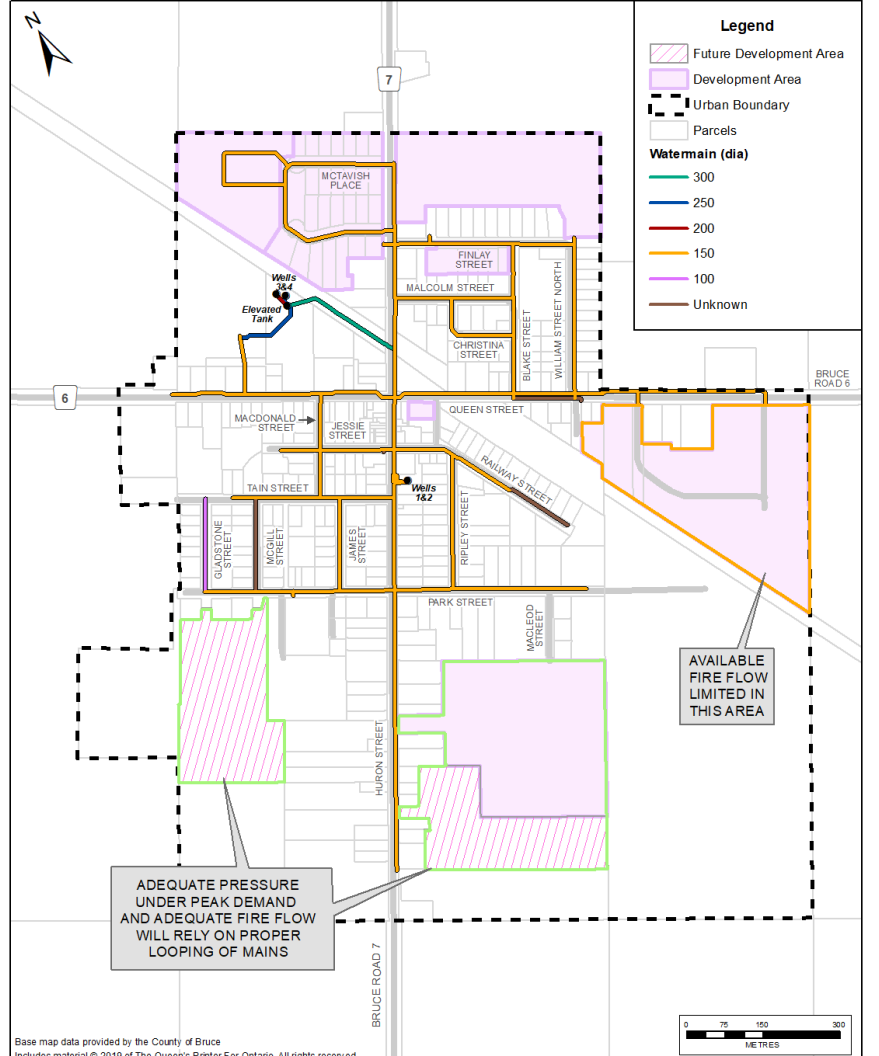
Detail #7



Ripley – Water Distribution and Wastewater Collection

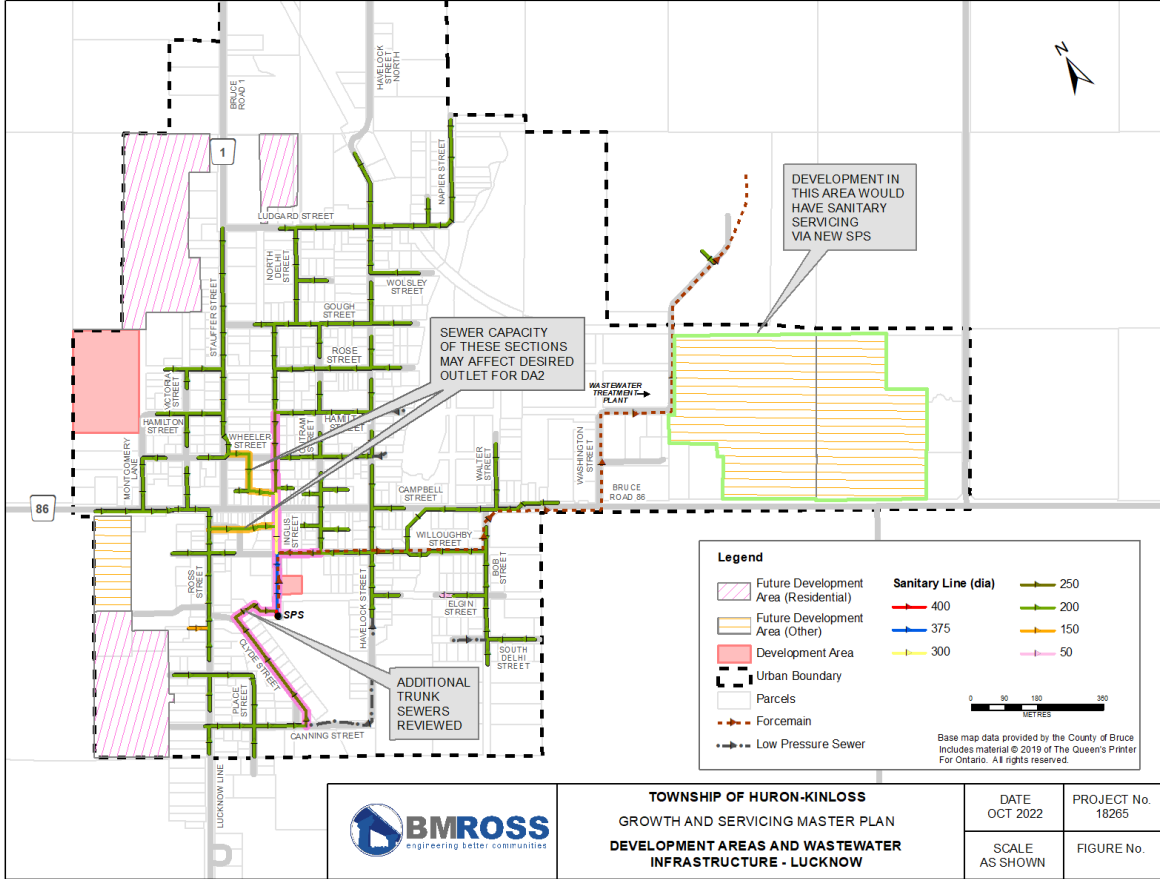
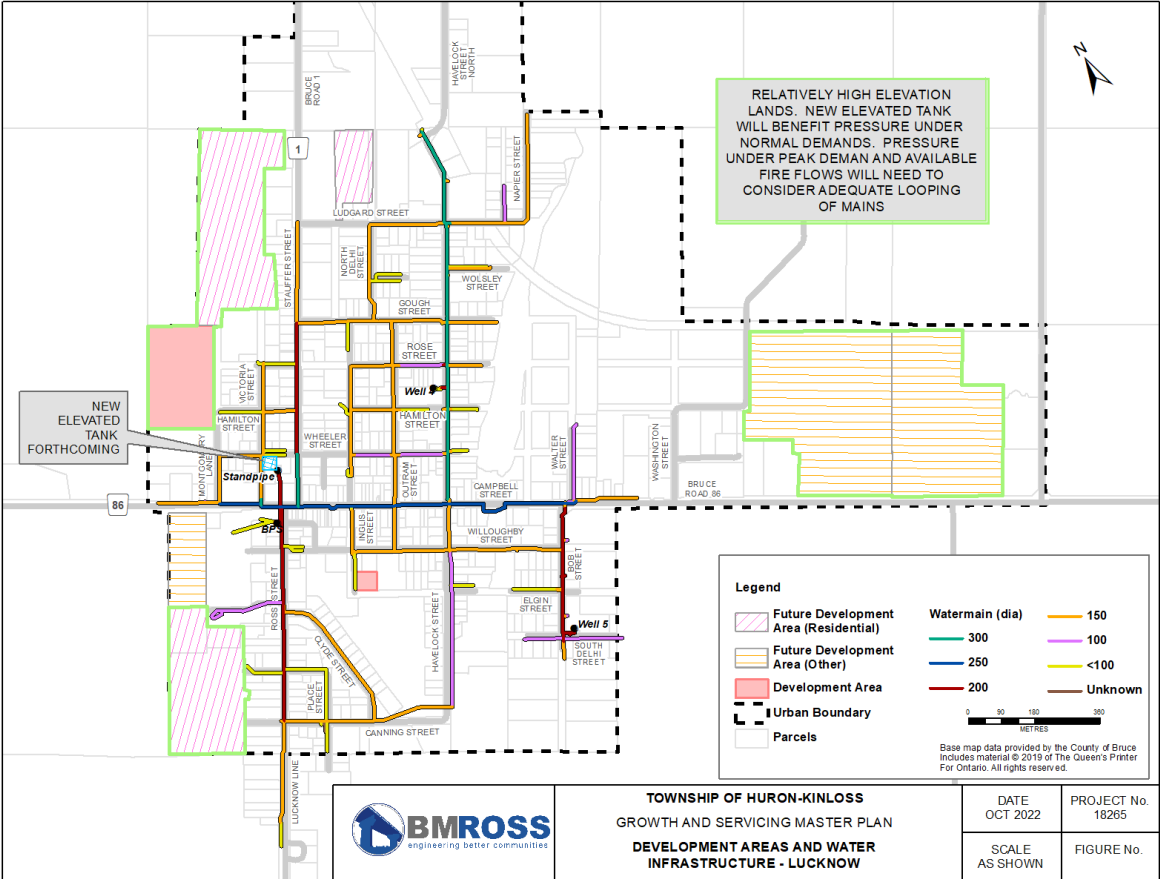


	TOWNSHIP OF HURON-KINLOSS GROWTH AND SERVICING MASTER PLAN DEVELOPMENT AREAS AND WASTEWATER INFRASTRUCTURE - RIPLEY	
	DATE OCT 2022	PROJECT No. 18265
	SCALE AS SHOWN	FIGURE No.

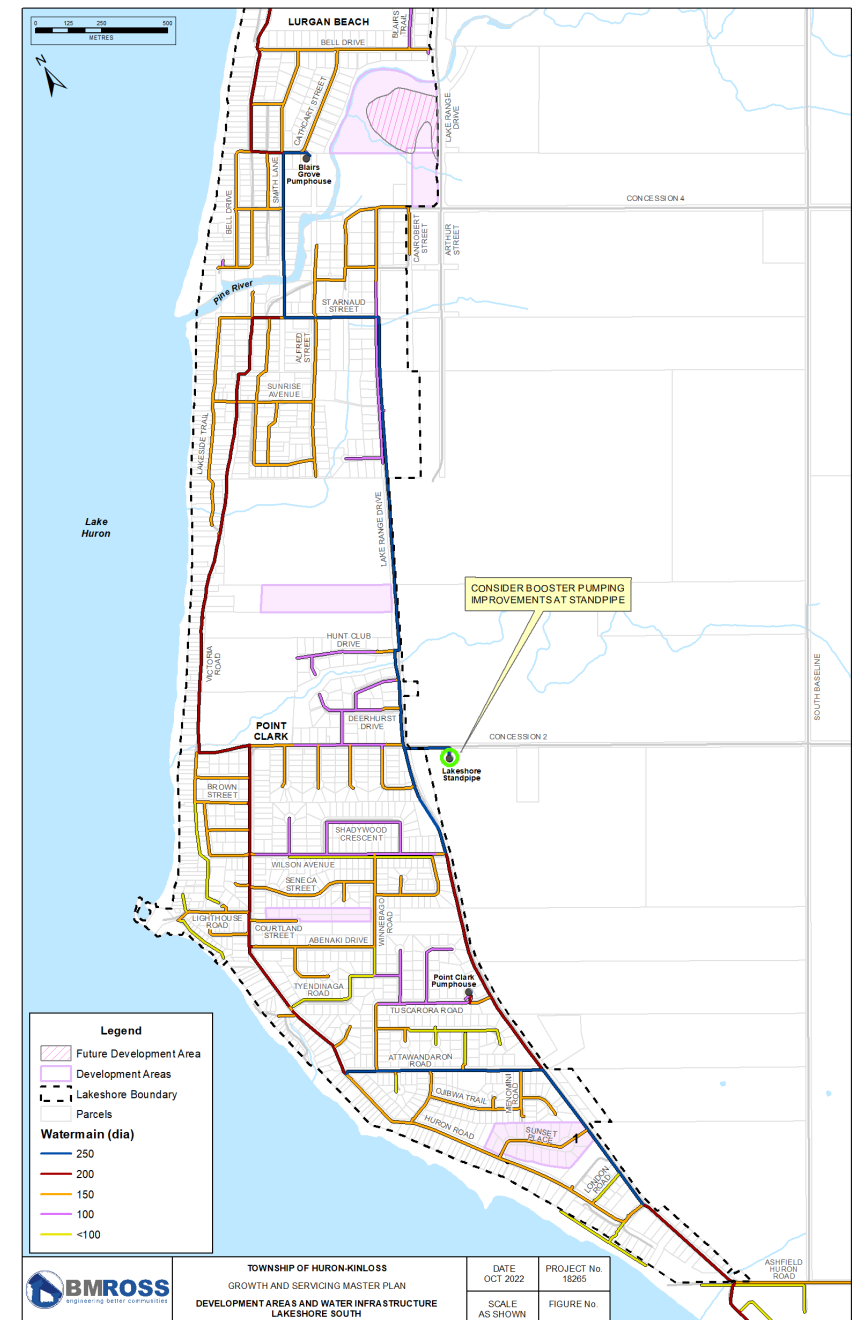
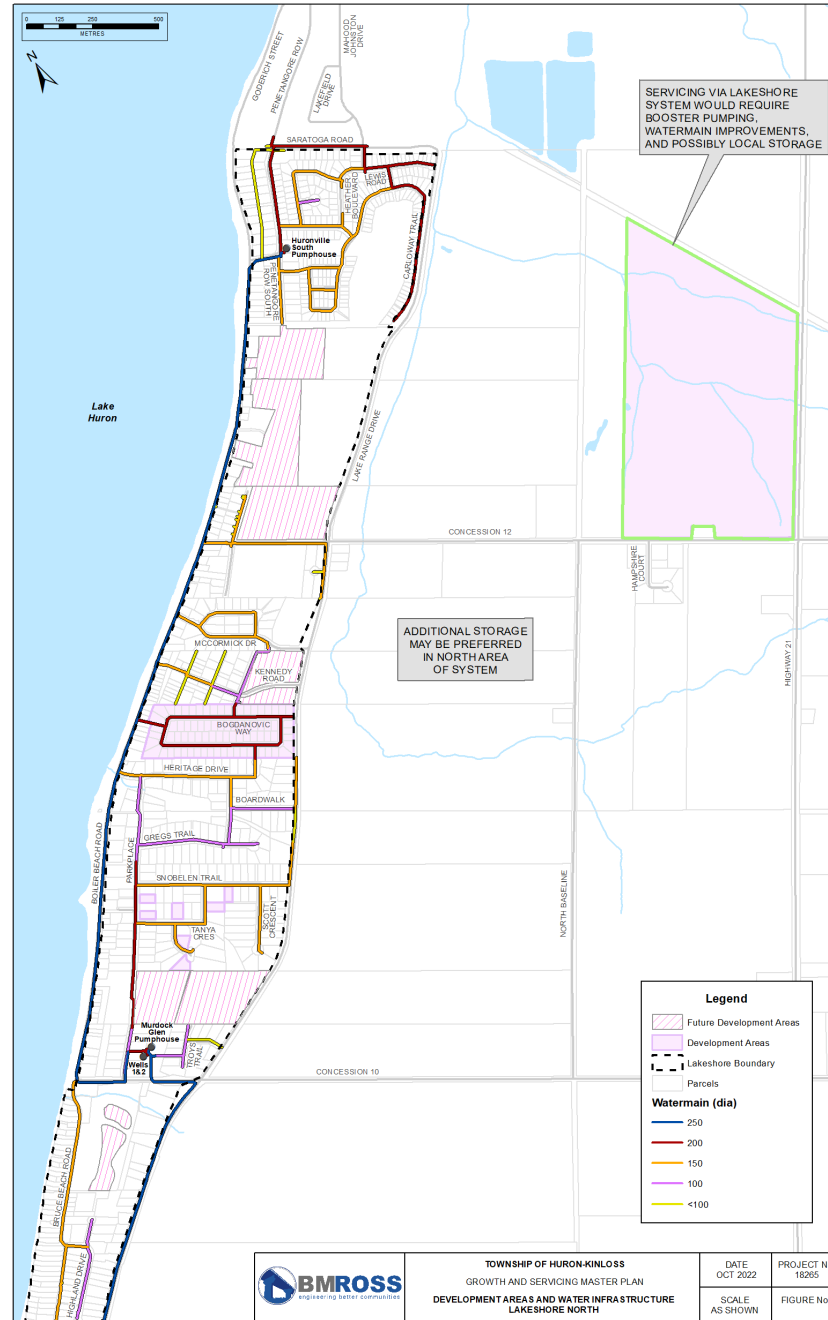


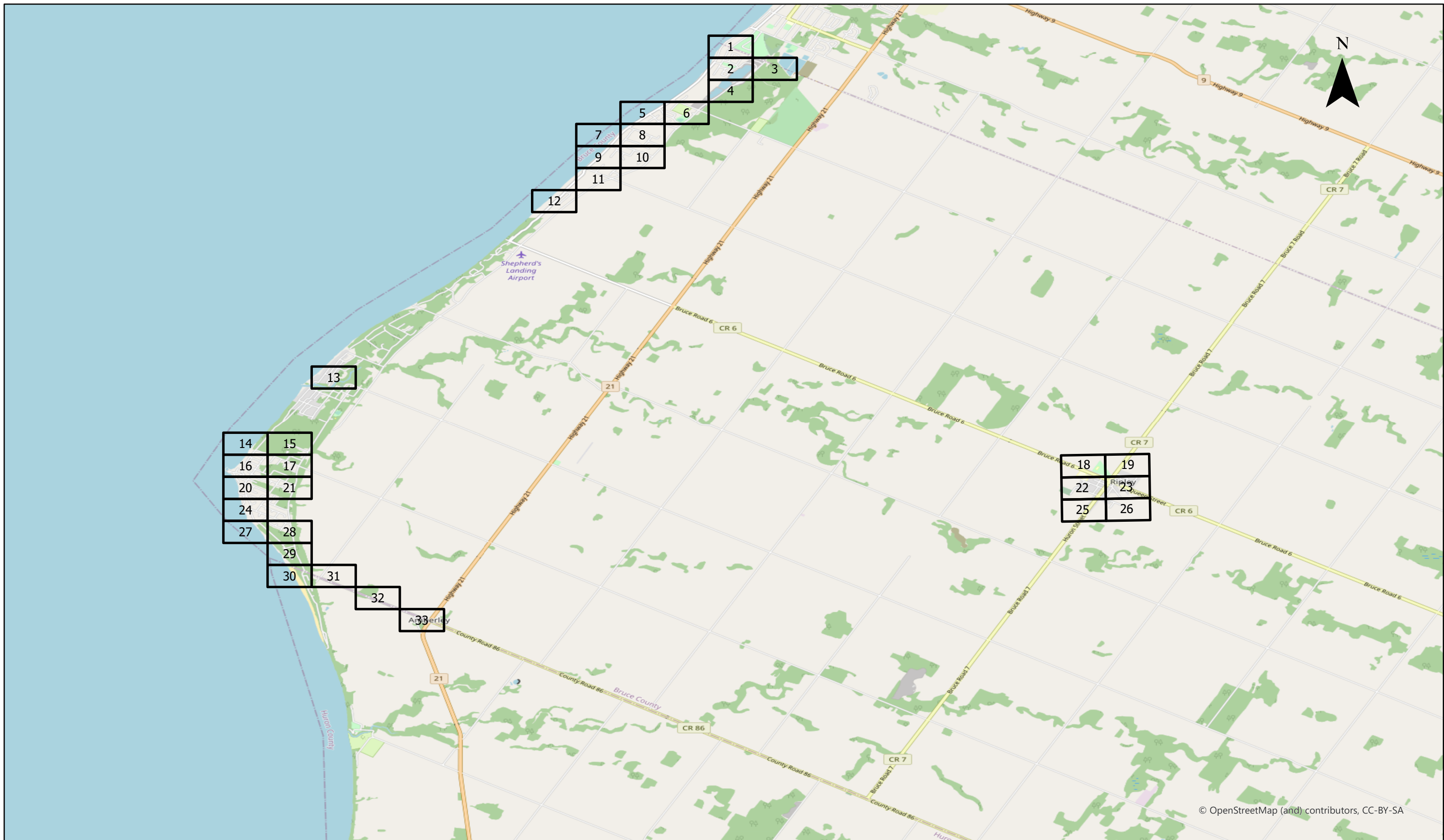
	TOWNSHIP OF HURON-KINLOSS GROWTH AND SERVICING MASTER PLAN DEVELOPMENT AREAS AND WATER INFRASTRUCTURE - RIPLEY	
	DATE OCT 2022	PROJECT No. 18265
	SCALE AS SHOWN	FIGURE No.

Lucknow – Water Distribution and Wastewater Collection



Lakeshore Area Water Distribution





Lakeshore and Ripley Catch Basins

TOWNSHIP OF HURON-KINLOSS ASSET MANAGEMENT PLAN 2022



Appendix C Growth Forecasting County of Bruce

B.3 Township of Huron-Kinloss

Figure B - 5: Township of Huron-Kinloss Population and Housing Forecast, 2016 to 2046

Year	Population (Including Census undercount) ¹	Housing Units				Persons Per Unit (P.P.U.) with undercount	
		Singles & Semi Detached	Multiple Dwellings ²	Apartments ³	Total Households		
Historical	<i>Mid-2016</i>	7,300	2,550	45	170	2,765	2.64
Forecast	<i>Mid-2021</i>	8,000	2,810	50	170	3,030	2.64
	<i>Mid-2026</i>	8,700	3,050	60	170	3,280	2.65
	<i>Mid-2031</i>	9,200	3,210	70	180	3,460	2.66
	<i>Mid-2036</i>	9,800	3,400	90	190	3,680	2.66
	<i>Mid-2041</i>	10,300	3,570	90	210	3,870	2.66
	<i>Mid-2046</i>	10,600	3,690	100	220	4,010	2.64
Incremental	Mid-2016 to Mid-2021	700	260	5	0	265	
	Mid-2016 to Mid-2026	1,400	500	15	0	515	
	Mid-2016 to Mid-2036	2,500	850	45	20	915	
	Mid-2016 to Mid-2046	3,300	1,140	55	50	1,245	

Source: 2016 from Statistics Canada Census. Forecast by Watson & Associates Economists Ltd., 2021.

¹ Census undercount estimated at approximately 2.7%. Note: Population including the undercount has been rounded.

² Includes townhouses and apartments in duplexes.

³ Includes bachelor, 1 bedroom and 2 bedroom+ apartments.

Figure B - 6: Township of Huron-Kinloss Employment Forecast, 2016 to 2046

Period	Population	Total Activity Rate	Employment							Total Employment (Including N.F.P.O.W.)
			Primary	Work at Home	Industrial	Commercial / Population Related	Institutional	Total	N.F.P.O.W. ¹	
2016	7,300	0.274	120	720	260	310	340	1,750	250	2,000
2021	8,000	0.285	130	860	290	340	360	1,980	300	2,280
2026	8,700	0.285	140	940	310	370	380	2,140	340	2,480
2031	9,200	0.285	150	990	330	380	390	2,240	380	2,620
2036	9,800	0.283	160	1,050	350	390	410	2,360	410	2,770
2041	10,300	0.281	160	1,120	360	400	420	2,460	430	2,890
2046	10,600	0.283	170	1,160	370	410	430	2,540	460	3,000
Incremental Change										
2016 - 2021	700	0.0110	10	140	30	30	20	230	50	280
2016 - 2026	1,400	0.0111	20	220	50	60	40	390	90	480
2016 - 2036	2,500	0.0087	40	330	90	80	70	610	160	770
2016 - 2046	3,300	0.0090	50	440	110	100	90	790	210	1,000

Source: Historical data from Statistics Canada Census. Forecast by Watson & Associates Economists Ltd., 2021.

¹ Statistics Canada defines no fixed place of work (N.F.P.O.W.) employees as "persons who do not go from home to the same work place location at the beginning of each shift". Such persons include building and landscape contractors, travelling salespersons, independent truck drivers, etc.