

# ASSET MANAGEMENT PLAN

## ROAD RESURFACING

### GUIDELINES

#### Assets

Assets identified in the Tangible Capital Assets software for amortization purposes include:

- Curb and Gutter
- Railway Crossings
- Road Base
- Road Surface
- Lanes
- Sidewalks
- Streetlights

#### Curb & Gutter

For asset management purposes, this group is insignificant. As the assets become fully amortized, they will be disposed of. Going forward, curbs and gutters will not be a specific asset. They will be part of the road surface.

#### Railway Crossings

There is only one rail crossing in the capital assets. ID969 is the crossing on the assess lane to Carden Cove. Annual monitoring of the condition and the need to the community will determine the requirement for replacement. It is estimated that the cost to replace is minimal.

#### Road Bases

When the assets were first identified for PSAB 3150 in 2008, paved roads were broken down into segments (base, surface and curbs & gutters). As detailed in the lanes section below, road bases are not replaced. When the asset becomes fully amortized, they will be disposed of. Going forward, road bases will not be a specific asset. They will be part of the road surface.

#### Lanes

The management of gravel roads is not through major rehabilitation and replacement, but rather through good perpetual maintenance and some minor rehabilitation which

depend on a few basic principles: proper techniques and cycles for grading; the use and upkeep of good surface gravel; and, dust abatement and stabilization<sup>1</sup>.

### Sidewalks

When the assets were first identified for PSAB 3150 in 2008, paved roads were broken down into segments (base, surface and curbs & gutters) including sidewalks. New sidewalks (eg. asphalt route along Penn Lake East and pavers on Peninsula Road) are added as tangible capital assets. The municipality selected 30 years as the financial estimated use of life. The actual lifespan of a section of sidewalk is much greater depending on whether vehicular traffic goes over the sidewalk.

Similar to road bases, sidewalk repairs will be reflected as ongoing operating maintenance. This segment of assets will not be reflected in the Asset Management Plan.

### Streetlights

The poles are identified as tangible capital assets primarily for location purposes. The value of these assets are nominal and the ages vary throughout the community. Replacing a pole will be done as needed determined by monitoring.

The lamps are classed as one group asset. They were purchased in 2014 with a lifespan of 20 years. Replacing the LED lights will be done as one RFP project when the dependability of the assets has deteriorated. Replacement of individual lamps before the town-wide task will be treated as operating spending.

This segment of assets will not be reflected in the Asset Management Plan.

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<sup>1</sup> *The Asset Management Plan for the Town of Marathon (2013)*. Submitted December 2013 by Public Sector Digest. Page 21.

## **Levels of Service (Section 5(2) of Ontario Reg 588/17)**

Table 4 as indicated in the Regulation:

Service Attribute	Community Levels of Service	Technical Levels of Service
Scope	Description of the road network and its level of connectivity	Number of lane-kilometres of each of arterial roads, collector roads and local roads (as a proportion of square kilometres of land area)
Quality	Description of different levels of road class pavement condition	Average pavement condition index value

### **Summary of Road Surfaces (SCOPE)**

Instead of the rating according to Ontario Regulation 239/02 (shown on Appendix A), the Town of Marathon has modified road classification to highlight arterials roads according to local conditions (shown in Appendix D)

Class 3 <sup>2</sup>	6,118 metres
Class 4 <sup>3</sup>	10,423
Class 5	<u>17,173</u>
TOTAL	33,714 metres

To conform to the province's requirement, the metres above are to be doubled to reflect the two lanes of each road segment.

### **Average Condition (QUALITY)**

Shown later under the heading – State of Local Infrastructure.

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<sup>2</sup> **Peninsula Road** from Govan (hospital) to Highway 17 and **Hemlo Drive** from Peninsula Road to Jackson (fire station)

<sup>3</sup> Connector roads (eg. Hemlo, Steedman, Stevens)

## **Replacement Cost** (as of January 1, 2023)<sup>4</sup>

Values are based on CPI Ontario

Roads <sup>5</sup>	\$24,473,038
Railway Crossing	199,483
Sidewalks	3,305,542
Street Lighting	<u>2,625,490</u>
TOTAL	\$30,603,553

The problem with the Citywide replacement cost is that it is based on the PSAB requirement of 2009 when all assets were required to be identified. In most cases, historical costs were 'placeholders' and not determined by realistic methods. For example, the historical cost of Spruce Court (length of 189 metres) is \$1,300. The following is what replacement costs have been in the past few years:

Year	Location	Cost per Metre	Notes
2016	Penn Lake Road (Barrick to Chisholm)	\$497	No driveways
2018	Hemlo (Steedman to LaVerendrye tunnel)	\$845	
2019	Hemlo (Jackson to Steedman)	\$1,788	Thicker pavement and wider lanes @ fire hall & high school
2020	Woodson & Winton	\$286	No driveways
2022	Nicolet & Steedman	\$1,294	
	Aspendale East	\$387	No driveways

The data will improve as placeholder values are updated with actual costs when the road surfaces are replaced. For now, budget discussions on future replacement will assume the most up-to-date cost per metre, in consultation with our third-party engineers.

**Average Age** (as of January 1, 2023)<sup>6</sup>

	Asset Count	Avg Asset Age (Financial)	Estimated Useful Life (as per Policy)
Road Surfaces	208	29	20
Rail Crossing	1	27	25
Sidewalks	104	32	30
Street Lights	503	33	30

Recommend that the estimated useful life be amended from 20 years for every road to

Residential (Class 5)	eg. Manitoba Street	40 years <sup>7</sup>
Connectors (Class 4)	eg. Sund Crescent	30 years
Arterial (Class 3)	eg. Peninsula Road	20 years

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<sup>4</sup> Citywide Software – Asset Management Reports – Replacement Cost (do not include Lifecycle Events)

<sup>5</sup> Includes base and curb/gutters

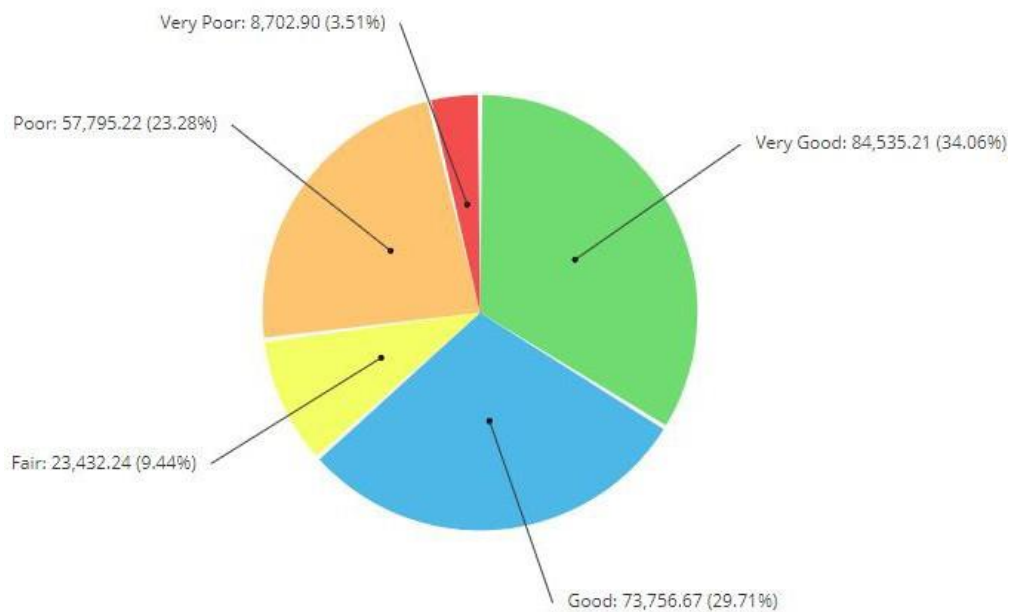
<sup>6</sup> Citywide Software – Levels of Service Reports – Asset Age

<sup>7</sup> Citywide Software – Asset Profile – Lifecycle EUL Override

## **Assessing Condition (Section 5 (2)(3))**

Only road surfaces will be included. Current ratings are based on the TBT Engineering survey done in November 2022.

Citywide Condition Report as of  
November 2022 [ unit = Area (m<sup>2</sup>)  
]



### *Assumptions*

RATING	
0 – 39	Very Poor
40 – 54	Poor
55 – 69	Fair
70 – 84	Good
85 – 100	Very Good

PSD published a study in partnership with the Association of Municipalities of Ontario (AMO) in 2015. The report, *The State of Ontario's Roads and Bridges: An Analysis of 93 Municipalities*, enumerated the infrastructure deficits, annual investment gaps and

the physical state of roads, bridges and culverts. It found that the average condition rating of paved roads was 40% based on age and 69% based on actual assessment. While assuming age condition is less time consuming, the condition is often too pessimistic. Replacement can be deferred.<sup>8</sup>

Asset management is confined to the replacement of existing road surfaces, future expansions of roadways would be added to the asset management plan when new development is completed.

### **Lifecycle Activities (Section 5(2)(4))**

The regulation requires the following:

- i. The full lifecycle of the assets.
- ii. The options for which lifecycle activities could potentially be undertaken to maintain the current levels of service.
- iii. The risks associated with the options referred to in subparagraph ii.
- iv. The lifecycle activities referred to in subparagraph ii that can be undertaken for the lowest cost to maintain the current levels of service.

For now, we have only identified the following activities.

Roads – crack filling, shoulder/ditch shoveling and fixing potholes

Options and risks are part of the continuing maintenance of the assets. We are not getting into that right now. It is easier to believe that the future will be status quo.

### **Future Assumptions (Section 5(2)(5))**

Future change in population or economic activity – status quo

Since it is assumed that there will be no growth, there is no need to make assumptions that lifecycle activities will change.

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<sup>8</sup> Page 101 of the City of Kenora's 2017 Asset Management Plan

## **Risk Matrix**

Risk is defined as the probability (likelihood) of failure multiplied by the consequence of the failure.

For road surfaces, the probability of failure consists of the following weighted factors:

- |                                   |     |
|-----------------------------------|-----|
| 1. Service Life Remaining (Years) | 30% |
| 2. Condition rating               | 60% |
| 3. Road Class                     | 10% |

The service life remaining factor is ranked as

Rare	more than 20 years remaining
Unlikely	10
Possible	5
Likely	1
Almost certain	expired

The condition factor is ranked as

Rare	85 – 100%
Unlikely	70 – 84%
Possible	50 – 69%
Likely	30 – 49%
Almost certain	0 – 29%

The road class factor is ranked as

Unlikely	Class 5
Possible	4
Likely	3

The consequence of failure consists of the following weighted factors.

- |                        |      |
|------------------------|------|
| 1. Social (road class) | 100% |
|------------------------|------|

The social factor is ranked as

Class 5	minor
Class 4	moderate
Class 3	severe



## **Factors in Making Decisions**

### **Desired Level of Service**

Factors that may defer the project would be:

- usage (low usage); example is Woodson Street – no residential properties
- major underground infrastructure (water and sewer); example – sections of Yawkey Street also require sewer pipes to be replaced
- other factors may increase the priority of better rated roads; example – Stillwater may want to improve its buildings on MacKenzie Street and it will contribute \$100,000 towards the municipality doing road upgrades.
- As of 2016, the condition of the water, sewer and storm sewer systems are just based on age. In 2017, further investigation using cameras, etc will assess the physical condition of the assets. Until the conditions are known, no road resurfacing will be done on these sections as the scope of work could be substantially greater than just resurfacing.

In the meantime, road monitoring will be conducted as per Works And Operations Road Patrol Procedure WR136.

### **Financing Strategy**

The requirement to levy taxes to finance road resurfacing will be limited to \$1M. Projects involving other infrastructure (eg. water mains) can include road resurfacing thereby, removing the \$1M limit since a considerable amount of the cost will be for the underground work.

Other forms of funding that can be used to reduce the tax levy limit are debt, reserves and grants.

Maintenance and rehabilitation activities will be classed as operating expenses and they will be funded through the tax levy.

A ten year cost forecast (including the three prior years for comparison) will be prepared during each term of council.

### **Annual Budget Process**

1. Generate a ten-year replacement profile report (Appendix B).

- a. List the road segments that are in backlog and due to be replaced in the budget year.
    - i. Customize columns to include Location.
    - ii. Open folder.
    - iii. Copy to excel
    - iv. Sort by Backlog and then budget year (descending order)
2. Generate a risk matrix report (Appendix C)
- a. Identify the high risk assets (red boxes)

# APPENDICES

APPENDIX A

ROAD CLASSIFICATIONS (as presented in Ontario Regulation 239/02)

CLASSIFICATION OF HIGHWAYS

Column 1 Average Daily Traffic (number of motor vehicles)	Column 2 91 - 100 km/h	Column 3 81 - 90 km/h	Column 4 71 - 80 km/h	Column 5 61 - 70 km/h	Column 6 51 - 60 km/h	Column 7 41 - 50 km/h	Column 8 1 - 40 km/h
SPEED LIMIT							
53,000 or more	1	1	1	1	1	1	1
23,000 - 52,999	1	1	1	2	2	2	2
15,000 - 22,999	1	1	2	2	2	3	3
12,000 - 14,999	1	1	2	2	2	3	3
10,000 - 11,999	1	1	2	2	3	3	3
8,000 - 9,999	1	1	2	3	3	3	3
6,000 - 7,999	1	2	2	3	3	4	4
5,000 - 5,999	1	2	2	3	3	4	4
4,000 - 4,999	1	2	3	3	3	4	4
3,000 - 3,999	1	2	3	3	3	4	4
2,000 - 2,999	1	2	3	3	4	5	5
1,000 - 1,999	1	3	3	3	4	5	5
500 - 999	1	3	4	4	4	5	5
200 - 499	1	3	4	4	5	5	6
50 - 199	1	3	4	5	5	6	6
0 - 49	1	3	6	6	6	6	6

Column 4 – Peninsula Road from Highway 17 to Old Heron Bay Road

Column 6 - Peninsula Road from Old Heron Bay Road to new OPP Station

## APPENDIX B 10 YEAR REPLACEMENT REPORT

Category 
 Segment 
 Year  to 
 Range  Year Blocks

Showing 5 records 🔄 🔍 📄 📑

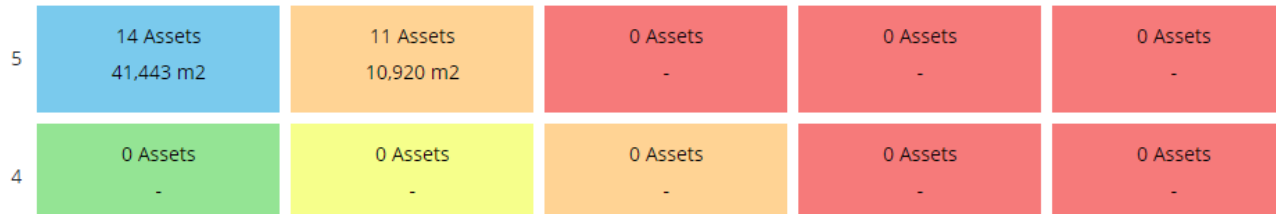
	Backlog	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
ROADS												
ROAD SURFACE	\$344,017.00	\$580,132.00	\$46,323.00	\$416,381.00	\$533,807.00	\$985,200.00	\$2,265,552.00	\$814,619.00	\$273,238.00	\$96,908.00	-	\$60,618.00
ROADS Total	\$344,017.00	\$580,132.00	\$46,323.00	\$416,381.00	\$533,807.00	\$985,200.00	\$2,265,552.00	\$814,619.00	\$273,238.00	\$96,908.00	-	\$60,618.00
Cumulative Total	\$344,017.00	\$580,132.00	\$46,323.00	\$416,381.00	\$533,807.00	\$985,200.00	\$2,265,552.00	\$814,619.00	\$273,238.00	\$96,908.00	-	\$60,618.00

# APPENDIX C RISK MATRIX

Home > AM > Levels of Service Reports > Risk > Matrix

1

Category: ROADS Segment: ROAD SURFACE Year: 2022 Run Report



Asset ID	Location	Length (m)	Age-Based Condition (Reporting ...)	Age (Reporting Year)	Probability of Failure	Consequence of Failure	Risk Rating
589	loyd Irwin Street W (Steedman Drive to Griggs...	212	0 - Very Poor	46 Years 6 Months	4.2 - Likely	3 - Moderate	12.6 - High
615	lowe Street (Pebbles Beach to Trailer Park Ro...	75	0 - Very Poor	52 Years 6 Months	4.8 - Likely	3 - Moderate	14.4 - High
617	lowe Street (Trailer Park Road to Yawkey)	155	0 - Very Poor	52 Years 6 Months	4.8 - Likely	3 - Moderate	14.4 - High
635	loyd Irwin Street E (Griggs Street to Michano ...	194	0 - Very Poor	46 Years 6 Months	4.2 - Likely	3 - Moderate	12.6 - High
641	arrick Gold Lane (Entire)	121	0 - Very Poor	36 Years 6 Months	4.2 - Likely	3 - Moderate	12.6 - High
659	Michano Drive (Lloyd Irwin Street to McFarlan...	96	0 - Very Poor	36 Years 6 Months	4.2 - Likely	3 - Moderate	12.6 - High
661	Michano Drive (Hemlo Drive to Lloyd Irwin Str...	351	0 - Very Poor	36 Years 6 Months	4.2 - Likely	3 - Moderate	12.6 - High
663	Michano Drive (McFarland Street to end	57	0 - Very Poor	36 Years 6 Months	4.2 - Likely	3 - Moderate	12.6 - High
709	tevens Avenue (King Street to Armour Street)	274	0 - Very Poor	52 Years 6 Months	4.2 - Likely	3 - Moderate	12.6 - High
721	tevens Avenue (Peninsula Road to King Street)	182	3.92 - Very Poor	19 Years 6 Months	4.2 - Likely	3 - Moderate	12.6 - High
725	tevens Avenue (Armour Street to Brown Street)	66	0 - Very Poor	52 Years 6 Months	4.2 - Likely	3 - Moderate	12.6 - High
727	tevens Avenue (Brown Street to Jones Street)	90	0 - Very Poor	52 Years 6 Months	4.2 - Likely	3 - Moderate	12.6 - High
729	tevens Avenue (Jones Street to Stewart Street)	96	0 - Very Poor	52 Years 6 Months	4.2 - Likely	3 - Moderate	12.6 - High
731	tevens Avenue (Stewart Street to Howe Street)	108	0 - Very Poor	52 Years 6 Months	4.2 - Likely	3 - Moderate	12.6 - High
737	Ontario Street W (Peninsula Road to Manitoaba ...	326	0 - Very Poor	52 Years 6 Months	4.2 - Likely	3 - Moderate	12.6 - High
739	tevens Avenue (Howe Street to Bissell Street)	136	0 - Very Poor	52 Years 6 Months	4.2 - Likely	3 - Moderate	12.6 - High
741	tevens Avenue (Bissell Street to Yawkey Aven...	89	0 - Very Poor	52 Years 6 Months	4.2 - Likely	3 - Moderate	12.6 - High
745	tevens Avenue (Yawkey Avenue to Trailer Cou...	54	0 - Very Poor	52 Years 6 Months	4.2 - Likely	3 - Moderate	12.6 - High
768	edar Walk to Godfrey Drive	110	0 - Very Poor	34 Years 6 Months	4.2 - Likely	3 - Moderate	12.6 - High
770	godfrey Drive to 2 Pinewood Walk	90	0 - Very Poor	34 Years 6 Months	4.2 - Likely	3 - Moderate	12.6 - High
34		4,664	0.115	41 Years 9 Months	4.235	3	12.706

Citywide Export - 2023-03-07							
Asset ID	Description	Location	Length (m)	Age	Probability of Failure	Consequence of Failure	Risk Rating
615	Howe Street	Howe Street (Pebbles Beach to Trailer Park Road)	75	52 Years 6 Months	4.8	3	14.4
617	Howe Street	Howe Street (Trailer Park Road to Yawkey)	155	52 Years 6 Months	4.8	3	14.4
737	Ontario Street	Ontario Street W (Peninsula Road to Manitoba Street)	326	52 Years 6 Months	4.2	3	12.6
788	Ontario Street	Ontario Street E (Manitoba Street to Peninsula Road)	228	52 Years 6 Months	4.2	3	12.6
827	Penn Lake Road East	Penn Lake Road East (Peninsula Road to Barrick Gold Lane)	670	36 Years 6 Months	4.2	3	12.6
709	Stevens Avenue	Stevens Avenue (King Street to Armour Street)	274	52 Years 6 Months	4.2	3	12.6
725	Stevens Avenue	Stevens Avenue (Armour Street to Brown Street)	66	52 Years 6 Months	4.2	3	12.6
727	Stevens Avenue	Stevens Avenue (Brown Street to Jones Street)	90	52 Years 6 Months	4.2	3	12.6
729	Stevens Avenue	Stevens Avenue (Jones Street to Stewart Street)	96	52 Years 6 Months	4.2	3	12.6
731	Stevens Avenue	Stevens Avenue (Stewart Street to Howe Street)	108	52 Years 6 Months	4.2	3	12.6
739	Stevens Avenue	Stevens Avenue (Howe Street to Bissell Street)	136	52 Years 6 Months	4.2	3	12.6
741	Stevens Avenue	Stevens Avenue (Bissell Street to Yawkey Avenue)	89	52 Years 6 Months	4.2	3	12.6
745	Stevens Avenue	Stevens Avenue (Yawkey Avenue to Trailer Court Road)	54	52 Years 6 Months	4.2	3	12.6
589	Lloyd Irwin Street	Lloyd Irwin Street W (Steedman Drive to Griggs Street)	212	46 Years 6 Months	4.2	3	12.6
635	Lloyd Irwin Street	Lloyd Irwin Street E (Griggs Street to Michano Drive)	194	46 Years 6 Months	4.2	3	12.6
641	Barrick Gold Lane	Barrick Gold Lane (Entire)	121	36 Years 6 Months	4.2	3	12.6
807	Hemlo Drive	Hemlo Drive (La Verendrye Crescent to Van Horne Crescent)	130	36 Years 6 Months	4.2	3	12.6
811	Hemlo Drive	Hemlo Drive (Van Horne Crescent to Van Horne Crescent)	90	36 Years 6 Months	4.2	3	12.6
813	Hemlo Drive	Hemlo Drive (Van Horne Crescent to Poplar Crescent)	88	36 Years 6 Months	4.2	3	12.6
819	Hemlo Drive	Hemlo Drive (Poplar Crescent to Laurier Street)	172	36 Years 6 Months	4.2	3	12.6
821	Hemlo Drive	Hemlo Drive (Laurier Street to Poplar Crescent)	146	36 Years 6 Months	4.2	3	12.6
823	Hemlo Drive	Hemlo Drive (Poplar Crescent to End)	108	36 Years 6 Months	4.2	3	12.6
659	Michano Drive	Michano Drive (Lloyd Irwin Street to McFarland Street)	96	36 Years 6 Months	4.2	3	12.6
661	Michano Drive	Michano Drive (Hemlo Drive to Lloyd Irwin Street)	351	36 Years 6 Months	4.2	3	12.6
663	Michano Drive	Michano Drive (McFarland Street to end)	57	36 Years 6 Months	4.2	3	12.6
768	Chisholm Trail	Cedar Walk to Godfrey Drive	110	34 Years 6 Months	4.2	3	12.6
770	Chisholm Trail	Godfrey Drive to 2 Pinewood Walk	90	34 Years 6 Months	4.2	3	12.6
884	Chisholm Trail	Chisholm Trail 3 - 6	60	34 Years 6 Months	4.2	3	12.6
886	Chisholm Trail	Chisholm Trail 9 - 10	20	34 Years 6 Months	4.2	3	12.6
888	Chisholm Trail	Chisholm Trail 11 - 15	10	34 Years 6 Months	4.2	3	12.6
890	Chisholm Trail	Chisholm Trail 16 - 17	20	34 Years 6 Months	4.2	3	12.6
892	Chisholm Trail	Chisholm Trail 18	10	34 Years 6 Months	4.2	3	12.6
894	Chisholm Trail	Chisholm Trail 29	30	34 Years 6 Months	4.2	3	12.6
721	Stevens Avenue	Stevens Avenue (Peninsula Road to King Street)	182	19 Years 6 Months	4.2	3	12.6