



Corporation of the Township of Brock

Staff Report to the Mayor and Members of Council

From: Paul Lagrandeur
Position: Director of Public Works
Title / Subject: Road Rehabilitation and Forecast
Date of Report: January 23, 2023
Date of Meeting: January 30, 2023
Report No: 2023-OP-001

1.0 Issue / Origin

Brock Township's Double Surface Treated Roads have in many areas begun to fail and are in need of repair. A plan has been created to rehabilitate the identified sections of road. Each plan will have a financial element associated with it and budgetary impact.

2.0 Background

Roads Need Study

The Corporation of the Township of Brock's last Roads Need Study was performed in 2018. Chisholm, Fleming and Associates were the Consultants selected to perform the study. Brock will be requesting this task every five years. The completed Road Needs Study allows the Township to:

- Maintain an updated inventory of all the road sections making up the road system;
- Identify maintenance, drainage, repair and rehabilitation needs;
- Protect and maintain the life of the Township's roads and determine the ideal planning and funding for road improvements;
- Identify deficiencies and estimate the cost of proposed practical improvements to eliminate the deficiencies; and
- Provide an overview from programming and financial perspectives.

To compare the condition of each road section, the inventory manual provides scorings in the form of point ratings. The point ratings are then used to determine the Condition Ratings for each section which will prioritize the needs for each road section and classify each one as a "Now", or "1-5 year". For the purpose of this report, we will only use this time frame to accommodate our five-year plan.

The Priority Rating is used to determine the importance and benefit of improving one section over another. Consideration will include Average Annual Daily Traffic (AADT) and Condition rating as determined by staff in the 2022 year.

Over the past ten years Brock has made an aggressive attempt to hard top rural backroads with a Double Surface Treatment application. Success of the application has been inconsistent to Brock’s desired outcome. Repair is needed on many sections of the treated rural roads. Below will be a five-year plan to correct and repair areas of DST.

The main purpose for this plan is to create a method of repair for affected areas identified on road sections with Double Surface Treatment. It will provide a cost estimate for Repair/Rehabilitation. It will also provide a prioritized list of affected sections. The rating will be as mentioned above.

Method of Repair – To maintain a stable surface on our rural roads our actions will include:

- 1) Excavation of top layer (granular A) and stockpile
- 2) Excavation of unsuitable material below granular
- 3) Place filter fabric and geo textile layer
- 4) Replace stockpiled granular. Grade and compact
- 5) Add new granular, grade and compact.

Estimated Repair Costs – An early conservative estimate for the method of repair mentioned above is approximately \$80,000/KM.

List of Roads for Repair

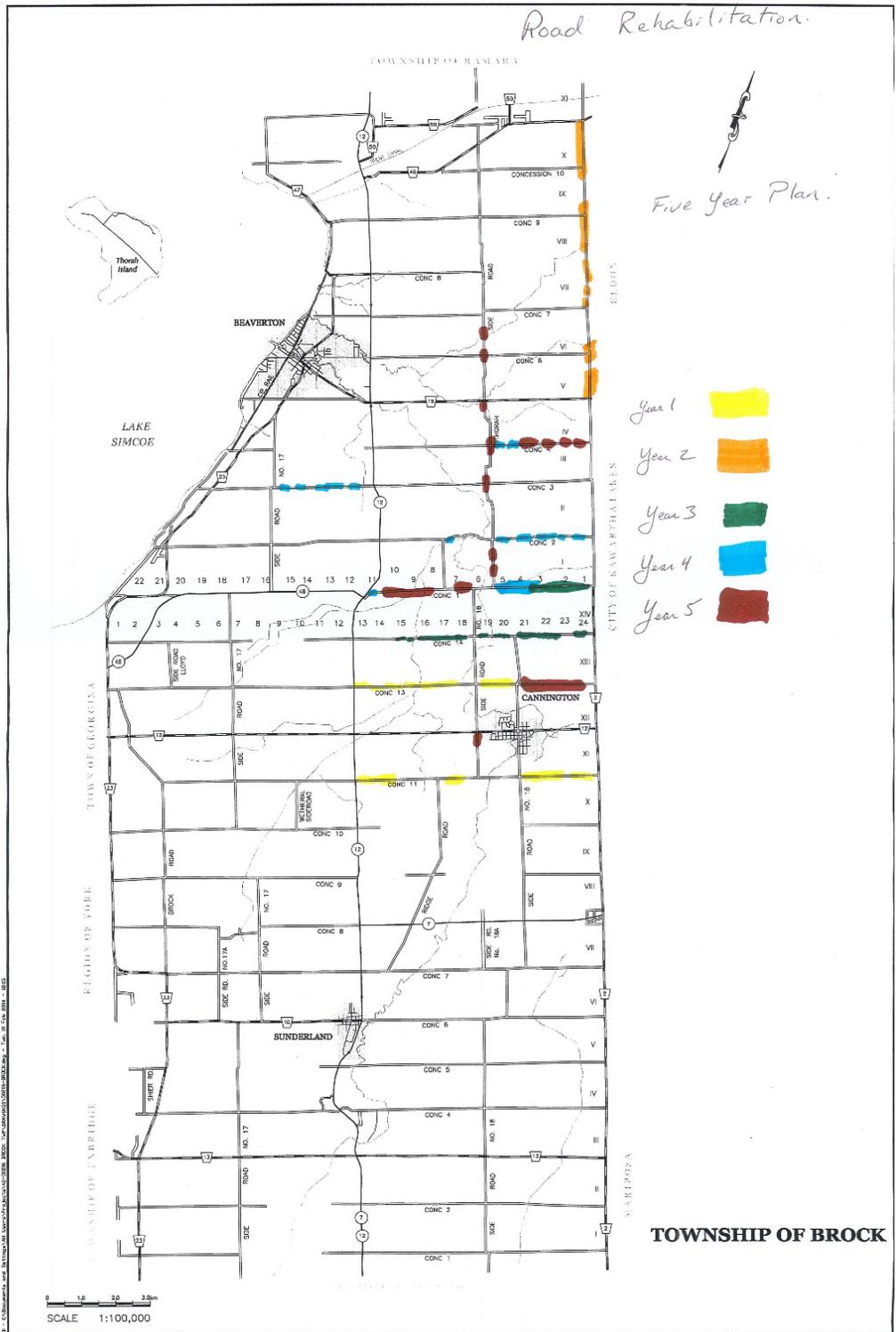
The total length of roads for rehabilitation is approximately 26,940 m or 26.94 km.

Road	Section	Length	Surface	Plan 1 (5yr)	Plan 2 (4yr)	Plan 3 (3yr)	AADT
Conc. 11(B)	Hwy 12 East to 750m E	750 m	DST	1	1	1	212
	1.2 km E of #12 to 1.85 km E	650 m	DST	1	1	1	212
	2.7 km E of #12 to 2.75 km E	50 m	DST	1	1	1	225
	4.7 km E of #12 to 6.05 km E	1350 m	DST	1	1	1	245
	6.75 km E of #12 to 6.85 km E	100 m	DST	1	1	1	126
Conc 13(B)	Hwy 12 East to 200 m E	200 m	DST	1	1	1	258
	500 m E of #12 to 800 m E	300 m	DST	1	1	1	258
	1 km E of #12 to 1.5 km E	500 m	DST	1	1	1	258
	1.72 km E of #12 to 1.92 km E	200 m	DST	1	1	1	258
	2.1 km E of #12 to 2.55 km E	450 m	DST	1	1	1	106
	2.8 km E of #12 to 2.9 km E	100 m	DST	1	1	1	106
	3.3km E of #12 to 3.36 km E	60 m	DST	1	1	1	86
	3.65 km E of #12 to 4.5 km E	850 m	DST	1	1	1	86
	4.75 km E of #12 to 6.6 km E	1,850 m	Gravel	5	4	1	86

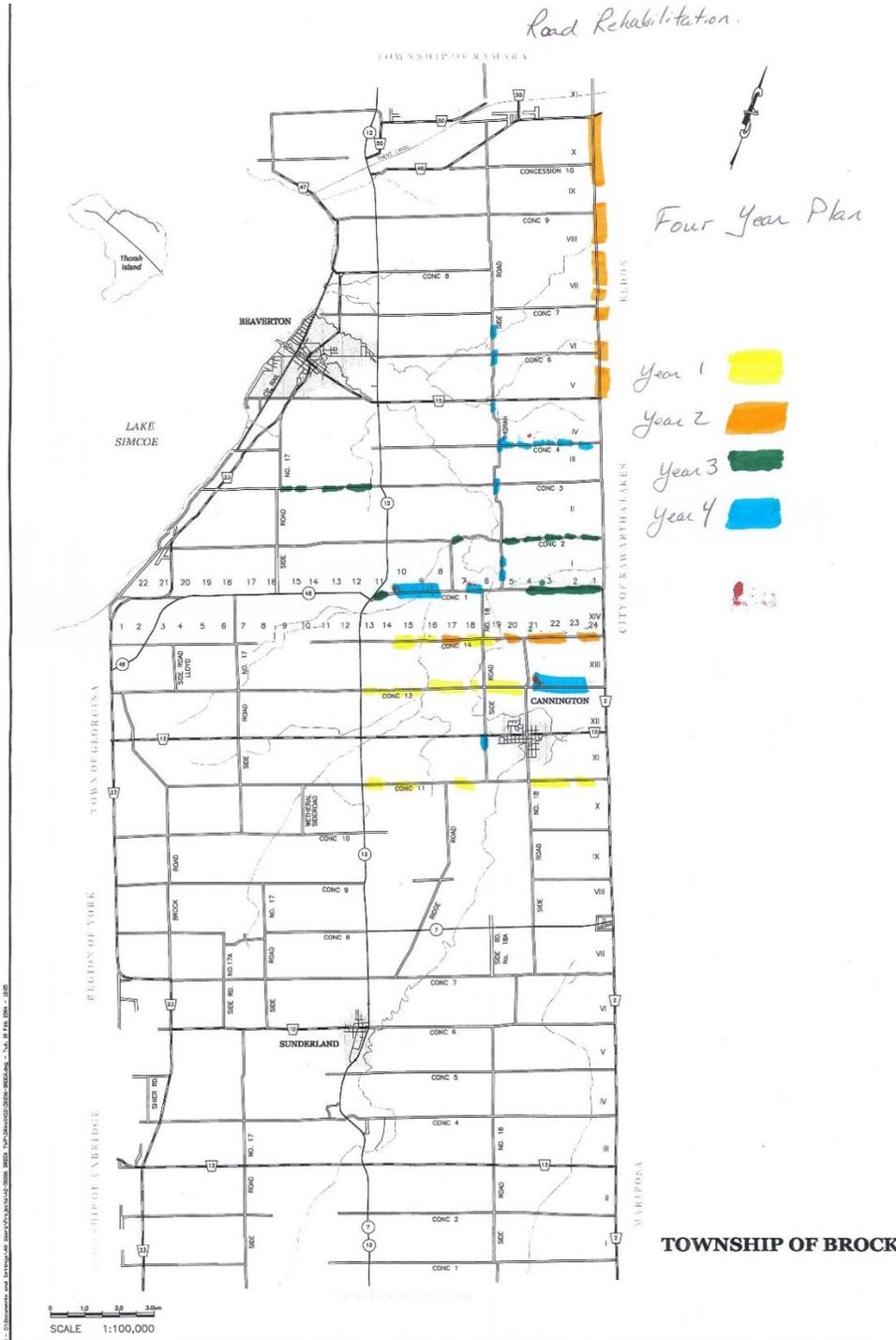
Road	Section	Length	Surface	Plan 1 (5yr)	Plan 2 (4yr)	Plan 3 (3yr)	AADT
Conc 14(B)	1.3 km E of #12 to 1.6 km E	300 m	DST	3	1	1	99
	East and West bridge approach	60 m	DST	3	1	1	99
	1.95 km E of #12 TO 2.3 km E	350 m	DST	3	2	1	99
	2.4 km E of #12 to 3.4 km E	1,000 m	DST	3	1	2	99
	3.8 km E of #12 to 3.9 km E	100 m	DST	3	2	1	119
	4.0 km E of #12 to 4.5 km E	500 m	DST	3	2	1	119
	4.75 km E of #12 to 6.1 km E	350 m	DST	3	2	2	119
	6.6 km E of #12 to 6.75 km E	150 m	DST	3	2	2	119
Conc 1(T)	600 m E of #12 to 700 m E	100 m	DST	4	3	2	258
	700 m E of #12 to 2.4 km E	1,700 m	Gravel	5	4	3	258
	3.3 km E of #12 3.5 km E	200 m	Gravel	5	4	3	258
	3.6 km E of #12 to 5.1 km E	1,500 m	DST	4	3	2	258
	5.1 km E of #12 to 6.7 km E	1,600 m	DST	3	3	3	238
Conc 2(T)	1.9 km E of #12 to 2 km E	100 m	DST	4	3	3	47
	3.5 km E of #12 to 3.65 km E	150 m	DST	4	3	3	73
	3.8 km E of #12 to 4.4 km E	600 m	DST	4	3	3	73
	4.6 km E of #12 to 5.0 km E	400 m	DST	4	3	3	73
	5.25 km E of #12 to 5.45 km E	200 m	DST	4	3	3	73
	5.9 km E of #12 to 6.0 km E	100 m	DST	4	3	3	73
Conc 3(T)	300 m W of #12 to 800 m W	500 m	DST	4	3	3	119
	900 m W of #12 to 1.7 km W	800 m	DST	4	3	3	119
	2.1 km W of #12 to 2.2 km W	100 m	DST	4	3	3	119
	2.4 km W of #12 to 2.9 km W	500 m	DST	4	3	3	119
Conc 4(T)	100 m E of #12 to 400 m E	300 m	DST	4	4	3	225
	680 m E of #12 to 850 m E	170 m	DST	4	4	3	225
	1.15 km E of #12 to 1.2 km E	50 m	DST	5	4	3	225
	1.5 km E of #12 to 1.55 km E	50 m	DST	5	4	3	225
	1.8 km E of #12 to 2.0 km E	200 m	DST	5	4	3	225
	2.15 km E of #12 to 2.25 km E	100 m	DST	5	4	3	212
	2.4 km E of #12 to 2.55 km E	150 m	DST	5	4	3	212

Road	Section	Length	Surface	Plan 1 (5yr)	Plan 2 (4yr)	Plan 3 (3yr)	AADT
Thorah SRD	5.68 km S of #48 to 5.73 km S	50 m	DST	5	4	3	106
	Conc 6(T) and Thorah Srd	40 m	DST	5	4	3	106
	Regional Rd 15 S to 40 m	40 m	Gravel	5	4	3	99
	Conc 4(T) and Thorah Srd	40 m	DST	5	4	3	146
	Conc 3 (T) and Thorah Srd	40 m	DST	5	4	3	80
	4.45 km S of #15 to 4.5 km S	50 m	DST	5	4	3	40
	4.75 km S of #15 to 5.05 km S	350 m	DST	5	4	3	40
Srd 18 A	Regional Road 12 to 75 m S	75 m	DST	5	4	3	245
Simcoe T/L	Regional Rd 15 to 875 m N	875 m	DST	2	2	2	383
	1.2 km N of #15 to 1.5 km N	300 m	DST	2	2	2	238
	2.3 km N of #15 to 2.6 km N	300 m	DST	2	2	2	225
	3.0 km N of #15 to 3.05 km N	50 m	DST	2	2	2	225
	3.2 km N of #15 to 4.0 km N	800 m	DST	2	2	2	225
	4.5 km N of # 15 to 5.8 km N	1,300 m	DST	2	2	2	225
	6.4 km N of #15 to 8.2 km N	1,800 m	DST	2	2	2	225

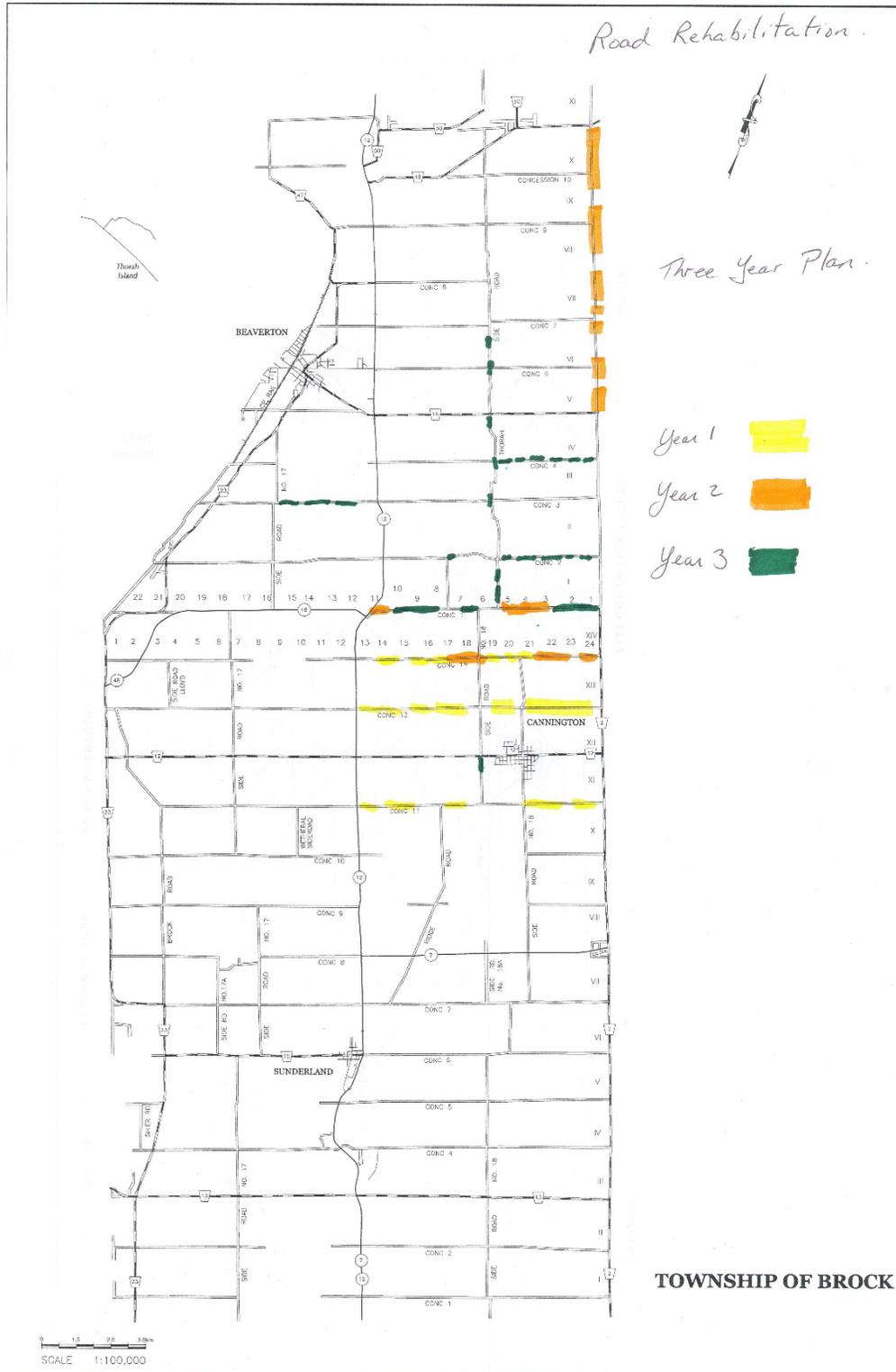
Five-Year Plan Option: A five-year plan would have 5,388 m of road repair per year. At approximately \$80,000 per km that would be \$431,040.00 per year.



Four-Year Plan Option: A four-year plan would have 6,735 m of road repair per year. At approximately \$80,000 per km that would be \$538,800.00 per year (staff recommendation).



Three-Year Plan Option: A three-year plan would have 8,980 m of road repair per year. At approximately \$80,000 per km that would be \$718,400.00 per year.



The section on Simcoe Street/Townline is a shared boundary with The City of Kawartha Lakes (CKL). As per our boundary agreement a one-year notice is to be given about the project for budgetary consideration. CKL is in favour of our method and eager to complete in one season. There is approximately 5,425 m of road section for repair on Simcoe Street and is included in 2024 in all three plans. The agreement has a cost share of 50%, therefore Simcoe Street Townline will work out to approximately \$217,000.00 per municipality.

In our operating budget under Maintenance Patching Materials, staff have spent \$50,978.35. This is our purchasing of cold mix for the purpose of patching potholes on asphalt and DST surfaces. We will continue to have the line item for patching but anticipate that costs will decrease upon completion of our road rehabilitation.

3.0 Analysis

As mentioned in Background, the method of repair has shown signs of success with our neighbouring municipality that has similar conditions to what Brock Township endures. Whichever plan is implemented, the condition of the roadways will benefit and will cut on complaints and maintenance operations.

Moving forward, staff have a better understanding of the DST program and product in relation to applying and resurfacing and sealing road sections. The successful roads in the Municipality have been applied with a more reasonable application in timing of the Slurry Seal for sealing the DST.

Staff are recommending the four-year option.

4.0 Related Policies / Procedures

5.0 Financial / Budget Assessment

The financial impact for consideration during budget discussions are laid out in the background information. Depending on the plan chosen, the budget will be more aggressive with a fewer year plan but overall, the financial impact will be \$2,155,200:

1. A five-year plan would have 5,388 m of road repair per year at approximately \$431,040.00 per year for five years.
2. A four-year plan would have 6,735 m of road repair per year at approximately \$538,800.00 per year for four years.
3. A three-year plan would have 8,980 m of road repair per year at approximately \$718,400.00 per year for three years.

Staff will also have a more accurate understanding of costs after the first year. The rough estimated costs may differ for the following years.

Funding Strategy

During previous discussions on the 2021 Year End Results, there was a desire to accelerate the roads rehabilitation program, and possibly funding it from the Tax Rate Stabilization Reserve. The current balance is approximately \$1.8 million prior to 2022 year-end adjustments. Including estimated 2022 year-end surplus, the balance is \$2.6 million.

Alternative funding sources are a combination of the Tax Rate Stabilization Reserve, future Ontario Community Infrastructure Funds (OCIF), Canada Community Building Fund (CCBF) and Capital Reserve Funds – Roads. This project does meet the criteria for the OCIF and CCBF funding.

- The annual OCIF allocations are approximately \$726,000. This is available to fund bridges, culverts and roads projects.
- The annual CCBF allocations are approximately \$385,000. This is available to fund variety of other infrastructure projects including sports, recreation, culture, fire services and energy capital projects
- The Capital Reserve Funds – Roads balance is estimated at \$1.3 million including the 2023 budget requests.

Staff seeks Council's direction on funding the Roads Rehabilitation Program for the recommended four-year plan.

6.0 Climate Change Impacts

With a healthier road system in relation to maintenance time, less vehicle and equipment use as well as materials will be used.

7.0 Communications

8.0 Conclusion

On the basis of the foregoing review staff recommend Road Rehabilitation/Repair method to be completed. Staff are confident in our ability to deliver any of the recommended plans for completion of the method. Three-, four- or five-year plans can be administered and managed by Township staff. Work to be tendered.

9.0 Recommendation

On the basis of the foregoing review, it is recommended:

BE IT RESOLVED THAT staff report 2023-OP-001, Road Rehabilitation and Forecast be received:

THAT Road Rationalization and Forecast be referred to the 2023 budget discussions;

THAT Council approve a four-year Road Rehabilitation program; and

THAT Council approve a funding source strategy for the Road Rehabilitation program.