



BURNSIDE

**Township of Amaranth
2018 Amendment to the
2016 Asset Management Plan**

**R.J. Burnside & Associates Limited
15 Townline
Orangeville ON L9W 3R4 CANADA**

**July 25, 2018
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Record of Revisions

Revision	Date	Description
1	July 17, 2018	Initial Submission to Township of Amaranth
2	July 25, 2018	Final Amendment Submission to Township of Amaranth

R.J. Burnside & Associates Limited

Report Prepared By:



Arunas Kalinauskas
Business Manager – Asset Management / GIS
AK:kl

Executive Summary

The Township of Amaranth (Township) has requested that a review of their Asset Strategy be undertaken in light of the localized extreme weather events of the last two years as well as the many capital projects undertaken by the Township. Given the updated information provided, an amendment to the Township of Amaranth 2016 Asset Management Plan was undertaken.

This Amendment to the Township of Amaranth 2016 Asset Management Plan will focus on updating and prioritizing the capital projects for Road and Bridge assets. The Amendment contains the following:

- Chapter 1: Introduction;
- Chapter 2: Amended State of Local Infrastructure;
- Chapter 3: Expected Levels of Service
- Chapter 4: Amended Asset Management Strategy;
- Chapter 5: Amended Financing Strategy; and
- Chapter 6: Recommendations.

As an Amendment to the Township Asset Management Plan the focus is on changes/updates to the "state of local infrastructure" from data that was provided by Township Staff. The overall asset inventory has not changed significantly but it is important to note that some asset types as roads and bridges continue to be the main focus of infrastructure gap and this Amendment. The Amendment will not report on overall condition, levels of service, or risk, but focus on the changes that have influenced an updated prioritized list of Road and Bridge capital projects.

The overall asset weighted condition or risk level have not changed significantly since last reported. However, due to changes in traffic flows and extreme weather events some capital road work priorities need to be re-assessed.

The "expected levels of service" recommended in the reported Asset Management Plan are being incorporated into the regular maintenance and service practices by Township Staff. As the Township continues to grow there will be a need to review the levels of service to ensure that the Township capital assets attain their maximum lifecycle while providing appropriate service to the public.

The updated "asset management strategy" provides an adjustment to the capital forecast for Road and Bridge asset related capital costs. This updated capital project list of the Township's Road and Bridge assets, although financially challenging need to be completed in a timely fashion to ensure that appropriate service levels are maintained and long-term vision and best practices are maintained. We have also taken into consideration the potential risk of not completing these capital projects.

The following have been identified based on the updated Township data as assets that need to be replaced or improved as soon as practicable:

Roads

- 20th Sideroad, from in between 9th Line & 8th Line to County Rd 11 – Updated Recommendation which includes the previously recommended:
 - 20th Sideroad, from 7th Line to 8th Line – Recommendation is to replace the surface of this asphalt road (approximate cost \$106,884; 2018).
 - 20th Sideroad from 4th Line to 5th Line (County Rd 12) – Recommendation is to replace the surface of this asphalt road (approximate cost \$104,098; 2019).

The total project includes the following contiguous road segments:

- 20th Sideroad, from in between 9th Line & 8th Line to 8th Line
- 20th Sideroad, from 8th Line to 7th Line (as previously recommended)
- 20th Sideroad, from 7th Line to 6th Line
- 20th Sideroad, from 6th Line to County Rd 12
- 20th Sideroad, from County Rd 12 to 4th Line
- 20th Sideroad, from 4th Line to County Rd 11

The length of road is 7.8 km in length, with 5 km requiring reinforcement of the road base by way of pulverizing the asphalt surface and mixing it in with the road base. Additional type “A” gravel will also be added and compacted to extend the life of this road base. This part of the project will also have two lifts of asphalt. The remaining 2.8 km of road will be shave and paved as the road base is still in good condition (approximate cost \$1,300,000 plus Engineering and Construction Inspection, 2019).

- Amaranth/Grand Valley Townline, from 20th Sideroad to 1.8 km north of 20th Sideroad – Recommendation is to replace the surface of this asphalt road (approximate cost \$180,000; 2018). **Expected to be completed in 2018.**
- Amaranth/Grand Valley Townline from 1.6 km north of 15th Sideroad to 20th Sideroad – Recommendation is to replace the surface of this asphalt road (approximate cost \$103,950; 2019).
- 5th Sideroad from 2nd Line to County Road 11 – Recommendation is to replace the surface of this asphalt road (approximate cost \$100,960; 2019). **Moved to 2020 due to 20th Sideroad priority.**
- Devonleigh Drive from 30th Sideroad to 30th Sideroad – Recommendation is to replace the surface of this asphalt road (approximate cost \$51,277; 2019). **Moved to 2020 due to 20th Sideroad priority.**

- Station Street from 10th Line/Mill Street to St. John Street – Recommendation is to replace the surface of this asphalt road (approximate cost \$19,539; 2019). **Moved to 2020 due to 20th Sideroad priority.**
- Station Street from St. John Street to Peter Street – Recommendation is to replace the surface of this asphalt road (approximate cost \$22,479; 2019). **Moved to 2020 due to 20th Sideroad priority.**
- Road bases are not expected to be fully replaced but improved and in localized places dug out and repacked. However, there are several road pavements showing that their road bases need some additional support and stabilization. One of these is the following:
 - 5th Sideroad from 2nd Line to County Road 11 (approximate cost \$100,000; 2019). **Moved to 2020 due to 20th Sideroad priority**

Bridges

- Bridge 17 (20th Sideroad) – This bridge is being completed this year. The remaining elements to be completed are the bridge railings, approaches, waterproofing and road works. The Province of Ontario is providing an Ontario Community Infrastructure Fund (OCIF) Grant to pay 90% of the cost to replace this bridge (approximate cost to the Township \$100,000; 2017/18). **To be completed in 2018.**
- Bridge 15 (7th Line) – The Township had to close this bridge since it did not have sufficient funds to replace it. Last year work was started on replacing the bridge deck but work was stopped due to the base elements required reinforcement. Approximately \$650,000 was already invested in this bridge reconstruction, but still more investment is required to have it completed (approximate remaining cost \$300,000; 2018). **To be completed in 2018.**
- Bridge 6 (10th Line) – This bridge, based on the bridge inspection report, requires rehabilitation to extend the lifecycle (approximate cost \$275,000, 2019).
- Bridge 12 (6th Line) – This bridge needs to be replaced based on the bridge inspection report (approximate cost \$800,000, 2020).
- Bridge 13 (6th Line) - This bridge needs to be replaced based on the bridge inspection report (approximate cost \$800,000, 2020).

Facilities

- Municipal Office HVAC System (Air Conditioner) – The old system is well past its life and not working properly therefore needs to be replaced (approximate cost \$28,000; 2017). **Completed in 2017.**
- Public Works Garage Windows – Old windows are scheduled to be replaced in 2017. (approximate cost \$6,000; 2017). **Still to be completed.**

- Municipal Office Well – Water supply being critical for the proper functioning of this building the well and pump are still working and potentially in good condition but there is concern over its age, and this is recommended to be investigated. The Township may want to ensure that money is set aside for a replacement as soon as it is required (approximate cost \$15,000; 2018). **Still to be scheduled.**
- Public Works Garage – Is an old facility and with growing need for more space for equipment. The expansion of this building is identified (approximate cost \$200,000; 2018). **To be completed in 2018.**

Vehicles

- 2000 Ford Sterling Plow Truck – Has exceeded its life expectancy and therefore is recommended to be replaced. These types of trucks are critical to ensuring that the Township roads are in good repair and safe to drive (approximate cost \$275,000; 2017). **New Truck was purchased 2017.**
- 2009 Ford F-150 Pickup Truck – Has exceeded its life expectancy and therefore is recommended to be replaced. This is a vehicle that has been well used by Township Road staff (approximate cost \$32,000). **New Truck was purchased 2017.**
- 1994 Grader Champion 740S4 – Is well past its expected life and is recommended to be replaced. These types of vehicles are critical to ensuring that Township roads are in good repair and safe to drive (approximate cost \$415,000; 2018). **Still to be scheduled.**
- 1998 Volvo Loader – This vehicle is past its useful life and starting to show signs of its age, and recommended to be replaced (approximate cost \$250,000; 2020).

Street Lights

- Township Street Lights – The Township has not yet converted their street lights to LED lighting. The conversion will save the Township 40%-50% in electrical costs annually which can be over \$5,000 per year which will pay off the capital investment expense in less than 10 years (approximate cost \$45,000; 2018). **To be completed in 2018.**

Storm Ponds

- Storm Retention Pond James Street – Runoff from the neighbouring agricultural land has caused some cleanout work required to ensure that this storm pond is functioning well (approximate cost \$4,500; 2017). **Completed in 2017.**

The above clearly identifies the additional priorities as well as the completed capital projects that were recommended to be completed in the 2016 Asset Management Plan report.

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Even though the Township received funding to replace Bridge 17 the Township experienced some extreme weather events, compounded by heavier traffic loads on 20th Sideroad which still leaves the Township with an exceeding gap in infrastructure relief. The Township is making steps forward to close this funding gap, and obtaining an OCIF funding grant to assist with the replacement of 7.8 km of 20th Sideroad will really help. However, more needs to be done to ensure that the Township can continue to offer appropriate levels of service to the public.

The "financing strategy" as described in Chapter 5 of this Amendment shows that if the Township receives the OCIF funding for the much needed 20th Sideroad re-construction work it will be able to maintain the previously identified financing strategy over the remaining 19 years defined in the 2016 Asset Management Plan.

Overall, this Amendment to the 2016 Asset Management Plan is provided to identify the progress and changes in priorities to capital funding projects.

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1.0 Introduction

1.1 Overview

R.J. Burnside & Associates Limited (Burnside) was retained by the Township of Amaranth (Township) to prepare an amendment to their 2016 asset management plan. This amendment, in conjunction with the current asset management plan, is intended to be a tool for the Township to use during various decision-making processes, including the annual budget process and Provincial/Federal capital grant application processes. This plan will serve as a road map for sustainable infrastructure planning going forward.

Assets included in this asset management plan amendment are the following:

- Bridges;
- Roads (Bases and Surfaces - Asphalt, Gravel);

It is recommended that the asset management plan be updated on an annual basis to ensure that it is kept up to date. As water system assets have their own sustainable financing plan as per Provincial Guidelines, they were not part of this amendment work.

1.2 Amendment Objectives

The Township's goals and objectives with respect to their capital assets relate to the level of service being provided to Township constituents. Services should be provided at expected levels, as defined within this asset management plan. Township infrastructure and other capital assets are anticipated to be maintained at condition levels that provide for a safe and functional environment for its residents and visitors. Therefore, the amendment to the asset management plan and its implementation will be evaluated based on the Township's ability to meet the plan's goals and objectives.

1.3 Amendment Development

The development of the Township's asset management plan amendment was based on the steps summarized below:

1. Identify the changes in condition of Road and Bridge assets, from reports and discussion with Township Staff.
2. Assess the risk of asset failure for the assets that have shown exceeding elements of wear/degradation since the asset management plan. This risk assessment was identified on an asset by asset basis and was used to identify the adjustment in priority projects for inclusion in the asset management plan amendment.

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3. Prepare an asset management strategy based on identified priorities.
4. Determine a financial strategy to support the amended asset management strategy, thus determining how the capital related expenditure forecast will need to be amended over the asset management plan period ending 2036.
5. Prepare an amendment report, summarizing the process, strategy and results of the 2016 Asset Management Plan Amendment.

1.4 Maintaining the Asset Management Plan

The asset management plan should be updated as the capital needs and priorities of the Township changes. Extenuating weather and traffic load conditions have constituted the need to amend the Township asset management plan. Completing this type of amendment requires the understanding that the state of local infrastructure, expected levels of service, asset management strategy and financing strategy are integrated and impact each other. Looking at these components in reverse order, one can see the financing strategy outlines how the asset management strategy will be funded. The asset management strategy illustrates the costs required to maintain expected levels of service at a sustainable level. The expected levels of service component summarizes and links each service area to specific assets contained in the state of local infrastructure section and thus determines how these assets will be used to provide expected service levels.

This amendment report only covers road and bridge assets that have clearly changed the Township focus priorities.

1.5 Amendment Integration

The municipal environment is continually changing and demanding when it comes to legislation and other responsibilities. Integrating this asset management plan amendment with Township's budget process, as well as, Public Standards Accounting Board Handbook Section 3150 (tangible capital asset) requirements can make updates in all three areas more efficient.

With respect to integrating the Township's budget process with asset management planning, both require a projection of capital and operating costs over a future period. The budget outlines total operating and capital requirements for the Township, while the asset management plan focuses in on specific asset related requirements. With this link to the annual budget, the budget update process can also become an asset management plan update process.

2.0 Amended State of Local Infrastructure

2.1 Scope and Process

This section of the amendment provides an opportunity to outline the assets that have more rapidly degraded and are therefore looking to become higher priorities for either capital improvement or replacement over a short 2 to 4 year period.

The Township asset management plan provides a detailed asset inventory listing which was used as a starting point. Discussions with Township staff identified the changes to asset conditions, which then reflected on the asset improvement needs.

Burnside engineers and the Township staff reviewed the lifecycles of the assets identified in this project and believe they now reflect the conditions, maintenance practices and management of Township assets.

2.2 Road and Bridge Asset Overview

From the Township Asset Management Plan it is clear that Township owned road and bridge assets have the greatest percentage tax supported replacement cost if the road base values were included in the calculation (see Figure 2-2 2016 Asset Management Plan). Road bases were explained as assets that will never be totally replaced, but will from time to time be improved and in small locations reconstructed on an as needed basis.

2.3 Road Environment Assets

The Township's road assets make up a key service that reflects the economic and social development of the community. The road surface and bridge assets contain the following percentage of Township assets when not including the road bases:

- Road Surface Asphalt – 22% of the total Township Road asset replacement costs;
- Road Surface Gravel – 8% of the Total Township Road asset replacement costs;
- Bridges – 70% of the total Township Road asset replacement costs;

Below we provide more detail on the two key asset groups in the Road Environment group of assets, Roads, and Bridges.

2.3.1 Roads

At the 2016 replacement cost the road environment assets account for \$16.9 million dollars or 57% of the Township's tax supported assets excluding road bases.

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This has increased due to some significant increases in replacement costs as well as accelerated needs to \$19.4 million or close to 61% of the Township's tax supported assets excluding road bases. The composition of the road surfaces is outlined in Table 2-1.

Table 2-1: Road Surface Composition

Road Surface	Length (m)	Condition (weighted average)	Condition (Text)	Replacement Cost
Asphalt	46,129	6.5	Average	\$4,789,212
Gravel	182,965	6.3	Average	\$439,820
Total	229,094		Average	\$5,229,032

Burnside met with the Township Staff to review the Township roads and establish the main changes to the road conditions from when they were reviewed for the 2016 Asset Management Plan. Discussions with the Township Director of Public Works, helped to identify the road conditions, and identified the changed needs for the asphalt and gravel surface roads. The weighted average condition of the Asphalt roads has decreased from 6.9 (value between 1 to 10), to 6.5. This shows that the Township road network is experiencing greater stress and requiring more attention and funding.

It was identified that both:

- 20th Sideroad between County Road 11 and 9th Line; and
- 5 Sideroad from 2nd Line to County Road 12

have experienced more rapid increase in degradation caused by potentially several factors as:

- Increased road traffic;
- Increased vehicle loads (weight); and
- Some severe/extreme weather events.

Both of these roads were identified in the 2016 Asset Management Plan as priority capital projects, however due to the above noted more rapid degradation greater extended lengths of these roads are now in the greatest need of rehabilitation and capital replacement.

It was noted that the Township was falling behind in trying to maintain good asphalt road surfaces, which do eventually affect the road bases (the costlier rehabilitation). It is very important to maintain the road surfaces which are comparatively a minor replacement cost to the major cost to replace/rehabilitate a road base. Due to other major projects as

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bridge replacements the funding has not been made available to re-enforce the above road bases and replace their asphalt surfaces.

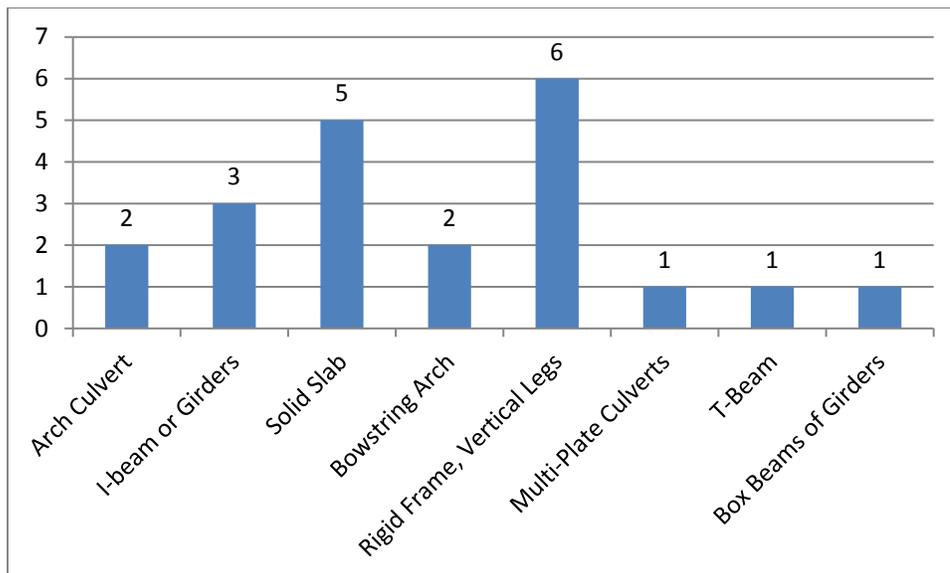
A section of 5 Sideroad from County Rd 11 to County Rd 12 noted above is a gravel surface road which has been identified as a problem area which requires more and more calcium and grading to maintain an appropriate level of service to the public.

To gain a better understanding of the road conditions it is recommended that the Township complete a Road Needs study. This will provide a more detailed report of condition related deficiencies, and other deficiencies that may impact longevity or operations of Township roads, including road widths, drainage, surface type, alignment, and brushing maintenance where required.

2.3.2 Bridges

The Township has a total of just under \$12 million replacement cost of bridge and culvert assets. Figure 2-1 provides the distribution of the types of bridges that the Township owns.

Figure 2-1: Township of Amaranth Types of Bridge Structures



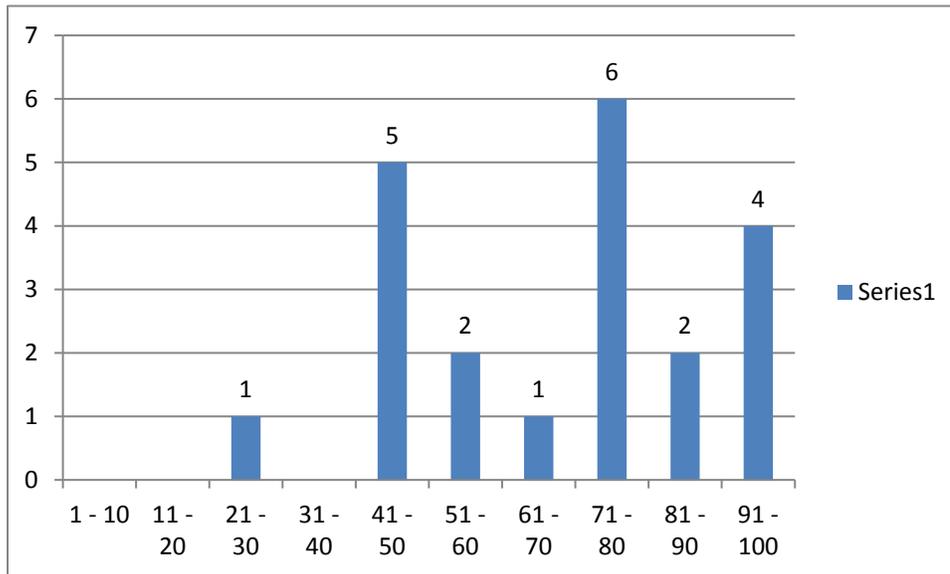
The capital works needs include any repair, rehabilitation or replacement work which would typically be completed by a Township hired Contractor, to assist in extending the service life of a structure and increasing the Bridge Condition Index (BCI).

Taking into consideration the structures calculated BCI's, several structures have been identified for rehabilitation. Within the next six years, three structures have been identified for rehabilitation capital works.

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Based on the biennial inspection of each structure, the Bridge Condition Index (BCI) is calculated for each structure. The Bridge Condition Index Distribution graph, shown in Figure 2-2 below, provides a summary of the current state of the Township's structures.

Figure 2-2: Bridge Condition Index Distribution (2016)



The Township moved forward with the reconstruction of Bridge 15 (7th Line) and Bridge 17 (20th Sideroad). These projects are expected to be completed in 2018. There are 7 more bridges that will need some improvements or replacement to achieve the Province MTO's established goal of 85% of Township structures in good condition (BCI of greater than 70).

The next priorities for bridge rehabilitation and/or replacement are:

- Bridge 6 – 10th Line, Rehabilitation including deck surface replacement, cleaning, waterproofing, and asphalt resurfacing (approximate cost \$250,000)
- Bridge 12 – 6th Line, Replacement of a single lane bridge with proper two-lane bridge (approximate cost \$800,000)
- Bridge 13 – 6th Line, Replacement of a single lane bridge with proper two-lane bridge (approximate cost \$800,000)

Continued maintenance and completion of rehabilitative or replacement works as recommended in the Bridge report will help to continue a trend of overall improvement of the Municipality's bridge assets.

3.0 Expected Levels of Service

The Township of Amaranth has been offering and maintaining, for its municipality, good service levels during challenging economic times. The Province has become more demanding of all municipalities requiring residents to invest more and more into replacing older infrastructure. Reviewing past records has shown that small investments were being made into maintaining and replacing Township infrastructure. The last few years have seen improvements with greater investments in retaining proper service levels on Township assets. It is important to note that the long-term objective of the Township needs to be infrastructure sustainability. In general, the Township is performing maintenance activities when required.

3.1 Scope and Process

The levels of service (LOS) analysis completed in the Asset Management Plan clearly outlined the expected actions the Township was to move forward on to appropriately maintain Township assets. This Amendment to the Township Asset Management Plan does not see any additional service requirements that need to be applied at this time.

What was identified as an oversight omission in the body of the text to the 2016 Asset Management Plan was that the Bridge related assets levels of service table. This table was part of Appendix C in the 2016 Asset Management Plan. The same levels of service table related to Township Bridges is now included in Table 3-1.

Table 3-1: Township Bridge Expected Levels of Service

	Expected Strategic LOS	Level of Service (LOS) Analysis				
		Current LOS	Expected LOS	Benchmark (if Applicable)	Estimated Cost of Expected LOS	Cost Description
Bridge & Culvert Assets	Safe Bridges	Maintain good bridge condition and 8 bridges with load limits.	Maintain good condition and no load limits.	MTO bridge guides		Township is working towards completing this LOS. Closed Bridge 17 will be re-opened after new construction in 2017, and Bridge 15 will be replaced.
	Bridges Maintained	Follow Bridge Inspection Report recommendations for Bridge and Culvert maintenance.	Proactive Bridge and Culvert maintenance (based on bridge report).		\$100,600	Township is completing this LOS, with improving the maintenance issues identified in the Township's Bridge Inspection Report over the next 10 years. Required funds are identified in the LOS tables
	Proper Bridge Spring Maintenance	Blowing out Expansion Joints & Washing of Bridges in Spring	Blowing out Expansion Joints & Washing of Bridges in Spring			Township is completing this LOS
	Bridge Inspections	Bridge inspections (i.e. using OSIM reports) required every 2 years.	Bridge inspections (i.e. using OSIM reports) required every 2 years.	Completed every 2 years	\$7,800	Township is completing this LOS

4.0 Amended Asset Management Strategy

4.1 Scope and Process

The asset management strategy provides the recommended course of actions required to maintain (or move towards) a sustainable asset position while delivering appropriate levels of service. This course of actions, when combined, form a long-term operating and capital forecast that includes:

- Non-infrastructure solutions: Reduce costs and/or extend expected useful life estimates;
- Maintenance activities: Regularly scheduled activities to maintain existing levels of service levels, or repairs needed due to unplanned events;
- Renewal/Rehabilitation: Significant repairs or maintenance planned to maintain the levels of service and increase the remaining life of assets; and
- Replacement/Disposal: Complete disposal and replacement of assets, when renewal or rehabilitation is no longer an option.

Priority identification becomes a critical process during the development of an asset management strategy. Priorities have been determined based on assessment of the overall risk of asset failure, which is determined by looking at both the probability of an asset failing, as well as, the consequences of failure. The consequences of the municipality not meeting desired levels of service must also be considered in determining risk. Adding enhanced levels of service results in both operating and capital budget impacts over the remaining 19 years of a 20-year forecast period. This must be taken into consideration, with the overall objective of reaching sustainable levels while mitigating risk.

4.2 Risk Assessment

The risk of an asset failing is defined by the following calculation:

Risk of Asset Failure = Probability of Failure X Consequence of Failure

Probability of failure has been linked to the condition assessment for each asset, assuming that an asset in “very good” condition has a “rare” probability of failure. The following table outlines the probability factor tied to each condition rating:

Table 4-1: Probability of Failure Matrix

Condition (Value)	Condition	Probability of Failure
9 – 10	Very Good	Rare
7 – 8	Good	Unlikely
5 – 6	Average	Possible
3 – 4	Poor	Likely
1 – 2	Very Poor	Almost Certain

Consequence of failure has been determined by examining each asset type separately. Consequence refers to the impact on the municipality if a particular asset were to fail.

Types of impacts include the following:

- Cost Impacts: the cost of failure to the Township (i.e., capital replacement, rehabilitation, fines and penalties, damages, etc.);
- Social impacts: potential injury or death to residents;
- Environmental impacts: the impact of the asset failure on the environment; and
- Service delivery impacts: the impact of the asset failure on the Township's ability to provide services at desired levels.

Each type of impact was reviewed and consequence of failure for each asset type was determined by using the information contained in Table 4-2 as a guide to assess the level of impact. Levels of impact were documented as ranging from "significant" to "insignificant".

Table 4-2: Consequence of Failure Matrix

	Cost	Social	Environmental	Service Delivery
Significant	Significant Cost – Difficult to Recover	Death, Serious Injury	Long-term Impact – Permanent	Major Interruptions
Major	Substantial Cost – Multi-year Budget Impacts	Major Injury	Long-term Impact – Fixable	Significant Interruptions
Moderate	Considerable Cost – Requires Revisions to Budget	Moderate Injury	Medium-term Impact – Fixable	Moderate Interruptions
Minor	Small/Minor Cost – Within Budget Allocations	Minor Injury	Short-term/Minor Impact – Fixable	Minor Interruptions
Insignificant	Negligible or Insignificant Cost	No Injury	No Impact	No Interruptions

With both probability of failure and consequence of failure documented, total risk of asset failure was determined using the matrix contained in Table 4-3. Total risk has been classified under the following categories:

- Extreme Risk (E): Risk beyond acceptable levels;
- High Risk (H): Risk slightly beyond acceptable levels;
- Medium/Moderate Risk (M): Risk at acceptable levels, monitoring required to ensure risk does not become high; and
- Low Risk (L): Very little risk.

Table 4-3: Total Risk of Asset Failure Matrix

Probability of Failure	Consequence of Failure				
	Significant	Major	Moderate	Minor	Insignificant
Almost Certain	E	E	H	H	M
Likely	E	H	H	M	M
Possible	E	H	M	M	L
Unlikely	H	M	M	L	L
Rare	H	M	L	L	L

Risk levels can be reduced or mitigated through planned maintenance, rehabilitation and/or replacement of an asset. An objective of this asset management plan is to reduce risk levels where they are deemed to be too high, as well as, ensure assets are maintained in a way that keeps risk at acceptable levels.

4.3 Priority Identification

Through a review of the asset risk of failure assessment, the road and bridge assets/categories were identified as being priorities of the Township for over the next few years. Further review of what has been completed and yet to be completed or altered due to changing priorities is listed below.

Roads

- 20th Sideroad, from in between 9th Line & 8th Line to County Rd 11 – Updated Recommendation which includes the previously recommended:
 - 20th Sideroad, from 7th Line to 8th Line – Recommendation is to replace the surface of this asphalt road (approximate cost \$106,884; 2018);
 - 20th Sideroad from 4th Line to 5th Line (County Rd 12) – Recommendation is to replace the surface of this asphalt road (approximate cost \$104,098; 2019).

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The total project includes the following contiguous road segments:

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- 20th Sideroad, from 8th Line to 7th Line (as previously recommended)
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- 20th Sideroad, from County Rd 12 to 4th Line
- 20th Sideroad, from 4th Line to County Rd 11

The length of road is 7.8 km in length, with 5 km requiring reinforcement of the road base by way of pulverizing the asphalt surface and mixing it in with the road base. Additional type “A” gravel will also be added and compacted to extend the life of this road base. This part of the project will also have two lifts of asphalt. The remaining 2.8 km of road will be shave and paved as the road base is still in good condition. The Township is applying for OCIF funding for this project (approximate cost \$1,300,000 plus Engineering and Construction Inspection, 2019).

- Amaranth/Grand Valley Townline, from 20th Sideroad to 1.8 km north of 20th Sideroad – Recommendation is to replace the surface of this asphalt road (approximate cost \$180,000; 2018). **Expected to be completed in 2018.**
- Amaranth/Grand Valley Townline from 1.6 km north of 15th Sideroad to 20th Sideroad – Recommendation is to replace the surface of this asphalt road (approximate cost \$103,950; 2019).
- 5th Sideroad from 2nd Line to County Road 11 – Recommendation is to replace the surface of this asphalt road (approximate cost \$100,960; 2019). **Moved to 2020 due to 20th Sideroad priority.**
- Devonleigh Drive from 30th Sideroad to 30th Sideroad – Recommendation is to replace the surface of this asphalt road (approximate cost \$51,277; 2019). **Moved to 2020 due to 20th Sideroad priority.**
- Station Street from 10th Line/Mill Street to St. John Street – Recommendation is to replace the surface of this asphalt road (approximate cost \$19,539; 2019). **Moved to 2020 due to 20th Sideroad priority.**
- Station Street from St. John Street to Peter Street – Recommendation is to replace the surface of this asphalt road (approximate cost \$22,479; 2019). **Moved to 2020 due to 20th Sideroad priority.**
- Road bases are not expected to be fully replaced but improved and in localized places dug out and repacked. However, there are several road pavements showing that their road bases need some additional support and stabilization. One of these is the following:
 - 5th Sideroad from 2nd Line to County Road 11 (approximate cost \$100,000; 2019). **Moved to 2020 due to 20th Sideroad priority.**

Bridges

- Bridge 17 (20th Sideroad) – This bridge is being completed this year. The remaining elements to be completed are the bridge railings, approaches, waterproofing and road works. The Province of Ontario is providing an Ontario Community Infrastructure Fund (OCIF) Grant to pay 90% of the cost to replace this bridge (approximate cost to the Township \$100,000; 2017/18). **To be completed in 2018.**
- Bridge 15 (7th Line) – The Township had to close this bridge since it did not have sufficient funds to replace it. Last year work was started on replacing the bridge deck but work was stopped due to the base elements required reinforcement. Approximately \$650,000 was already invested in this bridge reconstruction, but still more investment is required to have it completed (approximate remaining cost \$300,000; 2018). **To be completed in 2018.**
- Bridge 6 (10th Line) – This bridge based on the bridge inspection report requires rehabilitation to extend the lifecycle (approximate cost \$275,000, 2019).
- Bridge 12 (6th Line) – This bridge needs to be replaced based on the bridge inspection report (approximate cost \$800,000, 2020).
- Bridge 13 (6th Line) - This bridge needs to be replaced based on the bridge inspection report (approximate cost \$800,000, 2020).

Facilities

- Municipal Office HVAC System (Air Conditioner) – The old system is well past its life and not working properly therefore needs to be replaced (approximate cost \$28,000; 2017). **Completed in 2017.**
- Public Works Garage Windows – Old windows are scheduled to be replaced in 2017. (approximate cost \$6,000; 2017). **Still to be completed.**
- Municipal Office Well – Water supply being critical for the proper functioning of this building the well and pump are still working and potentially in good condition but there is concern over its age, and this is recommended to be investigated. The Township may want to ensure that money is set aside for a replacement as soon as it is required (approximate cost \$15,000; 2018). **Still to be scheduled.**
- Public Works Garage – Is an old facility and with growing need for more space for equipment. The expansion of this building is identified (approximate cost \$200,000; 2018). **To be completed in 2018.**

Vehicles

- 2000 Ford Sterling Plow Truck – Has exceeded its life expectancy and therefore is recommended to be replaced. These types of trucks are critical to ensuring that the Township roads are in good repair and safe to drive (approximate cost \$275,000; 2017). **New Truck was purchased 2017.**

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- 2009 Ford F-150 Pickup Truck – Has exceeded its life expectancy and therefore is recommended to be replaced. This is a vehicle that has been well used by Township Road staff (approximate cost \$32,000). **New Truck was purchased 2017.**
- 1994 Grader Champion 740S4 – Is well past its expected life and is recommended to be replaced. These types of vehicles are critical to ensuring that Township roads are in good repair and safe to drive (approximate cost \$415,000; 2018). **Still to be scheduled.**
- 1998 Volvo Loader – This vehicle is past its useful life and starting to show signs of its age, and recommended to be replaced (approximate cost \$250,000; 2020).

Street Lights

- Township Street Lights – The Township has not yet converted their street lights to LED lighting. The conversion will save the Township 40%-50% in electrical costs annually which can be over \$5,000 per year which will pay off the capital investment expense in less than 10 years (approximate cost \$45,000; 2018). **To be completed in 2018.**

Storm Ponds

- Storm Retention Pond James Street – Runoff from the neighbouring agricultural land has caused for some cleanout work required to ensure that this storm pond is functioning well (approximate cost \$4,500; 2017). **Completed in 2017.**

This list of capital asset replacements are only for the next few years, and do not limit the needs that the Township requires to become fully sustainable. The Finance Strategy will further outline the needs for investing in assets annually via reserves to ensure that funds are available for future asset replacements.

4.4 Long-term Forecast

For many years, lifecycle costing has been used in the field of engineering to evaluate the advantages of using alternative materials in construction or production design. The method has gained wider acceptance and use recently in the management of capital assets. By definition lifecycle costs are all the costs which are incurred during the lifecycle of a capital asset, from the time it is purchased or constructed, to the time it is taken out of service for disposal.

In defining the long-term forecast for the Township's asset management strategy, costs incurred through an asset's lifecycle, the asset's condition, expected LOS, and risk were considered and documented. Asset Replacement Analysis in forecasting the municipality's asset replacement needs are summarized in Figure 4-1, which we are calling Amended Asset Strategy Scenario 1 based on expected levels of service. This asset strategy was further developed into an Amended Scenario 2a, and 2b.

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This second developed scenario takes the developed asset strategy and applies a Capital Phased-In Approach as shown in Figure 4-2. Scenario 2 is fully discussed in Chapter 5.

The amended asset strategy incorporated all the information discussed above in this amendment report and based on the information provided by the Township, staff input, and understanding of the asset's reaction in their current environment as well as the expected asset maintenance levels, and the current asset condition, which is expected to produce a reduced asset potential risk of failure. The outcome of this scenario approach was to provide appropriate asset service levels, and assets are expected to meet or exceed their useful life which reduces expected infrastructure deficits. In total, \$25.5 million in assets (inflated to appropriate year) are shown as replacement needs in the amended 19 years of the 20-year forecast – assuming the Township receives approximately \$1.3 million in OCIF funding for 20th Sideroad reconstruction. This is the recommended amended asset strategy for the Township of Amaranth. Without the OCIF funding the total will be \$26.8 million over the same period.

Assets like Bridges, Storm Water, and Facility Structures, are not expected to be replaced for usually over 50 years. It needs to be stated to ensure that these assets have reserve funding for their replacement schedule in the future. These assets will need to be replaced beyond the amended 19 year analysis period and not having reserve funds to do so will elevate the risk of failure to extreme levels in the future. Scenario 2b attempts to provide the Township with an investment plan into Township reserve accounts.

For the recommended scenario to be feasible, it is important that the Township follow through with the expected level of service adjustments discussed in the 2016 Asset Management Plan in conjunction with the current level of service amounts in order to effectively maintain and rehabilitate the assets as required.

The financing strategy discussed in the next chapter will incorporate the level of service adjustments into the recommended financing analysis. Please refer to Appendix C for the full amended 19-year details.

Figure 4-1: Amended Scenario 1 - Proposed Tax Supported Asset Strategy Based on Expected Levels of Service and OCIF Funding

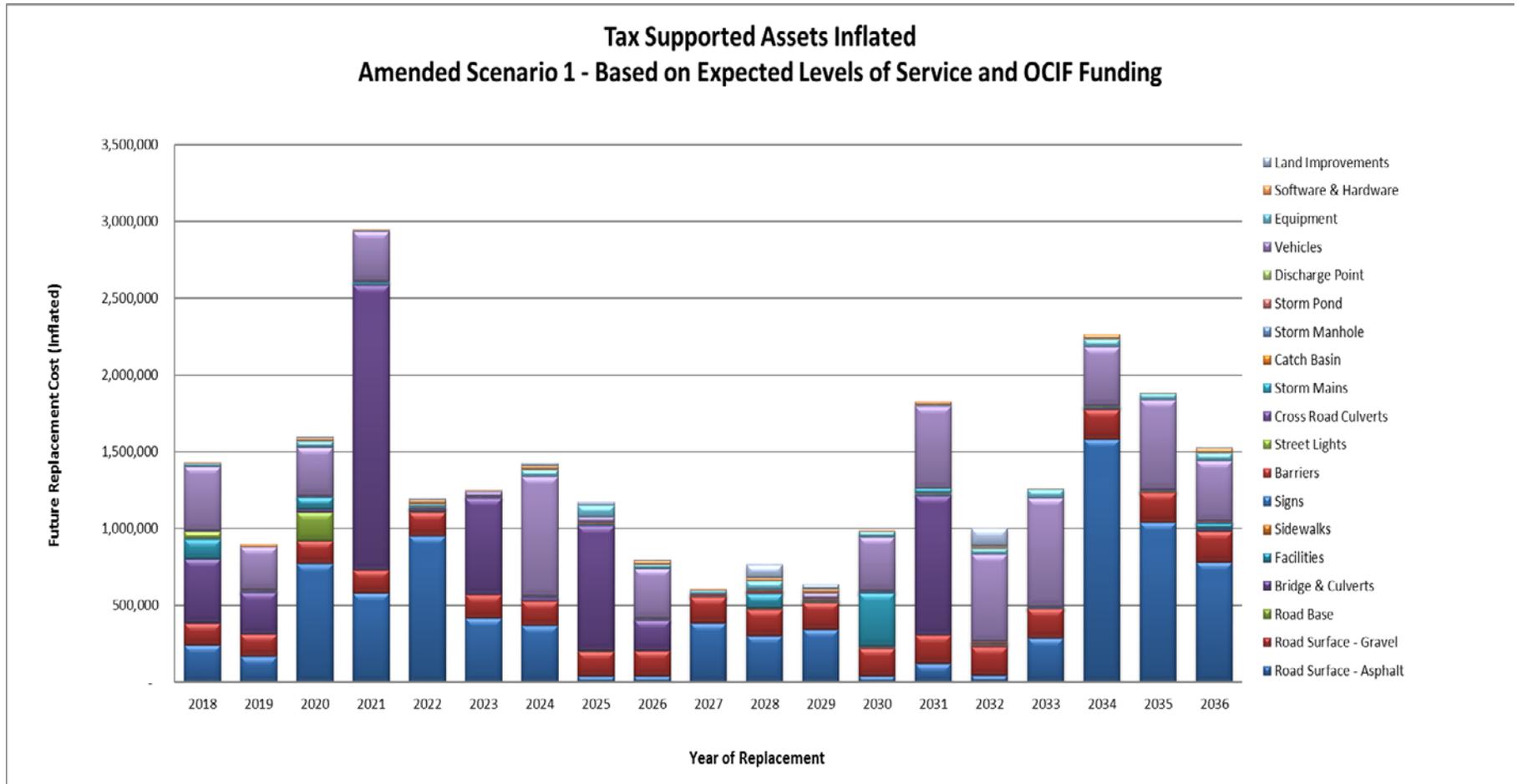
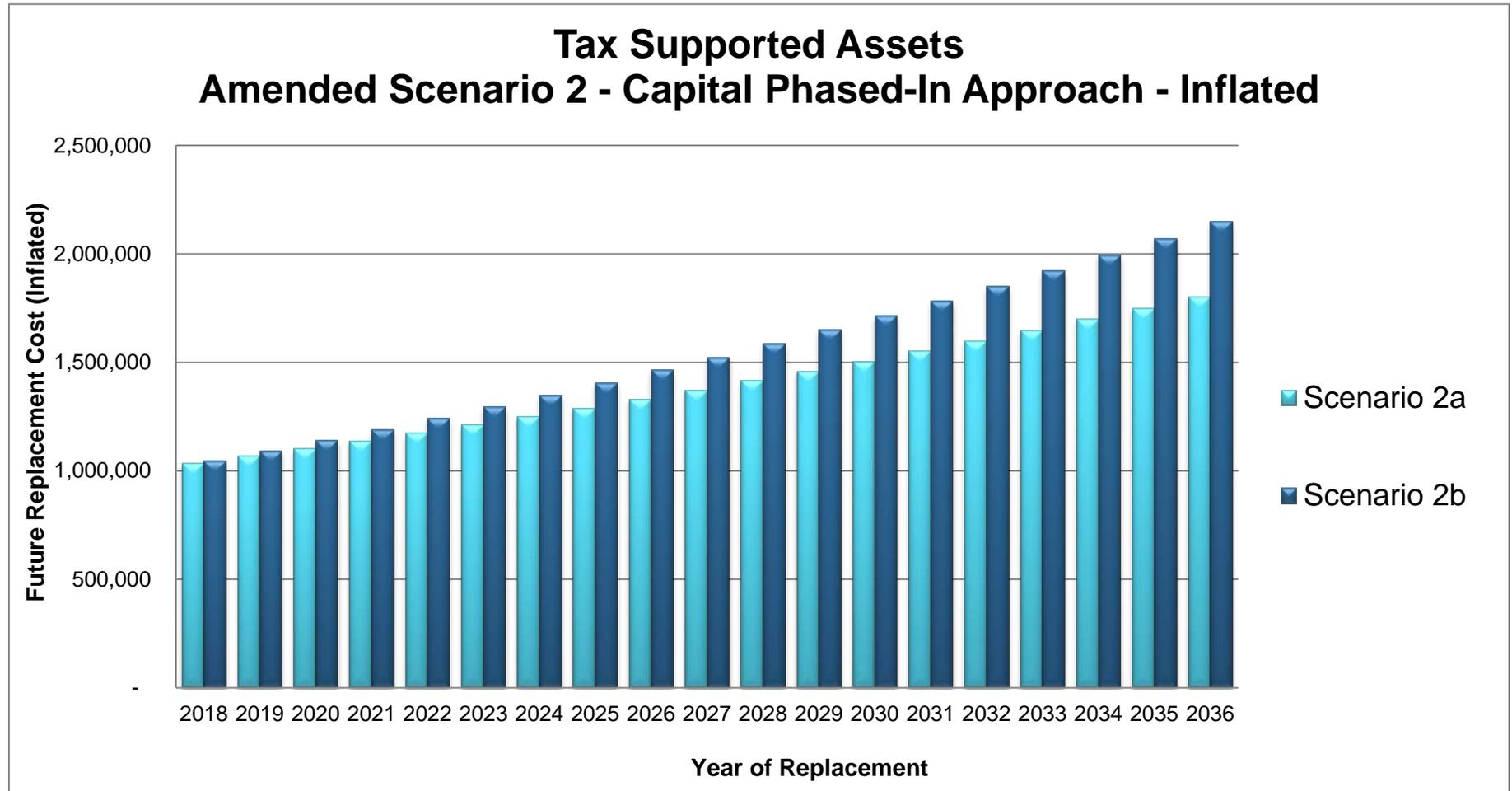


Figure 4-2: Scenario 2 – Capital Phased In Approach



5.0 Amended Financing Strategy

5.1 Scope and Process

The financing strategy outlines the suggested financial approach to funding the tax supported asset management strategies outlined in Chapter 4, while utilizing the Township's existing budget structure and available funding sources. This section of the amended asset management plan includes:

- Annual expenditure forecasts broken down by lifecycle cost, including:
 - Maintenance/non-infrastructure solutions;
 - Renewal/rehabilitation activities;
 - Replacement/disposal activities; and
 - Expansion activities.
- An approximation of the annual funding devoted to Capital improvements/ Replacements;
- Identification of the funding shortfall and the infrastructure gap, including how the impact will be managed; and
- All key assumptions documented.

The financing strategy forecasts (including both expenditure and approximate capital revenue sources) were prepared consistent with the Township's budget structure so that it can be used in conjunction with the annual budget process. Various financing options, including user fees, reserve funds, debt, and grants were considered during the process.

For all amended financing strategy scenarios, a detailed 19 year of the original 20 year plan was generated. The plan identifies specific lifecycle costs and associated funding sources required for the asset management strategies described in Chapter 4.

5.2 Tax Supported Financing Strategies

As discussed in Chapter 4, two asset management strategies were developed to provide different avenues of moving towards sustainable asset management planning.

Amended Scenario 1 outlines the preferred approach, allocating rehabilitation and replacement needs based on asset condition, risk and expected levels of service.

Amended Scenario 2, the recommended approach, provides for the same capital needs as Amended Scenario 1 over the 19 years of the 20-year forecast period, however, some potential capital deferrals are used to phase-in the impact over earlier years to assist with affordability. Included in this chapter are three distinct financing strategies, one for Amended Scenario 1 and two for Amended Scenario 2 (referred to as 2a and 2b), that attempt to move the Township towards asset management sustainability.

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Table 5-1 below provides a costing overview of the three financing strategies and the cumulative, non-inflated and inflated capital expenses over five, ten, and nineteen years of the original 20-year forecast. Please note that the totals below include not only rehabilitation and replacement needs identified in Chapter 4, but also levels of service and expansion related capital costs. Amended Scenarios 2a and 2b provide the same capital forecast; however, provide different options on how to finance the recommended asset management scenario. As noted above, Amended Scenario 2 ensures all capital identified in Amended Scenario 1 is completed by the end of the 20 year forecast, but achieves so at a marginally higher price due to capital inflation.

Table 5-1: Tax Supported Financing Strategy Scenarios

Capital	Over 5 Years	Total Potential Added to Reserves	Over 10 Years	Total Potential Added to Reserves	Over 19 Years	Total Potential Added to Reserves
Non-Inflated						
Amended Scenario 1	\$7,801,653	\$0	\$12,406,908	\$0	\$21,507,854	\$0
Amended Scenario 2a	\$5,187,500	(\$2,614,153)	\$10,687,500	(\$1,719,408)	\$21,375,000	(\$132,854)
Amended Scenario 2b	\$5,375,000	(\$2,426,653)	\$11,375,000	(\$1,031,908)	\$23,750,000	\$2,242,146
Inflated						
Amended Scenario 1	\$8,142,375	\$0	\$13,392,856	\$0	\$25,560,272	\$0
Amended Scenario 2a	\$5,509,803	(\$2,632,572)	\$11,959,358	(\$1,433,498)	\$26,382,139	\$821,867
Amended Scenario 2b	\$5,711,485	(\$2,430,890)	\$12,750,000	(\$642,856)	\$29,466,908	\$3,906,636

Several methods of funding capital expenditures are utilized across all three financing strategy scenarios, in particular:

- Taxation funding is suggested for all maintenance costs, reserve fund transfers, as well as levels of service adjustment related costs related to operations.
- Formula based Ontario Community Infrastructure Fund (OCIF) proceeds and Gas Tax proceeds are expected to be stable and long-term funding sources for capital projects.
- OCIF Proposal Funding for 20th Sideroad reconstruction project is included.

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- External Debt financing may be an additional measure required to help smooth capital financing in years where there are increases in funding requirements. This is in particular a good method over the first five years of the 20-year plan.
- Internal debt issued from the Township's Reserve Fund (when accumulated) can be utilized to help fund annual capital needs understanding that these Reserve Funds need continuous investment to provide for potential unexpected capital needs as well as long term capital needs.
- The portion of newly acquired or constructed assets that are growth (DC) related can be financed by development charges.

The Township will be dependent upon maintaining healthy capital reserve funds in order to provide the remainder of the required funding over the forecast period. This will require the Township to proactively increase amounts being transferred to these capital reserve funds during the annual budget process. Amended Scenario 2b is the most applicable for the Township to implement and increase the capital reserve accounts, as beyond the 20-year forecast period there will be additional capital needs that will need funding.

5.2.1 Amended Scenario 1: Expected Levels of Service

Figure 5-1 below presents the first 10 years of the amended capital forecast for Amended Scenario 1. This forecast ensures that capital assets are rehabilitated or replaced as identified, based on levels of service, risk and condition (see Chapter 4).

Figure 5-1: Tax Supported Assets Amended Scenario 1 – Based on Expected Levels of Service

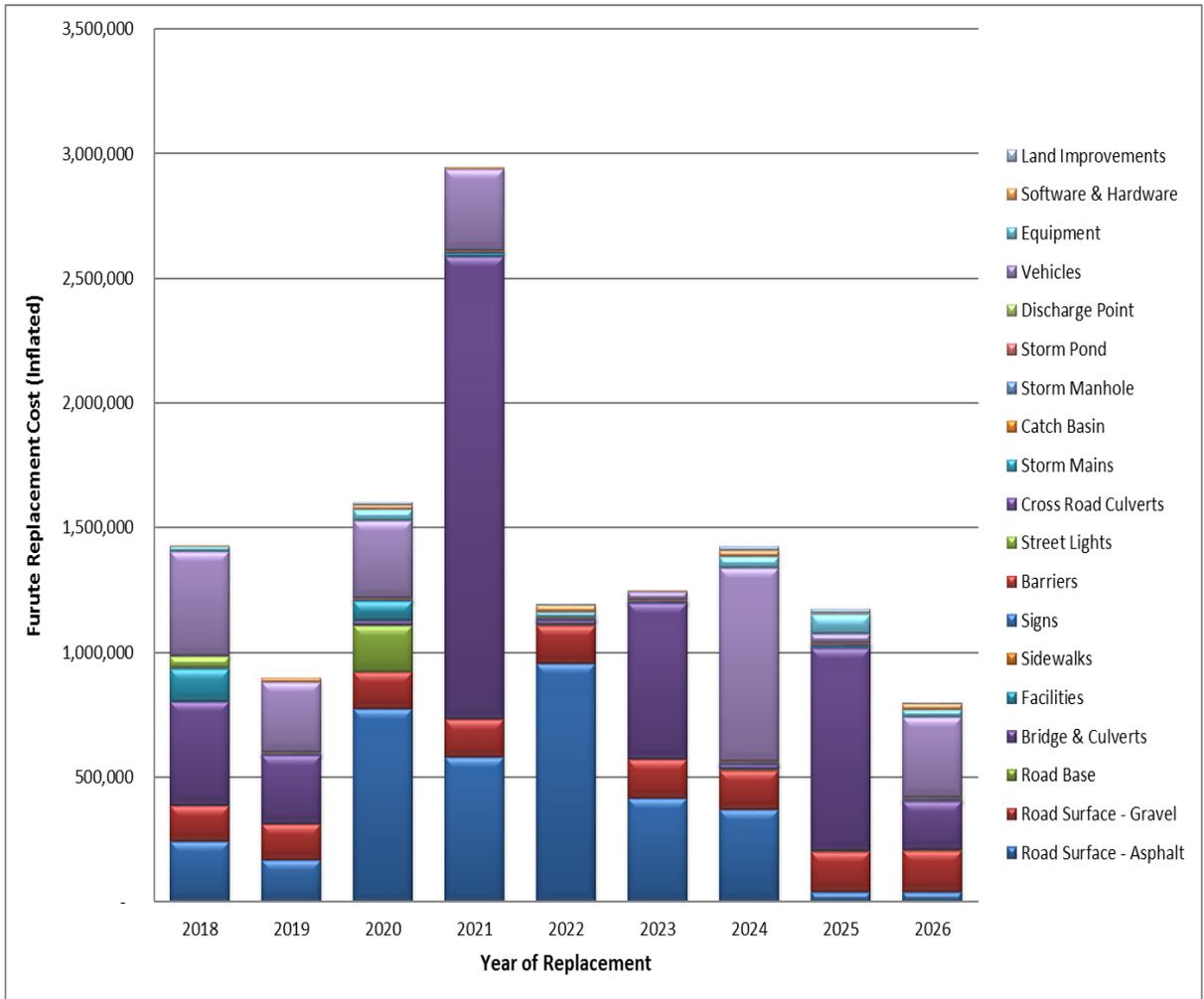


Table 5-2 shows the tax supported expenditure forecast for maintenance, renewal/rehabilitation, replacement/disposal and expansion for the first 10 years of the forecast. While this summary only shows high-level cost classifications, further detail (including the full 20-year forecast) can be obtained from Appendix A and Appendix C.

Table 5-2: Tax Supported Capital Expenditure Forecast Amended Scenario 1: Expected LOS

Asset Type	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Total Scheduled Capital - Inflated	1,502,010	898,025	1,601,589	2,945,053	1,195,699	1,244,722	1,425,623	1,172,353	799,845	607,938
Road Surface - Asphalt	242,800	167,013	772,431	580,512	954,997	415,691	368,113	38,826	39,602	386,872
Road Surface - Gravel	142,000	144,840	147,737	150,692	153,705	156,779	159,915	163,113	166,376	169,703
Road Base	1,000	1,019	188,312	1,061	1,082	1,104	1,126	1,149	1,172	1,195
Bridge & Culverts	417,860	275,461	18,582	1,854,843	19,332	623,872	20,113	815,636	196,675	-
Facilities	204,500	-	78,030	12,734	-	-	-	5,743	-	-
Sidewalks	-	-	-	-	-	-	-	-	586	-
Signs	4,500	4,590	4,682	4,775	4,871	4,968	5,068	5,169	5,272	5,378
Barriers	-	-	-	-	878	-	-	-	-	5,688
Street Lights	45,000	510	520	531	541	552	563	574	586	598
Cross Road Culverts	4,500	4,590	4,682	4,775	4,871	4,968	5,068	5,169	5,272	5,378
Storm Mains	-	-	-	-	-	-	-	-	-	-
Catch Basin	2,000	2,040	2,081	2,122	2,165	2,208	2,252	2,297	2,343	2,390
Storm Manhole	-	-	-	-	-	-	-	-	-	-
Storm Pond	-	-	-	-	-	-	-	-	-	-
Discharge Point	-	-	-	-	-	-	-	-	-	-
Vehicles	415,000	280,500	312,120	325,791	-	33,122	777,052	36,758	322,206	-
Equipment	20,350	408	44,217	1,167	19,700	662	46,004	77,587	29,291	20,914
Software & Hardware	2,500	17,053	17,791	6,049	27,061	794	23,456	3,101	24,019	9,823
Land Improvements	-	-	10,404	-	6,495	-	16,892	17,230	6,444	-

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In order to fund the amended asset requirements over the forecast period using the Township's own available funding sources (i.e., using taxation, Gas Tax funding, **OCIF funding**, reserves/reserve funds, and internal and external debentures), no changes to the 2016 Asset Management Plan Financing Strategy will be required. This was identified as an increase in the Township's taxation levy of approximately 1% – 2% annually. However, if other funding sources become available (i.e., grant funding) or if maintenance and rehabilitation practices allow for the deferral of capital works, then the impact on the Township's taxation levy would decrease under Amended Scenario 1 implementation.

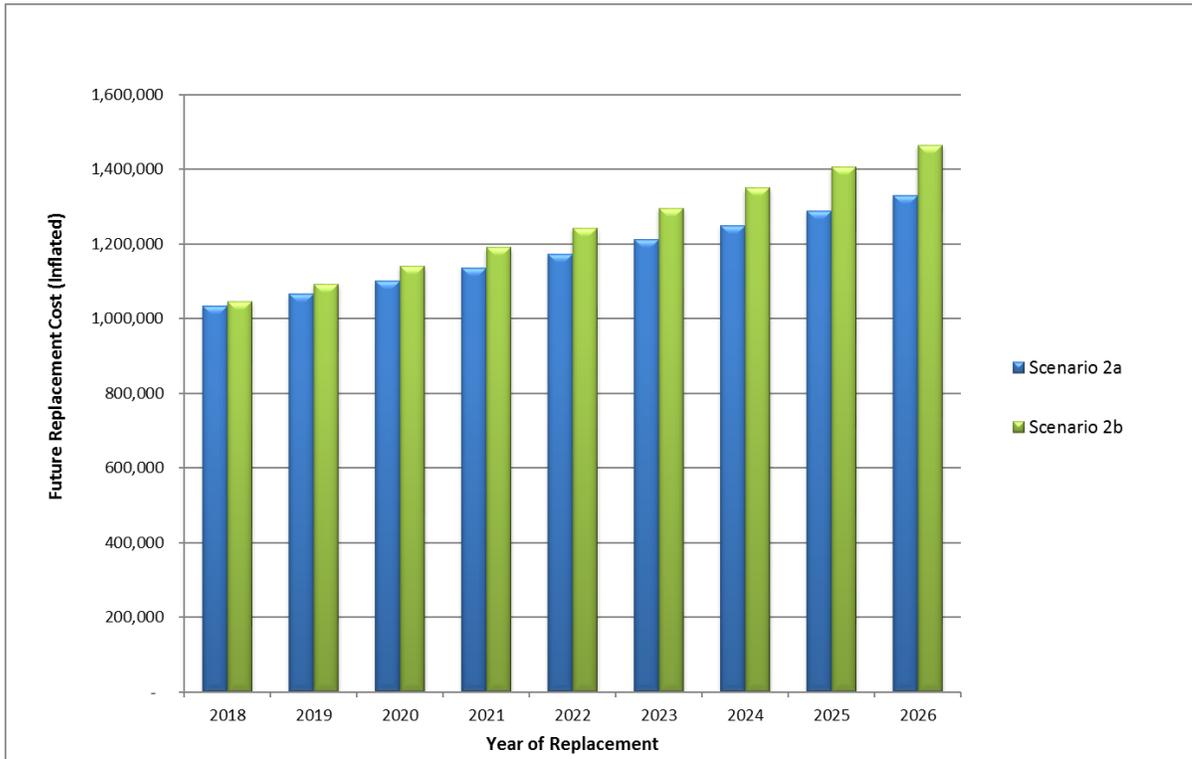
5.2.2 Amended Scenarios 2a, and 2b

As previously mentioned, Amended Scenarios 2a and 2b present different funding options to finance the recommended asset management strategy. The major difference between these two approaches is the extent to which capital assets are either financed through external debt, or deferred until funds are available as well as the resulting impact on projected taxation rates. Scenario 2b opts to use less external debentures, resulting in higher taxation rates, while Scenario 2a utilizes more potential external debentures, which has the effect of reducing the impact on taxation (by spreading capital costs out over many years). However, both Amended Scenarios require \$1.3 million in OCIF funding for 20th Sideroad reconstruction. Also note that even with a 1% annual tax increase towards capital funding it will take over 10 years in Scenario 2b to attain a positive investment into Capital Reserves.

Figure 5-2 below presents the first 10 years of the capital forecast for the recommended Amended Scenario 2 asset management strategy. In this figure, the different Amended Scenarios 2a and 2b are shown.

This forecast gradually increases the investment in capital assets over the forecast period. Both Amended Scenario 2a and 2b start at \$1,000,000 in 2017 as outlined in the 2016 Asset Management Plan. The difference between Amended Scenario 2a and 2b is that Scenario 2b has a higher annual increase in annual taxation. Scenario 2a increases by 0.5% and Scenario 2b increases by 1%, each year over the 20 year forecast period.

Figure 5-2: Tax Supported Assets Scenario 2a and 2b



The Amended Scenario 2 asset management strategy defers the timing of some of the capital assets identified in the early years of Amended Scenario 1 to assist in implementing sustainable funding. Please note that if additional funding is identified (i.e., grants) beyond the OCIF August 2018 submission or cost efficiencies are found through annual budget processes going forward, this infrastructure gap could be reduced further.

Table 5-3: Tax Supported Capital Expenditure Forecast

Asset Type	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Scenario 2a	1,032,750	1,066,410	1,101,003	1,136,554	1,173,086	1,210,625	1,249,196	1,288,825	1,329,540	1,371,369
Scenario 2b	1,045,500	1,092,420	1,140,799	1,190,675	1,242,091	1,295,087	1,349,706	1,405,991	1,463,988	1,523,743

Table 5-3 shows the tax supported expenditure forecast for maintenance, renewal/rehabilitation, replacement/disposal and expansion for the first 10 years of the amended forecast. While this summary only shows required investment, further detail (including the full 19 remaining years of the 20-year forecast) can be found in Appendix C.

In order to fund the recommended asset requirements over the forecast period using the Township’s own available funding sources (i.e., using taxation, Gas Tax funding, OCIF funding, reserves/reserve funds, and internal and external debentures), an increase in the Township’s taxation levy (which includes inflationary operating adjustments, assumed to be 2.0%).

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Amended Scenario 2a and 2b have a starting point at \$1,000,000 in year 2017, and increasing at a lower rate than Amended Scenario 2b, increasing at a higher annual rate. The objective of these two amended scenarios was to ensure that the total funding required was in place to complete the capital works over the 20-year asset management forecast period.

Amended Scenario 2 may require some debt or initial draining of reserve funds or capital project deferral. It is important to point out that debt would be a short term need as the tax levies catch up with the capital requirements of the Township in the second half of the 20-year forecast period. However, if other funding sources become available (i.e., grant funding) or if maintenance and rehabilitation practices allow for the deferral of capital works, then the impact on the Township's taxation levy would decrease.

5.2.3 Financing Strategies Summary

The main differences between the scenarios:

- The deferral of capital within the 20-year forecast period in Amended Scenarios 2a, and 2b;
- The use of external debentures to help finance capital in the early years of the forecast period; and
- The year-over-year increases to the taxation rate.

Assuming the Township receives the OCIF funding for 20th Sideroad reconstruction and maintains adequate capital reserve funds, both financing strategies will fully fund all capital identified for replacement via their expected levels of service. While the annual funding requirement may fluctuate, it is important for the Township to implement a consistent, yet increasing annual investment in capital so that the excess annual funds can accrue in capital reserve funds.

If the Township does not receive the OCIF funding for 20th Sideroad reconstruction then Amended Scenario 2a will not be sufficient to fund all the identified capital and maintenance requirements further expanding the infrastructure gap. Not to mention the additional capital needs that will be required beyond the 20-year forecast period. Table 5-4 shows this shortfall. Amended Scenario 2b will still be able to complete the necessary projects, however it will not leave much in capital reserves for beyond the forecast period. The Township really needs to receive the OCIF funding to take some of the pressure off the Township's infrastructure gap.

Table 5-4: Tax Supported Financing Strategy Scenarios – without 2018 OCIF Funding

Capital	Over 5 Years	Total Potential Added to Reserves	Over 10 Years	Total Potential Added to Reserves	Over 19 Years	Total Potential Added to Reserves
Non-Inflated						
Amended Scenario 1	\$9,090,521	\$0	\$13,695,776	\$0	\$22,796,722	\$0
Amended Scenario 2a	\$5,187,500	(\$3,903,021)	\$10,687,500	(\$3,008,276)	\$21,375,000	(\$1,421,722)
Amended Scenario 2b	\$5,375,000	(\$3,715,521)	\$11,375,000	(\$2,320,776)	\$23,750,000	\$953,278
Inflated						
Amended Scenario 1	\$9,457,020	\$0	\$14,707,501	\$0	\$26,874,918	\$0
Amended Scenario 2a	\$5,509,803	(\$3,947,217)	\$11,959,358	(\$2,748,144)	\$26,382,139	(\$492,779)
Amended Scenario 2b	\$5,711,485	(\$3,745,535)	\$12,750,000	(\$1,957,501)	\$29,466,908	\$2,591,990

5.2.4 Tax Supported Services

Capital investment is hereto referred as the sum of annual contributions to fund capital asset rehabilitation, replacement, and/or expansion. For the purposes of the Township, this can take the form of contributions to capital reserves/reserve funds, internal and external debt payments and consistent capital grant funding. This differs from the Township's annual budget and forecast, which includes asset maintenance from an operating perspective and one-time funding for capital projects. The annual capital investment represents ongoing and constant investments in capital over the forecast period. From a tax supported asset base perspective, the estimated amended optimal annual capital investment is approximately \$1.4 million, from the \$1.1 million stated in the 2016 Asset Management Plan. Based on the Township's 2017 budget, current annual capital investment of approximately \$1,000,000. This would provide a high-level estimate of the Township's annual tax supported infrastructure funding gap at \$400,000, which is \$300,000 higher than previously stated.

5.2.5 Improving the Annual Funding Deficit

Under the recommended amended financing strategy 2b, the Township would be making proactive attempts to mitigate these funding gaps over the forecast period.

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To further mitigate the potential infrastructure funding deficit, the Township could consider:

- Decreasing expected levels of service to make available capital funding;
- Issuing more debt for significant and/or unforeseen capital projects, in addition to the debt recommended within this report, while staying within the Township's debt capacity limits (this would have the impact of spreading out the capital repayment over a defined term);
- Actively seeking out and applying for grants;
- Consider approaching the community for funding assistance with respect to growth/expansion related projects;
- Rate increases, where needed (i.e., taxation); and/or
- Implementing net operating reductions or efficiencies. For example:
 - Reduced operating costs to allow for more capital investment.

6.0 Recommendations

The following recommendations have been provided for the Township of Amaranth consideration:

- That this 2018 Amendment to the Amaranth Asset Management Plan be received and approved by the Township of Amaranth Council; and
- That consideration of this 2018 Amendment to the Amaranth Asset Management Plan be given as part of the annual budgeting process to ensure sufficient capital funds are available to fund capital requirements over the long-term.

The current level of funding for asset replacement and renewal at the Township will not sufficiently fund required capital needs or close the infrastructure funding gap. As such, it is recommended that the following be considered:

- That Council approve the recommended financing strategy amended scenario 2b, for Township staff to implement moving forward;
- That the “levels of service” strategies discussed in 2016 Asset Management Plan be implemented;
- That the Township use “reserve funds” for asset management planning purposes;
- That this Asset Management Plan be updated and improved as needed over time to reflect the current priorities of the Township; and
- That the Township consider the capital priorities identified within this report when applying for future grants or deciding on how to utilize Gas Tax, OCIF funding and/or other funding that becomes available.

Substantial investment in asset capital needs will be required over the 20-year forecast period and beyond. Through the recommendations provided above, proactive steps will be made to increase capital investment, as well as, reduce the annual infrastructure funding gap for Township assets. Enhanced maintenance plans will assist in maintaining adequate asset conditions, mitigate asset risk as well as potentially defer capital needs within the forecast period. In addition, the Township of Amaranth is recommended to pursue all available capital grants wherever possible to further reduce the infrastructure funding gap.

Through the creation of this plan, the Township has been provided with Excel spreadsheets in which amendments and revisions can be made as needed by the Township. It is anticipated that this plan adopted by Township Council will be monitored and updated frequently as part of the budget process, with refinements and specific recommendations being provided with respect to the priority of each individual project.



BURNSIDE

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Appendix A

Township Roads and Bridge Asset Inventory & Asset Management Plan Assumptions

Fixed Asset #	Map Link	Subtype	Asset Name - Roads	From	To	Classification	Surface Material	Type	Length (m)	Width (m)	Square meters (m)	Install Year	Useful Life	Remaining Useful Life	Age	Historic Cost	2015 Accumulated Amortization System	2015 Net Book Value System	Replacement Cost/Section	Condition Based On Useful Life	Condition from Town	Condition Used for Analysis	Asset Condition (As per Priority Rating)	Probability of Failure (Based on Condition or Expected Condition)	Consequence of Failure	Risk of Failure	Numerical Value of Risk of Failure	Year Replacement due to minimal maintenance practices	Current Levels of Service % benefit	Revised Levels of Service Replacement Year	Year Replacement Applying Risk Score	Subsequent Replacement Year	Revised Remaining Useful Life	Proposed Rehabilitation Cost (2016 \$)	Year for Rehabilitation	Extended Life (Years) due to Betterment	Expected Levels of Service % benefit over Current + Condition better than expected for age	Revised Levels of Service Replacement Year 2	Year Replacement Applying Risk Score - or Staff Override	Subsequent Replacement Year 3	Revised Remaining Useful Life 5
2407		Roads - Road Section	HENRY DRIVE From County Rd 12 to Homest Line	COUNTY ROAD 12	HORNETT Lane	Semi-Urban	Asphalt		209.22	6	1255.32	1985	15	0	27	\$ 9,126	\$ 9,128		\$20,922	0	6	6	Average	Possible	Moderate	M	2	2000	10	2002	2017	2045	1			30	2021	2021	2036	5	
2425		Roads - Road Section	Mill St from Church St to David St	CHURCH STREET	DAVID STREET	Urban	Asphalt		247.42	6	1484.52	1985	15	0	31	\$ 8,738	\$ 8,738		\$24,742	0	7	7	Good	Unlikely	Moderate	M	2	1996	10	1998	2017	2049	1			40	2022	2022	2037	6	
2399		Roads - Road Section	MILL ST from David St to Station St	DAVID STREET	STATION STREET	Urban	Asphalt		142.24	6	854.44	1985	15	0	31	\$ 5,023	\$ 5,023		\$14,224	0	7	7	Good	Unlikely	Moderate	M	2	1996	10	1998	2017	2049	1			40	2022	2022	2037	6	
2422		Roads - Road Section	MILL STREET from Station St to Henry St	STATION STREET	HENRY STREET	Urban	Asphalt		66.22	6	397.32	1985	15	0	31	\$ 2,339	\$ 2,339		\$6,622	0	7	7	Good	Unlikely	Moderate	M	2	1996	10	1998	2017	2049	1			40	2022	2022	2037	6	
2432		Roads - Road Section	MONO-AMARANTH TOWNLINE From Alkm N of 30TH SR to Highway 89	END OF SIDEROAD	HIGHWAY 89	Rural	Asphalt		594.02	6	3564.12	2002	15	1	14	\$ 34,368	\$2076.98	2291.21	\$59,402	1	7	7	Good	Unlikely	Moderate	M	2	2013	10	2015	2017	2034	3			30	2021	2021	2036	5	
3044		Roads - Road Section	Peter Court from Peter St to End of Peter Court	PETER STREET	END OF PETER COURT	Urban	Asphalt		168.43	7	1179.01	2006	15	5	10	\$ 10,560	\$7040.24	3530.12	\$16,843	3	8	8	Good	Unlikely	Moderate	M	2	2017	10	2019	2019	2034	3			20	2022	2022	2037	6	
2420		Roads - Road Section	PETER STREET from Russel Hill Road to Peter St / Peter Court	RUSSEL HILL ROAD	PETER STREET / PETER COURT	Urban	Asphalt		340.73	7	2385.04	2006	15	5	10	\$ 21,363	\$14241.89	7120.95	\$34,072	3	8	8	Good	Unlikely	Moderate	M	2	2017	10	2019	2019	2034	3			20	2022	2022	2037	6	
2421		Roads - Road Section	PETER STREET from St John St to Russel Hill Rd	ST. JOHN STREET	RUSSEL HILL ROAD	Urban	Asphalt		125.91	7	881.37	2006	15	5	10	\$ 7,894	\$262.91	2631.46	\$12,591	3	8	8	Good	Unlikely	Moderate	M	2	2017	10	2019	2019	2034	3			20	2022	2022	2037	6	
2418		Roads - Road Section	RUSSEL HILL ROAD from Peter St / Peter Court to Peter St	PETER STREET / PETER COURT	PETER STREET	Urban	Asphalt		455.02	7	3185.14	2006	15	5	10	\$ 28,529	\$19019.46	9509.72	\$45,502	3	8	8	Good	Unlikely	Moderate	M	2	2017	10	2019	2019	2034	3			20	2022	2022	2037	6	
2419		Roads - Road Section	RUSSEL HILL ROAD from St John St to Peter St	ST. JOHN STREET	PETER STREET	Urban	Asphalt		283.27	7	1982.89	2006	15	5	10	\$ 17,761	\$11840.69	5920.34	\$28,327	3	8	8	Good	Unlikely	Moderate	M	2	2017	10	2019	2019	2034	3			20	2022	2022	2037	6	
2409		Roads - Road Section	SHANNON COURT from 3rd Line to end of Shannon Court	3RD LINE	END OF SHANNON COURT	Rural	Asphalt		656.96	6	3941.76	1992	15	0	24	\$ 31,536	\$ 31,536		\$65,696	0	6	6	Average	Possible	Moderate	M	2	2003	10	2005	2017	2042	1			30	2021	2021	2036	5	
2417		Roads - Road Section	ST. JOHN STREET from Russel Hill Rd to Peter St	RUSSEL HILL ROAD	PETER STREET	Urban	Asphalt		479.88	7	3359.16	2006	15	5	10	\$ 30,088	\$2008.49	10029.24	\$47,988	3	8	8	Good	Unlikely	Moderate	M	2	2017	10	2019	2019	2034	3			20	2022	2022	2037	6	
2416		Roads - Road Section	ST. JOHN STREET from Station St to Russel Hill Rd	STATION STREET	RUSSEL HILL ROAD	Urban	Asphalt		190.86	7	1336.02	2006	15	5	10	\$ 11,967	\$787.98	3988.07	\$19,086	3	8	8	Good	Unlikely	Moderate	M	2	2017	10	2019	2019	2034	3			20	2022	2022	2037	6	
2397		Roads - Road Section	Station St from 10th Line/Mill St to St. John Street	10TH STREET	ST. JOHN STREET	Semi-Urban	Asphalt		169.24	7	2584.68	2004	15	3	12	\$ 22,364	\$1789.8	4472.7	\$36,924	2	5	5	Average	Possible	Moderate	M	2	2015	10	2017	2017	2032	3			5	2017	2017	2032	4	
2398		Roads - Road Section	Station St from St. John St to Peter St	ST. JOHN STREET	PETER STREET	Semi-Urban	Asphalt		280.99	7	1968.93	2004	15	3	12	\$ 17,019	\$13615.05	3403.76	\$28,099	2	5	5	Average	Possible	Moderate	M	2	2015	10	2017	2017	2032	3			5	2017	2017	2032	4	
4119		Roads - Road Section	SHLAWOOD ROAD, from Highway 89 to Maplewood Drive	PETER STREET	9TH LINE	Rural	Asphalt		536.27	7	3753.89	2014	15	13	2	\$ 3914.87	\$522	\$3,393	\$53,627	9	8	8	Good	Unlikely	Moderate	M	2	2025	10	2027	2027	2042	11			0	2027	2027	2042	11	
2304		Roads - Road Section	WOODLAND ROAD from Maplewood Dr to end of Woodland Dr	HIGHWAY 89	MAPLEWOOD DRIVE	Semi-Urban	Asphalt		259.54	6	1557.24	1998	15	0	18	\$ 13,578	\$ 13,578		\$25,954	0	6	6	Average	Possible	Moderate	M	2	2009	10	2011	2017	2036	1			30	2021	2021	2036	5	
2452		Roads - Road Section	10th Line from 15th SR to 20th SR	15TH SIDEROAD	20TH SIDEROAD	Rural	Gravel		440.9	6	2645.4	1998	15	0	18	\$ 23,067	\$ 23,067		\$44,090	0	6	6	Average	Possible	Moderate	M	2	2009	10	2011	2017	2036	1			30	2021	2021	2036	5	
4270	3397	Roads - Road Section	10th Line from 20th Sideroad to 25th Sideroad	20TH SIDEROAD	25TH SIDEROAD	Rural	Gravel		3082.18	7	21575.26	2016	3	3	0	\$ 4,889.45	\$ 2,244.73	\$2,245	\$4,889	10	10	10	Very Good	Rare	Minor	L	1	2018	10	2018	2018	2021	2			0	2018	2018	2021	2	
4198		Roads - Road Section	10th Line from 20th Sideroad to 25th Sideroad	20TH SIDEROAD	25TH SIDEROAD	Rural	Gravel		3082	7	21574	2014	3	1	2	\$ 9109.27	\$ 9109.28	0	\$ 9,109	3	5	5	Average	Possible	Minor	M	2	2016	10	2016	2016	2020	1			0	2016	2016	2020	1	
4197		Roads - Road Section	10th Line from 25th Sideroad to 30th Sideroad	25TH SIDEROAD	30TH SIDEROAD	Rural	Gravel		3094.86	7	21664.02	2014	3	1	2	\$ 9147.2	\$ 9147.3	0	\$ 9,147	3	5	5	Average	Possible	Minor	M	2	2016	10	2016	2016	2020	1			0	2016	2016	2020	1	
4196		Roads - Road Section	10th Line from 30th Sideroad to Highway 89	30TH SIDEROAD	HIGHWAY 89	Rural	Gravel		1110.34	7	7772.38	2014	3	1	2	\$ 3281.77	\$ 3281.78	0	\$ 3,282	3	5	5	Average	Possible	Minor	M	2	2016	10	2016	2016	2020	1			0	2016	2016	2020	1	
4272	3399	Roads - Road Section	10th Line from 5th SR to County Rd 10	5TH SIDEROAD	COUNTY ROAD 10	Rural	Gravel		3069.26	6	18415.56	2016	3	3	0	\$ 4,845.54	\$ 2,472.77	\$2,473	\$4,846	10	10	10	Very Good	Rare	Minor	L	1	2018	10	2018	2018	2021	2			0	2018	2018	2021	2	
4271	3398	Roads - Road Section	10th Line from County Rd 10 to 15th SR	COUNTY ROAD 10	15TH SIDEROAD	Rural	Gravel		3099.3	7	21632.1	2016	3	3	0	\$ 4,533.41	\$ 2,266.71	\$2,267	\$4,533	10	10	10	Very Good	Rare	Minor	L	1	2018	10	2018	2018	2021	2			0	2018	2018	2021	2	
4176		Roads - Road Section	15th Sideroad from 10th Line to 9th Line	10TH LINE	9TH LINE	Rural	Gravel		1372.14	7	9604.98	2014	3	1	2	\$ 4055.54	\$ 4055.55	0	\$ 4,056	3	5	5	Average	Possible	Minor	M	2	2016	10	2016	2016	2020	1			0	2016	2016	2020	1	
4211		Roads - Road Section	15th Sideroad from 2nd Line to Amaranth/Mono TL	2ND LINE	AMARANTH TOWNLINE	Rural	Gravel		1399.47	7	9796.29	2014	3	1	2	\$ 4136.33	\$ 4136.34	0	\$ 4,136	3	5	5	Average	Possible	Minor	M	2	2016	10	2016	2016	2020	1			0	2016	2016	2020	1	
4209		Roads - Road Section	15th Sideroad from 4th Line to County Rd 11	4TH LINE	COUNTY ROAD 11	Rural	Gravel		1527.92	7	10696.44	2014	3	1	2	\$ 4515.97	\$ 4515.98	0	\$ 4,516	3	5	5	Average	Possible	Minor	M	2	2016	10	2016	2016	2020	1			0	2016	2016	2020	1	
4180		Roads - Road Section	15th Sideroad from 6th Line to County Rd 12	6TH LINE	COUNTY ROAD 12	Rural	Gravel		1345.65	7	9419.55	2014	3	1	2	\$ 3977.26	\$ 3977.27	0	\$ 3,977	3	5	5	Average	Possible	Minor	M	2	2016	10	2016	2016	2020	1			0	2016	2016	2020	1	
4179		Roads - Road Section	15th Sideroad from 7th Line to 6th Line	7TH LINE	6TH LINE	Rural	Gravel		1788.93	7	12522.51	2014	3	1	2	\$ 5287.42	\$ 5287.43	0	\$ 5,287	3	5	5	Average	Possible	Minor	M	2	2016	10	2016	2016	2020	1			0	2016	2016	2020	1	
4178		Roads - Road Section	15th Sideroad from 8th Line to 7th Line	8TH LINE	7TH LINE	Rural	Gravel		1320.49	7	9243.43	2014	3	1	2	\$ 3902.87	\$ 3902.88	0	\$ 3,903	3	5	5	Average	Possible	Minor	M	2	2016	10	2016	2016	2020	1			0	2016	2016	2020	1	
4177		Roads - Road Section	15th Sideroad from 9th Line to 8th Line	8TH LINE	8TH LINE	Rural	Gravel		1440.56	7	10083.92	2014	3	1	2	\$ 4257.76	\$ 4257.77	0	\$ 4,258	3	5	5	Average	Possible	Minor	M	2	2016	10	2016	2016	2020	1			0	2016	2016	2020	1	
4175		Roads - Road Section	15th Sideroad from Amaranth/Grand Valley TL to Amaranth/Mono TL	EAST LUTHER TOWNLINE	10TH LINE	Rural	Gravel		1308.57	7	9159.99	2014	3	1	2	\$ 3867.66	\$ 3867.67	0	\$ 3,868	3	5	5	Average	Possible	Minor	M	2	2016	10	2016	2016	2020	1								

Fixed Asset #	Map Link	Subtype	Asset Name - Roads	From	To	Classification	Surface Material	Type	Length (m)	Width (m)	Square meters (m)	Install Year	Useful Life	Remaining Useful Life	Age	Historic Cost	2015 Accumulated Amortization System	2015 Net Book Value System	Replacement Cost/Section	Condition Based On Useful Life	Condition from Town	Condition Used for Analysis	Asset Condition (As per Priority Rating)	Probability of Failure (Based on Condition or Expected Condition)	Consequence of Failure	Risk of Failure	Numerical Value of Risk of Failure	Year Replacement due to minimal maintenance practices	Current Levels of Service % benefit	Revised Levels Service Replacement Year	Year Replacement Applying Risk Score	Subsequent Replacement Year	Revised Remaining Useful Life	Proposed Rehabilitation Cost (2016 \$)	Year for Rehabilitation	Extended Life (Years) due to Betterment	Expected Levels of Service % benefit over Current + Condition better than expected for age	Revised Levels Service Replacement Year 2	Year Replacement Applying Risk Score - or Staff Override	Subsequent Replacement Year	Revised Remaining Useful Life 5
4281	3417.3418	Roads - Road Section	4TH LINE FROM 25TH SR TO 30TH SR	25TH SIDEROAD	30TH SIDEROAD	Rural	Gravel		2474	7	17318	2016	3	3	0	7,143.55	3,571.78	\$3,572	\$7,144	10		10	Very Good	Rare	Minor	L	1	2018	10	2018	2018	2021	2			0	2018	2018	2021	2	
4278	3245	Roads - Road Section	4th Line From 30th SR to Highway 89	30TH SIDEROAD	HIGHWAY 89	Rural	Gravel		1144.78	7	8013.46	2016	3	3	0	2,747.52	1,373.76	\$1,374	\$2,748	10		10	Very Good	Rare	Minor	L	1	2018	10	2018	2018	2021	2			0	2018	2018	2021	2	
4215		Roads - Road Section	8th Line From County Rd 109 to 5th Sideroad	COUNTY ROAD 109	5TH SIDEROAD	Rural	Gravel		3086.17	7	21603.19	2015	3	2	1	3608.06	\$1,804	\$1,804	\$7,216	7		7	Good	Unlikely	Minor	L	1	2017	10	2017	2017	2020	1			0	2017	2017	2020	1	
4199		Roads - Road Section	5th Sideroad From 10th Line To 9th Line	10TH LINE	9TH LINE	Rural	Gravel		1159.91	7	8019.37	2014	3	1	2	4019.40	4019.41	0	\$4,019	3	5	5	Average	Possible	Minor	M	2	2016	10	2016	2017	2020	1			0	2016	2017	2020	1	
4190		Roads - Road Section	5th Sideroad From 4th Line To County Rd 11	4TH LINE	COUNTY ROAD 11	Rural	Gravel		1533.36	7	10733.52	2014	3	1	2	4532.04	4532.05	0	\$4,532	3	5	5	Average	Possible	Minor	M	2	2016	10	2016	2017	2020	1			0	2016	2017	2020	1	
4189		Roads - Road Section	5th Sideroad From 6th Line To County Rd 12	6TH LINE	COUNTY ROAD 12	Rural	Gravel		1279.24	7	8954.68	2014	3	1	2	3780.96	3780.97	0	\$3,781	3	5	5	Average	Possible	Minor	M	2	2016	10	2016	2017	2020	1			0	2016	2017	2020	1	
4202		Roads - Road Section	5th Sideroad From 7th Line To 8th Line	7TH LINE	8TH LINE	Rural	Gravel		1744.53	7	12211.71	2014	3	1	2	5156.1	5156.2	0	\$5,156	3	5	5	Average	Possible	Minor	M	2	2016	10	2016	2017	2020	1			0	2016	2017	2020	1	
4201		Roads - Road Section	5th Sideroad From 8th Line To 7th Line	8TH LINE	7TH LINE	Rural	Gravel		1271.23	7	8886.61	2014	3	1	2	3757.28	3757.29	0	\$3,757	3	5	5	Average	Possible	Minor	M	2	2016	10	2016	2017	2020	1			0	2016	2017	2020	1	
4200		Roads - Road Section	5th Sideroad From 9th Line To 8th Line	9TH LINE	8TH LINE	Rural	Gravel		1399.15	7	9794.05	2014	3	1	2	4135.37	4135.38	0	\$4,135	3	5	5	Average	Possible	Minor	M	2	2016	10	2016	2017	2020	1			0	2016	2017	2020	1	
4188		Roads - Road Section	5th Sideroad From County Rd 12 To 4th Line	COUNTY ROAD 12	4TH LINE	Rural	Gravel		1355.14	7	9485.98	2014	3	1	2	4005.28	4005.29	0	\$4,005	3	5	5	Average	Possible	Minor	M	2	2016	10	2016	2017	2020	1			0	2016	2017	2020	1	
4220		Roads - Road Section	20th Sideroad	15TH SIDEROAD	20TH SIDEROAD	Rural	Gravel		3089.22	7	21624.54	2015	3	2	1	2322.41	\$1,161	\$1,161	\$4,645	7		7	Good	Unlikely	Minor	L	1	2017	10	2017	2017	2020	1			0	2017	2017	2020	1	
4218		Roads - Road Section	8th Line - 5th Sideroad to County Rd 10	5TH SIDEROAD	COUNTY ROAD 10	Rural	Gravel		3050.44	7	21353.08	2015	3	2	1	2293.24	\$1,147	\$1,147	\$4,587	7		7	Good	Unlikely	Minor	L	1	2017	10	2017	2017	2020	1			0	2017	2017	2020	1	
4219		Roads - Road Section	6th Line - North of Township Office to 15th Sideroad	0.4 km N. of COUNTY ROAD 10	15TH SIDEROAD	Rural	Gravel		2608.35	7	18258.45	2015	3	2	1	2294.78	\$1,147	\$1,148	\$4,590	7		7	Good	Unlikely	Minor	L	1	2017	10	2017	2017	2020	1			0	2017	2017	2020	1	
3523		Roads - Road Section	8th Line From 20th SR to 25th SR	20TH SIDEROAD	25TH SIDEROAD	Rural	Gravel		3068.69	11	33755.59	2012	3	0	4	\$ 10,406	\$ 10,406		\$10,406	0	5	5	Average	Possible	Minor	M	2	2014	10	2014	2017	2022	1			20	2017	2017	2020	1	
3522		Roads - Road Section	8th Line From 25th SR to 30th SR	25TH SIDEROAD	30TH SIDEROAD	Rural	Gravel		3168.81	10	31688.1	2012	3	0	4	\$ 10,745	\$ 10,745		\$10,745	0	5	5	Average	Possible	Minor	M	2	2014	10	2014	2017	2022	1			20	2017	2017	2020	1	
3518		Roads - Road Section	8th Line From 30th SR to Highway 89	30TH SIDEROAD	HIGHWAY 89	Rural	Gravel		1193.34	7	8353.38	2012	3	0	4	\$ 4,045	\$ 4,045		\$4,045	0	5	5	Average	Possible	Minor	M	2	2014	10	2014	2017	2022	1			20	2017	2017	2020	1	
4224		Roads - Road Section	7th Line - 15th Sideroad to 20th Sideroad	15TH SIDEROAD	20TH SIDEROAD	Rural	Gravel		3112.04	7	21784.28	2015	3	2	1	2425.34	\$1,213	\$1,212	\$4,851	7		7	Good	Unlikely	Minor	L	1	2017	10	2017	2017	2020	1			0	2017	2017	2020	1	
4225		Roads - Road Section	7th Line - 20th Sideroad to 25th Sideroad	20TH SIDEROAD	25TH SIDEROAD	Rural	Gravel		3084.9	7	21594.3	2015	3	2	1	2403.83	\$1,202	\$1,202	\$4,808	7		7	Good	Unlikely	Minor	L	1	2017	10	2017	2017	2020	1			0	2017	2017	2020	1	
4226	2330	Roads - Road Section	7th Line - 25th Sideroad to 30th Sideroad	25TH SIDEROAD	30TH SIDEROAD	Rural	Gravel		3089.52	7	21626.64	2015	3	2	1	2408.44	\$1,204	\$1,204	\$4,817	7		7	Good	Unlikely	Minor	L	1	2017	10	2017	2017	2020	1			0	2017	2017	2020	1	
4227		Roads - Road Section	7th Line - 30th Sideroad to Highway 89	30TH SIDEROAD	HIGHWAY 89	Rural	Gravel		1117.55	7	7822.85	2015	3	2	1	873.88	\$437	\$437	\$1,748	7		7	Good	Unlikely	Minor	L	1	2017	10	2017	2017	2020	1			0	2017	2017	2020	1	
4222		Roads - Road Section	7th Line - 5th Sideroad to County Rd 10	5TH SIDEROAD	COUNTY ROAD 10	Rural	Gravel		3166.75	7	22167.25	2015	3	2	1	2468.34	\$1,234	\$1,234	\$4,937	7		7	Good	Unlikely	Minor	L	1	2017	10	2017	2017	2020	1			0	2017	2017	2020	1	
4223		Roads - Road Section	7th Line - County Rd 10 to 15th Sideroad	10TH SIDEROAD	15TH SIDEROAD	Rural	Gravel		3060.15	7	21421.05	2015	3	2	1	2385.40	\$1,193	\$1,193	\$4,771	7		7	Good	Unlikely	Minor	L	1	2017	10	2017	2017	2020	1			0	2017	2017	2020	1	
4221		Roads - Road Section	7th Line - County Rd 109 to 5th Sideroad	COUNTY ROAD 109	5TH SIDEROAD	Rural	Gravel		3075.45	7	21528.15	2015	3	2	1	2396.16	\$1,198	\$1,198	\$4,782	7		7	Good	Unlikely	Minor	L	1	2017	10	2017	2017	2020	1			0	2017	2017	2020	1	
4217		Roads - Road Section	7th Line From 25th Sideroad to 30th Sideroad	25TH SIDEROAD	30TH SIDEROAD	Rural	Gravel		7	0	0	2012	3	0	4	\$ 10,248	\$ 10,248		Suppose																						
4231		Roads - Road Section	8th Line - 15th Sideroad to 20th Sideroad	15TH SIDEROAD	20TH SIDEROAD	Rural	Gravel		3054.04	7	21378.28	2015	3	2	1	2844.86	\$1,422	\$1,423	\$5,689	7		7	Good	Unlikely	Minor	L	1	2017	10	2017	2017	2020	1			0	2017	2017	2020	1	
4228		Roads - Road Section	8th Line - 20th Sideroad to County Rd 10	10TH SIDEROAD	COUNTY ROAD 10	Rural	Gravel		3088.4	7	21818.8	2015	3	2	1	2876.92	\$1,438	\$1,439	\$5,754	7		7	Good	Unlikely	Minor	L	1	2017	10	2017	2017	2020	1			0	2017	2017	2020	1	
4230		Roads - Road Section	8th Line - County Rd 10 to 15th Sideroad	COUNTY ROAD 10	15TH SIDEROAD	Rural	Gravel		3085.86	7	21601.02	2015	3	2	1	2875.38	\$1,438	\$1,437	\$5,751	7		7	Good	Unlikely	Minor	L	1	2017	10	2017	2017	2020	1			0	2017	2017	2020	1	
4228		Roads - Road Section	8th Line - County Rd 109 to 5th Sideroad	COUNTY ROAD 109	5TH SIDEROAD	Rural	Gravel		3137.85	7	21964.95	2015	3	2	1	2923.00	\$1,462	\$1,461	\$5,846	7		7	Good	Unlikely	Minor	L	1	2017	10	2017	2017	2020	1			0	2017	2017	2020	1	
4184		Roads - Road Section	8th Line From 20th Sideroad To 25th Sideroad	20TH SIDEROAD	25TH SIDEROAD	Rural	Gravel		3075.76	7	21530.32	2014	3	1	2	3090.82	3090.83	0	\$9,091	3	5	5	Average	Possible	Minor	M	2	2016	10	2016	2017	2020	1			0	2016	2017	2020	1	
4183		Roads - Road Section	8th Line From 25th Sideroad To 30th Sideroad	25TH SIDEROAD	30TH SIDEROAD	Rural	Gravel		3063.45	7	21444.15	2014	3	1	2	3054.45	3054.46	0	\$9,054	3	5	5	Average	Possible	Minor	M	2	2016	10	2016	2017	2020	1			0	2016	2017	2020	1	
4182		Roads - Road Section	8th Line From 30th Sideroad To Highway 89	30TH SIDEROAD	HIGHWAY 89	Rural	Gravel		1108.62	7	7760.34	2014	3	1	2	3276.66	3276.67	0	\$3,277	3	5	5	Average	Possible	Minor	M	2	2016	10	2016	2017	2020	1			0	2016	2017	2020	1	
2323		Roads - Road Section	8th Line From 5th Sideroad to COUNTY ROAD 10	5th SR	County Rd 10	Rural	Gravel		6	0	0	2007	3	0	9	\$ 6,072	\$ 6,072		Suppose																						
2318		Roads - Road Section	8th Line From 0.3 km S. of 20th Sideroad to 20th Sideroad	0.3 km S. of 20TH SIDEROAD	20TH SIDEROAD	Rural	Gravel		297.88	5	1488.4																														

Fixed Asset #	Map Link	Subtype	Asset Name - Road Base	Classification	Surface Material	Install Year	Useful Life	Remaining Useful Life	Age	Historic Cost	2015 Accumulated Amortization System	2015 Net Book Value System	Replacement Cost/Section	Condition Based On Useful Life	Condition from Town	Condition Used for Analysis	Asset Condition (As per Priority Rating)	Probability of Failure (Based on Condition or Expected Condition)	Consequences of Failure	Risk of Failure	Numerical Value of Risk of Failure	Year Replacement due to minimal maintenance practices	Current Levels of Service % benefit	Revised Levels Service Replacement Year	Year Replacement Applying Risk Score	Subsequent Replacement Year	Revised Remaining Useful Life	Proposed Rehabilitation Cost (2016 \$)	Year for Rehabilitation	Extended Life (Years) due to Betterment	Expected Levels of Service % benefit over Current + Condition better than expected for age	Revised Levels Service Replacement Year	Year Replacement Applying Risk Score - or Staff Override	Subsequent Replacement Year	Revised Remaining Useful Life	
2633	2475	Roads - Road Base Valuation	Amaranth / Mono TL - 30th SR - .6km North of 30th SR (2475 Surface)		Asphalt	2001	60	45	14	\$ 156,586	\$ 39,147	\$ 117,440	\$ 179,592	8	7	7	Good	Unlikely	Moderate	M	2	2043			2043	2043	2103	27				0	2043	2043	2103	27
2550		Roads - Road Base Valuation	Cedar Place from Maplewood Dr to end of Cedar Place		Asphalt	1971	60	15	44	\$ 15,970	\$ 11,977	\$ 3,992	\$ 88,771	3	8	8	Good	Unlikely	Moderate	M	2	2013			2013	2017	2077	1				20	2028	2028	2088	12
2549	2307	Roads - Road Base Valuation	Cherrywood Place from Maplewood Dr to end of Cherrywood Place (2307 surface)		Asphalt	1971	60	15	44	\$ 16,204	\$ 12,153	\$ 4,051	\$ 90,072	3	8	8	Good	Unlikely	Moderate	M	2	2013			2013	2017	2077	1				20	2028	2028	2088	12
2654	2448	Roads - Road Base Valuation	Church St - 10th Line - Mill St (2448 Surface)		Asphalt	2003	60	47	12	\$ 99,620	\$ 21,584	\$ 78,035	\$ 108,613	8	7	7	Good	Unlikely	Moderate	M	2	2045			2045	2045	2105	29				0	2045	2045	2105	29
2572	2457	Roads - Road Base Valuation	Crago Rd - 5th SR - McKibbin Avenue (4257 Surface)		Asphalt	1979	60	23	36	\$ 12,699	\$ 7,831	\$ 4,868	\$ 37,197	4	9	9	Very Good	Rare	Moderate	L	1	2021			2021	2021	2081	5				20	2033	2033	2093	17
2666	2457	Roads - Road Base Valuation	Crago Rd - Houghton St - end of Crago Rd (4257 Surface)		Asphalt	1979	60	23	36	\$ 23,188	\$ 14,300	\$ 8,889	\$ 67,922	4	9	9	Very Good	Rare	Moderate	L	1	2021			2021	2021	2081	5				20	2033	2033	2093	17
2698	2457	Roads - Road Base Valuation	Crago Rd - McKibbin - Houghton (4257 Surface)		Asphalt	1979	60	23	36	\$ 23,952	\$ 14,770	\$ 9,182	\$ 70,158	4	9	9	Very Good	Rare	Moderate	L	1	2021			2021	2021	2081	5				20	2033	2033	2093	17
2655	2458	Roads - Road Base Valuation	David St - Mill St - Main St (2458 Surface)		Asphalt	1984	60	28	31	\$ 14,245	\$ 7,597	\$ 6,648	\$ 27,248	5	7	7	Good	Unlikely	Moderate	M	2	2026			2026	2026	2086	10				0	2026	2026	2086	10
2608	2450	Roads - Road Base Valuation	Devonleigh Drive - 30th SR - 30th SR (2450 Surface)		Asphalt	2001	60	45	14	\$ 167,655	\$ 41,914	\$ 125,742	\$ 192,287	8	8	8	Good	Unlikely	Moderate	M	2	2043			2043	2043	2103	27				0	2043	2043	2103	27
2659	2426	Roads - Road Base Valuation	Evans Avenue - James St - end (2426 Surface)		Asphalt	1985	60	29	30	\$ 4,833	\$ 2,497	\$ 2,336	\$ 8,896	5	7	7	Good	Unlikely	Moderate	M	2	2027			2027	2027	2087	11				0	2027	2027	2087	11
2660	2427	Roads - Road Base Valuation	Evans Avenue - James St - Henry St (2427 Surface)		Asphalt	1985	60	29	30	\$ 11,792	\$ 6,092	\$ 5,699	\$ 21,704	5	7	7	Good	Unlikely	Moderate	M	2	2027			2027	2027	2087	11				0	2027	2027	2087	11
2700	2412	Roads - Road Base Valuation	Henry St. - Evans St. - end of Henry St. (2412 Surface)		Asphalt	1985	60	29	30	\$ 10,802	\$ 5,581	\$ 5,221	\$ 19,882	5	7	7	Good	Unlikely	Moderate	M	2	2027			2027	2027	2087	11				0	2027	2027	2087	11
2701	2413	Roads - Road Base Valuation	Henry St. - Main St. - Evans St. (2413 Surface)		Asphalt	1985	60	29	30	\$ 24,050	\$ 12,426	\$ 11,624	\$ 44,266	5	7	7	Good	Unlikely	Moderate	M	2	2027			2027	2027	2087	11				0	2027	2027	2087	11
2702	2414	Roads - Road Base Valuation	Henry St. - Mill St. - Main St. (2414 Surface)		Asphalt	1985	60	29	30	\$ 14,964	\$ 7,732	\$ 7,233	\$ 27,543	5	7	7	Good	Unlikely	Moderate	M	2	2027			2027	2027	2087	11				0	2027	2027	2087	11
2696	2408	Roads - Road Base Valuation	Hornett Lane - Menary Drive - County Rd 10 (2408 Surface)		Asphalt	1988	60	32	27	\$ 14,970	\$ 6,986	\$ 7,984	\$ 23,710	5	6	6	Average	Possible	Moderate	M	2	2030			2030	2030	2090	14				0	2030	2030	2090	14
2699	2458	Roads - Road Base Valuation	Hughson - McKibbin - Amaranth / Mono TL (4258 Surface)		Asphalt	1979	60	23	36	\$ 25,327	\$ 15,618	\$ 9,709	\$ 74,187	4	9	9	Very Good	Rare	Moderate	L	1	2021			2021	2021	2081	5				20	2033	2033	2093	17
2573	2458	Roads - Road Base Valuation	Hughson St - Crago - McKibbin (4258 Surface)		Asphalt	1979	60	23	36	\$ 41,419	\$ 25,542	\$ 15,877	\$ 121,322	4	9	9	Very Good	Rare	Moderate	L	1	2021			2021	2021	2081	5				20	2033	2033	2093	17
2653	2447	Roads - Road Base Valuation	James St - Evans Avenue - end of James St (2447 Surface)		Asphalt	1985	60	29	30	\$ 43,661	\$ 22,558	\$ 21,103	\$ 80,363	5	7	7	Good	Unlikely	Moderate	M	2	2027			2027	2027	2087	11				0	2027	2027	2087	11
2609	2451	Roads - Road Base Valuation	MAIN STREET - David St - Henry St (2451 Surface)		Asphalt	1984	60	28	31	\$ 31,029	\$ 16,549	\$ 14,480	\$ 59,352	5	7	7	Good	Unlikely	Moderate	M	2	2026			2026	2026	2086	10				0	2026	2026	2086	10
2663	2430	Roads - Road Base Valuation	Maplewood Drive - Amaranth / Mono TL - Cedar Place (2430 Surface)		Asphalt	1971	60	15	44	\$ 20,153	\$ 15,115	\$ 5,038	\$ 112,022	3	8	8	Good	Unlikely	Moderate	M	2	2013			2013	2017	2077	1				35	2037	2037	2097	21
2662	2429	Roads - Road Base Valuation	Maplewood Drive - Cedar Place - Sylvanwood Rd (2429 Surface)		Asphalt	1971	60	15	44	\$ 10,671	\$ 8,003	\$ 2,668	\$ 59,318	3	8	8	Good	Unlikely	Moderate	M	2	2013			2013	2017	2077	1				35	2037	2037	2097	21
2578	2401	Roads - Road Base Valuation	Maplewood Drive - Cherrywood Place - Woodland Rd (2401 Surface)		Asphalt	1971	60	15	44	\$ 15,053	\$ 11,290	\$ 3,763	\$ 83,676	3	8	8	Good	Unlikely	Moderate	M	2	2013			2013	2017	2077	1				35	2037	2037	2097	21
2661	2428	Roads - Road Base Valuation	Maplewood Drive - Sylvanwood Rd - Cherrywood Place (2428 Surface)		Asphalt	1971	60	15	44	\$ 4,796	\$ 3,597	\$ 1,199	\$ 26,660	3	8	8	Good	Unlikely	Moderate	M	2	2013			2013	2017	2077	1				35	2037	2037	2097	21
2577	2400	Roads - Road Base Valuation	Maplewood Drive - Woodland Rd - end of Maplewood Drive (2400 Surface)		Asphalt	1971	60	15	44	\$ 7,145	\$ 5,358	\$ 1,786	\$ 39,714	3	8	8	Good	Unlikely	Moderate	M	2	2013			2013	2017	2077	1				35	2037	2037	2097	21
2548	2459	Roads - Road Base Valuation	McKibbin Ave from Crago Rd to Hughson St (4259 surface)		Asphalt	1979	60	23	36	\$ 66,837	\$ 41,216	\$ 25,621	\$ 195,773	4	9	9	Very Good	Rare	Moderate	L	1	2021			2021	2021	2081	5				35	2042	2042	2102	26
2695	2407	Roads - Road Base Valuation	Menary Drive - County Rd 12 - Hornett Lane (2407 Surface)		Asphalt	1988	60	32	27	\$ 39,630	\$ 18,494	\$ 21,136	\$ 62,765	5	6	6	Average	Possible	Moderate	M	2	2030			2030	2030	2090	14				0	2030	2030	2090	14
2658	2425	Roads - Road Base Valuation	Mill St - Church St - David St (2425 Surface)		Asphalt	1985	60	29	30	\$ 40,328	\$ 20,836	\$ 19,492	\$ 74,227	5	7	7	Good	Unlikely	Moderate	M	2	2027			2027	2027	2087	11				0	2027	2027	2087	11
2576	2399	Roads - Road Base Valuation	Mill St - David St - Station St (2399 Surface)		Asphalt	1970	60	14	45	\$ 7,459	\$ 5,719	\$ 1,740	\$ 42,673	2	7	7	Good	Unlikely	Moderate	M	2	2012			2012	2017	2077	1				20	2028	2028	2088	12
2622	2422	Roads - Road Base Valuation	Mill St - Station St - Henry St (2422 Surface)		Asphalt	1970	60	14	45	\$ 3,473	\$ 2,662	\$ 810	\$ 19,867	2	7	7	Good	Unlikely	Moderate	M	2	2012			2012	2017	2077	1				20	2028	2028	2088	12
2624	2424	Roads - Road Base Valuation	Mill St. - Church St - Church St (2424 Surface)		Asphalt	1970	60	14	45	\$ 16,157	\$ 12,387	\$ 3,770	\$ 92,433	2	7	7	Good	Unlikely	Moderate	M	2	2012			2012	2017	2077	1				20	2028	2028	2088	12
2607	3044	Roads - Road Base Valuation	Peter Court - Peter St - end of Peter Court (3044 Surface)		Asphalt	2006	60	50	9	\$ 48,740	\$ 8,123	\$ 40,617	\$ 50,529	8	8	8	Good	Unlikely	Moderate	M	2	2048			2048	2048	2108	32				0	2048	2048	2108	32
2611	2420	Roads - Road Base Valuation	Peter St - Russel Hill Rd - Peter Court (2420 Surface)		Asphalt	1994	60	38	21	\$ 76,775	\$ 28,151	\$ 48,624	\$ 102,216	6	8	8	Good	Unlikely	Moderate	M	2	2036			2036	2036	2096	20				0	2036	2036	2096	20
2612	2421	Roads - Road Base Valuation	Peter St - St. John St - Russel Hill Rd (2421 Surface)		Asphalt	1994	60	38	21	\$ 28,371	\$ 10,403	\$ 17,968	\$ 37,773	6	8	8	Good	Unlikely	Moderate	M	2	2036			2036	2036	2096	20				0	2036	2036	2096	20
2706	2418	Roads - Road Base Valuation	Russel Hill Rd - Peter St - Peter St (2418 Surface)		Asphalt	1994	60	38	21	\$ 102,529	\$ 37,594	\$ 64,935	\$ 136,505	6	8	8	Good	Unlikely	Moderate	M	2	2036			2036	2036	2096	20				0	2036	2036	2096	20
2610	2419	Roads - Road Base Valuation	Russel Hill Rd - St. John Street - Peter St (2419 Surface)		Asphalt	1994	60	38	21	\$ 63,830	\$ 23,404	\$ 40,426	\$ 84,982	6	8	8	Good	Unlikely	Moderate	M	2	2036			2036	2036	2096	20				0	2036	2036	2096	20

Fixed Asset #	Map Link	Subtype	Asset Name - Road Base	Classification	Surface Material	Install Year	Useful Life	Remaining Useful Life	Age	Historic Cost	2015 Accumulated Amortization System	2015 Net Book Value System	Replacement Cost/Section	Condition Based On Useful Life	Condition from Town	Condition Used for Analysis	Asset Condition (As per Priority Rating)	Probability of Failure (Based on Condition or Expected Condition)	Consequences of Failure	Risk of Failure	Numerical Value of Risk of Failure	Year Replacement due to minimal maintenance practices	Current Levels of Service % benefit	Revised Levels Service Replacement Year	Year Replacement Applying Risk Score	Subsequent Replacement Year	Revised Remaining Useful Life	Proposed Rehabilitation Cost (2016 \$)	Year for Rehabilitation	Extended Life (Years) due to Betterment	Expected Levels of Service % benefit over Current + Condition better than expected for age	Revised Levels Service Replacement Year	Year Replacement Applying Risk Score - or Staff Override	Subsequent Replacement Year	Revised Remaining Useful Life
2697	2409	Roads - Road Base Valuation	Shannon Court - 3rd Line - end of Shannon Court (2409 Surface)		Asphalt	1991	60	35	24	\$ 144,249	\$ 60,104	\$ 84,145	\$ 197,088	6	6	6	Average	Possible	Moderate	M	2	2033		2033	2033	2093	17				0	2033	2033	2093	17
2705	2417	Roads - Road Base Valuation	St. John St. - Russel Hill Road - Peter St. (2417 Surface)		Asphalt	1994	60	38	21	\$ 108,130	\$ 39,648	\$ 68,483	\$ 143,963	6	8	8	Good	Unlikely	Moderate	M	2	2036		2036	2036	2096	20				0	2036	2036	2096	20
2704	2416	Roads - Road Base Valuation	St. John St. - Station St. - Russel Hill Road (2416 Surface)		Asphalt	1994	60	38	21	\$ 43,007	\$ 15,769	\$ 27,238	\$ 57,259	6	8	8	Good	Unlikely	Moderate	M	2	2036		2036	2036	2096	20				0	2036	2036	2096	20
3559		Roads - Road Base Valuation	Station St (86m) Paving - east of curve		Asphalt	2012	60	56	3	\$ 7,079	\$ 472	\$ 6,607	\$ 7,079	9	7	7	Good	Unlikely	Moderate	M	2	2054		2054	2054	2114	38				0	2054	2054	2114	38
3182		Roads - Road Base Valuation	Station Street (82m) base reconstruction - east of curve		Asphalt	2012	60	56	3	\$ 4,454	\$ 297	\$ 4,157	\$ 4,454	9	7	7	Good	Unlikely	Moderate	M	2	2054		2054	2054	2114	38				0	2054	2054	2114	38
2684	4119	Roads - Road Base Valuation	Station Street from .3km E of Peter St to 9th Line (4119 Surface)		Asphalt	2003	60	47	12	\$ 147,561	\$ 31,972	\$ 115,589	\$ 160,882	8	7	7	Good	Unlikely	Moderate	M	2	2045		2045	2045	2105	29				0	2045	2045	2105	29
2574		Roads - Road Base Valuation	Station Street from 10th Line/Mill St to St John St		Asphalt	1988	60	32	27	\$ 69,941	\$ 32,639	\$ 37,302	\$ 110,771	5	7	7	Good	Unlikely	Moderate	M	2	2030		2030	2030	2090	14				0	2030	2030	2090	14
2703	2415	Roads - Road Base Valuation	Station Street from Peter St to .3km E of Peter St (2415 Surface)		Asphalt	2003	60	47	12	\$ 63,691	\$ 13,800	\$ 49,891	\$ 93,839	8	7	7	Good	Unlikely	Moderate	M	2	2045		2045	2045	2105	29				0	2045	2045	2105	29
2575		Roads - Road Base Valuation	Station Street from St John St to Peter St		Asphalt	1988	60	32	27	\$ 53,225	\$ 24,839	\$ 28,387	\$ 84,297	5	7	7	Good	Unlikely	Moderate	M	2	2030		2030	2030	2090	14				0	2030	2030	2090	14
2617	2304	Roads - Road Base Valuation	Sylvanwood Rd - Highway 89 - Maplewood Drive (2304 Surface)		Asphalt	1971	60	15	44	\$ 14,007	\$ 10,505	\$ 3,502	\$ 77,861	3	8	8	Good	Unlikely	Moderate	M	2	2013		2013	2017	2077	1				20	2028	2028	2088	12
2667	2452	Roads - Road Base Valuation	Woodland Road - Maplewood Drive - end of Woodland Drive (2452 Surface)		Asphalt	1971	60	15	44	\$ 23,795	\$ 17,846	\$ 5,949	\$ 132,269	3	5	5	Average	Possible	Moderate	M	2	2013		2013	2017	2077	1				0	2016	2017	2077	1
2601	3510	Roads - Road Base Valuation	6th Line - County Rd 109 - 5th SR (3510 Surface)		Asphalt / Gravel	1854	60	0	161	\$ 14,125	\$ 24,030	\$ 89,149	\$ 888,358	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2670	3397	Roads - Road Base Valuation	10th Line - 15th SR - 20th SR (3397 Surface)		Gravel	1854	60	0	161	\$ 14,702	\$ 14,702	NULL	\$ 924,654	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2669	4198	Roads - Road Base Valuation	10th Line - 20th SR - 25th SR (4198 Surface)		Gravel	1854	60	0	161	\$ 14,701	\$ 14,701	NULL	\$ 924,600	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2668	4197	Roads - Road Base Valuation	10th Line - 25th SR - 30th SR (4197 Surface)		Gravel	1854	60	0	161	\$ 14,762	\$ 14,762	NULL	\$ 928,459	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2711	4196	Roads - Road Base Valuation	10th Line - 30th SR - Highway 89 (4196 Surface)		Gravel	1854	60	0	161	\$ 5,296	\$ 5,296	NULL	\$ 333,103	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2672	3399	Roads - Road Base Valuation	10th Line - 5th SR - County Rd 10 (3399 Surface)		Gravel	1854	60	0	161	\$ 14,640	\$ 14,640	NULL	\$ 920,779	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2671	3398	Roads - Road Base Valuation	10th Line - County Rd 10 - 15th SR (3398 Surface)		Gravel	1854	60	0	161	\$ 14,741	\$ 14,741	NULL	\$ 927,089	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2719	4176	Roads - Road Base Valuation	15th SR - 10th Line - 9th Line (4176 Surface)		Gravel	1854	60	0	161	\$ 6,545	\$ 6,545	NULL	\$ 411,642	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2596	4211	Roads - Road Base Valuation	15th SR - 2nd Line - Amaranth / Mono TL (4211 Surface)		Gravel	1854	60	0	161	\$ 6,675	NULL	NULL	\$ 419,842	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2677	4209	Roads - Road Base Valuation	15th SR - 4th Line - County Rd 11 (4209 Surface)		Gravel	1854	60	0	161	\$ 7,288	\$ 7,288	NULL	\$ 458,376	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2678	4180	Roads - Road Base Valuation	15th SR - 6th Line - County Rd 12 (4180 Surface)		Gravel	1854	60	0	161	\$ 6,419	\$ 6,419	NULL	\$ 403,696	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2715	2434	Roads - Road Base Valuation	15th SR - 7th Line - 6th Line (2434 Surface)		Gravel	1854	60	0	161	\$ 8,879	\$ 8,879	NULL	\$ 558,408	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2716	4178	Roads - Road Base Valuation	15th SR - 8th Line - 7th Line (4178 Surface)		Gravel	1854	60	0	161	\$ 6,299	\$ 6,299	NULL	\$ 396,146	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2717	4177	Roads - Road Base Valuation	15th SR - 9th Line - 8th Line (4177 Surface)		Gravel	1854	60	0	161	\$ 6,871	\$ 6,871	NULL	\$ 432,167	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2718	4175	Roads - Road Base Valuation	15th SR - Amaranth / Grand Valley TL - 10th Line (4175 Surface)		Gravel	1854	60	0	161	\$ 6,242	\$ 6,242	NULL	\$ 392,572	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2597	4210	Roads - Road Base Valuation	15th SR - County Rd 11 - 2nd Line (4210 Surface)		Gravel	1854	60	0	161	\$ 6,023	\$ 6,023	NULL	\$ 378,800	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2714	4181	Roads - Road Base Valuation	15th SR - County Rd 12 - 4th Line (4181 Surface)		Gravel	1854	60	0	161	\$ 6,307	\$ 6,307	NULL	\$ 396,670	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2636	2478	Roads - Road Base Valuation	25th SR - .1km east of County Rd 11 - 2nd Line (2478 Surface)		Gravel	1854	60	0	161	\$ 5,208	\$ 5,208	NULL	\$ 327,564	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2641	2404	Roads - Road Base Valuation	25th SR - 10th Line - 9th Line (4204 Surface)		Gravel	1854	60	0	161	\$ 6,618	\$ 6,618	NULL	\$ 416,248	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2648	2368	Roads - Road Base Valuation	25th SR - 2nd Line - Amaranth / Mono TL (2368 Surface)		Gravel	1854	60	0	161	\$ 6,693	\$ 6,693	NULL	\$ 420,970	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2647	2367	Roads - Road Base Valuation	25th SR - 4th Line - County Rd 11 (2367 Surface)		Gravel	1854	60	0	161	\$ 7,233	\$ 7,233	NULL	\$ 454,933	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2645	4208	Roads - Road Base Valuation	25th SR - 6th Line - County Rd 12 (4208 Surface)		Gravel	1854	60	0	161	\$ 6,075	\$ 6,075	NULL	\$ 382,100	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2644	4187	Roads - Road Base Valuation	25th SR - 7th Line - 6th Line (4187 Surface)		Gravel	1854	60	0	161	\$ 8,237	\$ 8,237	NULL	\$ 518,029	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2643	4206	Roads - Road Base Valuation	25th SR - 8th Line - 7th Line (4206 Surface)		Gravel	1854	60	0	161	\$ 6,307	\$ 6,307	NULL	\$ 396,681	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12

Fixed Asset #	Map Link	Subtype	Asset Name - Road Base	Classification	Surface Material	Install Year	Useful Life	Remaining Useful Life	Age	Historic Cost	2015 Accumulated Amortization System	2015 Net Book Value System	Replacement Cost/Section	Condition Based On Useful Life	Condition from Town	Condition Used for Analysis	Asset Condition (As per Priority Rating)	Probability of Failure (Based on Condition or Expected Condition)	Consequences of Failure	Risk of Failure	Numerical Value of Risk of Failure	Year Replacement due to minimal maintenance practices	Current Levels of Service % benefit	Revised Levels Service Replacement Year	Year Replacement Applying Risk Score	Subsequent Replacement Year	Revised Remaining Useful Life	Proposed Rehabilitation Cost (2016 \$)	Year for Rehabilitation	Extended Life (Years) due to Betterment	Expected Levels of Service % benefit over Current + Condition better than expected for age	Revised Levels Service Replacement Year	Year Replacement Applying Risk Score - or Staff Override	Subsequent Replacement Year	Revised Remaining Useful Life
2642	4205	Roads - Road Base Valuation	25th SR - 9th Line - 8th Line (4205 Surface)		Gravel	1854	60	0	161	\$ 6,658	\$ 6,658	NULL	\$ 418,756	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2640	4203	Roads - Road Base Valuation	25th SR - Amaranth / Grand Valley TL - 10th Line (4203 Surface)		Gravel	1854	60	0	161	\$ 6,292	\$ 6,292	NULL	\$ 395,705	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2646	2366	Roads - Road Base Valuation	25th SR - County Rd 12 - 4th Line (2366 Surface)		Gravel	1854	60	0	161	\$ 6,175	\$ 6,175	NULL	\$ 388,344	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2687	3193	Roads - Road Base Valuation	2nd line from .6km N of County rd 109 to 5th SR (3193 Surface)		Gravel	1980	60	24	35	\$ 275,937	\$ 165,562	\$ 110,375	\$ 734,265	4	5	5	Average	Possible	Moderate	M	2	2022		2022	2022	2082	6				0	2022	2022	2082	6
2682	3253	Roads - Road Base Valuation	2ND LINE from .8km N of 20th SR to 25th SR (3253 Surface)		Gravel	1971	60	15	44	\$ 119,574	\$ 89,680	\$ 29,893	\$ 664,666	3	5	5	Average	Possible	Moderate	M	2	2013		2013	2017	2077	1				0	2016	2017	2077	1
2631	3251	Roads - Road Base Valuation	2nd Line from 1.9km N of County RD 10 to 15th SR (3251 Surface)		Gravel	1854	60	0	161	\$ 5,522	\$ 5,522	NULL	\$ 347,313	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2558	4212	Roads - Road Base Valuation	2ND LINE from 15th SR to 20th SR (4212 Surface)		Gravel	1854	60	0	161	\$ 14,611	\$ 14,611	NULL	\$ 918,917	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2566	3255	Roads - Road Base Valuation	2ND LINE from 20th SR to .8km N of 20th SR (3255 Surface)		Gravel	1854	60	0	161	\$ 4,034	\$ 4,034	NULL	\$ 253,731	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2559	4214	Roads - Road Base Valuation	2nd Line from 25th SR to 30th SR (4214 Surface)		Gravel	1971	60	15	44	\$ 166,087	\$ 124,565	\$ 41,522	\$ 923,220	3	5	5	Average	Possible	Moderate	M	2	2013		2013	2017	2077	1				0	2016	2017	2077	1
2557	3249	Roads - Road Base Valuation	2ND LINE from 5th SR to County Rd 10 (3249 Surface)		Gravel	1854	60	0	161	\$ 14,555	\$ 14,555	NULL	\$ 915,382	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2632	3250	Roads - Road Base Valuation	2ND LINE from County Rd 10 to 1.9km N of County RD 10 (3250 Surface)		Gravel	1854	60	0	161	\$ 9,021	\$ 9,021	NULL	\$ 567,385	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2639	4174	Roads - Road Base Valuation	30th SR from 10th Line to 9th Line (4174 Surface)		Gravel	1854	60	0	161	\$ 6,618	\$ 6,618	NULL	\$ 416,215	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2552	4191	Roads - Road Base Valuation	30th SR from 4th Line to County Rd 11 (4191 Surface)		Gravel	1854	60	0	161	\$ 4,695	\$ 4,695	NULL	\$ 445,339	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2619	4186	Roads - Road Base Valuation	30th SR from 6th Line to County Rd 12 (5th Line) - (4186 Surface)		Gravel	1854	60	0	161	\$ 5,829	\$ 5,829	NULL	\$ 366,592	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2553	4207	Roads - Road Base Valuation	30th SR from 7th Line to 6th Line (4207 Surface)		Gravel	1854	60	0	161	\$ 6,068	\$ 6,068	NULL	\$ 381,657	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2621	4171	Roads - Road Base Valuation	30th SR from 8th Line to 7th Line (4171 Surface)		Gravel	1854	60	0	161	\$ 6,430	\$ 6,430	NULL	\$ 404,398	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2637	4172	Roads - Road Base Valuation	30th SR from 9th Line to 8th Line (4172 Surface)		Gravel	1854	60	0	161	\$ 6,695	\$ 6,695	NULL	\$ 421,078	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2638	4173	Roads - Road Base Valuation	30th SR from Amaranth / East Luther TL to 10th Line (4173 Surface)		Gravel	1854	60	0	161	\$ 6,416	\$ 6,416	NULL	\$ 403,494	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2620	4185	Roads - Road Base Valuation	30th SR from County Rd 12 (5th Line) to 4th Line (4185 Surface)		Gravel	1854	60	0	161	\$ 8,012	\$ 8,012	NULL	\$ 503,922	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2680	2386	Roads - Road Base Valuation	4th Line from 1.2km N. of 15th SR to 20thSR (2386 Surface)		Gravel	1972	60	16	43	\$ 100,060	\$ 73,378	\$ 26,683	\$ 529,700	3	5	5	Average	Possible	Moderate	M	2	2014		2014	2017	2077	1				0	2016	2017	2077	1
2681	2387	Roads - Road Base Valuation	4th Line from 15th SR to 1.2km N. of 15th SR (2387 Surface)		Gravel	1972	60	16	43	\$ 73,119	\$ 53,621	\$ 19,499	\$ 387,080	3	5	5	Average	Possible	Moderate	M	2	2014		2014	2017	2077	1				0	2016	2017	2077	1
2554	3418	Roads - Road Base Valuation	4th Line from 20th SR to 25th SR (3418 Surface)		Gravel	1978	60	22	37	\$ 284,847	\$ 180,403	\$ 104,444	\$ 912,093	4	5	5	Average	Possible	Moderate	M	2	2020		2020	2020	2080	4				0	2020	2020	2080	4
2556	3417	Roads - Road Base Valuation	4th Line from 25th SR to 30th SR (3417 Surface)		Gravel	1978	60	22	37	\$ 291,337	\$ 184,513	\$ 106,824	\$ 932,876	37	5	5	Average	Possible	Moderate	M	2	2020		2020	2020	2080	4				0	2020	2020	2080	4
2555	3245	Roads - Road Base Valuation	4th Line from 30th SR to Highway 89 (3245 Surface)		Gravel	1978	60	22	37	\$ 107,254	\$ 67,928	\$ 39,327	\$ 343,434	4	5	5	Average	Possible	Moderate	M	2	2020		2020	2020	2080	4				0	2020	2020	2080	4
2614	4216	Roads - Road Base Valuation	4TH LINE from 5th SR to County Rd 10 (4216 Surface)		Gravel	1972	60	16	43	\$ 173,144	\$ 126,973	\$ 46,172	\$ 916,593	3	5	5	Average	Possible	Moderate	M	2	2014		2014	2017	2077	1				0	2016	2017	2077	1
2615	4217	Roads - Road Base Valuation	4th Line from County Rd 10 to 15th SR (4217 Surface)		Gravel	1972	60	16	43	\$ 173,229	\$ 127,034	\$ 46,194	\$ 917,038	3	5	5	Average	Possible	Moderate	M	2	2014		2014	2017	2077	1				0	2016	2017	2077	1
2613	4215	Roads - Road Base Valuation	4TH LINE from County Rd 109 to 5th SR (4215 Surface)		Gravel	1972	60	16	43	\$ 174,893	\$ 128,255	\$ 46,638	\$ 925,851	3	5	5	Average	Possible	Moderate	M	2	2014		2014	2017	2077	1				0	2016	2017	2077	1
2652	4199	Roads - Road Base Valuation	5th SR - 10th Line - 9th Line (4199 Surface)		Gravel	1854	60	0	161	\$ 6,487	\$ 6,487	NULL	\$ 407,973	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2721	4190	Roads - Road Base Valuation	5th SR - 4th Line - County Rd 11 (4190 Surface)		Gravel	1854	60	0	161	\$ 7,314	\$ 7,314	NULL	\$ 460,007	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2723	4189	Roads - Road Base Valuation	5th SR - 6th Line - County Rd 12 (4189 Surface)		Gravel	1854	60	0	161	\$ 6,102	\$ 6,102	NULL	\$ 383,772	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2689	4202	Roads - Road Base Valuation	5th SR - 7th Line - 6th Line (4202 Surface)		Gravel	1854	60	0	161	\$ 8,321	\$ 8,321	NULL	\$ 523,359	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2690	4201	Roads - Road Base Valuation	5th SR - 8th Line - 7th Line (4201 Surface)		Gravel	1854	60	0	161	\$ 6,064	\$ 6,064	NULL	\$ 381,368	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2691	4200	Roads - Road Base Valuation	5th SR - 9th Line - 8th Line (4200 Surface)		Gravel	1854	60	0	161	\$ 6,674	\$ 6,674	NULL	\$ 419,745	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2722	4188	Roads - Road Base Valuation	5th SR - County 12 - 4th Line (4188 Surface)		Gravel	1854	60	0	161	\$ 6,464	\$ 6,464	NULL	\$ 406,541	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2686		Roads - Road Base Valuation	6th Line - .4km North of County Rd 10 - 15th SR		Gravel	1854	60	0	161	\$ 12,442	\$ 12,442	NULL	\$ 782,506	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12

Fixed Asset #	Map Link	Subtype	Asset Name - Road Base	Classification	Surface Material	Install Year	Useful Life	Remaining Useful Life	Age	Historic Cost	2015 Accumulated Amortization System	2015 Net Book Value System	Replacement Cost/Section	Condition Based On Useful Life	Condition from Town	Condition Used for Analysis	Asset Condition (As per Priority Rating)	Probability of Failure (Based on Condition or Expected Condition)	Consequences of Failure	Risk of Failure	Numerical Value of Risk of Failure	Year Replacement due to minimal maintenance practices	Current Levels of Service % benefit	Revised Levels Service Replacement Year	Year Replacement Applying Risk Score	Subsequent Replacement Year	Revised Remaining Useful Life	Proposed Rehabilitation Cost (2016 \$)	Year for Rehabilitation	Extended Life (Years) due to Betterment	Expected Levels of Service % benefit over Current + Condition better than expected for age	Revised Levels Service Replacement Year	Year Replacement Applying Risk Score - or Staff Override	Subsequent Replacement Year	Revised Remaining Useful Life
2603	4220	Roads - Road Base Valuation	6th Line - 15th SR - 20th SR (4220 Surface)		Gravel	1854	60	0	161	\$ 14,736	\$ 14,736	NULL	\$ 926,765	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2604	3235	Roads - Road Base Valuation	6th Line - 20th SR - 25th SR (3235 Surface)		Gravel	1854	60	0	161	\$ 14,638	\$ 14,638	NULL	\$ 920,606	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2606	3236	Roads - Road Base Valuation	6th Line - 25th SR - 30th SR (3236 Surface)		Gravel	1854	60	0	161	\$ 15,115	\$ 15,115	NULL	\$ 950,643	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2605	3237	Roads - Road Base Valuation	6th Line - 30th SR - Highway 89 (3237 Surface)		Gravel	1854	60	0	161	\$ 5,692	\$ 5,692	NULL	\$ 358,002	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2602	4218	Roads - Road Base Valuation	6th Line - 5th SR - County Rd 10 (4218 Surface)		Gravel	1854	60	0	161	\$ 14,551	\$ 14,551	NULL	\$ 915,131	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2589	4224	Roads - Road Base Valuation	7th Line - 15th SR - 20th SR (4224 Surface)		Gravel	1854	60	0	161	\$ 14,844	\$ 14,844	NULL	\$ 933,612	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2588	4225	Roads - Road Base Valuation	7th Line - 20th SR - 25th SR (4225 Surface)		Gravel	1854	60	0	161	\$ 14,715	\$ 14,715	NULL	\$ 925,469	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2587	4226	Roads - Road Base Valuation	7th Line - 25th SR - 30th SR (4226 Surface)		Gravel	1854	60	0	161	\$ 14,737	\$ 14,737	NULL	\$ 926,855	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2586	4227	Roads - Road Base Valuation	7th Line - 30th SR - Highway 89 (4227 Surface)		Gravel	1854	60	0	161	\$ 5,331	\$ 5,331	NULL	\$ 335,264	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2592	4222	Roads - Road Base Valuation	7th Line - 5th SR - County Rd 10 (4222 Surface)		Gravel	1854	60	0	161	\$ 15,105	\$ 15,105	NULL	\$ 950,026	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2590	4223	Roads - Road Base Valuation	7th Line - County Rd 10 - 15th SR (4223 Surface)		Gravel	1854	60	0	161	\$ 14,597	\$ 14,597	NULL	\$ 918,046	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2591	4221	Roads - Road Base Valuation	7th Line - County Rd 109 - 5th SR (4221 Surface)		Gravel	1854	60	0	161	\$ 14,670	\$ 14,670	NULL	\$ 922,634	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2582	4231	Roads - Road Base Valuation	8TH LINE from 15th SR to 20SR (4231 Surface)		Gravel	1854	60	0	161	\$ 14,568	\$ 14,568	NULL	\$ 916,212	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2583	4184	Roads - Road Base Valuation	8TH LINE from 20th SR to 25th SR (4184 Surface)		Gravel	1854	60	0	161	\$ 14,671	\$ 14,671	NULL	\$ 922,728	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2585	4183	Roads - Road Base Valuation	8th Line from 25th SR to 30 SR (4183 Surface)		Gravel	1854	60	0	161	\$ 14,613	\$ 14,613	NULL	\$ 919,036	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2584	4182	Roads - Road Base Valuation	8TH LINE from 30th SR to Highway 89 (4182 Surface)		Gravel	1854	60	0	161	\$ 5,288	\$ 5,288	NULL	\$ 332,585	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2565	4229	Roads - Road Base Valuation	8th Line from 5SR to County Rd 10 (4229 Surface)		Gravel	1854	60	0	161	\$ 14,732	\$ 14,732	NULL	\$ 926,519	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2581	4230	Roads - Road Base Valuation	8TH LINE from County Rd 10 to 15th SR (4230 Surface)		Gravel	1854	60	0	161	\$ 14,720	\$ 14,720	NULL	\$ 925,757	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2564	4228	Roads - Road Base Valuation	8TH LINE from County Rd 109 to 5th SR (4228 Surface)		Gravel	1854	60	0	161	\$ 14,968	\$ 14,968	NULL	\$ 941,356	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2560	2318	Roads - Road Base Valuation	9th Line from .3km S of 20th SR to 20th SR (2318 Surface)		Gravel	1854	60	0	161	\$ 1,421	\$ 1,421	NULL	\$ 89,364	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2561	3179	Roads - Road Base Valuation	9TH LINE from 20SR to 25th SR (3179 Surface)		Gravel	1854	60	0	161	\$ 14,739	\$ 14,739	NULL	\$ 926,986	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2563	3177	Roads - Road Base Valuation	9TH LINE from 25th SR to 30SR (3177 Surface)		Gravel	1976	60	20	39	\$ 247,558	\$ 165,039	\$ 82,519	\$ 925,798	3	5	5	Average	Possible	Moderate	M	2	2018		2018	2018	2078	2				0	2018	2018	2078	2
2562	3175	Roads - Road Base Valuation	9TH LINE from 30th SR to Highway 89 (3175 Surface)		Gravel	1854	60	0	161	\$ 5,326	\$ 5,326	NULL	\$ 334,946	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2600	3402	Roads - Road Base Valuation	9TH LINE from 5th SR to County Rd 10 (3402 Surface)		Gravel	1854	60	0	161	\$ 14,590	\$ 14,590	NULL	\$ 917,611	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2599	3408	Roads - Road Base Valuation	9TH LINE from County Rd 10 to 15th SR (3408 Surface)		Gravel	1854	60	0	161	\$ 14,760	\$ 14,760	NULL	\$ 928,319	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2598	3401	Roads - Road Base Valuation	9TH LINE from Station ST to 5th SR (3401 Surface)		Gravel	1854	60	0	161	\$ 8,884	\$ 8,884	NULL	\$ 558,742	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2665	4193	Roads - Road Base Valuation	Amaranth / Grand Valley TL - 1.4km north of 20th SR - 25th SR (4193 Surface)		Gravel	1854	60	0	161	\$ 8,127	\$ 8,127	NULL	\$ 511,145	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2630	4192	Roads - Road Base Valuation	Amaranth / Grand Valley TL - 15th SR - 1.6 km north of 15th SR (4192 Surface)		Gravel	1854	60	0	161	\$ 8,386	\$ 8,386	NULL	\$ 527,411	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2710	4194	Roads - Road Base Valuation	Amaranth / Grand Valley TL - 25th SR - 30th SR (4194 Surface)		Gravel	1854	60	0	161	\$ 14,691	\$ 14,691	NULL	\$ 923,982	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2709	4195	Roads - Road Base Valuation	Amaranth / Grand Valley TL - 30th SR - Highway 89 (4195 Surface)		Gravel	1854	60	0	161	\$ 4,369	\$ 4,369	NULL	\$ 274,794	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12
2618	2305	Roads - Road Base Valuation	Grand View Rd - County Rd 109 - end of Grand View Rd (2305 Surface)		Gravel	1854	60	0	161	\$ 3,588	\$ 3,588	NULL	\$ 225,680	0	5	5	Average	Possible	Moderate	M	2	1896		1896	2017	2180	1				20	2028	2028	2088	12

FIXED ASSET ID	Subtype	Asset Name	Asset Type	Install Year	Useful Life	Remaining Useful Life	Age	Historic Cost	2015 Accumulated Amortization	2015 Net Book Value	Replacement Cost	Condition Based On Useful Life	Inspection Assessed Condition	Condition Used for Analysis	Asset Condition (As per Priority Rating)	Probability of Failure (Based on Condition or Expected Condition)	Consequence of Failure	Risk of Failure	Numerical Value of Risk of Failure	Year Replacement due to minimal maintenance practices	Current Levels of Service % benefit	Current Levels of Service Replacement/Improvement Year Based on Current Levels Service					Proposed Rehabilitation Cost (2016 \$)	Year for Rehabilitation	Extended Life (Years) due to Betterment	Expected Levels of Service % benefit over Current + Condition better then expected for age	Expected Levels of Service Replacement/Improvement Year Based on Expected Levels			
																						Revised Service Replacement Year	Year Replacement Applying Risk Score	Subsequent Replacement Year	Revised Remaining Useful Life	Revised Levels Service Replacement Year					Year Applying Risk Score - or Staff Override	Subsequent Replacement Year	Revised Remaining Useful Life	
4260	Roads - Bridge	Arch Culvert - 15th Sideroad for Drain #20	Arch Culvert	2015	30	29	1	\$ 4,654,146	\$ 1,092	\$ 3,262,933	\$ 13,181,022	10		5.5	Very Good	Rare	Major	M	3	2042	10	2045	2045	2075	29	\$ 902,800			0	2045	2045	2075	29	
2300	Roads - Bridge	Bridge 1 MTO(4-106) - 6th Line	I-beam or Girders	2007	75	66	9	\$345,958	\$41,515	\$304,443	\$41,500	9	9	9	Very Good	Rare	Major	M	2	2075	10	2083	2083	2159	67				0	2083	2083	2158	67	
2296	Roads - Bridge	Bridge 10 MTO(4-72) - 7th Line	Solid Slab	1900	75	0	116	\$16,233	\$16,233	\$0	\$700,000	0	4	4	Poor	Likely	Major	H	3	1968	10	1976	2017	2134	1				30	1999	2025	2100	9	
2289	Roads - Bridge	Bridge 11 MTO(4-73) - 15th SR	Solid Slab	1900	75	0	116	\$16,115	\$16,115	\$0	\$700,000	0	5	5	Average	Possible	Major	H	3	1968	10	1976	2017	2134	1				40	2006	2031	2106	15	
2479	Roads - Bridge	Bridge 12 MTO(4-76) - 6th Line	Bowstring Arch	1910	75	0	106	\$20,256	\$20,256	\$0	\$800,000	0	4	4	Poor	Likely	Major	H	3	1978	10	1986	2017	2124	1				30	2009	2021	2096	5	
2480	Roads - Bridge	Bridge 13 MTO(4-75) - 6th Line	Bowstring Arch	1910	75	0	106	\$15,360	\$15,360	\$0	\$800,000	0	4	4	Poor	Likely	Major	H	3	1978	10	1986	2017	2124	1				30	2009	2021	2096	5	
2481	Roads - Bridge	Bridge 14 MTO(4-74) - 6th Line	Rigid Frame, Vertical Legs	2000	75	59	16	\$431,256	\$92,001	\$339,255	\$510,000	8		8	Good	Unlikely	Major	M	2	2068	10	2076	2076	2152	60				0	2076	2076	2151	60	
2297	Roads - Bridge	Bridge 15 MTO(4-71) - 7th Line	Solid Slab	1900	75	0	116	\$16,548	\$16,548	\$0	\$800,000	0	2	2	Very Poor	Almost Certain	Major	E	4	1968	10	1976	2017	2134	1	\$300,000	2018	40	10	2058	2058	2133	42	
2482	Roads - Bridge	Bridge 16 MTO(4-69) - 7th Line	Rigid Frame, Vertical Legs	1988	75	47	28	\$303,072	\$113,147	\$189,925	\$480,000	6	7	7	Good	Unlikely	Major	M	2	2056	10	2064	2064	2140	48				5	2068	2068	2143	52	
2483	Roads - Bridge	Bridge 17 MTO(4-70) - 20th SR	Solid Slab	1900	75	0	116	\$15,169	\$15,169	\$0	\$1,000,000	0	4	4	Poor	Likely	Major	H	3	1968	10	1976	2017	2134	1	\$100,000	2018	40	30	2058	2060	2135	44	
2290	Roads - Bridge	Bridge 18 MTO(4-50) - 25th SR	Rigid Frame, Vertical Legs	2007	75	66	9	\$340,527	\$40,863	\$299,664	\$340,527	9		9	Very Good	Rare	Major	M	2	2075	10	2083	2083	2159	67				0	2083	2083	2158	67	
2301	Roads - Bridge	Bridge 19 MTO(4-49) - 6th Line	Rigid Frame, Vertical Legs	2002	75	61	14	\$145,291	\$27,121	\$118,170	\$163,230	8		8	Good	Unlikely	Major	M	2	2070	10	2078	2078	2154	62				0	2078	2078	2153	62	
2299	Roads - Bridge	Bridge 2 MTO(4-105) - 7th Line	Solid Slab	1900	75	0	116	\$7,762	\$7,762	\$0	\$450,000	0	5	5	Average	Possible	Major	H	3	1968	10	1976	2017	2134	1				40	2006	2023	2098	7	
2484	Roads - Bridge	Bridge 20 MTO(4-78) - 4th Line	Multi-Plate Culverts	1980	75	39	36	\$56,370	\$27,058	\$29,312	\$150,000	5	7	7	Good	Unlikely	Major	M	2	2048	10	2056	2056	2132	40				10	2064	2026	2101	10	
2293	Roads - Bridge	Bridge 3 MTO(4-104) - 8th Line	T-Beam	1020	75	0	96	\$25,058	\$25,058	\$0	\$257,000	0	6	6	Average	Possible	Major	H	3	1988	10	1996	2017	2114	1	\$105,000	2023	40	50	2063	2063	2138	47	
2294	Roads - Bridge	Bridge 4 MTO(4-103) - 9th Line	Arch Culvert	1995	75	54	21	\$161,595	\$45,247	\$116,348	\$210,000	7		7	Good	Unlikely	Major	M	2	2063	10	2071	2071	2147	55				0	2071	2071	2146	55	
2302	Roads - Bridge	Bridge 5 MTO(4-155) - Station St / Mill St	Box Beams of Girders	1980	75	39	36	\$526,120	\$252,538	\$273,582	\$1,400,000	5	7	7	Good	Unlikely	Major	M	2	2048	10	2056	2056	2132	40	\$137,800	2021	40	10	2061	2061	2136	45	
2292	Roads - Bridge	Bridge 6 MTO(4-101) - 10th Line	I-beam or Girders	1968	75	27	48	\$355,960	\$227,814	\$128,146	\$2,200,000	4		4	Poor	Likely	Major	H	3	2036	10	2044	2036	2111	20	\$260,000	2019	40	0	2059	2059	2134	43	
2291	Roads - Bridge	Bridge 7 MTO(4-102) - 5th SR	Rigid Frame, Vertical Legs	1991	75	50	25	\$453,778	\$151,259	\$302,519	\$620,000	7		7	Good	Unlikely	Major	M	2	2059	10	2067	2067	2143	51				0	2067	2067	2142	51	
2295	Roads - Bridge	Bridge 8 MTO(4-66) - 9th Line	Rigid Frame, Vertical Legs	1993	75	52	23	\$465,186	\$142,657	\$322,529	\$620,000	7		7	Good	Unlikely	Major	M	2	2061	10	2069	2069	2145	53				0	2069	2069	2144	53	
2298	Roads - Bridge	Bridge 9 MTO(4-65) ** - 8th Line	I-beam or Girders	2008	75	67	8	\$903,765	\$96,402	\$807,363	\$903,765	9		9	Very Good	Rare	Major	M	2	2076	10	2084	2084	2160	68				0	2084	2084	2159	68	
4290	Roads - Bridge	Grand Valley Owned Bridge - AMARANTH - EAST LUTHER TOWNLINE South of		2016	75	75	0							0	NVALID CONDITIO	#N/A	Major	#N/A		2084	10	2092	2092	2168	76				0	2092	2092	2167	76	

APPENDIX A: AMENDMENT ASSET MANAGEMENT PLAN ASSUMPTIONS

The following assumptions were made and applied during the creation of the Township of Amaranth's asset management plan.

1. AMENDED STATE OF LOCAL INFRASTRUCTURE

- a) All replacement costs for Roads and Bridges were estimates based on current 2018 pricing.
- b) Useful life of an asset were provided by the Township, discussed with Township Staff and/or obtained from similar assets in other communities/municipalities.
- c) Condition was from staff's understanding of the asset's relative condition, and finally via estimation from the asset's age were used to provide estimated remaining life to the assets.

2. AMENDED ASSET MANAGEMENT STRATEGY

- a) Capital inflation rate was assumed to be 2.0% annually.
- b) Operating budget inflation rate was assumed to be 2.0% annually.
- c) Regarding operating expenses included in the Township's current budget, it is assumed that they will increase at an operating inflation rate annually.

3. AMENDED FINANCING STRATEGY

- a) OCIF application for 2018 is expected to be received to assist in closing the Township infrastructure gap.
- b) Gas Tax and OCIF Formula Based Funding revenue have been identified as a funding source for the purposes of this analysis (i.e. for asset replacement purposes), and has been assumed to continue throughout the forecast period.
- c) Interest rate earned on a Capital Replacement Reserve Funds will be 1.0% annually.
- d) Township of Amaranth past Annual Capital Investment was identified as \$1,000,000.



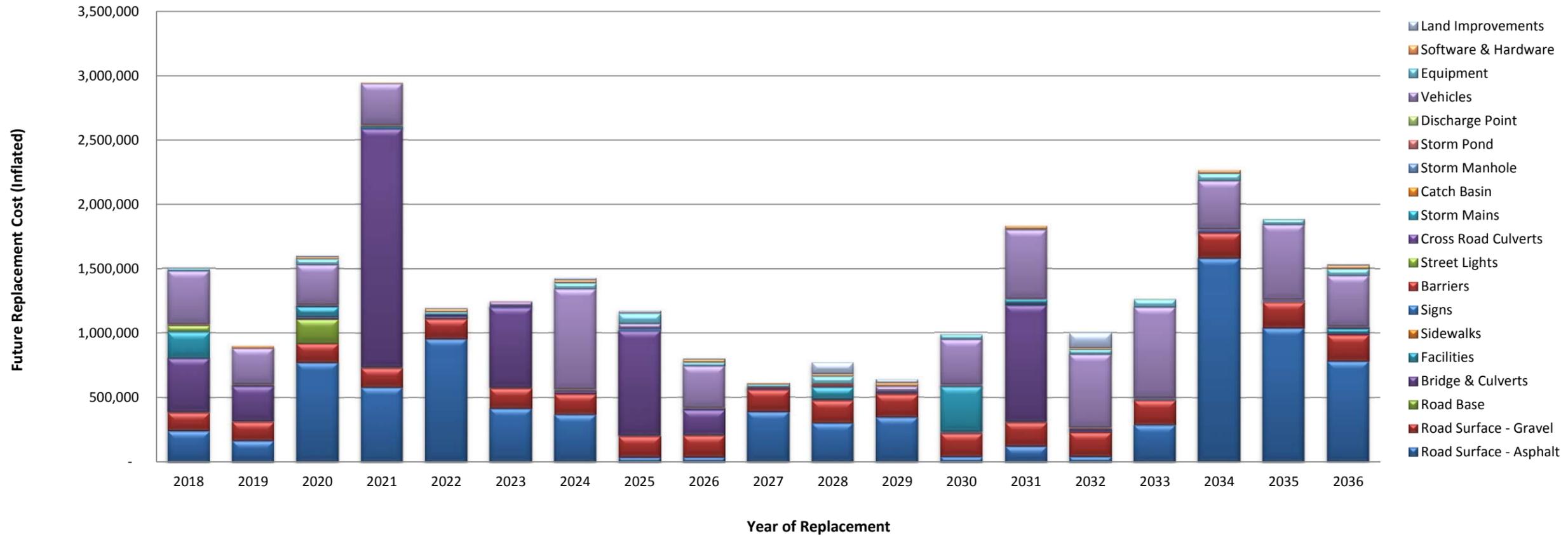
BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix B

19 Year Detailed Asset Management Strategy & Financing Strategy

Tax Supported Assets Inflated Amended Scenario 1 - Based on Expected Levels of Service and OCIF Funding



Asset Type	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	TOTAL
Total Scheduled Capital - Inflated	1,502,010	898,025	1,601,589	2,945,053	1,195,699	1,244,722	1,425,623	1,172,353	799,845	607,938	768,476	638,327	988,087	1,829,812	1,001,959	1,262,425	2,266,198	1,881,154	1,530,979	25,560,272
Road Surface - Asphalt	242,800	167,013	772,431	580,512	954,997	415,691	368,113	38,826	39,602	386,872	301,888	344,998	42,867	124,749	44,598	287,747	1,581,207	1,039,591	781,292	8,515,793
Road Surface - Gravel	142,000	144,840	147,737	150,692	153,705	156,779	159,915	163,113	166,376	169,703	173,097	176,559	180,090	183,692	187,366	191,113	194,936	198,834	202,811	3,243,359
Road Base	1,000	1,019	188,312	1,061	1,082	1,104	1,126	1,149	1,172	1,195	1,219	1,243	1,268	1,294	1,319	1,346	1,373	1,400	1,428	210,112
Bridge & Culverts	417,860	275,461	18,582	1,854,843	19,332	623,872	20,113	815,636	196,675	-	9,508	-	9,892	905,525	10,292	-	10,708	-	11,140	5,199,439
Facilities	204,500	-	78,030	12,734	-	-	-	5,743	-	-	91,425	-	348,766	6,468	-	-	-	-	35,706	783,373
Sidewalks	-	-	-	-	-	-	-	-	586	-	609	-	634	-	990	-	-	1,050	-	3,869
Signs	4,500	4,590	4,682	4,775	4,871	4,968	5,068	5,169	5,272	5,378	5,485	5,595	5,707	5,821	5,938	6,056	6,178	6,301	6,427	102,783
Barriers	-	-	-	-	878	-	-	-	-	-	5,688	9,770	6,048	-	6,214	-	-	-	-	28,598
Street Lights	45,000	510	520	531	541	552	563	574	586	598	609	622	634	647	660	673	686	700	714	55,920
Cross Road Culverts	4,500	4,590	4,682	4,775	4,871	4,968	5,068	5,169	5,272	5,378	5,485	5,595	5,707	5,821	5,938	6,056	6,178	6,301	6,427	102,783
Storm Mains	-	-	-	-	-	-	-	-	-	-	-	-	-	25,872	-	-	-	-	-	25,872
Catch Basin	2,000	2,040	2,081	2,122	2,165	2,208	2,252	2,297	2,343	2,390	2,438	2,487	2,536	2,587	2,639	2,692	2,746	2,800	2,856	45,681
Storm Manhole	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Storm Pond	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Discharge Point	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vehicles	415,000	280,500	312,120	325,791	-	33,122	777,052	36,758	322,206	-	-	39,788	348,766	536,847	567,376	702,543	377,516	581,100	392,768	6,049,254
Equipment	20,350	408	44,217	1,167	19,700	662	46,004	77,587	29,291	20,914	57,110	1,057	38,047	6,274	37,209	60,564	55,529	42,069	52,845	611,006
Software & Hardware	2,500	17,053	17,791	6,049	27,061	794	23,456	3,101	24,019	9,823	20,845	23,251	3,171	24,215	12,667	3,634	29,142	1,007	28,708	278,286
Land Improvements	-	-	10,404	-	6,495	-	16,892	17,230	6,444	-	88,987	31,084	-	-	118,753	-	-	-	7,855	304,145

Levels of Service Costs - Inflated

Asset Type	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	TOTAL
Total Scheduled Capital - Inflated	234,660	160,507	171,832	166,992	178,774	173,738	185,997	180,757	194,097	176,037	220,150	183,149	197,338	216,420	205,641	198,246	212,919	207,306	221,521	3,686,084
Road Surface - Asphalt	58,800	34,476	35,166	35,869	36,586	37,318	38,064	38,826	39,602	40,394	71,677	42,026	42,867	43,724	44,598	45,490	46,400	47,328	48,275	827,486
Road Surface - Gravel	110,000	112,200	114,444	116,733	119,068	121,449	123,878	126,355	128,883	131,460	134,089	136,771	139,507	142,297	145,143	148,046	151,006	154,027	157,107	2,512,461
Road Base	1,000	1,020	1,040	1,061	1,082	1,104	1,126	1,149	1,172	1,195	1,219	1,243	1,268	1,294	1,319	1,346	1,373	1,400	1,428	22,841
Bridge & Culverts	17,860	10,261	18,582	10,676	19,332	11,107	20,113	11,556	20,926	-	9,508	-	9,892	-	10,292	-	10,708	-	11,140	191,953
Facilities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sidewalks	-	-	-	-	-	-	-	-	586	-	609	-	634	-	990	-	-	1,050	-	3,869
Signs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barriers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Street Lights	45,000	510	520	531	541	552	563	574	586	598	609	622	634	647	660	673	686	700	714	55,920
Cross Road Culverts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Storm Mains	-	-	-	-	-	-	-	-	-	-	-	-	-	25,872	-	-	-	-	-	25,872
Catch Basin	2,000	2,040	2,081	2,122	2,165	2,208	2,252	2,297	2,343	2,390	2,438	2,487	2,536	2,587	2,639	2,692	2,746	2,800	2,856	45,681
Storm Manhole	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Storm Pond	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Discharge Point	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vehicles	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Equipment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Software & Hardware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Land Improvements	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

2016 Asset Management Plan Amendment
 Scheduled Capital Replacement - Inflated
 Scenario 2: Capital Phased-In Approach - Medium Deferral (Recommended)

Tax Supported Assets

Inflation Factor 102.0% 104.0% 106.1% 108.2% 110.4% 112.6% 114.9% 117.2% 119.5% 121.9% 124.3% 126.8% 129.4% 131.9% 134.6% 137.3% 140.0% 142.8% 145.7%

Asset Type	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	TOTAL
Scenario 2a	1,032,750	1,066,410	1,101,003	1,136,554	1,173,086	1,210,625	1,249,196	1,288,825	1,329,540	1,371,369	1,414,338	1,458,478	1,503,818	1,550,388	1,598,219	1,647,343	1,697,793	1,749,602	1,802,804	27,382,139
Scenario 2b	1,045,500	1,092,420	1,140,799	1,190,675	1,242,091	1,295,087	1,349,706	1,405,991	1,463,988	1,523,743	1,585,302	1,648,714	1,714,029	1,781,296	1,850,569	1,921,900	1,995,344	2,070,957	2,148,796	30,466,908

