



Asset Management Plan

Prepared for: Tay Valley Township 217 Harper Road Perth, Ontario K7C 3C6

Prepared by: McIntosh Perry Consulting Engineers Ltd. 3240 Concession 5A Perth, Ontario K7H 3C9

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www.mcintoshperry.com

Executive Summary

Tay Valley Township's existing infrastructure is ageing while the demand continues to grow for better roads, bridges, and equipment. This demand is a reaction to the higher standards Municipalities are being held to, whether it is health and safety, bylaws and regulations, or community growth and increased expectations. As small Townships such as Tay Valley continue to grow, they are forced to adapt to these changes. In order to meet these standards we must improve the way we plan, design and manage infrastructure.

Long term planning with regard to infrastructure is not a new concept. It has more recently become known as "Asset Management", and has come to be a process of reviewing strategies, current practices, and financial budgeting to create and consolidate existing infrastructure situations into a more formal Asset Management Plan.

The Asset Management Plan presented in the following report is comprised of the following components:

- State of Existing Local Infrastructure
- Desired Levels of Service
- Asset Management Strategy
- Financial Strategy

This Asset Management Plan has been created in conjunction with the Roads Needs and Bridge Studies also prepared by McIntosh Perry, and submitted under separate cover. The plan in this report is a process that allows for maintenance, upgrading, and operations of physical assets owned by the Township.

The intent is that by implementing an Asset Management Plan, the Township of Tay Valley can meet new demands in a financially accountable framework while preserving the Township's quality of life.



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1.0 INTRODUCTION

Set in the southwest corner of Lanark County due west of Perth, Tay Valley Township comprises a Municipality of small communities joined by a shared heritage and a love for the rural lifestyle.

Endowed with an abundance of clean lakes and rivers, Tay Valley is a township of geographic beauty and human resourcefulness. Whether you're a visitor or resident of the area, you'll find it's a Welcome Change of Pace.

Tay Valley Township recognizes that in order to sustain services and maintain the quality of life as desired for its residents and for the competitiveness of its businesses, agriculture and industry, it must manage the Municipality's assets cost effectively. For this reason, the Municipality is developing an Asset Management Plan for its road network, equipment and buildings, in which the focus of this plan is on the Road Network. Once the plan is developed for the various components of the infrastructure the municipality will assimilate and synthesize the information into a comprehensive plan.

The Asset Management Plan is a comprehensive plan that inventories and assesses the infrastructure and develops a plan to best maintain the infrastructure. The plan must take into account timely maintenance and capital repairs in order to best preserve the asset, while maintaining the desired levels of service to the public. The plan takes a long view perspective on managing the asset through life cycle cost analysis in which timely maintenance and rehabilitation can save money in the long term. The plan outlines how to sustain the infrastructure and provides strategies on how to finance the operation, maintenance, renewal and expansion of the system.

The Asset Management Plan covers a period of ten (10) years in which the plan should be fully updated every five (5) years. The Asset Management Plan is intended to be a living document that should be updated throughout the 5-year periods as warranted with respect to new technologies, changes in level of service, etc.

This Asset Management Plan was developed by McIntosh Perry in reference to the Road Needs Study (December 2013, available under a separate cover), in conjunction with municipal Public Works and Treasury Staff.

2.0 STATE OF EXISTING LOCAL INFRASTRUCTURE

The following summarizes the inventory of the municipality's infrastructure as well as their condition.

2.1 Roads

The condition rating procedure is based on a visual assessment of the structural integrity of each road section. The condition rating numbers are assigned on a scale of 1 to 10, with the lower numbers assigned to those roads showing the most distress, and the higher numbers to those roads with little or no distress. The actual point rating may vary from those numbers described in the rating procedure to more accurately



represent the condition of the road section. The condition rating numbers provide a relative measure of the condition of all road sections, and of an appropriate treatment needed to either maintain or improve the level of service.

The condition ratings are described in detail in the following table. To obtain the most accurate measures of distress, the condition rating survey should be carried out during the "spring break-up period". It is important that the Public Works Manager be involved in this part of the road inventory.

| Condition Rating | Gravel – Surface Condition | Hard Surface (LCB/HCB) – Surface Condition | Ride Condition Quality |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| 10 | Gravel surface well shaped and maintained from shoulder rounding to shoulder rounding for entire length of section No evidence of soft spots or heaving in the spring | Pavement structural condition is excellent No evidence of cracking or distortion | Excellent |
| 7 | Gravel surface well shaped and maintained from shoulder rounding to shoulder rounding for most of the length of section Some evidence of localized soft spots and heaving during the spring Some loss of fines | Pavement structure condition is good Some evidence of minor cracking and distortion | Good |
| 5 | Gravel surface poorly shaped for half the section length Numerous spots and areas of heaving in the spring Barely sufficient gravel for grading | Excessive cracking at various locations (traverse, longitudinal, alligatoring etc.) Surface distortion evident – some sever Surface may have been patched (hot or cold mix) | Fair to Poor |
| 3 | Road base poor over most or entire length of road section Very little or no crushed gravel Numerous soft spots or frost boils | Extensive cracking and distortion over most or entire length of the road section Surface patching (hot or cold mix) is required on a regular basis | Poor |

TABLE 1 – CONDITION RATING TEMPLATE

The following table details inventory and road conditions for all road sections in Tay Valley Township:



TABLE 2 - ROAD INVENTORY (2013)

| | Gravel | LCB | НСВ |
|-------------------------------------------|--------|-------|-------|
| Inventory (km) | 212.89 | 47.72 | 28.59 |
| Surface Condition Rating Range | 3-10 | 3-10 | 3-10 |
| Weighted Average Surface Condition Rating | 6.5 | 5.82 | 5.35 |





A detailed review of the Municipal road network should be completed every five years as part of the efforts to update the Roads Needs Study.



2.2 Bridges

Please refer to "OSIM Bridge Inspection Report – 2013 Structure Inspections", submitted by McIntosh Perry under separate cover May 13th, 2013. The following summarizes the twenty-three structure assets possessed by Tay Valley Township.

| No. | Bridge | Year Built | General Condition | Span | Asphalt Riding Surface (above concrete riding slab) |
|---------|--------------------------------------------|---------------|----------------------|--------|-----------------------------------------------------------|
| C15-048 | Hunter Side Road Culvert (Colton Creek) | - | Good | 6.05 m | 4.6 m |
| 15-050 | Ennis Road | 2010 | Excellent | 13.0 m | 8.0 m |
| 15-051 | Anderson Road | 1956 | Good | 11.6 m | 4.6 m |
| 15-070 | Munro Road (Fall River Bridge) | 1979 | Good | 8.6 m | 4.7 m |
| 15-072 | Crow Lake (Bollingbrook Birdge) | - | Good | 12.3 m | 5.0 m |
| 15-075 | Doran Road (Fall River Bridge) | 1970 | Good | 13.7 m | 5.0 m |
| 15-076 | Gambles Side Road | 1950 | Fair | 7.7 m | 6.1 m |
| 15-087 | Second Line Road | 1965 | Good | 12.6 m | 7.3 m |
| 15-088 | Menzies Munro Side Road | 2002 | Good | 9.7 m | 7.9 m |
| 15-089 | Upper Scotch Line | - | Good | 3.7 m | 5.5 m |
| 15-090 | Upper Scotch Line | 1974 | Good | 3.6 m | 7.4 m |
| 15-091 | Noonan's Side Road | 1967 | Good | 8.8 m | 7.3 m |
| 15-092 | Adam's Mill Road | 1985 | Good | 12.8 m | 8.5 m |
| 15-093 | Bowes Side Road | - | Good - Fair | 12.0 m | 6.4 m |
| 15-094 | Glen Tay Road | 1979 | Good | 18.8 m | 8.1 m |
| 15-095 | Upper Scotch Line | - | Good | 6.8 m | 6.7 m |
| C15-096 | Glen Tay Road Open Footing Culvert | 1956 | Good | 7.3 m | 7.2 m |
| 15-139 | Haughians Road | - | Excellent | 7.0 m | 5.7 m |
| 15-159 | Black Lake Road | 1985 | Good | 7.5 m | 8.5 m |
| 15-A01 | Allan's Mill Road | - | Good | 4.0 m | 4.6 m |
| C15-A02 | Anglican Church Road Culvert | 1932 | Good | 4.9 m | 6.8 m |
| C15-A03 | Doran Road Culvert | - | Good - Fair | 3.1 m | 6.9 m |
| 15-A04 | 9 th Concession Road | - | - | - | - |

TABLE 3 - BRIDGE CONDITION SUMMARY (2013)

2.3 Equipment

The municipality's equipment was inventoried and recommended replacement years were provided by the Public Works Superintendent. For a detailed breakdown of spending for equipment, refer to the Road Needs Study (available under a separate cover). A summary of the equipment inventory can be found below.



| No. | VEHICLE | REPLACEMENT YEAR |
|-----|---------------------------------------------|---------------------|
| 1 | 2012 Dodge RAM 1500 SXT | 2019 |
| 2 | 2004 Ford Ranger Truck XL S/CAB 4 | 2014 |
| 3 | 2007 Ford F150 4X4 S/CAB | 2015 |
| 4 | 2011 Chevy Silverado 2500HD 4X4 | 2019 |
| 5 | 2009 Komatsu Backhoe - 9500kg Class | 2014 |
| 6 | 2012 Case Backhoe | 2027 |
| 7 | 1988 International Dump | 2017 |
| 8 | 2000 Sterling Tandem Dump (Pumper) | 2015 |
| 9 | 2001 Sterling Tandem Dump | 2016 |
| 10 | 2004 International 7600 Tandem | 2019 |
| 11 | 2012 International Tandem Truck 7600 6X4 | 2027 |
| 12 | 2013 International Tandem Truck 7600 4X4 | 2028 |
| 13 | 1995 Champion Grader | 2018 |
| 14 | 2007 Volvo Grader G960 | 2027 |
| 15 | 2008 Husqvarna Lawn Mower | 2018 |
| 16 | 1995 John Deere Lawn Mower | 2015 |
| 17 | 2013 Mitsubishi RVR Compact Utility Vehicle | 2020 |
| 18 | 2000 Ariens Snow Blower | 2015 |
| 19 | 1990 Steamers | 2020 |
| 20 | 2007 Brush Head | 2019 |
| 21 | 2002 Ezhauler Trailer | 2014 |
| 22 | 1995 Ford Van | 2015 |
| 23 | 2008 Sweeper | 2018 |

TABLE 4 – EQUIPMENT INVENTORY (2013)

All vehicles owned by Tay Valley Township should be inspected annually, prior to developing the Municipal Public Works Budget to ensure that sufficient funding is available to maintain the fleet.

3.0 DESIRED LEVELS OF SERVICE

3.1 Roads

The desired levels of service for roads are based primarily on the Minimum Maintenance Standards for Municipal Highways. The following provides a summary of the applicable exerts. The optimum overall condition rating for Low Class Bituminous (LCB or surface treatment) roads based on available pavement preservation treatments and lifecycle analysis is between 5.9 and 6.4. Similarly, for High Class Bituminous (HCB or asphalt) the optimum condition rating is between 6.7 and 7.1. Based on the foregoing, for hard surface roads, a blended average condition rating should be between 6.3 and 6.75. A rating below the above mentioned ranges is an indication that the hard surfaced roads are underfunded.



| Average Annual Daily | Posted or Statutory Speed Limit (km/hr) | | | | | | |
|----------------------|-----------------------------------------|-------|-------|-------|-------|-------|------|
| Traffic (AADT) | 91-100 | 81-90 | 71-80 | 61-70 | 51-60 | 41-50 | 1-40 |
| 15,000 or more | 1 | 1 | 1 | 2 | 2 | 2 | 2 |
| 12,000 - 14,999 | 1 | 1 | 1 | 2 | 2 | 3 | 3 |
| 10,000 - 11,999 | 1 | 1 | 2 | 2 | 3 | 3 | 3 |
| 8,000 - 9,999 | 1 | 1 | 2 | 3 | 3 | 3 | 3 |
| 6,000 - 7,999 | 1 | 2 | 2 | 3 | 3 | 3 | 3 |
| 5,000 - 5,999 | 1 | 2 | 2 | 3 | 3 | 3 | 3 |
| 4,000 - 4,999 | 1 | 2 | 3 | 3 | 3 | 3 | 4 |
| 3,000 - 3,999 | 1 | 2 | 3 | 3 | 3 | 4 | 4 |
| 2,000 - 2,999 | 1 | 2 | 3 | 3 | 4 | 4 | 4 |
| 1,000 - 1,999 | 1 | 3 | 3 | 3 | 4 | 4 | 5 |
| 500 - 999 | 1 | 3 | 4 | 4 | 4 | 4 | 5 |
| 200 - 499 | 1 | 3 | 4 | 4 | 5 | 5 | 5 |
| 50 - 199 | 1 | 3 | 4 | 5 | 5 | 5 | 5 |
| 0 - 49 | 1 | 3 | 6 | 6 | 6 | 6 | 6 |

TABLE 5 – ROAD CLASSIFICATION

TABLE 6 – POTHOLES ON PAVED SURFACE OF ROADWAYS

| Class of Highway | Surface Area | Depth | Time |
|------------------|----------------------|-------|---------|
| 4 | 1000 cm ² | 8 cm | 14 days |
| 5 | 1000 cm ² | 8 cm | 30 days |

TABLE 7 – POTHOLES ON NON-PAVED SURFACE OF ROADWAYS

| Class of Highway | Surface Area | Depth | Time |
|------------------|----------------------|-------|---------|
| 4 | 1500 cm ² | 10 cm | 14 days |
| 5 | 1500 cm ² | 12 cm | 30 days |

TABLE 8 – POTHOLES ON PAVED OR NON-PAVED SURFACE OF SHOULDER

| Class of Highway | Surface Area | Depth | Time |
|-------------------------|----------------------|-------|---------|
| 4 | 1500 cm ² | 10 cm | 30 days |
| 5 | 1500 cm ² | 12 cm | 60 days |



3.2 Bridges

The desired levels of service for bridges are based primarily on the Ontario Structure Inspection Manual (OSIM). This manual contains material condition state tables (Section 4 – Material Condition State Tables – Pages 2-28 to 2-39 inclusively) which provide criteria to give a rating of either "Good", "Fair" or "Poor" to the following: asphalt wearing surface, bearings, coatings, concrete, drainage system, embankments, expansion joints, masonry construction, signs, slope protection, soils, steel, streams and waterways, and wood. Section 5 – Suspected Performance Deficiencies (Pages 2-40 to 2-44), describes a list of possible deficiencies and corresponding follow-up actions. Section 6 – Maintenance Needs (Page 2-45), provides a list of 16 maintenance needs and descriptions for bridges upon visual inspection. Visual inspections biennially will provide the Township with detailed recommendations. For these recommendations please refer to the most recent Bridge Inspection Report submitted by McIntosh Perry under separate cover.

This manual also describes the defects that are typically found in concrete, steel, wood, masonry, aluminum, asphalt pavements and coatings. Each defect is described and the causes that produce it are identified. Severity levels, wherever possible, are established. Protective measures are discussed with respect to performance defects in streams and waterways. These defects are based upon the ability of the structure opened to accommodate the stream flow, frequency of flooding, and material defects of the stream. Other detailed sections of this manual include: embankments and slope protections, substructures, bearings, joints, superstructures, deck components, railing systems, coatings, signs, utilities, and live loads. For further information on any of the above, please see the Ontario Structure Inspection Manual (OSIM).

3.3 Equipment

Upon use, a visual vehicle inspection report should be completed to assess the condition of the vehicle. This will be a daily exercise for equipment that is used often, and should be done periodically for seasonal equipment.



4.0 ASSET MANAGEMENT STRATEGY

The following sections of this report summarize the overall asset management strategy for each municipal asset. These strategies have been prepared with reference to the Ministry of Infrastructure's *Building Together: Guide for Municipal Asset management Plans* as well as reference to reports previously prepared for the municipality.

| TABLE 9 – | ASSET | MANAGEN | /IENT STR | ATEGY – | ROADS |
|-----------|-------|---------|------------------|---------|-------|
|-----------|-------|---------|------------------|---------|-------|

| ASSET | ROADS |
|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Inventory | Approximately 290km of gravel and paved roadways |
| Anticipated Asset Life Cycle | Asphalt (HCB) roads will need to be resurfaced within 15 years and if not resurfaced, then reconstructed in 30 years. Note that one cannot perpetually resurface and at some point the road must be reconstructed. Surface treated (LCB) roads have an assumed life expectancy of approximately 15 years before reconstruction is required. For gravel roads it is assumed that the condition of the road will be maintained with regular gravel resurfacing. |
| Integrated | The roads are integrated with buried assets in some locations, such as hydro or telephone |
| Rehabilitation and Replacement | All roads have been given a condition rating (CR) between 3 and 10. The threshold point for |
| Criteria | rehabilitation or reconstruction are as follows: |
| | Rehabilitation = 5.0 |
| | • Reconstruction = 3.0 |
| Rehabilitation and Replacement | Rehabilitation and replacement strategies are based on road surface type and condition rating. A |
| Strategies | detailed list with associated cost per kilometre can be found in the Roads Needs Study 2013 submitted |
| | by McIntosh Perry under separate cover. |
| | Gravel road maintenance will include: |
| | Continue to place Granular 'A' |
| | Continue grading program |
| | |



| | Hard surface road maintenance will include: |
|--------------------------------|-----------------------------------------------------------------------------------------------------|
| | Upkeep crack sealing program |
| | Increase shoulder maintenance – patching and grading |
| | • Continue Township's surface treatment program and apply single and/or double |
| | surface treatment to suitable candidates |
| | |
| | General road maintenance will include: |
| | Deficiencies elimination program |
| | Increase in annual ditching cleanout and brushing |
| | Increase tree clearing within right of way |
| | |
| | It is recommended that a road assessment of gravel roads be completed, and that the Roads Needs |
| | Study and Asset Management Plan be followed and updated every five years. |
| Life Cycle Consequences | Underfunding rehabilitation results in more roads condition ratings falling below the ideal average |
| | (6.3-6.75), resulting in a severe increase in construction costs. |
| | |
| Integrated Asset Priorities | The integration of utility projects with road improvement projects occurs between the Township and |
| | external utility companies. |
| | |
| Previous Report on Subject | N/A |
| | |
| Estimated Cost per Year for | Approximately \$601,710 per year based on proposed ten year plan in 2013 Roads Needs Study |
| Strategy Described | submitted by McIntosh Perry under separate cover. |
| Other Information or Poference | Ponds Noods Study 2012 |
| Materials | Noaus Neeus Sluuy 2013 Minimum Maintenance Standards for Municipal Highways |
| | winning manyenance standards for widnicipal mignways |
| | |



TABLE 10 – ASSET MANAGEMENT STRATEGY – BRIDGES

| ASSET | BRIDGES |
|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Inventory | 23 Structures |
| Anticipated Asset Life Cycle | 75 Years |
| Integrated | The bridges are integrated with the Township's road network |
| Rehabilitation and Replacement Criteria | All bridges have been given a condition rating of "Excellent", "Good", "Fair", or "Poor", based on the Ontario Structure Inspection Manual (OSIM) during biennial inspections. The bridge inspection report provides recommendations based on maintenance needs also outlines in OSIM, and gives a timeline within which the work should be completed. |
| Rehabilitation and Replacement Strategies | Rehabilitation and replacement strategies are based on bridge rating and the provided recommendations. Recommendations for bridges can be found in the most recent Bridge Inspections Report (currently 2013) submitted by McIntosh Perry under separate cover. It is recommended that the municipality continue to perform the biennial inspections and incorporate the results into the Roads Needs Study. |
| Life Cycle Consequences | Underfunding rehabilitation results in increasing severity of deficiencies, therefore resulting in a severe increase in construction costs. |
| Integrated Asset Priorities | The integration of bridge/culvert projects with road improvement projects can occur, but may not. |
| Previous Report on Subject | OSIM Bridge Inspection Report – 2013 Structure Inspections |
| Estimated Cost per Year for Strategy Described | Approximately \$74,400 per year based on proposed ten year plan in 2013 Roads Needs Study submitted by McIntosh Perry under separate cover. This incorporates biennial OSIM inspections as well as enhanced OSIM Inspections every five years. |
| Other Information or Reference Materials | OSIM Bridge Inspection Report – 2013 Structure Inspections Ontario Structure Inspection Manual (OSIM) |



TABLE 11 – ASSET MANAGEMENT STRATEGY – EQUIPMENT

| ASSET | EQUIPMENT |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Inventory | Fleet of 24 vehicles |
| Anticipated Asset Life Cycle | Range from 5-20 years |
| Integrated | N/A |
| Rehabilitation and Replacement Criteria | All equipment has been assigned a replacement year based on typical life cycle and use/mileage etc. Each vehicle should be replaced within its or at its life cycle year. |
| Rehabilitation and Replacement Strategies | Repair and replacement strategies are based on the year of the vehicle and its associated anticipated replacement year. A detailed list with associated cost per year to plan ahead for these replacements can be found in the Roads Needs Study 2013 submitted by McIntosh Perry under separate cover. |
| Life Cycle Consequences | If maintenance and replacement is not timely, then operation and maintenance of vehicles increases therefore reducing funding for capital projects. Minimum maintenance standards can also be affected with vehicles unavailable to do maintenance due to breakdowns. |
| Integrated Asset Priorities | N/A |
| Previous Report on Subject | N/A |
| Estimated Cost per Year for Strategy Described | Approximately \$147,240 per year based on proposed ten year plan in 2013 Roads Needs Study submitted by McIntosh Perry under separate cover. |
| Other Information or Reference Materials | N/A |



5.0 FINANCIAL STRATEGY

The Township, in developing the financing strategy of the Asset Management Plan (AMP), must consider long-term tax payer affordability.

Tay Valley Township has for a considerable length of time been very proactive in regards to infrastructure replacement and renewal. In 2002 and 2003 the Council of the day retained the necessary consultants and engineers to determine the cost of our road network and our bridges, and instructed staff to estimate the costs of existing vehicles and equipment, and of our various buildings.

Those reviews and analyses resulted in a multi-year program to greatly increase the amount of money transferred annually to infrastructure renewal reserves. The annual tax-funded amount placed in the various reserves increased almost five-fold from 2003 to 2006 (excluding Federal Gas Tax revenues), which necessitated a 24% tax increase over the 3-year period. It is impossible for Council to consider anything even close to such tax increases as we go forward.

In 2010 the Township developed a Ten-year Capital Plan. To a certain degree we view the Asset Management Plan as an extension of that process. It identifies what asset(s) will be replaced, when and at what cost; and how the project will be funded. Of course the AMP is more comprehensive, formalizes levels of services, and is seen to be a very positive set of fiscal actions.

The 2011 census indicated that the average household income in Lanark County was significantly below (15%) the provincial average, and that Tay Valley average household income was below the County average. Our rural Township also has a relatively high unemployment rate and a significant number of taxpayers on fixed incomes. These factors are compounded by a shrinking population and very slow growth in our tax base.

Our current infrastructure financing strategy is to pay such costs out of reserves, including the Federal Gas Tax Reserve and using the reserves to lever grant monies from the senior levels of government when possible.

That strategy, until recently, has been quite successful. In the five years 2007 through 2011 Council approved nearly \$9 million in capital infrastructure projects. Those projects were funded 59% by reserves, 25% by grants, 11% by debt and 5% by development charges.

When the township's approximate \$900,000 debt is retired, the \$64,000 debt servicing costs will be redirected to the appropriate infrastructure reserves.

It is Council's intention to continue such strategy, while rationalizing service levels and seeking operational efficiencies on a regular basis. However, it will be impossible to adequately address our infrastructure deficit in a timely manner without financial assistance from the federal and provincial governments.



6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the information presented in this report, we recommend that Tay Valley Township focus on rehabilitation and ongoing maintenance efforts, opposed to replacement and reconstruction projects. Maintaining a policy for reviewing and maintaining assets on a scheduled basis will enable the Township to plan ahead for long term expenses.



APPENDIX A ROAD INVENTORY







| No. | Road Name | From | То | Length (km) | Surface Material | Surface Condition 2013 |
|-----|-------------------------------------|--------------------------------|-----------------------------|----------------|---------------------|------------------------------|
| 001 | 11th Line South Sherbrooke | Zealand Road | County Road 36 | 4.26 | Gravel | - |
| 002 | Allan's Mill Road | County Road 10 | Upper Scotch Line | 1.20 | Gravel | - |
| 003 | Amyot Road | Doran Road | Red Branch Road | 1.19 | Gravel | - |
| 004 | Anderson Side Road | Bennett Lake Side Road | End of Maint | 3.29 | Gravel | - |
| 005 | Armour Road | County Road 10 | Ferrier Road | 0.56 | Gravel | - |
| 006 | Armstrong Line | Ent 618 | Clear Lake Lane 21 | 2.44 | Gravel | - |
| 007 | Bathurst 2nd Concession | County Road 6 | Menzies Munro SR | 3.24 | Gravel | - |
| 008 | Bathurst 5th Concession | Highway 7 | Dead End | 11.54 | Gravel | - |
| 009 | Bathurst 6th Concession | Dead End | County Road 511 | 4.64 | Gravel | - |
| 010 | Bathurst 7th Concession | Harper Road | County Road 511 | 4.00 | Gravel | - |
| 011 | Bathurst 7th Concession | McVeigh Road | Dead End | 0.15 | Gravel | - |
| 012 | Bathurst 9th Concession | Boundary Road | Dead End | 7.24 | Gravel | - |
| 013 | Bathurst Line East | County Road 12 | West Limit Lot 14 | 2.15 | Gravel | - |
| 014 | Bathurst Line West (Seasonal) | 9th Concession Dalhousie | Dead End | 8.27 | Gravel | - |
| 015 | Bathurst Upper 4th Concession | Perkins Road | Tysick Road | 5.71 | Gravel | - |
| 016 | Black Lake Road | Powers Road | Dead End | 5.05 | Gravel | - |
| 017 | Bolingbroke Station Road (Seasonal) | Crow Lake Road | Dead End | 2.19 | Gravel | - |
| 018 | Bowes Side Road | County Road 6 | Upper Scotch Line | 2.97 | Gravel | - |
| 019 | Brooke Valley Road | Christie Lake North Shore Road | End of Pavement | 7.84 | Gravel | - |
| 020 | Brooke Valley Road | Highway 7 | Anglican Church Road | 0.36 | Gravel | - |
| 021 | Charlton Road | Zealand Road | 11 Line S. Sherbrooke | 1.63 | Gravel | - |
| 022 | Christie Lake North Shore Road | Christie Lane | Dead End | 3.68 | Gravel | - |
| 023 | Clarchris Road | Harper Road | End of pavement | 4.04 | Gravel | - |
| 024 | Cook's Road | Highway 7 | Old Brooke Road | 0.14 | Gravel | - |
| 025 | Crosby Road (Seasonal) | County Road 6 | Boundary | 1.91 | Gravel | - |
| 026 | Dokken Road | McVeigh Road | Dead End | 2.74 | Gravel | - |
| 027 | Doran Road | Highway 7 | End of Maintenance | 8.30 | Gravel | - |
| 028 | Elliott Road | Bath Upper 4th Concession | Christie L North Shore Road | 1.91 | Gravel | - |





| No. | Road Name | From | То | Length (km) | Surface Material | Surface Condition 2013 |
|-----|-------------------------------|-------------------------------------|-------------------------------------|----------------|---------------------|------------------------------|
| 029 | Ennis Road | County Road 19 | Dead End | 6.25 | Gravel | - |
| 030 | Fagan Lake Road | County Road36 | Doran Road | 3.28 | Gravel | - |
| 031 | Fall Crescent | County Road 7 | County Road 7 | 0.44 | Gravel | - |
| 032 | Ferrier Road | Narrows Locks Road (County Road 14) | Dead End | 4.30 | Gravel | - |
| 033 | Ferrier Road E | Otty Lake SR | Dead End | 0.67 | Gravel | - |
| 034 | Gambles Side Road | Bath Upper 4th Concession | Bath 5th Concession | 1.49 | Gravel | - |
| 035 | Greer Road | McNaughton Road | Fagan Lake Road | 1.66 | Gravel | - |
| 036 | Hunter Side Road | Bolton creek | Bennett Lake Side Road | 0.75 | Gravel | - |
| 037 | Keays Road | Harper Road | Dead End | 0.61 | Gravel | - |
| 038 | Kelford Road | County Road 10 | Upper scotch Line | 0.19 | Gravel | - |
| 039 | Kelford Road N | Bowes Side Road | Dead End | 0.22 | Gravel | - |
| 040 | Kelford Road S | Upper Scotch Line | Dead End | 0.07 | Gravel | - |
| 041 | Kirkham Road | Highway 7 | Doran Road | 2.47 | Gravel | - |
| 042 | Leonard Side Road | County Road 6 | Dead End | 1.68 | Gravel | - |
| 043 | Long Lake Road | County Road 21 | County Road 14 (Narrows Locks Road) | 4.86 | Gravel | - |
| 044 | Maberly Station Road | County Road 36 | Dead End | 1.17 | Gravel | - |
| 045 | MacKey Line Road | County Road 7 (Fallbrooke Road) | Dead End | 2.92 | Gravel | - |
| 046 | Mackler Side Road | Ferrier Road | Stanley Road | 1.48 | Gravel | - |
| 047 | McLaren Point | Stanley Road | Dead End | 0.67 | Gravel | - |
| 048 | McParland Road (Seasonal) | Scotch Line (County Road 10) | Dead End | 2.23 | Gravel | - |
| 049 | McNaughton Road | County Road 19 (Eleventh Line) | Old Burke Road | 4.81 | Gravel | - |
| 050 | McVeigh Road | Doran Road | Bath 7th Concession | 7.76 | Gravel | - |
| 051 | Merkley Road | Narrows Locks Road | Narrows Locks Road | 8.01 | Gravel | - |
| 052 | Mill Road | County Road 7 (Fallbrooke Road) | Dead End | 0.44 | Gravel | - |
| 053 | Miller Bay Road | County Road 21 (Elm Grove Road) | Blair Poole Farm Road | 0.17 | Gravel | - |
| 054 | Miller Lane | Glen Tay Road | Dead End | 0.21 | Gravel | - |
| 055 | Miners Point Road | Narrows Locks Road | Dead End | 4.89 | Gravel | - |
| 056 | Mitchell Side Road (Seasonal) | Bennett Lake Road | Bolton Creek | 1.25 | Gravel | - |





| No. | Road Name | From | То | Length (km) | Surface Material | Surface Condition 2013 |
|-----|------------------------------|---------------------------------|-------------------------------------|----------------|---------------------|------------------------------|
| 057 | Munro Road | Armstrong Road | Dead End | 0.95 | Gravel | - |
| 058 | Noonan Side Road | Upper Scotch Line | Menzies Munro Side Road | 2.95 | Gravel | - |
| 059 | Norris Road | Muttons Road | Dead End | 1.35 | Gravel | - |
| 060 | North Burgess 8th Concession | Otty Lake SR | Dead End | 0.86 | Gravel | - |
| 061 | North Mac Lane | Christie Lake North Shore Road | Dead End | 0.89 | Gravel | - |
| 062 | Old Brooke Road | Highway 7 | End of 50 km/hr Zone | 7.92 | Gravel | - |
| 063 | Old Burke Road | County Road 19 | McNaughton Road | 1.70 | Gravel | - |
| 064 | Old Morris Road | Bathurst 9th Concession | Keays Road | 1.13 | Gravel | - |
| 065 | Palmer Road | Tysick Road | Dead End | 0.23 | Gravel | - |
| 066 | Patterson Road | Christie Lake North Shore | Turn Around | 0.14 | Gravel | - |
| 067 | Perkins Road | County Road 6 | Bath Upper 4th Concession | 1.47 | Gravel | - |
| 068 | Powers Road | Stanleyville Road | Dead End | 1.12 | Gravel | - |
| 069 | Powers Road | Narrows Lock Road | Dead End | 1.12 | Gravel | - |
| 070 | Pratt Road | County Road 36 | Dead End | 1.24 | Gravel | - |
| 071 | Railway Siding Road | Maberly Station Road | Dead End | 0.22 | Gravel | - |
| 072 | Rideau Lake Road | County Road 21 (Elm Grove Road) | Dead End | 2.05 | Gravel | - |
| 073 | Ritchie Side Road | Crozier Road | Boundary | 2.61 | Gravel | - |
| 074 | Rutherford Side Road | McVeigh Road | Bath 5th Concession | 4.27 | Gravel | - |
| 075 | Stanley Road | Mackler SR | Narrows Locks Road (County Road 14) | 2.70 | Gravel | - |
| 076 | Star Hill Road | Narrows Locks Road | Dead End | 0.43 | Gravel | - |
| 077 | Strong Side Road | Old Brooke Road | Highway 7 | 1.22 | Gravel | - |
| 078 | Tamarack Road | Old Brooke Road | Brooke Valley Road | 1.72 | Gravel | - |
| 079 | Township Boundary Road | Highway 511 | Drummond 10 Concession | 2.43 | Gravel | - |
| 080 | Trueloves Road | Anglican Church Road | Dead End | 0.56 | Gravel | - |
| 081 | Tysick Road | Bathurst Upper 4th Concession | Brooke Valley Road | 1.32 | Gravel | - |
| 082 | Tysick Road | Menzies Munro Side Road | Dead End | 2.70 | Gravel | - |
| 083 | Allans Side Road | Scotch Line (County Road 10) | Ferrier Road | 1.80 | LCB | 6.00 |
| 084 | Anglican Church Road | Highway 7 | Highway 7 | 3.30 | LCB | 9.00 |





| No. | Road Name | From | То | Length (km) | Surface Material | Surface Condition 2013 |
|-----|--------------------------------|--------------------------|-----------------------------------|----------------|---------------------|------------------------------|
| 085 | Armstrong Line | Highway 7 | Ent 618 | 2.50 | LCB | 6.00 |
| 086 | Ashby Road | Iron Mine Road | Lanark Highlands Bndy | 0.58 | LCB | 9.00 |
| 087 | Bathurst 7th Concession | McVeigh Road | Harper Road | 2.38 | LCB | 6.00 |
| 088 | Cameron Side Road | County Road 6 | Concession Road 4 | 1.70 | LCB | 5.00 |
| 089 | Cameron Side Road | Concession Road 4 | Highway 7 | 1.70 | LCB | 7.00 |
| 090 | Christie Lake North Shore Road | County Road 6 | 1.2km W of County Road 6 | 1.20 | LCB | 5.00 |
| 091 | Christie Lake North Shore Road | 1.2km W of County Road 6 | 200m W of Christie Lane | 1.40 | LCB | 5.00 |
| 092 | Crow Lake Road | County Road 36 | Boundary | 3.07 | LCB | 6.00 |
| 093 | Crozier Road | Ritchie Road | 100m W of Crozier Road A | 0.83 | LCB | 6.00 |
| 094 | Ferrier Road | Allans Side Road | Mackler Side Road | 0.57 | LCB | 6.00 |
| 095 | Hanna Road | County Road 36 | Elly Tysick Road | 3.92 | LCB | 3.00 |
| 096 | Iron Mine Road | County Road 12 | Lanark Highlands Boundary | 1.20 | LCB | 6.00 |
| 097 | McVeigh Road | Concession Road 7 | 300m W of Concession 7 | 0.30 | LCB | 6.00 |
| 098 | Menzies Munro Side Road | Upper Scotch Line | County Road 6 | 2.57 | LCB | 7.00 |
| 099 | Norris Road | Harper Road | Muttons Road | 0.15 | LCB | 6.00 |
| 100 | Otty Lake Side Road | Top of Hill (#823) | Kenyon Road | 3.50 | LCB | 5.00 |
| 101 | Powers Road | Stanleyville Road | Narrows Lock Road | 2.10 | LCB | 9.00 |
| 102 | Ritchie Side Road | County Road 36 | Crozier Road | 0.88 | LCB | 6.00 |
| 103 | Stanley Road | Pike Lake Route 1 | Narrows Locks Rd (County Road 14) | 1.87 | LCB | 6.00 |
| 104 | Stanleyville Road | Stanley Road | Powers Road | 1.88 | LCB | 9.00 |
| 105 | Upper Scotch Line | County Road 10 | Menzies Munro Side Road | 4.12 | LCB | 7.00 |
| 106 | Walters Lane | Narrow Cross-Section | 100m W | 0.10 | LCB | 5.00 |
| 107 | Zealand Road | County Road 36 | Boundary | 4.10 | LCB | 5.00 |
| 108 | Brooke Valley Road | End of Pavement | Old Brooke Road | 0.29 | HCB | 4.00 |
| 109 | Bygrove Lane | Crozier Road | Cul de Sac | 0.78 | HCB | 9.00 |
| 110 | Clarchris Road | County Road 511 | 200m W of 511 | 0.20 | HCB | 3.00 |
| 111 | Clarchris Road | 200m W of 511 | End of Pavement | 0.50 | HCB | 5.00 |
| 112 | Crozier Road | 100m W of Crozier Road A | Cul de Sac Subdivision | 2.20 | HCB | 9.00 |





| No. | Road Name | From | То | Length (km) | Surface Material | Surface Condition 2013 |
|-----|--------------------------|----------------------|----------------------|----------------|---------------------|------------------------------|
| 113 | Glen Tay Road | County Road 6 | County Road 10 | 2.92 | HCB | 8.00 |
| 114 | Glen Tay Road | Highway 7 | County Road 6 | 0.42 | HCB | 5.00 |
| 115 | Glenn Drive | Elm Grove Road | Elm Grove Rd | 0.87 | HCB | 4.00 |
| 116 | Hanna Road | Elly Tysick Road | County Rd 6 | 0.86 | HCB | 4.00 |
| 117 | Harper Road | Highway 7 | 2km N of Highway 7 | 2.00 | HCB | 4.00 |
| 118 | Harper Road | 2km N of Highway 7 | 3.1km N of Highway 7 | 1.10 | HCB | 5.00 |
| 119 | Harper Road | 3.1km N of Highway 7 | Keays Road | 3.20 | HCB | 4.00 |
| 120 | Jodi Lane | Sommerville Drive | Cul de Sac | 0.24 | HCB | 5.00 |
| 121 | Keays Road | County Road 7 | Harper Road | 1.33 | HCB | 4.00 |
| 122 | Kenyon Road | Otty Lake Side Road | Lakewood Road | 2.15 | HCB | 4.00 |
| 123 | Lakewood Road | Kenyon Road | Cul de Sac | 1.97 | HCB | 3.00 |
| 124 | Maberly Main Street | County Road 36 | Highway 7 | 0.20 | HCB | 4.00 |
| 125 | McLaren Road | Lakewood Road | End of Crescent | 1.99 | HCB | 4.00 |
| 126 | Muttons Road (Reclaimed) | Norris Road | Harper Road | 0.54 | HCB | 3.00 |
| 127 | Old Brooke Road | Highway 7 | Cook's Road | 0.30 | HCB | 3.00 |
| 128 | Orchard Crescent | Scotch Line | Scotch Line | 0.85 | HCB | 6.00 |
| 129 | Otty Lake Side Road | Scotch Line | Top of Hill | 0.65 | HCB | 7.00 |
| 130 | Park Lane Court | Sommerville Drive | Cul de Sac | 0.22 | HCB | 5.00 |
| 131 | Posner Lane | Bygrove Lane | Dead End | 0.30 | HCB | 9.00 |
| 132 | Somerville Drive | Jodi Lane | County Road 6 | 0.90 | HCB | 5.00 |
| 133 | Somerville Drive | Glen Tay Road | Jodi Lane | 0.36 | НСВ | 5.00 |
| 134 | Stanleyville Road | County Road 10 | Stanley Road | 1.25 | НСВ | 9.00 |

APPENDIX B BRIDGE INVENTORY & TEN YEAR PLAN







BRIDGES

| No. | DESCRIPTION | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---------|-----------------------------------------|-----------|-----------|-----------|----------|---------|----------|---------|----------|---------|----------|
| C15-048 | Hunter Side Road Culvert (Colton Creek) | | | | | | | | | | |
| 15-050 | Ennis Road | | | | | | | | | | |
| 15-051 | Anderson Road | | \$5,000 | | | | \$30,000 | | | | |
| 15-070 | Munro Road (Fall River Bridge) | | | | | | | | | | |
| 15-072 | Crow Lake (Bollingbrook Bridge) | \$65,000 | | | | | | | | | |
| 15-075 | Doran Road (Fall River Bridge) | | | | | | \$35,000 | | | | |
| 15-076 | Gambles Side Road | | \$18,000 | | | | | | | | |
| 15-087 | Second Line Road | \$190,000 | | | | | | | | | |
| 15-088 | Menzies Munro Side Road | | | | | | | | | | |
| 15-089 | Upper Scotch Line | | | | | | | | | | |
| 15-090 | Upper Scotch Line | | | | | | | | | | |
| 15-091 | Noonan's Side Road | | | | | | | | | | |
| 15-092 | Adam's Mill Road | | \$12,500 | | | | | | | | |
| 15-093 | Bowes Side Road | | \$18,000 | | | | | | | | |
| 15-094 | Glen Tay Road | \$16,000 | | | | | | | | | |
| 15-095 | Upper Scotch Line | | | | | | | | | | |
| C15-096 | Glen Tay Road Open Footing Culvert | | | | | | | | | | |
| 15-139 | Haughians Road | | | | | | | | | | |
| 15-159 | Black Lake Road | | | | | | | | | | |
| 15-A01 | Allan's Mill Road | \$10,000 | \$18,000 | | | | | | | | |
| C15-A02 | Anglican Church Road Culvert | | | | | | | | | | |
| C15-A03 | Doran Road Culvert | | \$31,000 | \$224,000 | | | | | | | |
| 15-A04 | 9 th Concession Road | | | | | | | | | | |
| | Enhanced OSIM | | | | | | \$7,500 | | | | |
| | OSIM Inspection | \$2,000 | \$11,000 | \$2,000 | \$11,000 | \$2,000 | \$10,000 | \$2,000 | \$11,000 | \$2,000 | \$11,000 |
| | TOTAL | \$283,000 | \$113,500 | \$226,000 | \$11,000 | \$2,000 | \$82,500 | \$2,000 | \$11,000 | \$2,000 | \$11,000 |

APPENDIX C EQUIPMENT INVENTORY & TEN YEAR PLAN





EQUIPMENT

| Transportation - Make & Model | Purchase Date | Replacement Cost 2013 | Useful Life | Replacement Year | Trade-in Value | Remaining Life | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | |
|---------------------------------------------|------------------|--------------------------|----------------|---------------------|-------------------|-------------------|------------|------------|------------|------------|------------|------------|-----------|------|-------------|------|-------------|
| 2012 Dodge RAM 1500 SXT | 2012 | \$28,048 | 7 | 2019 | (\$2,500) | 6 | | | | | | \$28,048 | | | | | |
| 2004 Ford Ranger Truck XL S/CAB 4 | 2004 | \$29,288 | 10 | 2014 | (\$1,500) | 1 | \$29,288 | | | | | | | | | | |
| 2007 Ford F150 4X4 S/CAB | 2007 | \$45,558 | 8 | 2015 | (\$4,500) | 2 | | \$45,558 | | | | | | | | | |
| 2011 Chevy Silverado 2500HD 4X4 | 2011 | \$35,914 | 8 | 2019 | (\$4,500) | 6 | | | | | | \$35,914 | | | | | |
| 2009 Komatsu Backhoe - 9500kg Class | 2009 | \$135,300 | 5 | 2014 | (\$35,000) | 1 | \$135,300 | | | | | \$135,300 | | | | | |
| 2012 Case Backhoe | 2012 | \$123,639 | 15 | 2027 | (\$10,000) | 14 | | | | | | | | | | | |
| 1988 International Dump | 1998 | \$150,000 | 29 | 2017 | (\$15,000) | 4 | | | | \$150,000 | | | | | | | |
| 2000 Sterling Tandem Dump (Pumper) | 2000 | \$180,000 | 15 | 2015 | (\$25,000) | 2 | | \$180,000 | | | | | | | | | |
| 2001 Sterling Tandem Dump | 2001 | \$180,000 | 15 | 2016 | (\$25,000) | 3 | | | \$180,000 | | | | | | | | |
| 2004 International 7600 Tandem | 2004 | \$183,833 | 15 | 2019 | (\$25,000) | 6 | | | | | | \$183,833 | | | | | |
| 2012 International Tandem Truck 7600 6X4 | 2012 | \$190,004 | 15 | 2027 | (\$25,000) | 14 | | | | | | | | | | | |
| 2013 International Tandem Truck 7600 4X4 | 2013 | \$207,417 | 15 | 2028 | (\$25,000) | 15 | | | | | | | | | | | |
| 1995 Champion Grader | 1995 | \$250,000 | 23 | 2018 | (\$30,000) | 5 | | | | | \$250,000 | | | | | | |
| 2007 Volvo Grader G960 | 2007 | \$239,135 | 20 | 2027 | (\$30,000) | 14 | | | | | | | | | | | |
| 2008 Husqvarna Lawn Mower | 2008 | \$24,502 | 10 | 2018 | \$0 | 5 | | | | | \$10,000 | | | | | | |
| 1995 John Deere Lawn Mower | 1995 | \$10,000 | 10 | 2015 | (\$4,000) | 2 | | \$10,000 | | | | | | | | | |
| 2013 Mitsubishi RVR Compact Utility Vehicle | 2013 | \$23,000 | 7 | 2020 | (\$7,000) | 7 | | | | | | | \$23,000 | | | | |
| 2000 Ariens Snow Blower | 2000 | \$2,500 | 15 | 2015 | (\$200) | 2 | | \$2,500 | | | | | | | | | |
| 1990 Steamers | 1990 | \$5,500 | 30 | 2020 | \$0 | 7 | | | | | | | \$5,500 | | | | |
| 2007 Brush Head | 2007 | \$4,000 | 12 | 2019 | \$0 | 6 | | | | | | \$4,000 | | | | | |
| 2002 Ezhauler Trailer | 2002 | \$5,500 | 12 | 2014 | (\$500) | 1 | \$5,500 | | | | | | | | | | |
| 1995 Ford Van | 1995 | \$35,000 | 10 | 2015 | (\$1,500) | 2 | | \$35,000 | | | | | | | | | |
| 2008 Sweeper | 2008 | \$23,680 | 10 | 2018 | \$0 | 5 | | | | | \$23,680 | | | | | | |
| Total | | | | | | | \$170,088 | \$273,058 | \$180,000 | \$150,000 | \$283,680 | \$387,095 | \$28,500 | \$0 | \$0 | \$0 | \$1,472,421 |
| Trade-in Value | | | | | | | (\$37,000) | (\$35,200) | (\$25,000) | (\$15,000) | (\$30,000) | (\$67,000) | (\$7,000) | \$0 | \$0 | \$0 | (\$216,200) |
| Grand Total | | | | | | | \$133,088 | \$237,858 | \$155,000 | \$135,000 | \$253,680 | \$320,095 | \$21,500 | \$0 | \$ <i>0</i> | \$0 | \$1,256,221 |

