
2019 Business Plan & Budget

Transportation Services

Prior Year Accomplishments

Economic Innovation & Prosperity

- 10 Year Capital Program for Roads/Bridges
- 10 Year Equipment Replacement Strategy
- 10 Year Housing Strategy

Sustainable Infrastructure & Services

Administration:

In the area of general administration, the following accomplishments were achieved:

- Issued the following permits within Northumberland County (as of October 1, 2018)
 - 35 Entrance Permits
 - 38 Setback Permits
 - 41 Open Cut Permits
 - 8 Permission to Enter Permits
 - 16 Permission to Bore Permits
 - 147 Wide Load Annual Permits
 - 100 Wide Load Single Permits
 - 8 Special Event Permits
- Continued review and assessment of new department operating structure including new Asset Management position and Corridor Management
- Implementation of Geographic Information System (GIS) Cooperative strategic plan initiatives:
 - On-going expansion of our base municipal GIS model
 - Update and improvements to Version 3 of the Northumberland Digital Elevation Model (NDEM) using OMAFRA LIDAR data
 - Continued development and maintenance of internal and external GIS web applications
 - Continued to provide year-round GIS services to public and municipalities through permanent GIS Coordinator position
 - Produced over 380 maps for County projects and staff, and responded to 14 external map and data requests in 2018



- Phase 2 of Cadastral Parcel Fabric Project underway including the creation of additional parcels in Hamilton Township, Alnwick/Haldimand Township, and Cramahe Township. Municipality of Brighton has also joined the project and is contributing survey information to be included in project
- Implementation and maintenance of road network and Fire Services data for all of Northumberland County
- Initiated development of framework for Maintenance Procedures Document
- Initiated development of the County's Asset Management Policy and on-going technical support for the implementation of Cityworks, the County's Asset Management software through the new GIS/Asset Management Specialist position
- Supported the Loyalist College co-operative education program
- Successfully managed delivery of the 2018 Capital Program – 17.5 km of pavement rehabilitation (including in-house detailed design for 1 km section of County Road 30) and 13 km of pavement preservation
- Successfully delivered surface treatment program including 13.1 km of County Roads and 127.9 km for member municipalities for a total of 141 km of surface treatment
- Applied for Funding from the Ontario Community Infrastructure Fund (OCIF) top up fund for County Road 30 from Highway 401 to just south of Guertin Road (approximately 4 km)
- Applied for funding to the Federation of Canadian Municipalities (FCM) Municipal Asset Management Program (MAMP) for funding to assist with the development of the County Asset Management Policy and for additional data collection and processing
- Initiated and nearing completion of developing a Master Drainage Plan for County Road 2 in conjunction with the Town of Cobourg, Hamilton Township and the Ganaraska Region Conservation Authority (GRCA) as per the recommendation in the County Road 2 Environmental Assessment
- Prepared various joint tenders, RFP's/RFQ's under shared services initiatives including:
 - Annual culvert supply
 - Roadside safety devices
 - Biennial Bridge (OSIM) Inspections
 - Crack Sealing
 - Microsurfacing

Road Operations and Maintenance

Winter Maintenance:

In the area of winter maintenance, the following accomplishments were achieved:

- Sanding and salting, snow plowing, snow removal, culvert thawing and road patrol – meeting or exceeding compliance with the Minimum Maintenance Standards
- Seasonal staff engaged to support our night shift resulting in 24 hour service to major roads



- In 2018, a new snowplow route was added to cover County Road 9 for better service and consistency with the neighbouring Region (Durham)
- Snow removal in all towns and villages enhancing safety and sight lines. Removal done a minimum of once and up to three times in the following villages and towns: Castleton, Harwood, Cold Springs, Warkworth, Dartford, Centreton, Plainville, Camborne, Grafton, Roseneath, Gores Landing, and Campbellford
- Annual calibration of all combination units
- One new snowplow purchased and in-service for the winter season of 2018/2019
- Approximately 6,515 tonnes of salt and 40,688 tonnes of winter sand used
- Cobourg, Morganston, Plainville and Seymour domes required refilling during the winter season
- Continued work on joint tenders through shared services initiatives.

Roadside Maintenance:

In the area of roadside maintenance, the following accomplishments were achieved:

- Tree removal, brushing, ditching, mowing, litter pickup
- Ditching and berm removal on shoulders
- All drainage survey and construction layout completed by in house staff
- Annual roadside mowing and weed removal at intersections, around safety devices and signs completed by in-house and contracted staff
- Annual roadside litter pickup on all county roads by staff and local groups

Hardtop Maintenance:

In the area of hardtop maintenance, the following accomplishments were achieved:

- Shoulder grading, catch basin cleaning, cold mix patching, sweeping
- Two (2) oil grit separators flushed and cleaned
- Completed minor road repairs using asphalt and cold mix asphalt
- Staff spent most of May and June sweeping, flushing and picking up winter sand in all towns and villages
- 31 new driveway entrances installed

Surface Treatment Program:

In the area of surface treatment, the following accomplishments were achieved:

- Surface treated 141 km of Municipal and County roads, including:
 - 127.9 km for area municipalities
 - 1,726,014 litres of emulsion for area municipalities
 - 13.1 km of County Roads
 - 207,672 litres of emulsion for County roads
 - Total emulsion used is 1,933,686 litres



Traffic Safety Measures:

In the area of Traffic Safety Measures, the following accomplishments were achieved:

- Repair of damaged post and cable, and steel beam guide rail
- Inspected approximately 5000 road signs on all County Roads to ensure they meet the Provincial Standard for retro-reflectivity
- Replacement of approximately 20 damaged and non-reflective signs
- Continued maintenance of traffic signals
- Reviewed & continued to monitor portable radar speed sign data and locations
- Installed portable radar speed signs at two (2) locations in 2018 based on speeding concerns from the public and/or Police Services
- Completed 2018 pavement markings including:
 - 264 Turn Arrows
 - 299 Stop Blocks
 - 16 Slow Aheads
 - 19 School Aheads
 - 7 Stop Aheads
 - 1,894m m Cross Walks
 - 66 Bicycle Path Symbols
 - 6 Crosswalks (school, pedestrian)
 - 10 Railway Crossings
 - 16 Railway Stops
 - 426.72m Hatching Areas
 - 665 kms of yellow line
 - 1,003 kms of white line
- Completed a performance review of the line painting contractor to confirm adherence to specifications

Culvert and Bridge Maintenance:

In the area of culvert and bridge maintenance, the following accomplishments were achieved:

- Completed washing and flushing of bridges and structures

Capital Housing and Equipment

In the area of capital housing, the following accomplishments were achieved:

- Completed Cobourg Depot washroom and facility renovation.
- Completed Morganston Depot washroom and facility renovation.
- Cost sharing with Trent Hills for re-shingling sand dome in Campbellford



In the area of capital equipment acquisitions, the following purchases were completed to maintain and upgrade our road maintenance equipment:

- One (1) Tandem Combination Snow Plow
- Four (4) 1/2 Ton Trucks
- One (1) mechanical sweeper

Capital Works Construction Program

The capital works program is divided into four main areas: Pavement Rehabilitation and Maintenance, Traffic Safety Measures, Bridge Rehabilitation and Maintenance, and Service Expansion.

Pavement Rehabilitation and Maintenance:

The following capital projects were completed as part of our requirements to maintain and improve the road network:

- 2018 Paving Tender
 - County Road 30 – from just north of County Road 29 to Industrial Drive – 7.5 km
 - County Road 10 – FF#6469 to Dodd’s Road – 2.9 km
 - County Road 35 – Bright’s Lane to Woodview Road (including culvert replacement east of Godolphin Road) – 2.6 km
 - County Road 24 – Lewis Road to Linton Road – 4.3 km
 - Various padding locations throughout the County
- 2018 Microsurfacing Tender
 - County Road 45 – 200 m south of County Road 25 to 1 km north of Concession Road 9 West - 5.5 km
 - County Road 28 – From FF#4911 to FF#7864 – 6.5 km
 - County Road 9 – approximately 1 km at the Bewdley Transfer Station
- Completed approximately 60,000 meters of crack sealing on County Roads

Traffic Safety Measures:

- Traffic Signals
 - Installation of a new controller at County Road 2 and New Amherst traffic signals
 - Installation of new UPS battery back at three traffic signal locations
- Completed design and installation of approximately 2,100 meters of steel beam guiderail on County Roads (3-Cable Guide rail will no longer be installed on County Roads as a result of changes to OPS and MTO standards, with the exception of minor repairs to existing post and cable)
- Completed post-implementation monitoring of the Hamlet Entry Treatment pilot projects in Cold Springs and Welcome to assess effectiveness of the modifications made to the ROW through signage, pavement markings, radar speed signs, and OPP enforcement. Currently



reviewing the data and additional information from other studies (i.e., near miss data collected by Brisk Synergies, and Traffic Safety Study of the Welcome intersection) to determine changes or additional modifications for more effective speed reduction.

- Completed Spring 2018 traffic counts at select locations on all County Roads and subsequent Annual Average Daily Traffic (AADT) was calculated.
- Completed design and tendered for improvements to pedestrian access over the Jocelyn Street Bridge in partnership with the Municipality of Port Hope. The tender came in over budget, so the project is proposed to be re-tendered in early 2019.
- Initiated corridor study to address traffic safety concerns at the following locations:
 - County Road 45 through Alderville and Roseneath
 - County Road 2/10/74 in Welcome, particularly the 3-way stop at the intersection
- Initiated corridor study for County Road 45 from the HWY 401 to north of Baltimore to address safety concerns as well as planning for future growth

Bridge Rehabilitation and Maintenance:

- Replacement of a cross culvert on County Road 35 completed as part of the County Road 35 construction work in the 2018 paving tender. Construction involved a three day road closure to remove and replace the culvert.
- Completed Schedule B Municipal Class Environmental Assessment for bridge rehabilitation of Loomis Bridge, including detailed design and tender preparation. Working with the Municipality of Brighton on potential cost sharing of construction as well as future downloading of the structure (bridge is located on a Municipality of Brighton road).
- Initiated Schedule B Municipal Class Environmental Assessment for bridge rehabilitation of Thompson Bridge, including detailed design and tender preparation. Working closely with the Municipality of Trent Hills on potential cost-sharing of construction as well as future downloading of structure (bridge is located on a municipality of Trent Hills road).
- Completed design and tender preparation for maintenance/repair of a number of large culverts as per recommendations in the 2015/2016 OSIMs.
- Completed biennial bridge inspections (OSIM's) – 55 Minor structures, 4 Major Structures, and 17 retaining walls in 2018 (76 total).

Service Expansion

- County Road 2 ESR Implementation
 - Completed the second phase of construction of the first section of County Road 2 (Elgin Street, Cobourg) from Strathy Rd to Rogers Rd, which included construction of a Multi-use Trail (MUT) on the south boulevard from Strathy to the Canadian Tire Gas bar entrance. Work in 2017 included an on-road bicycle lane on north side, accessible pedestrian signals at Strathy Road and a small section of storm sewer replacement – 0.7km.



- Transportation Master Plan (TMP) Implementation
 - The following recommendations within the TMP were initiated in 2018:
 - Held a meeting with MTO and internal County staff regarding relocation of Emergency Detour Route (EDR) in eastern portion of the County and discussed the process, MTO's requirements, timelines, etc. Subsequently Initiated feasibility study to assess the most appropriate location for the EDR.
 - Completed post-implementation monitoring for the pilot project for Hamlet Entry Treatments in Cold Springs and Welcome and reviewing data as well as information from other traffic safety studies at these locations to determine additional modifications/changes to address speeding concerns.
 - Preparation of an RFP to retain a consultant to develop a business case/economic impact study for the expansion of GO services to Northumberland County.

- Cycling Master Plan (CMP) Implementation
 - All short-term and majority of the intermediate-term recommendations implemented.
 - Initiated discussion with the Communications and Economic Development and Tourism Departments on promotion of the Cycling Routes directed towards County residents. Developing initiatives to be implemented in 2019.
 - Partnered with the Town of Cobourg to apply for funding through the Ontario Municipal Commuter Cycling Program for the construction of a multi-use trail (MUT) on the south boulevard of County Road 2 (Elgin Street) from Strathy Road to Division Street. The application was successful; however, the program was later cancelled. The Town and County proceeded to complete the design and plan to implement over multiple years, pending funding.

- Trent River Crossing ESR (Campbellford Bridge) Implementation
 - Prepared an RFP for detailed design and tender preparation that was issued in August and closed in October 2018. It is anticipated to be awarded by December 2018.

- Brighton Grade Separation Safety Review
 - The project was re-initiated in 2018. A final draft concept drawing to address safety concerns with vehicular and pedestrian crossing at the County Road 64 at-grade crossing was completed in 2015, however, final review and comments were not received from all parties. The consultant is reviewing the last concept drawing and taking into considerations any legislative changes since then. Contact has also been initiated with new representatives of CN and CP (numerous staff changes over the past couple of years), and subsequent correspondence and/or meetings are to be



scheduled to revise and finalize the plan for submission to Transport Canada for approval and funding in 2019.

- Assisted with the on-going implementation of Cityworks, the County's Asset Management software. Initiated the development of the County's first Asset Management Policy, required to be complete by July 1, 2019 as per O.Reg. 588/17.
- Continuation of work by the Northumberland GIS Cooperative Committee with the mandate to coordinate data standards with area municipalities.

Thriving & Inclusive Communities

- Completed public consultation on a number of projects in 2018 including but not limited to road construction projects, and the Loomis Bridge and Thompson Bridge EAs.
- Received and responded to numerous public inquiries and complaints related to transportation.
- Continued to maintain and develop working relationships with member municipalities, neighbouring municipalities and other organizations such as MTO, MOECP, Conservation Authorities, OPP, Cobourg and Port Hope Police Services, etc..
- Representation on various committees and working groups such as Inter-Municipal Public Works Committee, Agricultural Advisory Committee, Waterfront Trail Committee, Safe Communities, etc..

Organizational Excellence

- Completed staff training in the following areas for one or more staff members:
 - Training:
 - OGRA Guelph Road School, TJ Mahoney Course
 - IPWEA Professional Certificate in Asset Management Planning
 - Patrol Training
 - Compliance training of staff involved in winter maintenance operations
 - Health and Safety Training
 - Working Minds Training
 - LEAN White/Yellow Belt Training
 - Media Training
 - Emergency Exercise between County and Alnwick/Haldimand
 - Emergency and Standard First Aid
 - Workshops/Seminars:
 - Public Utility Coordination Workshop
 - TAC Speed Management Webinar
 - Golder Seminar – Road Rehabilitation and Preservation
 - ESRI MOOC Cartography Webinar



- Conferences:
 - Annual ROW Management Conference
 - OGRA Conference
 - Vision Zero Advocate Conference
 - Transportation Association of Canada (TAC) Conference
- Filled previously vacant full time Engineering Technician and Engineer-in-Training positions.
- Filled GIS/Asset Management Specialist position and subsequently filled GIS Coordinator position (internal candidate was successful and previous position was back-filled).
- Filled previously vacant Traffic and ROW Supervisor Position (previously Road Operation Supervisor) and subsequently filled Corridor Management Coordinator position (internal candidate was successful and previous position was back-filled).
- Continued with departmental succession planning

2019 Service Objectives & Initiatives

Economic Innovation & Prosperity

- 10 Year Capital Program for Roads/Bridges
- 10 Year Equipment Replacement Strategy
- Operational Review and development of a 10 Year Housing Strategy

Sustainable Infrastructure & Services

Transportation Services Division Objective:

To provide a safe and sustainable transportation network which meets or exceeds the needs of the travelling public and to support the movement of goods and services within the County of Northumberland.

Administration:

- Continue to review and assess the new department operating structure
- Continue management of County issued permits
- Continue implementation of GIS Cooperative strategic plan initiatives
 - Northumberland Digital Elevation Model (NDEM) Version 4 development
 - On-going data collection, updates and maintenance to County geodatabase
 - Continued GIS support for County departments, including Forestry and Social Services
 - On-going development and maintenance of internal and external GIS Web applications
 - Continue development and maintenance of Cadastral Parcel Fabric project



- On-going maintenance of road network and Fires Services data for all of Northumberland County
- Implementation and maintenance of asset data contained in Asset Management Software
- Provide year-round GIS services to the public and area municipalities through the permanent GIS Coordinator
- Continue and finalize framework for Maintenance Procedures Document
- Development of Data Portal for GIS Cooperative members
- In-house designs for drainage improvements on various County Roads
- Delivery of 2019 Capital Construction Program
- Delivery of 2019 Surface Treatment Program
- Continue to provide technical support for implementation and roll-out of Cityworks asset management software
- Complete County Asset Management Policy by July 1, 2019, as per O.Reg.588/17
- Continue to seek and apply for any applicable funding for County projects
- Continue to call joint tenders, RFP's/RFQ's for the benefit of County and member municipalities including but not limited to:
 - Annual Culvert Supply
 - Roadside Safety Devices
 - Biennial Bridge Inspections (OSIMs)
 - Microsurfacing
 - Crack Sealing
 - Pavement Markings
 - Engineering, Environmental and Architectural Roster
- Finalize the Master Drainage Plan in conjunction with Ganaraska Region Conservation Authority, Town of Cobourg and Township of Hamilton for County Road 2

Road Operations and Maintenance

To ensure the consistent delivery of the Winter Control and Roadside Maintenance Program in accordance with the County Winter Control Policy and Province of Ontario Minimum Maintenance Standards O. Reg. 239/02.

Winter Maintenance:

- In consideration of the extreme weather conditions that may be experienced during the winter season, the Transportation, Waste and Facilities Department will strive to achieve the objectives of the winter control program as approved by County Council to deliver an efficient and effective winter maintenance program
- Meet or exceed all winter maintenance requirements specified in the Provincial *Minimum Maintenance Standards*



- Provide a timely response to winter storms and hazardous road condition situations by proactive road patrols augmented with web based weather reports and radar
- Stockpile necessary winter sand and salt
- Utilize County fleet with units to provide center bare pavement on a timely and efficient basis
- Maintain drainage system during spring thaw with the timely removal of ice and snow
- Annual update of the Salt Management Plan to maintain environmental awareness and compliance

Roadside and Hardtop Maintenance:

- Meet or exceed all road patrol requirements specified in the *Minimum Maintenance Standards*
- Monitor and make necessary removal of trees and brush
- Sweep all intersections, bridges, towns and villages, patch all roads and grade all shoulders
- Mow grass at all intersections, road sides, and safety devices
- Annual catch basin and OGS cleaning, and litter pick up
- Continue our ditching and drainage issues and upgrades
- Installation of new driveways for approved entrance permits

Surface Treatment Program:

To provide a cost efficient and cost effective surface treatment program for the benefit of the local municipal and county road networks.

- Anticipated surface treatment of over 120 km of Municipal and County roads

Traffic Safety Measures:

- Meet or exceed all road patrol requirements specified in the *Minimum Maintenance Standards*
- Maintain center line, edge line, stop blocks, turn arrows, school ahead, bicycle path symbols and slow ahead pavement markings
- Meet or exceed all regulatory sign reflectivity requirements specified in the *Minimum Maintenance Standards*
- Service all signal systems and upgrade and replace defective signs
- Work with the Inter-Municipal Public Works Committee on sign standards

Culvert and Bridge Maintenance:

- Washing and flushing of bridges and structures



Capital Housing and Equipment

- The total replacement value of the roads equipment is over \$5 million. A ten-year capital equipment replacement and housing plan has been developed. This ten-year program identifies the following capital equipment purchases in 2019:
 - One (1) tandem snowplow
 - One (1) tandem float
 - One (1) ½ ton truck/SUV for engineering
 - One (1) loader
- The County has been completing routine maintenance and capital repairs to roads housing over the past 10 years, in accordance with the 10 year capital housing plan. Over the past several years, there have been a number of changes from legislative changes, to operational procedures and methodologies, to public expectations. Given these changes, and in the interest of finding the most effective and efficient way to deliver transportation services, a full operational review will be conducted in 2019/2020 to establish direction for the future. This review is anticipated to be complete in 2019, as such, it is proposed to transfer the base funding in the amount of \$300,000 allotted for 2019 capital housing to the transportation reserves to be used in the future based on the outcome of the operational review.

Capital Works Construction Program

The annual updating of the 10-year construction program for the County road system has been prepared. This plan is compiled on the basis of biennial pavement condition index (PCI) inspections, OSIM inspections, traffic volumes, identified safety concerns, previous studies and Master Plans, input from County maintenance and operations staff, as well as our constituent municipalities. The plan covers four main areas in Transportation: Pavement Rehabilitation and Maintenance, Traffic Safety Measures, Bridge Rehabilitation and Maintenance and Service Expansion. In 2019, the Transportation division will continue to look for efficiencies and strive for competitiveness and transparency in the procurement of contracted services for the major construction contracts for Roads and Bridges.



Pavement Rehabilitation and Maintenance:

- 2019 Proposed Paving Tender

Proposed Locations:

County Road 2 from Colton Street to Union Road; Length 6.3km and cost 2.8 million

County Road 35 from Woodview Road to County Road 30; 3.0km cost 1.4 million

County Road 30 from Highway 401 to 360m south of Guertin Road; 4km, 2.1 million

County Road 10 from Dodd's Road to 4th Line; 2km, cost 1.3 million.

- Miscellaneous padding locations
- 2019 Microsurfacing Tender (pavement preservation) for approximately 12 km of County Roads
- Tender for Completion of approximately 60,000 metres of crack sealing

Traffic Safety Measures:

- Design and tender for installation of up to 3,000 metres of steel beam guiderail
- Traffic Signal improvements including UPS Battery Back-up at remaining traffic signal locations
- Continue to review and implement safety improvements identified in the TMP (i.e., Hamlet Entry Treatments, high collision intersections, etc.)
- Intersection Improvements:
 - Completion of County Road 45 Corridor study between Highway 401 and north of Baltimore and subsequent modifications to County Road 45/Van Luven Road intersection drawings based on the study.
- Jocelyn Street Bridge safety improvements in conjunction with the Municipality of Port Hope
- Review and continue monitoring radar speed sign data and locations

Bridge Rehabilitation and Maintenance:

- Complete Municipal Class Schedule 'B' EA and detailed design and tender preparation for the rehabilitation of Thompson Bridge and tender for construction, pending agreement with the Municipality of Trent Hills.
- Design and tender preparation for the rehabilitation of the Dartford Bridge (County Road 24) and the Hastings Bridge (County Road 45).
- Design and tender preparation for the County Road 41 culvert.
- Completion of design and Bridge Repairs to various bridges/culverts identified through OSIMs
- Tender to complete 2019 OSIMs (major structures)



Service Expansion:

- County Road 2 EA Implementation
 - County Road 2 – continue with detail design work for phase II implementation between Rogers Rd and New Amherst Boulevard. Anticipate construction of the storm sewer and some road works in 2019 pending approvals and coordination with developer
- Cycling Master Plan (CMP) Implementation
 - Continue with long term implementation goals
 - Partner with the Town of Cobourg to construct a section of Multi-use trail on Elgin Street from Strathy Road (where the MUT trail installed in 2018 ends) to just east of Ontario Street. It is anticipated that one section would be completed in 2018 from Strathy to Burnham/William Street.
 - Development and implementation of promotional material and information to residents on the County’s cycling network in partnership with the Communications and Economic Development and Tourism Departments.
 - Review recommendations in the TMP with respect to new standards and update the CMP, if necessary.
- Trent River Crossing (Campbellford Bridge) Implementation
 - Initiate detailed design for the new crossing as per the approved EA with the awarded consultant (anticipate RFP being awarded in December 2018).
- Transportation Master Plan (TMP) Implementation
 - Finalize the economic impact study for the extension of GO services to Northumberland County and review findings for next steps
 - Finalize the feasibility study for the relocation of the EDR in Cramahe and Brighton and review findings for next steps
 - Initiate intersection safety study/review of County Road 18/Telephone Road and County Road 18/Danforth Road, as per the recommendations in the TMP as two of the high collision intersections in the County.
 - Commence policy review and development of policies identified in recommendations.



Thriving & Inclusive Communities

- Continue to consult public on various transportation related projects in 2019
- Receive and respond to public inquiries and complaints related to transportation
- Continue to maintain and develop working relationships with member municipalities, neighbouring municipalities and other organizations such as MTO, MOECP, Conservation Authorities, OPP, Cobourg and Port Hope Police Services, etc.
- Representation on various committees and working groups such as Inter-Municipal Public Works Committee, Agricultural Advisory Committee, Waterfront Trail Committee, Safe Communities, etc.

Organizational Excellence

- Complete staff training in various areas for staff members
- Continue with departmental succession planning

Long Term Plan & Strategic Objectives

Economic Innovation & Prosperity

- 10 Year Capital Program for Roads/Bridges
- 10 Year Equipment Replacement Strategy
- Conduct a complete Review of Road Operations / 10 Year Housing Strategy

Sustainable Infrastructure & Services

Overall Budget

- Development of Master Drainage Plan for County Road 2 using \$75,000 funding received from Clean Water and Wastewater Funding Program
- Anticipate funding for the 2019 construction program through the ODSP savings and gas tax funding
- Investigate and apply for any other funding opportunities that arise in 2019 and beyond
- Continue to request levy increase of \$500,000 for the overall base capital construction program as the rate of deterioration of infrastructure will increase without stable base funding
- With the recent and anticipated retirement of several senior level Transportation Services Division staff, there is a crucial need to continue with the implementation of succession planning and to maintain a consistent level of dedicated and professional staff



10 Year Construction Plan

In 2016, County of Northumberland Staff completed the biennial update of the pavement condition index (PCI) survey of the County road system using the evaluation system developed by the Ontario Good Roads Association. The system provides a series of standardized factors used to develop a “snapshot” of the physical condition of the entire road network.

The PCI survey is the foundation for the development of the 10-year road construction program, along with traffic count updates and collision data. According to the MTO procedures and documentation, the PCI should be used to determine the need and timing for a road to be rehabilitated. The results of the 2016 PCI evaluation are summarized in the table below, which includes data from prior years for comparison purposes (the 2018 PCIs are in progress, but were not yet complete at the time of budget preparation).

The County enjoyed the significant benefit of receiving Building Canada Funds for the Alternate 401 Detour Route, which included 15 km of road rehabilitation and this is reflected in the percentage of system adequacy at 62%. Several County and Regional governments have an objective to maintain 65-70% of their road system as ‘adequate’.

The desirable target for system adequacy is 70% and it is presently at 62% as a result of the increasing investment made by Northumberland County in the road infrastructure. It is important to note that in 2003, only 24% of the County road system was deemed as ‘adequate’. While significant progress has been made to reach and the budget is approaching the targeted amount for road rehabilitation and maintenance, the needs in the other areas for safety improvements, bridge rehabilitation and service expansion have grown as a result of completed and approved Environmental Assessments and the County’s first Transportation Master Plan. These needs are outlined in further detail in the Transportation Funding Issue paper, with the intention to focus on these areas in the next ten years.

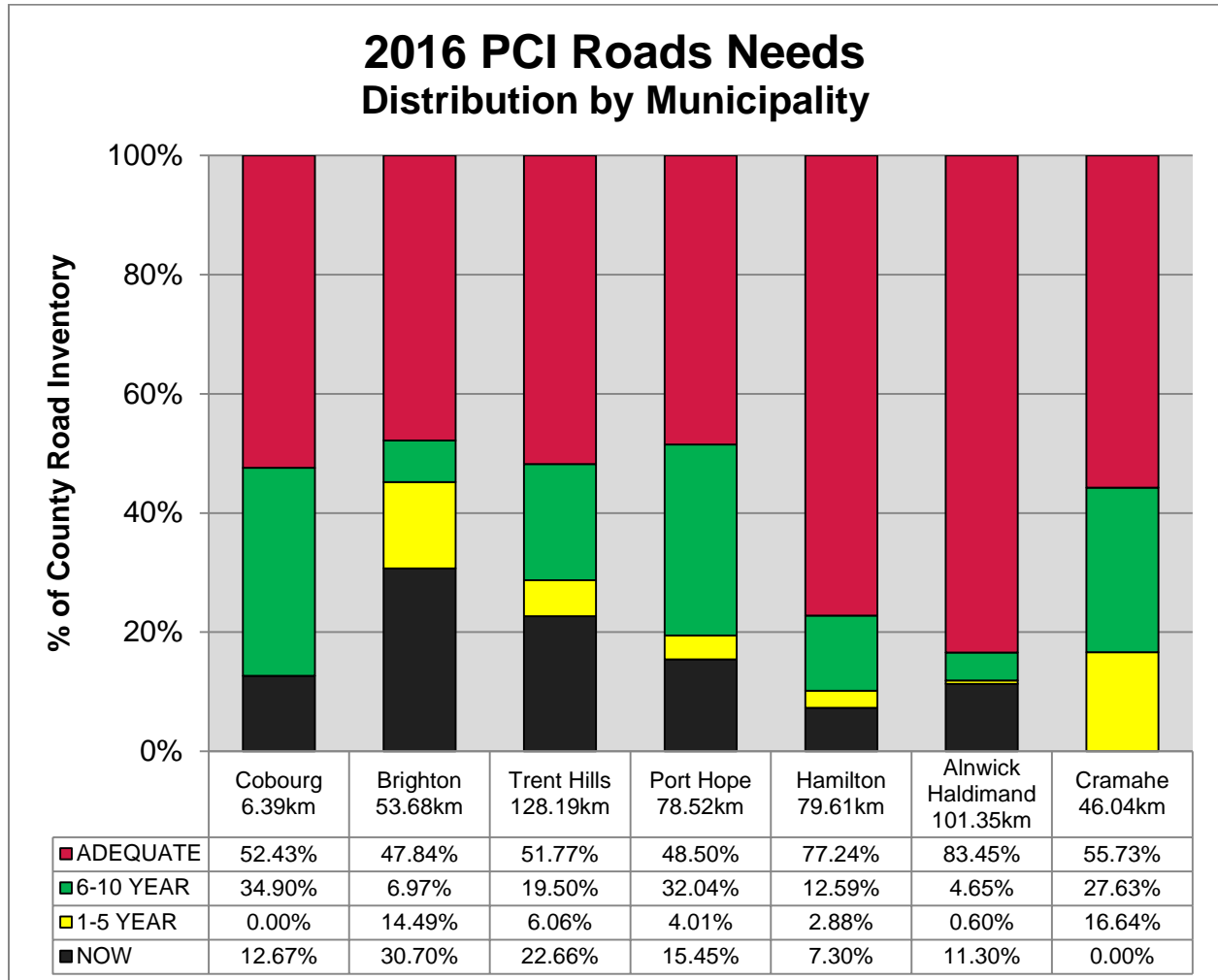
See the summary Chart 1 of 2016 PCI Road Needs – System Adequacy, and Chart 2 for 2016 PCI Road Needs – Distribution by Municipality.



Chart 1 - 2016 PCI Road Needs - System Adequacy

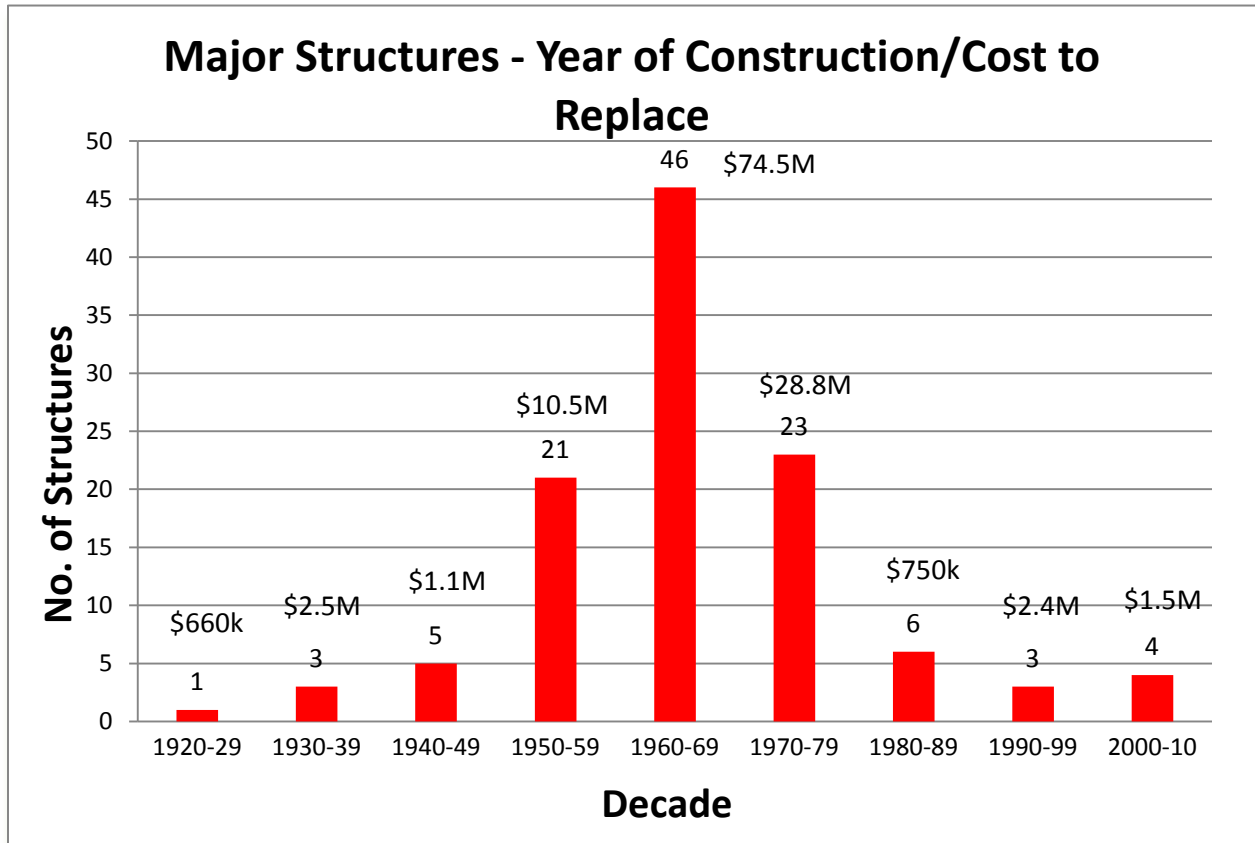
| | PCI Rating | 2003 KM | % | 2006 KM | % | 2008 KM | % | 2010 KM | % | 2012 KM | % | 2014 KM | % | 2016 KM | % |
|--------------------|------------|---------|-----|---------|-----|---------|-----|---------|-----|---------|-----|---------|-----|---------|-----|
| Adequate | > 85 | 121.9 | 24% | 245.2 | 49% | 255.4 | 51% | 280.0 | 56% | 287.6 | 57% | 296.0 | 59% | 305.21 | 62% |
| 6 to 10 Years | 76 to 85 | 152.3 | 30% | 86.1 | 17% | 67.5 | 13% | 76.8 | 15% | 74.7 | 15% | 72.0 | 14% | 83.58 | 17% |
| 1 to 5 Years | 56 to 75 | 209.3 | 42% | 119.9 | 24% | 132.6 | 26% | 113.8 | 23% | 85.4 | 17% | 75.1 | 15% | 29.26 | 6% |
| NOW - Rehabilitate | 1 to 55 | 19.5 | 4% | 51.5 | 10% | 47.7 | 9% | 32.8 | 7% | 55.5 | 11% | 60.0 | 12% | 75.73 | 15% |

Chart 2 – 2016 PCI Road Needs – Distribution by Municipality



The County of Northumberland has an inventory of 112 bridges on 503.5 kilometers of arterial roadways; 48 major structures and 64 culverts of span greater than 3.0 meters.

Generally, the expected lifespan of a structure can range from 50 to 75 years. The age of the County's bridges range from 4 to 92 years old (built between 1922 and 2010). Eighty percent (80%) of these bridges range from 35 to 64 years old (built between 1950 and 1979). The age of major bridges and the cost to replace them are displayed in the chart on the following page.



There is and will continue to be a significant need in the near future to ensure that the continuity and integrity of these structures remain sound due to the continued aging of the infrastructure.



Thriving & Inclusive Communities

- Continue to develop and provide public consultation and communication on projects and initiatives
- Receive and respond to public inquiries and complaints related to transportation in an effective and efficient manner
- Continue to maintain and develop working relationships with member municipalities, neighbouring municipalities and other organizations such as MTO, MOECP, Conservation Authorities, OPP, Cobourg and Port Hope Police Services, etc.
- Representation on various committees and working groups such as Inter-Municipal Public Works Committee, Agricultural Advisory Committee, Waterfront Trail Committee, Safe Communities, etc.

Organizational Excellence

- Complete staff training in various areas for staff members
- Continue with departmental succession planning

2019 Issue Paper

Equipment Replacement Strategy

Purpose

The County's Transportation Services Division has developed a sustainable equipment replacement strategy which allows for timely replacement of the equipment necessary to complete winter and summer maintenance on County roads.

The proposed expenditures for 2019 are \$575,000.00 for capital equipment.

Background

The County of Northumberland has a fleet of 70 pieces of vehicle and equipment for road maintenance and construction, including snow plows, graders, loaders, backhoes, one tons, $\frac{3}{4}$ tons and $\frac{1}{2}$ tons. The Road Operations Division operates out of two maintenance yards equipped with sand domes, salt sheds, garages, equipment and material storage. The total replacement values for transportation vehicles and equipment over \$7 million.

The County currently has a fleet of twenty one (21) combination snow plow units, two (2) anti-icing units, and one (1) emulsion distributor and spreader for surface treating operations. The County's Transportation Fleet Maintenance and Operations Manual states that "the County will strive to maintain a ten year replacement schedule for heavy trucks and a five year replacement for light trucks". An aging fleet is prone to high maintenance costs and more frequent breakdowns, thereby affecting winter snow removal response times, motorist safety and the safety of County snow plow operators.

In 2002, half of the County's Transportation fleet of heavy vehicles was older than ten years. County Council adopted a plan to ensure timely replacement of our equipment in order to have a reasonable fleet life. The plan that was adopted allowed for a base budget of \$550,000 each year for capital equipment. This base budget allows us to ensure timely replacement of our fleet, without causing fluctuations in the annual budget. Currently, 43% of our heavy vehicles are still older than 10 years.



Consultation/Options

Justification for one (1) 2008 Sterling Tandem Combination Snow Plow

The 2008 plow is a truck that is older than ten (10) years. It has over 336,939km's, respectively on all equipment including the plow and wing and combination sander dump box with the winter 2018/2019 yet to be fulfilled. With the purchase of a new unit this would then be moved into being a spare truck, to replace one 2004 Sterling which is one of our older spares now. For this unit to remain operational, it would require major expenditures to remain reliable and in good working order.

Staff is recommending that this vehicle will become a spare unit and the 2004 Sterling Combination Snow Plow that is being utilized as a spare will be sold from the fleet.

The replacement of the one (1) 2008 Sterling Tandem Combination Snow Plow is in keeping with the County Transportation Fleet replacement policy that we "shall attempt to maintain a ten year replacement schedule for heavy trucks".

Justification for one (1) 2011 Dodge 3/4 ton Crew Cab

The 2011 Dodge 3/4 ton crew cab is a high mileage vehicle with 345,500km's on it, due to being driven both day shift and night patrol. This truck is no longer covered under any warranty program. Staff advises that potential repairs and maintenance on this truck could result in thousands of dollars. We will replace this unit with the 2010 Dodge 3/4 ton crew cab that currently has 215,000kms and remains in good mechanical condition.

The 2010 Dodge 3/4 ton crew cab has been used by the Project Engineering Division for field and surveying requirements however, it would be advantageous to utilize a smaller more efficient vehicle. A mid-size commercial van will be purchased to carry out these activities.

The replacement of the 2011 Dodge 3/4 ton truck crew cab is in keeping with the County Fleet replacement policy that we "shall attempt to maintain a five year replacement schedule for light trucks".

Justification for one (1) 2001 John Deere 624H Loader

The 2001 John Deere 624H Loader has over 5,856 hours and is entering its 18th year. This is a highly important piece of equipment that is utilized during winter and summer months for loading materials used for road maintenance and winter activities.



The replacement of one (1) 2001 John Deere 624H Loader is in keeping with the County Transportation Fleet replacement policy that we “shall attempt to maintain a ten year replacement schedule for heavy equipment”.

Justification for one (1) 2003 10 Ton Trailer

The 2003 10 Ton Trailer requires substantial repairs and maintenance to keep in a safe working condition. This trailer is used daily for floating equipment and materials to various locations throughout the County.

The replacement of one (1) 2003 10 Ton Trailer is in keeping with the County Transportation Fleet replacement policy that we “shall attempt to maintain a ten year replacement schedule for heavy equipment”.

Financial Impact

The table below outlines the ten-year Transportation Vehicle and Equipment Purchase and Replacement Plan.

In 2019, the Transportation Services Division is proposing that \$575,000 be spent on the replacement of a 2008 Sterling Tandem Combination Snow Plow, a 2011 Dodge ¾ ton Crew Cab, a 2001 John Deere 624H Loader, and a 2003 10 ton trailer. These purchases would be covered by the Transportation Services Division’s operating budget.

The proposed 2019 budget for equipment purchases / replacements, and major repairs allows for the following:

- Replacement of a year 2008 Sterling Tandem Combination Snow Plow (\$300,000);
- Replacement of a year 2011 Dodge 3/4 ton Crew Cab (\$45,000);
- Replacement of a year 2001 John Deere 624H Loader (\$190,000); and
- Replacement of a year 2003 10 ton trailer (\$40,000).

It is recommended that \$575,000 from the 2019 proposed Transportation Services Division’s operating budget be allocated to replace the above-noted pieces of equipment.



Risk Considerations

We risk the high cost of repairs of these pieces of equipment without any guarantee of a longer life expectancy and may impact our ability to meet our Minimum Maintenance Standards, as per Provincial legislation.

Impacts to Member Municipalities/Partners

N/A

Included in 2018 Long Term Plan: YES/NO

Yes.

2019 Issue Paper

Transportation Funding Strategy

Purpose

The County of Northumberland needs to establish and maintain a sustainable levy-supported capital and operating budget to maintain the existing and to further develop the County roads system infrastructure. In 2002, County Council approved a ten-year plan to incrementally increase the roads budget to its proper level. In 2015, the overall roads strategy was reviewed in further detail, taking into consideration the current state of infrastructure and new infrastructure that has been identified through Environmental Assessments or other processes over the past 10 years. In 2018, the recommendations from the County's Transportation Master Plan (TMP), that was approved by County Council in 2017, was incorporated into this assessment and the revised desired budget level to sustain the transportation infrastructure is \$13.9 million (annually), and the current proposed roads budget for 2019 is \$11.1 million, which is \$2.8 million below the desired budget level. As such, it is imperative that the County continue with the strategy to increase the levy each and every year until the desired budget is reached.

In keeping with the multi-year strategy, a \$500,000 increase to the levy for road infrastructure (pavement rehabilitation and maintenance, traffic safety measures, bridge rehabilitation and maintenance and service expansion) has previously been requested on an annual basis. Prior to 2017, it was requested through two separate issue papers for roads (\$400,000) and bridges (\$100,000) and subsequently in 2018, \$500,000 was requested for transportation as a whole to provide flexibility and ensure suitable funding for the various types of infrastructure each year. As a result of budget pressures in other areas for 2019, this issue paper represents a **\$300,000** increase to the levy. With the increased amount from the Federal Gas Tax for 2019 of approximately \$200,000, the overall impact to the 2019 capital funding will be mitigated.

Background

In 2001, the base budget for roads construction was only \$358,000. This would allow the County to resurface each section of the County road system every **250 years** (2001 costs). The 2019 base budget for roads construction at \$7.8 million would allow for each section of road to be resurfaced every **29 years** (2019 costs). County roads carry higher traffic volumes and a greater percentage of truck traffic than local roads and on average need to be resurfaced every 18-20 years.

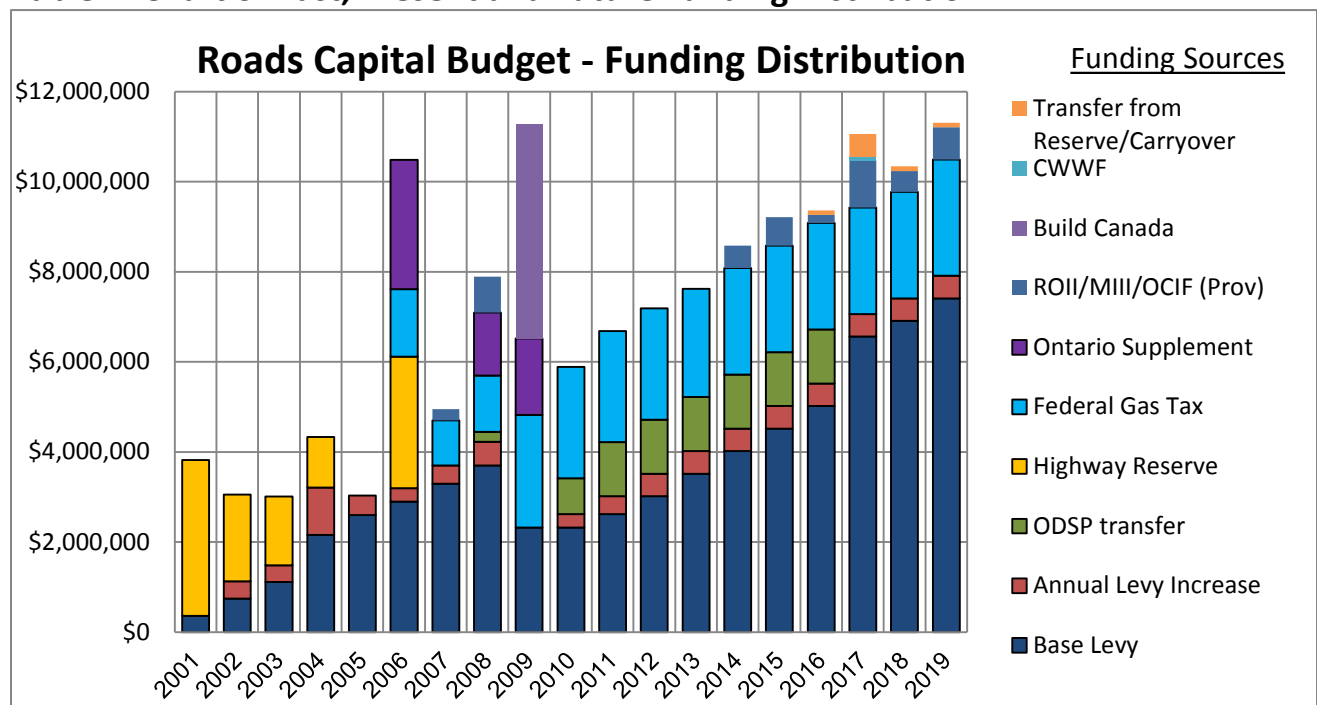


Further, the limited base budget does not address the other roads related needs, such as traffic safety measures, bridges, or service expansion.

During the 2002 budget process, a multi-year strategy was adopted in order to gradually ramp up the County tax levy funding over a 10 plus year period to a level which will maintain the existing County road system at an acceptable level. A program was adopted by County Council to increase the capital roads levy by \$400,000 each year.

Since 2006, the capital roads budget also utilized other available funding sources to supplement the capital roads program, such as the highway reserve, the federal gas tax rebate, the one-time Move Ontario funding, the one-time Build Canada Fund, the Municipal Infrastructure Initiative (MII), and most recently the Ontario Community Infrastructure Fund (OCIF). The funding breakdown is shown in Table 1, below and as illustrated, the most significant funding sources were the one time Move Ontario Funding in 2006 and the Build Canada Funding in 2009, resulting in over \$10 million for the capital roads program in these years, which was needed to help address the continued deterioration of the County road system.

Table 1: Chart of Past, Present and Future Funding Distribution



The County of Northumberland has an inventory of 112 bridges on 503 kilometers of arterial roadways; there are 48 major structures and 64 culverts of span greater than 3.0 meters.



Generally, the expected lifespan of a structure can range from 50 to 75 years. The age of the County's bridges range from 8 to 96 years old (built between 1922 and 2010), with 80% of the bridges ranging from 35 to 64 years old (built between 1950 and 1979).

There is a significant need to ensure the integrity of these structures due to the continued aging of the infrastructure and the growing number of structures that require repairs. Every two years the 48 major structures and 64 culverts are inspected by a team of engineering consultants and County staff in accordance with the Ontario Standard Inspection Manual (OSIM). In 2014, the inspections were performed on the major structures by HP Engineering; and in 2015, the inspections were performed on the culverts by Greer Galloway. OSIM inspections are most effective at providing a visual inspection and identifying immediate or near future maintenance needs, code compliant required upgrades, and rehabilitation. These inspections generally do not yield the high level of detail necessary to accurately estimate the actual costs of improvements.

Since 2002, the roads capital program has generally grown through an annual levy increase of \$400,000. Beginning in 2008, the bridge maintenance levy was further increased by \$100,000 annually.

Consultation/Options

Proposed Strategy

The roads construction project budget addresses ongoing management of four main components of the County Roads System:

1. Pavement Rehabilitation and Maintenance
2. Traffic Safety Measures (traffic signals, street lights, guiderails, intersection improvements)
3. Bridge Rehabilitation and Maintenance
4. System Expansions (road widening, turning lanes, bike paths, new structures)

Based on standard asset management principles, the annual budget required to keep these components of the road infrastructure in good repair are outlined as follows.



Pavement Rehabilitation and Maintenance

Research and statistical evidence into the most timely and cost effective cycle of pavement resurfacing for a County level road indicates that most hot mix asphalt pavements placed on a sound road base will perform well for 18-20 years. If the road receives a major resurfacing at that time, the new pavement can be counted on to perform well for a further 18-20 years. If an asphalt pavement is down more than 20-22 years, the road structure will start to deteriorate more rapidly and there is a real risk of losing the road base entirely. This happens when the native sub-base material (i.e. the natural ground underneath the gravel) starts to pump up into the granular base. Once this happens, the road can no longer be resurfaced and must be reconstructed **at a cost of roughly 7 times the cost of resurfacing**. The corresponding lifespan for a surface treated road is 5-7 years.

With this information in mind, we can determine a base resurfacing budget that will allow us to reduce the need for doing costly road reconstruction. As shown in Table 2, in order for the County to complete resurfacing in the recommended time frame, we should be completing the following amount of resurfacing each year:

- 21.4 km of surface treated roads;
- 18.45 km of paved rural roads; and,
- 1.4 km of paved urban roads.

The cost to complete the recommended resurfacing programs would be **\$8.5 million**.

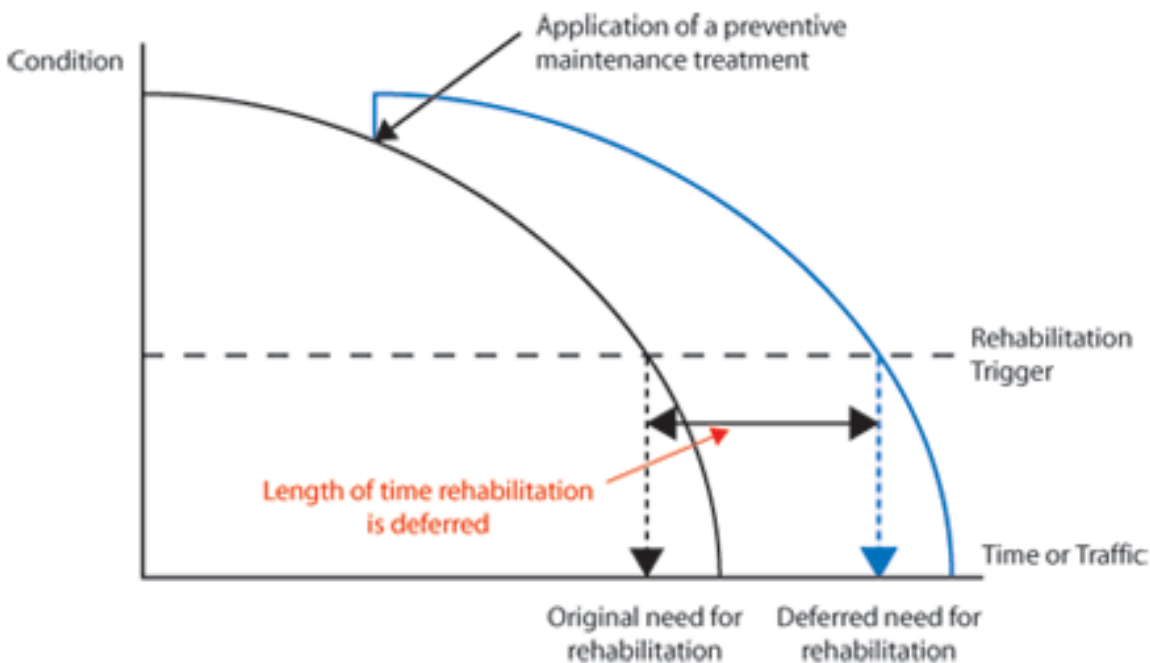
Table 2 – Recommended Resurfacing Base Budget

| Type of Road | Total Kms | Rec. Resurfacing Frequency | Kms/year | Cost/km | Annual Cost |
|---|-----------|----------------------------|----------|-----------|-------------|
| Surface treated | 107 | 5 years | 21.4 | \$15,000 | \$321,000 |
| Paved (rural) | 369 | 20 years | 18.45 | \$400,000 | \$7,380,000 |
| Paved (urban) | 28 | 20 years | 1.4 | \$600,000 | \$840,000 |
| Recommended Base Budget for Resurfacing | | | | | \$8,541,000 |

In addition to resurfacing, a portion of the Pavement Rehabilitation and Maintenance budget is dedicated to pavement preservation. Strategies for preservation include crack sealing, microsurfacing, overlays, etc., and these are typically applied to the roads within 5 to 10 years

after the road has been reconstructed or rehabilitated. These methods are proven to extend the life of the road beyond the 18 to 20 years in a cost effective manner.

Since 2002, the adequacy of the County Road network has increased substantially from 24% to 62%, which is still short of the targeted 70% adequacy. While it is imperative to focus on resurfacing the roads in poor condition, it is also an appropriate time to increase the amount of preservation to maintain and prolong the life expectancy of the majority of County Roads that are in fair to good condition. It is recommended to shift some of the funding from the resurfacing/rehabilitation program to the pavement preservation program. Depending on the strategy applied, pavement preservation ranges from approximately \$1 per meter for crack sealing to \$50,000 per kilometer for microsurfacing, therefore, approximately 8 km of road can be preserved at the same cost to resurface 1 km of road and preservation will typically extend the life of the road by an additional 5 to 10 years. This is illustrated in the following diagram.



The proposed 2019 budget includes the following lengths of resurfacing:

- Approximately 20 km of surface treated roads;
- 15 km of paved rural roads; and
- Approximately 8 km of pavement preservation.

The cost to complete the proposed 2019 roads resurfacing programs is estimated at **\$8.6 million**.



Traffic Safety Measures

Traffic safety measures include upgrades and maintenance on our roadside safety devices, traffic controllers, signals, and signage. There is also an increasing requirement to integrate safety upgrades into pavement rehabilitation projects. Most recently, traffic safety reviews and intersection upgrades have been completed.

Based on an updated review of the guiderail inventory completed in 2015, it was determined there was \$1.4 million in deficiencies which included existing locations that need to be replaced and new locations where guiderail is required, assuming replacement based on the Roadside Safety Manual (mostly post and cable and some steel beam guiderail where a hazard exists within 3 metres from the back of guiderail). In 2015, it was established that the proposed 2015 budget of \$180,000 per year would have completed these deficiencies within 10 years.

In 2016, OPS and MTO withdrew OPSD 1503 and specified that 3 cable guiderail will no longer be used on Ontario roadways. The rationale for eliminating the standard is based on the fact that post and cable deflects vehicles; is sensitive to height and tension; is not recommended for use on horizontal curves or adjacent to slopes steeper than 2:1, or on high speed roads and must have at least 3 m of deflection behind that is free of hazards. As a result, post and cable requires continuous monitoring and more repairs. The average lifecycle of post and cable is 15 years. On the other hand, steel beam guiderail restrains and redirects vehicles and has a lower deflection, therefore, it can be placed closer to hazards; is more durable; and requires less monitoring and maintenance. The average lifecycle of steel beam guiderail is 30 years.

Upfront costs for steel beam are generally higher (approximately 50 to 60%), however, given the longer lifecycle and reduced time and costs associated with maintenance, as well as increased safety, steel beam is recommended.

Going forward, to comply with the new standards, all post and cable will be replaced with steel beam guiderail. The change was implemented as part of the 2017 program and the bids received in the 2017 safety device tender for steel beam were much lower than typical estimated costs, which may be a reflection in the change of the standards (the 2018 tender was not yet closed at the time of issue paper preparation). The costs will be monitored moving forward to better determine an overall deficiency cost based on more accurate unit rates. Guiderail replacement will continue to be prioritized and coordinated with paving projects; however, moving forward a higher portion of the traffic safety budget may be allotted to guiderails to accommodate this change in standards in the 10 year plan.

In addition to this amount, there is an ongoing requirement for upgrades and maintenance on our traffic controllers, signals, signage, and other traffic safety measures. In particular, there is



an increasing requirement to integrate safety upgrades into pavement rehabilitation projects. Most recently, traffic safety reviews and intersection upgrades have been completed. In 2014, upgrades were completed at the intersection of County Road 45 and County Road 33 (Merrill Road), and a safety assessment was completed at the intersection of County Road 45/Lonsberry Road/Roseneath Landing Road and County Road 30/29. Operational and maintenance improvements were completed at 45/Lonsberry Road/Roseneath Landing Road in 2015 and upgrades to County Road 29/30 were completed in 2016. In 2016, a safety assessment was undertaken at the intersection of County Road 30 and Old Wooler Road, and the County received and reviewed requests for Accessible Pedestrian Signals (APS) at four signalized intersections. Safety related upgrades at County Road 30/Old Wooler Road and APS installation on County Road 2 (Elgin Street) at Strathy Road in Cobourg, were completed in 2017 in conjunction with pavement rehabilitation projects. The County was also successful in receiving \$725,000 in Ontario Community Infrastructure Fund (OCIF) “Top-up” funding to cover a portion of the intersection improvement costs at County Road 30/Old Wooler Road. Savings from the budget, allowed for the additional safety improvements to be completed on County Road 2 (Elgin Street), as well as other Transportation projects. In 2018, a safety assessment is underway on the County Road 45 Corridor through Alderville and Roseneath as well as County Road 2/10/74 in the hamlet of Welcome, of which findings and recommendations for improvements are still pending at the time of this issue paper preparation. The County also completed a number of traffic signal repairs and routine maintenance, as well as upgrades to include UPS battery back-up at three (3) County owned traffic signals.

Depending on the required improvements, the cost of implementing safety upgrades can vary widely from very minimal for brushing, pavement markings, signage, lighting, etc., to hundreds of thousands of dollars for geometric changes such as adding turning lanes, modifying grades, expanding radii, paving, APS, etc. Where possible, these larger design and construction improvements can be incorporated into the current year’s paving tender.

Based on the improvements outlined above, a realistic annual base budget to address traffic safety measures is **\$500,000**, however, this may be modified in the future based on revisions to the guiderail deficiency cost based on current rates and based on future safety improvements identified through the TMP.



Bridge Rehabilitation/Replacement and Maintenance

The County has 112 bridges and major culverts that require ongoing repairs, maintenance, and occasional replacement. Prior to 2003, there was not a base budget to address bridge rehabilitation and maintenance. As part of the 2004 budget process, County Council established a base budget of \$450,000 per year for bridgework. In actual fact, based on the urgent, 1-5 year, and 6-10 year bridge needs that have been identified in the Ontario Structures Inspection Manual (OSIMs) inspections for the County's structures in 2014 and 2015, the total estimated work is **\$19.3 million**, and a more reasonable annual base budget for bridge rehabilitation is **\$1,930,000**.

The 10-year capital plan for required structure improvements is prepared based on the OSIMs and other available information. Each year, the needs for required improvements are compounded. The main factor that is compounding the infrastructure deficit is the fact that each year the County's budget is insufficient in covering the costs of immediate needs which creates a backlog of structures in need of improvements. This means the needs of some structures are carried over to the next year, and at the same time, a new set of immediate needs are identified for a new group of structures.

Figure 1 shows the required budget to implement all the OSIM recommendations, including all maintenance, required code compliant upgrades, major rehabilitations and bridge replacements within the next 10 years. The funding that would be necessary to implement these works is estimated at \$19,300,000. This estimate includes structures for which works are planned within the 10 year budget and those structures for which works are not planned but would have reached the end of their useful life within this 10 year timeframe. Included in these estimates are costs for detailed engineering design, contract administration and construction. It is important to note that cost estimates at this stage are considered rough order of magnitude (ROM) estimates. This type of estimate represents an informed idea of the magnitude of the work required without having professional structural engineers prepare the detailed design and cost estimates. The variance attributed to ROM estimates can be +/- 50%. Cost estimates will be refined further during the detailed design and tender stages.

Required Budget per Type of Required Repair - Through 2027

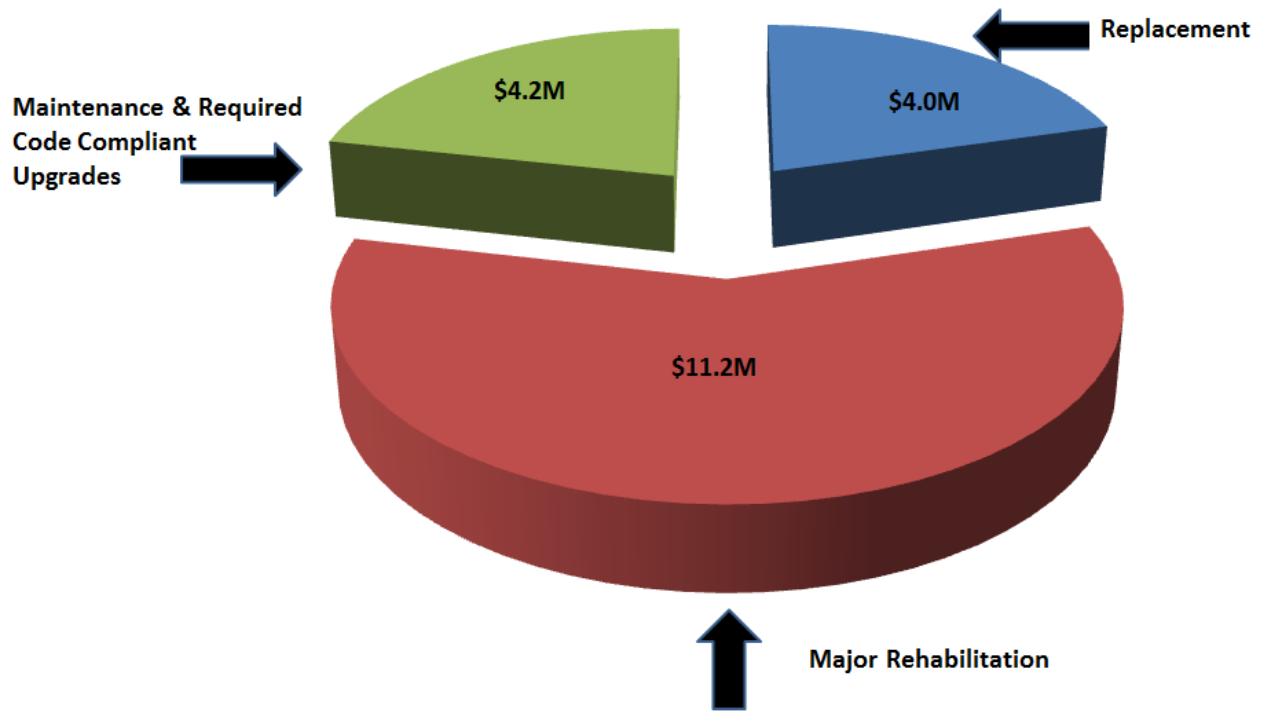


Figure 1

Table 3 shows the actual required budget for all types of repairs broken down by timeline. As can be seen in this table, the estimate for required repairs that should occur within the next year is \$2,100,000. One of the main reasons this estimate is so high is due to the compounding effect mentioned earlier.

Table 3 – Actual Required Budget for Bridge Replacement, Major Rehabilitation and Maintenance (M=\$1,000,000)

| Timeline | As of 2016 |
|------------|------------|
| < 1 year | \$2.1M |
| 1-5 years | \$5.6M |
| 6-10 years | \$11.6M |
| Total | \$19.3M |

Number of Bridges per Type of Required Repair - Through 2027

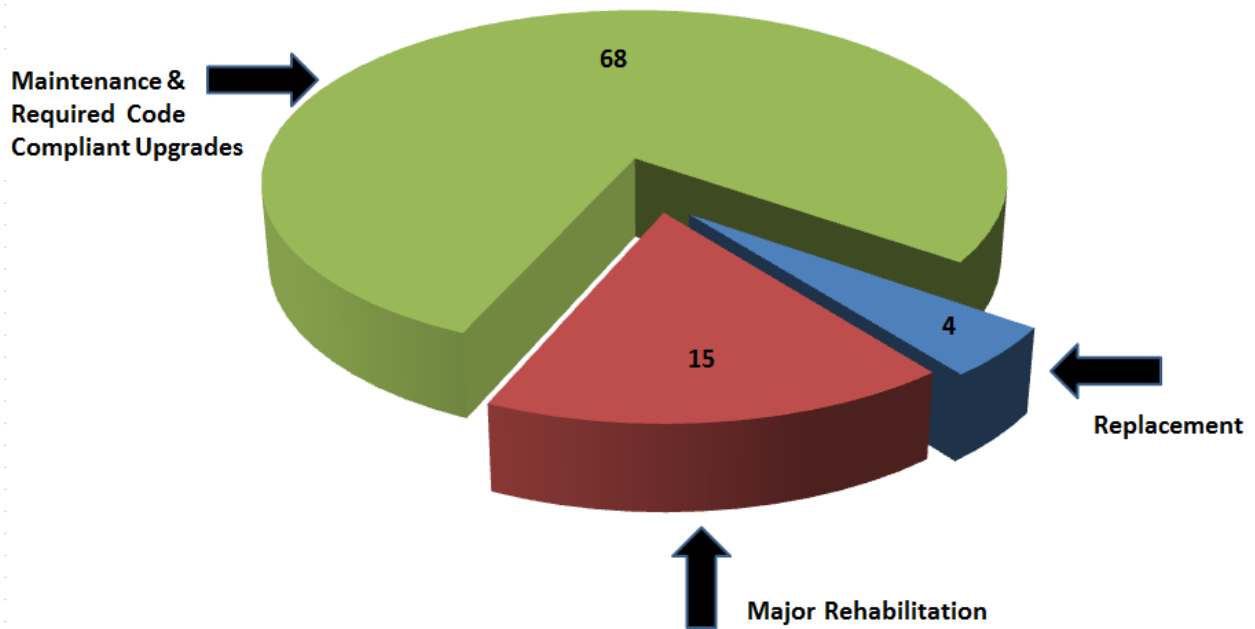


Figure 2



Figure 2 shows the number of structures that fall within each category of required repair. As can be seen from this figure, the majority is in need of maintenance and required code compliant upgrades. Maintenance is fundamental to the preservation of the integrity of the structures, to lengthen the structures' useful life, and to ensure that the number of structures that require major rehabilitation remains low. It follows that maintenance is imperative to ensuring that costs for major works remain feasible.

The proposed 2019 budget allows for **\$1,475,000** for detailed bridge condition studies, engineering design, rehabilitation, and repairs and inspections. This includes \$75,000 for Dartford Bridge design and Tender, \$75,000 for Hastings Bridge design and tender, \$500,000 for the Thompson Bridge rehabilitation/replacement (anticipate cost sharing with Trent Hills), \$50,000 for County Road 65 culvert design and tender, \$515,000 for the Campbellford Trent River Bridge Crossing, \$100,000 for the bridge reserve, \$40,000 for biennial bridge inspections, \$100,000 for bridge maintenance and \$20,000 for minor bridge repairs.

System Expansion

In 2013, the County approved an area-specific development charge for the Cobourg East community (By-law 26-13) to address future expansion of the County infrastructure related to this specific development including road widening, urbanization and intersection improvements on County Road 20 (Elgin Street and Brook Road North), as well as a grade separation at the CNR/CPR tracks on Brook Road North. Prior to the passing of By-law 26-13, the County did not collect any development charges and currently continues not to collect for the remainder of the County, therefore, any system expansions, such as traffic signals, turning lanes, road widening, new structures, etc. need to be funded through the County levy. Because many of these improvements are triggered by growth in the area, it is difficult to project a base budget that is realistic to address ongoing system expansions.

In accordance with the Development Charges Act (DCA), 2017, development charge by-laws are to be updated every five years. As such, the County undertook a review and public process to update the Cobourg East Community development charge study and by-law in 2018 (new by-law 2018-23) which came into effect June 21, 2018. Overall, there were only minor changes to the study including some updated unit costs for infrastructure.

Previously, an annual base budget of \$650,000 was proposed as reasonable to address the system expansions that we anticipate over the next ten years, however, this figure did not include any allocation for the County's share of the Brighton Grade Separation or a potential new bridge in Campbellford, or any of the transportation service improvement needs identified by other EA processes or studies. Two of the County's major Environmental Assessments were recently completed and approved by the Ministry of Environment and Climate Change; the



Trent River Crossing and Arterial Road Network EA (2017) and the County Road 2 EA (2016). The County has also completed its first Transportation Master Plan (TMP), which was endorsed by County Council in 2017; hence estimates and timelines for the proposed preferred alternative designs are available and are outlined below. Based on these, a more reasonable annual budget of **\$3.0 million** is proposed.

Trent River Bridge and Arterial Road Network EA:

The preferred Alternative Design for the Trent River Bridge and Arterial Road Network EA includes a new bridge at Second and Alma Street, and replacement of the current bridge crossing. Estimated costs and timing are provided below based on the phasing and implementation schedule in the Environmental Study Report.

Based on the estimates and the implementation plan for the bridge and assuming engineering, property acquisition, contingency, etc. would be on the order of 20% of the total construction costs, a total of \$19.9 million is required for Phase 1 in the next 10 years, equivalent to \$2.0 million per year, assuming the full cost is funded through the County levy. However, the intention is to proceed with the new bridge when provincial and federal funding is available. Under this scenario, assuming 60% funding from other levels of government and 40% from the County, a total of \$8 million is required for Phase 1 from the County levy, equivalent to **\$800,000 per year**. The target transportation budget is based on this assumption. If Council decides to proceed with construction of the new bridge within 10 years without provincial and/or federal funding, \$19.9 million will be required through a combination of capital funding reserves, and/or debenture between approximately 2024 and 2027.

In prior years the County had planned to rehabilitate the Trent River Bridge on County 45 in Hastings during 2017. However, given the recent disruption to traffic and local community resulting from Parks Canada's rehabilitation of the Hastings Swing Bridge in 2016 the planned rehabilitation has been deferred to 2020. Budget savings from the deferral of this project will allow the County to allocate \$780,000 towards designing Phase 1 or property acquisition of the Trent River Bridge and Arterial Road Network improvements in Campbellford. Completing additional design for Phase 1 will better position the County to obtain federal/provincial funding when it becomes available. Ongoing reallocation of Rehabilitation, Replacement and Maintenance funding towards Phase 1 of Trent River Bridge service expansion project is not feasible as it will erode the County's ability to maintain its existing bridge infrastructure over the long-term.

Since Phase 2 involves replacement of existing infrastructure, this cost will be included in the Bridge Rehabilitation, Replacement and Maintenance section, however it is beyond the current 10 year plan.



County Road 2 EA – Burnham/William Street to Hamilton Road:

The preferred Alternative Design for the County Road 2 EA includes widening on County Road 2 to four lanes in the urban section of Cobourg, widening to three lanes in the rural section through Hamilton Township and the Municipality of Port Hope and construction of a multi-use trail along County Road 2 or along the shoreline, and a roundabout at Theatre Road. Based on the estimates, phasing and implementation schedule in the Environmental Study Report, and assuming engineering, property acquisition, contingency, etc. would be on the order of 20% of the total construction costs, a total of \$2.32 million is required for expansion on County Road 2 in the next 10 years, equivalent to **\$232,000 per year**.

Transportation Master Plan:

The County also completed its first Transportation Master Plan (TMP) and it was adopted by County Council in 2017. There are a number of recommendations included in the plan related to infrastructure/safety improvements, policy recommendations, and active transportation. As part of the TMP assignment, high level cost estimates and potential funding options were reviewed and proposed. Where possible, recommended improvements over the next 10 years (2018-2028) will be incorporated into the existing capital budget, however, some additional funding or deferral of some projects beyond 10 years will be required. The associated costs are summarized below:

Infrastructure/Safety Improvements:

Infrastructure improvements include: top 10 collision intersections, intersection signalization, revised speed limit changes, Hamlet Entry Treatments, Corridor studies for 2031 improvement locations, Environmental Assessments for 2031 improvement locations, EDR relocation feasibility study and construction, GO Rail extension business case study, and a number of other smaller data collection and information gathering studies (AADT, speed data, funding options, etc.) as outlined in the TMP.

The overall high level cost for all of these improvements and studies between 2018 and 2028 is between \$2.2 million and \$4.2 million. This estimate does not include the cost for implementation of the major studies/projects and based on discussions throughout the TMP process as well as at TWF Departmental meetings, the intention is to move forward with the implementation of two of these major project within the next 10 years including relocation of the EDR in Cramahe/Brighton, as well as extension of GO service to Northumberland County. A high level estimate to complete upgrades to one of the potential new EDR roads is approximately \$10 million (would involve road widening, structure widening/rehab/replacements, drainage improvements, cut/fill to address grade changes, road



resurfacing, etc.). Extension of the GO service is estimated to be approximately \$250,000 per year or \$2.5 million over 10 years assuming a pilot project that provides a bus between Cobourg/Port Hope to Durham Region twice a day. Further details and more accurate cost estimates will be developed throughout the study phase for each of these projects.

Therefore, the overall cost estimate is \$14.7 to \$16.7 million over the next 10 years or \$1.46 to \$1.67 million per year.

In 2017, the County proceeded with one of the recommendations in the TMP for Hamlet Entry Treatments in Cold Springs and Welcome. These two locations were chosen as pilot projects and will be monitored and analyzed to assist with the development of an on-going program for the remaining Hamlets in future years.

Policy Recommendations:

A number of policies were reviewed as part of the TMP study and resulted in major and minor recommendation changes to twelve (12) policies and the creation of nine (9) new policies or guidelines. It is anticipated that the majority of policy changes and creation of new policies will be completed in-house by County staff.

Active Transportation:

The TMP reviewed the County's Cycling Master Plan (CMP), which was completed in 2012 and updated in 2014. Since the approval and implementation of the County's CMP, new Ontario Traffic Manual (OTM) guidelines for Active Transportation (Book 18) were developed, as such, the TMP provides a number of recommendations on potential updates to the CMP to be consistent with OTM Book 18. It is anticipated that the majority of CMP review and updating will be completed by in-house County staff.

Overall, it is estimated that approximately that \$1.5 million to **\$1.7 million** would be required per year over the next 10 years for implementation of the County's TMP.

Summary:

Including the cost estimates for expansion in the next 10 years from the projects above, as well as other more minor expansion project (i.e., turning lanes, traffic signals, etc.), a realistic annual base budget of **\$3.0 million** is required to address system expansion. This will increase in future years based on detailed cost estimates and programs resulting from studies completed as part of the Transportation Master Plan (i.e., corridor studies that recommend future widening, etc.) and any other EAs or studies that may be completed, including the Brighton Grade Separation.



The proposed 2019 budget allows for **\$510,000** of system expansion projects. This includes \$50,000 for the design of Phase 1 of the Trent River Bridge and Arterial Road Network improvements in Campbellford, \$140,000 for TMP/EA improvements, \$100,000 for CMP improvements, \$45,000 for County Road 2 EA improvements, \$25,000 for the Master Drainage Plan Study (remaining amount required after \$75,000 in CWWF funding received in 2017), and \$100,000 for GIS/Asset Management.

Financial Impact

Total Budget Requirements

Based on the information above, we can determine that the base construction budget to properly manage our County Road assets should be in the order of **\$13.9 million** while the estimated value of the 2019 construction program is **\$11.1 million**. While great strides have been made in the past ten years, a number of major bridge structures are approaching and/or reaching their lifespan, and additional major expansion projects have been identified during that time (i.e., second crossing of the Trent River Bridge, County Road 2 widening, Grade Crossings, EDR relocation, GO, etc.), which increases the required base budget for roads capital. In addition, the estimates have been updated to better reflect the current construction costs.

The current base budget is approximately \$2.8 million short of the new target amount, therefore, an annual increase in the roads budget continues to be necessary in order to meet the \$13.9 million target and it is imperative that the County continue with this strategy each and every year until it has been reached.

Federal Gas Tax

Part of the 2005 Federal Budget included the Federal Government's New Deal for Cities and Communities. This New Deal included federal gas tax money being distributed to municipalities for investment in a range of infrastructure projects. We have received the federal gas tax in previous years:

| | |
|-----------------|-------------|
| Year 4 (2008): | \$1,253,244 |
| Year 5 (2009): | \$2,506,488 |
| Year 6 (2010): | \$2,474,857 |
| Year 7 (2011): | \$2,474,857 |
| Year 8 (2012): | \$2,468,018 |
| Year 9 (2013): | \$2,406,317 |
| Year 10 (2014): | \$2,364,412 |



2015 through 2018: \$2,364,412
2019: \$2,581,705
2020: \$2,581,705
2021: \$2,699,055
2022: \$2,699,055
2023: \$2,816,405

The Federal Gas Tax Fund (which represents 23% of the road construction program revenue in 2019) was made permanent in 2015 through a federal legislation and the County can expect to receive the amounts noted above over the next five years (\$2,581,705 to \$2,699,055 or 19% of the targeted \$13.9 million budget).

OCIF Funding

In 2019 the County will be receiving \$717,540 in funding from the OCIF formula based funding that will be used towards road rehabilitation projects.

The County has also submitted an application for OCIF top-up funding in the amount of \$500,000 (maximum allowed) for the County Road 30 road rehabilitation project (from 401 to just south of Guertin Road). It is anticipated that the County will be notified in early 2019 if the application is successful.

Risk Considerations

It is imperative that Council continues to support levy increases to protect the integrity of the County's road infrastructure with a \$300,000 increase to the levy in 2019 for road rehabilitation, bridge rehabilitation, traffic safety and service expansion. Without a sustainable road and bridge budget, roads and bridges will continue to deteriorate at a rate faster than they can be rehabilitated, leading to potential bridge load restrictions or even closures and higher costs for complete reconstruction when they eventually do get done.

Impacts to Member Municipalities/Partners

The County Road network intertwines with the member municipality roads, directly impacting movement of traffic within each municipality as well as movement of people, goods and services between municipalities. Therefore, the integrity of the County road system is integral for the member municipalities, not only from a transportation perspective, but for economic development and tourism.



In addition, through shared services, the County and member municipalities have been issuing a number of joint tenders/RFPs/RFQs in efforts to be more efficient and hopefully realize savings through magnitude of work.

Included in 2018 Long Term Plan: YES/NO

Yes.