

## REPORT

COMMUNITY SERVICES COMMITTEE

MEETING DATE: DECEMBER 7, 2015

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**FROM:** Engineering and Construction Department

**DATE:** November 11, 2015

**SUBJECT:** 2016 Road Resurfacing and Pavement Preservation Program

**LOCATION:** Town wide

**WARD:**

Page 1

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**RECOMMENDATION:**

That the *2016 Road Resurfacing and Pavement Preservation Program*, as detailed in the report from the Engineering and Construction department, dated November 11, 2015, be approved, subject to the approval of the 2016 Capital Budget.

**KEY FACTS:**

The following are key points for consideration with respect to this report:

- The annual road resurfacing and preservation program provides funding for the rehabilitation of existing asphalt pavements within the Town of Oakville's road network.
- The approved capital budget for the 2016 program is \$7,828,000.
- The recommended 2016 program will rehabilitate approximately 22.3 kilometres of roadways through various strategies including road resurfacing, major patching and crackfilling.
- The program includes approximately 700 metres of shoulder paving on Sherwood Heights Drive at a cost of \$70,000.
- There are four locations that the town and Halton are coordinating and cost sharing the final road rehabilitation.
- An allowance of \$200,000 has been allocated to carry out interim rehabilitation of selected intersections/crosswalks along Lakeshore Road East in the downtown core to extend pavement life until the full road reconstruction and streetscape is carried out in 2019/2020.
- The program includes an additional \$200,000 to be contributed to Roads and Works Operations to carry out pavement preservation programs such as crack sealing and major patching at various locations throughout the town.
- To fully utilize the allocated capital budget for the road resurfacing and preservation program, staff is recommending that any realized net surpluses

From: Engineering and Construction Department  
Date: November 11, 2015  
Subject: 2016 Road Resurfacing and Pavement Preservation Program

from the current year's program to be allocated towards the following year's program.

**BACKGROUND:**

The purpose of this staff report is to advise Council of the various candidate road locations included in the 2016 Road Resurfacing and Preservation Program and to seek approval to proceed with the program subject to approval of the 2016 capital budget.

The departments of Engineering & Construction and Roads & Works Operations work together to rehabilitate and maintain the town's road infrastructure. This network is comprised of approximately 1,600 lane kilometres of road pavement with an estimated asset replacement value of approximately \$600 million. The town's road network continues to grow as growth related road improvements are delivered and newly built roads in subdivisions are assumed by the town.

The town's annual road resurfacing and preservation program addresses the rehabilitation and maintenance of Oakville's road network. Roads that have deteriorated below defined service quality levels are resurfaced/rehabilitated in order to extend their service life and avoid the more significant costs of full road reconstruction (when they deteriorated past any viable rehabilitation option). Other preservation strategies are also built into the program including minor/major asphalt patching and a selected crack sealing to help extended the service life of pavements. Engineering and Construction works closely with the Roads and Works Operations in managing and coordinating these additional preservation strategies. In addition, staff also works closely with Halton to ensure proper coordination, timing and cost sharing opportunities in delivering each other's respective infrastructure improvements.

Since 1997, the town has been utilizing a pavement management software application to evaluate, analyze, prioritize and develop an annual list of candidate road sections for resurfacing. This system integrates field measured data (i.e. structural adequacy, surface distress and ride quality) with data for traffic and pavement structure strength to model existing conditions and predicted pavement performance deterioration. This provides an objective, technically based needs index and rating for all town roads.

In October of 2009, staff documented a structure and process for the selection of candidate road sections with clear rationale and criteria for ranking priority across all road classes. It was based on a calculated percentage below a desirable Pavement Quality Index (PQI). This selection process was endorsed by Council (refer to Appendix 'A') and has since been used in developing the annual program.

## COMMENT/OPTIONS:

### **Roads to be Resurfaced in 2016:**

Appendix 'B' identifies all roads recommended for resurfacing in 2016. The list is based on the approved candidate selection process and includes additional road sections that support a community approach (i.e. roads that are adjacent to a qualified candidate section and have a respective % below desirable PQI high enough to suggest they would likely qualify as a candidate for the program in the very near future). In total, 22.3 centreline km of road pavement will be resurfaced as part of the 2016 program.

Other road sections that need special mention or candidate locations that may be affected by planned or other potential Halton water or wastewater projects as part of preparing the 2016 program are as follows:

### **Shoulder Paving within the Clarkson Airshed:**

Shoulder paving of roads with high traffic volumes was one of the identified strategies included in the *Clarkson Airshed Study* to improve air quality issues within the area. In 2011 staff developed a prioritized list of roads in the study area that would be candidates for shoulder paving. To date, nearly 45% of the list has been completed.

The proposed 2016 program includes approximately 700 metres of shoulder paving along Sherwood Heights Drive from the westerly urban section limit to Kingsway Drive. The work will involve paving up to 2.0m width of varying gravel shoulder widths. In areas where the gravel shoulders are wider than 2.0 metres, the remaining gravel shoulder will be treated with asphalt emulsion that will also seal the gravel surface preventing air borne dust particles created from passing vehicles and trucks. The cost of this work has been estimated to be \$70,000.

### **Coordination with Halton Projects:**

Candidates for road resurfacing are reviewed in collaboration with Halton's capital forecast to ensure roads are not rehabilitated in advance of any major undertaking by Halton and to take advantage of cost sharing opportunities for the road rehabilitation. This year's program includes Arkendo Drive and Waters Edge Drive as a new coordinated project with Halton work. As part of the road rehabilitation on Arkendo Drive in 2016, the existing segmental curbs, which are prone to damage from winter plowing operations, will be replaced with standard continuous poured curbs.

Two other locations, Nelson Street and Hixon Street, are carryover projects from the approved 2014 program as the implementation of these projects by Halton were

From: Engineering and Construction Department  
Date: November 11, 2015  
Subject: 2016 Road Resurfacing and Pavement Preservation Program

delayed. Halton's work on these roads is now complete and the final road rehabilitation can proceed in 2016.

In addition to Halton's planned 2016 capital program, they are also reviewing the condition of their underground infrastructure within the town's proposed 2016 road resurfacing candidates. At the time of writing this report, this assessment has not been fully completed. Should Halton raise any concerns with potential repairs/rehabilitation of their plant under our candidate streets, staff will consider the deferral of these sections until the underground work and timing is resolved.

Some candidate roads sections that would have potentially qualified for resurfacing as part of this year's program are being deferred until they can be aligned and coordinated with Halton's work and the town's capital transportation improvement program. In the interim, these road sections will be monitored for required pavement maintenance to bridge the gap until the coordinated work with Halton can be completed. Staff will continue to work with the Region to review and re-prioritize some of their candidate sites to better suit the town's resurfacing plans and timing.

#### Wallace Road and York Street

Wallace Road and York Street require pavement rehabilitation and are candidates for this year's program. The rehabilitation of these local industrial roads also requires overall improvements to roadside drainage as there are numerous areas that have persistent ponding after rainfall events predominately due to failing and plugged driveway culverts and poor roadside ditches. Based on a preliminary functional design, it is expected the road rehabilitation will also include small extensions of existing storm sewer, culvert driveway replacements, road re-profiling and re-ditching to properly address the drainage deficiencies that currently exist. The preliminary cost estimate for the works is approximately \$375,000.

A subsurface geotechnical investigation to determine the existing road base structure will be completed in the near future and in advance of completing the detail design. Should the geotechnical results reveal a substandard granular road base, additional work to excavate and rebuild the road platform may be necessary to adequately support traffic loads. These additional costs would be funded through any realized saving to the overall program account or the contract contingency if sufficient funds are available. Should additional funds be required staff will review/consider what other candidate roads may be deferred from the program in order to proceed.

#### Maple Avenue

Halton has scheduled watermain replacement for Maple Avenue from Watson Avenue to Chartwell Road as part of their 2016 program and the town will be cost sharing the pavement rehabilitation on this section of roadway. Halton will complete

From: Engineering and Construction Department  
Date: November 11, 2015  
Subject: 2016 Road Resurfacing and Pavement Preservation Program

the watermain replacement in 2016 and restore the road to new base asphalt. The town will place the top asphalt layer in 2017 once the Halton's contract warranty is closed out.

Maple Avenue is a two lane collector roadway that supports transit. The westerly 160 metres of the roadway is a rural cross section with no defined ditches. The remaining section west of Watson Avenue is an urban cross section with curbs. Converting the westerly section of Maple Avenue to a urban cross section would improve accessibility to the transit stops and improve roadside drainage along the current rural section.

In order to introduce curbs in the rural section the existing road profile would need to be slightly lowered to continue to provide positive drainage of the boulevards. A subsurface geotechnical investigation to determine the existing road base structure will be completed in the near future and in advance of completing the detail design. Should the geotechnical results reveal a substandard granular road base, additional work to excavate and rebuild the road platform may be necessary to adequately support traffic loads. Total cost to urbanize this 160 metre road section including rebuilding of the roadbase is estimated to be \$240,000. This urbanization work would need to be included as part of the Halton's 2016 contract.

#### Lakeshore Road (downtown) Intersection Rehabilitations (5 Locations)

The proposed capital forecast includes the reconstruction and streetscaping of Lakeshore Road from Allan Street to Navy Street in 2019 and 2020. Five of the intersection and cross walks in this road section are in very poor condition and require interim repairs to extend pavement life and to ensure safe movement until the full reconstruction and streetscape project begins in 2019.

Staff are proposing that an allowance of \$200,000 be allocated from 2016 Road Resurfacing Program to rehabilitate these intersections. The work would include removal of the concrete crosswalks and partial/full depth removal of the asphalt within the intersection. The intersections would then be repaved and crosswalks demarcated with paint. In order to minimize disruption, the work would be scheduled in off peak hours and/or overnight. Staff will be working with the BIA to coordinate the most appropriate time to undertake this work (e.g. avoid disrupting downtown events).

#### Iroquois Shore Road

Iroquois Shore Road from Trafalgar Road to Eighth Line is a candidate for rehabilitation in the year's program. This section of road is part of future improvements and widening as proposed from the approved Midtown Transportation and Stormwater Municipal Class EA; however, the project is currently outside the

From: Engineering and Construction Department  
Date: November 11, 2015  
Subject: **2016 Road Resurfacing and Pavement Preservation Program**

proposed 10 year capital forecast. The roadway requires interim improvements until the project is programmed into a future capital budget.

The rehabilitation of the roadway is included in the proposed 2016 resurfacing program – this will extend the current life of the road surface for 10 - 12 years. With the MTO's Trafalgar Road bridge re-habilitation continuing through 2016, staff will look at restricting the resurfacing work on this road section to night-time work in order to minimize travel delays along Iroquois Shore Road and adjacent corridors.

Preservation Strategies for 2016:

This year's program includes other preservation implementation strategies totaling \$200,000; they include major road patching and crack sealing at various locations throughout the road network. These strategies are implemented through the Roads and Works Operations Department. Engineering and Construction and Roads and Works Operations work together to establish the locations and extent of these programs. These techniques are implemented as cost effective measures to extend asphalt life cycles

In 2015, approximately 100 km of pavement cracks were routed/ sealed through a cooperative Halton-wide purchasing program. For 2016, the target for crack sealing will also be in the order of 100 km. Crack sealing is a preservation technique that is utilized when a pavement starts to experience reflective cracking and where moisture may begin to penetrate within the pavement subsurface structure. We are generally focusing on arterial and collector class roadways which experience higher traffic loads for this treatment; however, there are some selected residential roads that may undergo this treatment.

Major patching initiatives in 2015 were undertaken at 49 locations totaling approximately 5,000 square metres of pavement. In 2016, the quantity will be determined after the effect of the winter season is realized.

With the significant funding increases allocated to the Road Resurfacing Program the past few years the town has been able to reduce a considerable amount of the backlog of roads requiring more significant forms pavement rehabilitation. As the program matures, opportunities are becoming available to apply cost effective rehabilitation techniques to extend the pavement life cycle on road sections through development of the road candidate list and selection of adjacent road sections. For example, approximately 22% of the 2015 program budget was allocated to minor resurfacing applications instead of the more costly major rehabilitation initiatives if these road sections had further deteriorated.

Pavement Network Performance:

The proposed 10-year funding forecast (2016-2025) for the Road Resurfacing and

From: Engineering and Construction Department  
Date: November 11, 2015  
Subject: 2016 Road Resurfacing and Pavement Preservation Program

Preservation Program provides a total of \$96,500,000 to improve and maintain the overall condition of the town's road network. A road Network Performance Graph reflecting the network performance to date and the funding based on the current funding forecast was presented to the 2016 Budget Committee and a copy is provided in Appendix C.

Based on the current funding levels in the 10 year forecast, the overall pavement network performance is improving and trending towards a 0% deficient road network sometime after 2025. The cost of asphalt is directly tied to the price of liquid asphalt, a byproduct of crude oil. In addition, the nature of the paving operation, fuel costs in production, delivery and installation of the final asphalt product also play a key role in establishing the unit pricing of asphalt. As a result, the overall network performance under any budget forecast model is highly dependent on what the market price of crude oil is. Lower crude pricing results in more favourable network performance over the long term since more roads can be rehabilitated with the established budget. Likewise if crude oil pricing increases, less roads can be rehabilitated with the established budget. Over the long term this can have a substantial impact on the results of overall pavement network performance.

Quality Assurance:

The size of the annual resurfacing program contract has reached a significant size due to the annual funding increases Council has approved. The work involves significant production activities by our selected contractor and staff acknowledge that the amount of work in residential areas can sometimes seem overwhelming to our residents. Going forward, staff will be allocating additional field resources to coordinate paving work within residential areas with the target of improving communication of activities that impact resident driveways, etc.

**CONSIDERATIONS:**

**(A) PUBLIC**

The town's web-site provides information for the road resurfacing and preservation program, including the established candidate selection process. Upon Council's approval of the 2016 budget and resurfacing program, the candidate road list will be added to this section of the town's web page.

For residents who request a road be considered as a candidate for resurfacing, staff will advise them of the selection process being followed by the town, including the information provided via the Oakville web-site or in hard copy as required. For roads that are not listed in the 2016 road resurfacing program as a candidate, staff will advise inquiring residents of

an approximate future timeline for their requested road section to be resurfaced. Unless a resident insists that they have an opportunity to further appeal the outcome of the selection process, there will be no formal invitation issued to attend the Community Services Committee meeting to approve the program.

Residents and businesses abutting the roads to be rehabilitated in the approved program will be provided with an information flyer prior to the commencement of work. The flyer will provide contact names and information in the event any questions arise. Engineering staff are working with the Corporate Communications department to further develop effective notification strategies in order to provide improved process and scheduling information to residents and businesses affected by the program work.

The road resurfacing and preservation program will begin in mid-spring and be completed in the late fall of 2016; the bulk of the work will be part of the town's annual road resurfacing contract tendered and managed by the Engineering and Construction Department – the balance of the work relating to major patching and crack sealing will be tendered and managed by the Roads and Works Operations Department.

## **(B) FINANCIAL**

The proposed 2016 capital budget includes \$7,828,000 in funding for this year's road resurfacing and preservation program. Appendix 'A' reflects the proposed program based on a full funding allocation of \$7,828,000.

Should the tendering process yield favourable pricing and identify surplus funding as a result, staff will determine if additional roadways can be added to the program based on the candidate selection process. The priority order may be adjusted to suit the program's coordination/adjacencies criteria and financing limitations. Conversely, if any roadways are to be removed from the program to address any funding shortfalls from the tendering process, these adjustments will be made by choosing the roads that are rated with better pavement conditions. Any road deleted from the current approved program to address any funding shortfalls would become a top candidate road section in the following year's road resurfacing program.

The nature of large asphalt resurfacing contracts allows adjustments to be made for the asphalt pricing at the time of bidding on the contract due to the uncertainty of the liquid asphalt pricing used in producing asphalt. The bidding on asphalt items is based on the *Ministry of Transportation's*



*Asphalt Price Index* at the time the contract is let and adjustments for payment or credits are then made based on the indexed asphalt price in the month that the asphalt item is utilized. This provision also protects the town in the event the price index does down – then the savings would be passed on to the town. The overall contract contingency of \$230,000 is partly allocated to accommodate adjustments that are made to asphalt price index.

### **(C) IMPACT ON OTHER DEPARTMENTS & USERS**

The road resurfacing program has been developed in consultation with Roads & Works Operations, and the Region of Halton to ensure the program is delivered without conflict to other planned infrastructure improvements along these roadways. As detailed in the body of this report and noted in Appendix 'A', \$200,000 in capital funding is being committed to Roads & Works Operations to supplement their operating funds for use in their annual spring contract for major asphalt patching and preventative maintenance strategies such as crack sealing.

Parks and Open Space, Facilities and Construction Management and Parking Operations will be solicited for work inclusions prior to going to tender. These departments may wish to include work related to parking lot and driveway improvements at other town facilities, and benefit from the economies of scale associated of being part of a larger contract.

Prior to construction, work will be coordinated with Oakville Transit, school bus operations and Emergency Services (Fire, Police, Ambulance) to ensure they are aware of planned lane restrictions and closures and, where necessary appropriate detours can be established along other route.

### **(D) CORPORATE AND/OR DEPARTMENT STRATEGIC GOALS**

This report addresses the corporate strategic goal to:

- continuously improve our programs and services
- provide outstanding service to our residents and businesses
- be fiscally sustainable

### **(E) COMMUNITY SUSTAINABILITY**

Investing in the state of good repair of the town's road and transportation infrastructure assets to optimize their life cycle performance is a key aspect of community's social and economic sustainability.

From: Engineering and Construction Department  
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Subject: **2016 Road Resurfacing and Pavement Preservation Program**

**APPENDICES:**

Appendix 'A' – Candidate Selection Process  
Appendix 'B' – 2014 Pavement Resurfacing and Preservation Program  
Appendix 'C' – Pavement Network Performance – Proposed 10yr Capital  
Forecast

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