THE REGIONAL MUNICIPALITY OF NIAGARA
PUBLIC WORKS COMMITTEE
AGENDA

PWC 6-2020

Tuesday, July 14, 2020

9:30 a.m.

Meeting will be held by electronic participation only

All electronic meetings can be viewed on Niagara Region's website at:

https://www.niagararegion.ca/government/council/

Due to efforts to contain the spread of COVID-19 and to protect all individuals, the Council Chamber at Regional Headquarters will not be open to the public to attend Committee meetings until further notice. To view live stream meeting proceedings, visit: niagararegion.ca/government/council

---

Pages

1. CALL TO ORDER

2. DISCLOSURES OF PECUNIARY INTEREST

3. PRESENTATIONS

   3.1 Niagara Region Transit On-Demand — 4 - 19
   Rob Salewytsch, Program Manager, Transit Services

4. DELEGATIONS

5. ITEMS FOR CONSIDERATION

   5.1 PW 5-2020 — 20 - 32
   Delegation of Authority Respecting Routine Traffic and Parking Schedule Regulations

   5.2 PW 24-2020 — 33 - 158
   Award of Tender 2020-T-6 Area Winter Maintenance

   5.3 PW 25-2020 — 159 - 167
   Award of Contract 2020-T-59 Reconstruction of Regional Road 71 (St. David's Road)

8. CLOSED SESSION

8.1 Confidential PWC-C 21-2020
A Matter of Advice that is Subject to Solicitor Client Privilege - Update Regarding Investigation of Source of Material causing Flooding in Dain City Sewer System

8.2 Confidential PWC-C 26-2020
Confidential Report CSD 29-2020 - A Matter Respecting Litigation and A Matter of Advice that is Subject to Solicitor-Client privilege under s. 239(2) of the Municipal Act, 2001 – Update Regarding Niagara-on-the-Lake Wastewater Treatment Plant ("NOTL WWTP"), Niagara-on-the-Lake Sewage Pumping Station ("NOTL SPS"), and Welland Wastewater Treatment Plant Upgrades ("Welland WWTP")

9. BUSINESS ARISING FROM CLOSED SESSION ITEMS

10. NEXT MEETING

The next meeting will be held on Tuesday, August 4, 2020 at 9:30 a.m.

11. ADJOURNMENT

If you require any accommodations for a disability in order to attend or participate in meetings or events, please contact the Accessibility Advisor at 905-980-6000 ext. 3252 (office), 289-929-8376 (cellphone) or accessibility@niagararegion.ca (email).

Niagara Region Transit On-Demand

Public Works Committee

July 14, 2020

Robert Salewytsch – Program Manager, Transit Services

Agenda

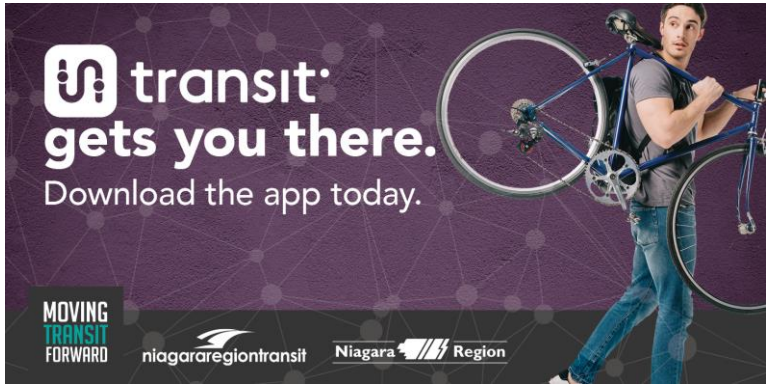
- Background
- Pilot Goals
- Service Parameters & Metrics
- Vehicles
- Branding
- Service App
- Local Engagement
- Timelines

Background

- West Niagara Pilot Authorization (Simulation Results) – PW 60-2019
- Municipal Contributors
  - Grimsby, Pelham and Lincoln
  - Pelham and Lincoln to transition local service to NRT by Via
- Service Agreement Signed
  - February 25, 2020
  - 12 month pilot with option to extend for another 12 months
- Vehicle supply chain issues due to COVID-19 delayed launch

Pilot Goals

- Assess Via's software for on-demand service
- Balance customer satisfaction with service parameters
- Maximize coverage areas – access for everyone with increased connectivity
- Ensure cost containment
- Strong service utilization
- Assess potential to include specialized transit



Service Parameters

- Inter **and** intra-municipal trips
  - Grimsby, Lincoln, Pelham
- Inter-municipal trips **only**
  - Wainfleet, West Lincoln
- Connection to nearest transit hub
  - St. Catharines Bus Terminal, Welland Bus Terminal, Port Colborne City Hall
- Potential Connection to Hamilton
  - Winona Crossing Shopping Centre

Service Parameters Cont'd

- Service Hours: 7 a.m. – 10 p.m.
- Fare Structure:
  - $3.00 for intra-municipal
  - $6.00 for inter-municipal
  - NRT Transfer tickets
- Payment Type
  - Credit card or pre-paid debit for in-app or over the phone
  - Pre-purchased tickets
  - Payments to driver not permitted
- Maximum 1 hour wait time
- Maximum 20 minute detour time

Service Metrics & Reporting

- On-time performance = 95%
  - Within 10 minutes of pick-up time
- Origin/destination
- Vehicle utilization
- Average trip length
- Driver ratings
- Un-met demand
- Booking method
- Accessible rides

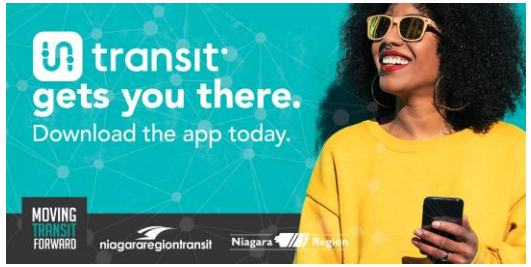
Vehicles

- Toyota Sienna – Black
- Delivery Status – mid/late July
- 7-10 vehicles (+1 spare)
  - *3 Wheelchair Accessible Vehicles (WAV's)
- Bike Racks – TBD
- COVID-19 Policy
  - Restricted number of passengers per trip
  - Plexiglas driver shields
  - Masks strongly encouraged
  - Regular cleanings

Branding - Logo

MOVING ROADS FORWARD

MOVING WATER FORWARD



niagara region transit

nrt ON DEMAND

MOVING TRANSIT FORWARD

CONNECTING MORE PEOPLE TO MORE POSSIBILITIES

Niagara Region

Branding – Vehicles

Branding – Phone App

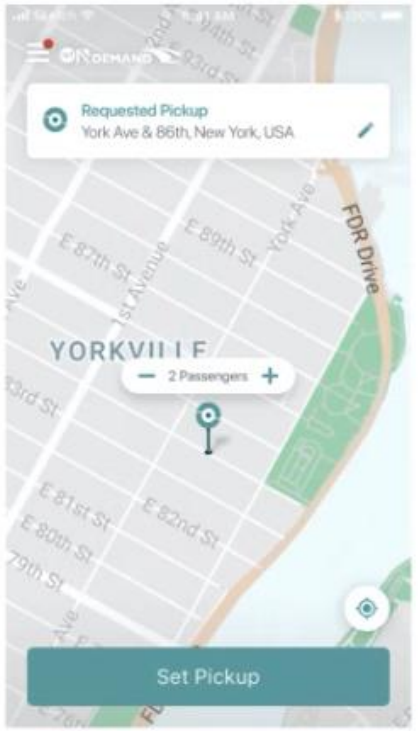
App Launcher

Splash Screen

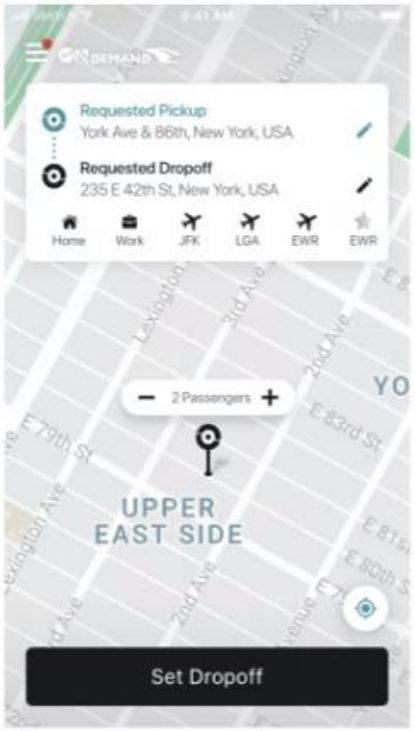
Onboarding Screen

Phone App – How it Works

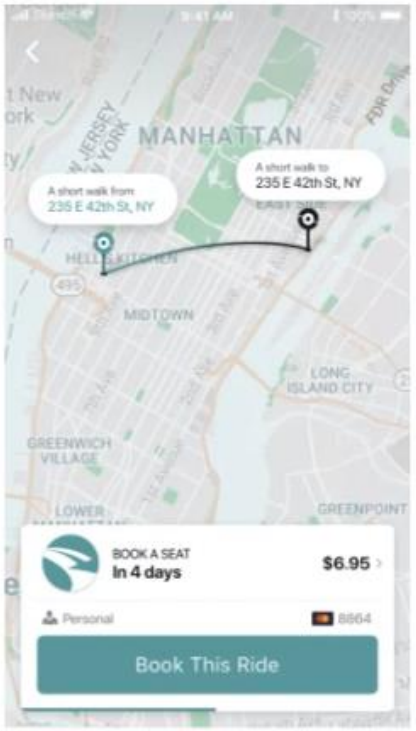
Set Pickup



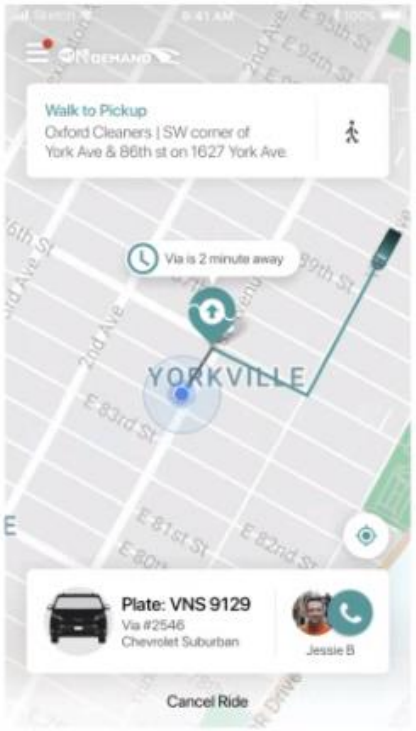
Set Drop Off



Ride Proposal



Wait for Ride



MOVING TRANSIT FORWARD

CONNECTING MORE PEOPLE TO MORE POSSIBILITIES

Niagara Region

Local Engagement

- MOU/Agreements with those offering intra-municipal service
- Local recommendations for:
  - Ticket sales/point of sale locations
  - Out-of-home advertising: wayfinding signage, posters. etc.
  - Community engagement: local event opportunities
  - Brand Ambassadors: staff, community groups

Timelines – Pre-launch

Beginning at **6 weeks** from deployment

- **Public Relations**
  - Prepare web and social media updates
  - Determine press event and press release details
  - Traditional government communications
- **Vehicle Wraps**
  - Fabrication and installation
- **Promotions & Referral Program**
  - Ridership incentives and reward programs, future areas of growth
- **Out-of-home Advertising**
  - Wayfinding signage, posters, etc.
- **Performance Marketing**
  - Marketing streams that can be evaluated, i.e. Social media platforms
- **Community Engagement**
  - Local events, presentations, brand ambassadors

Timelines - Milestones

- June 25 – Council Approval of Fee Bylaw
- July 14 – Public Works Committee Presentation
- August 3 – Robust Communication Efforts Begin
  - Media Release
  - Rider Communications – social media, email, etc.
- August 10 - Service Area Community Engagement
  - In alignment with provincial COVID related guidelines
- **August 17 – Service Launch**

Questions?

Robert Salewytsch

Program Manager, Transit Services

GO Implementation Office

Robert.Salewytsch@niagararegion.ca

905-980-6000, ext. 3232

Subject: Delegation of Authority Respecting Routine Traffic and Parking Schedule Regulations

Report to: Public Works Committee

Report date: Tuesday, July 14, 2020

Recommendations

1. That Council **APPROVE** Appendix 1 - Delegation of Traffic and Parking By-law Matters Policy and **DELEGATE AUTHORITY** to the Director of Transportation Services to make routine and administrative changes to the schedules of Traffic and Parking By-law 89-2000, as amended, in accordance with the Policy;
2. That the Director of Transportation Services **BE DIRECTED** to coordinate and/or notify affected municipal staff and affected members of Regional Council of any amendments to the schedules of Traffic and Parking by-law 89-2000 that are proposed to be made pursuant to the Policy, prior to the passage of the necessary amending by-law(s);
3. That the Regional Clerk **SUBMIT** the necessary by-law(s) to amend the Traffic and Parking By-law 89-2000 directly to Regional Council for passage upon receipt of a memorandum from the Director of Transportation Services in accordance with the Policy;
4. That the Director of Transportation Services **INFORM** Public Works Committee members of the amendments made to the schedules of Traffic and Parking By-law 89-2000 pursuant to the Policy on quarterly basis.
5. That the necessary By-law to delegate authority to the Director of Transportation Services in accordance with Recommendation 1; of this report **BE PREPARED** and **PRESENTED** to Regional Council for consideration.

Key Facts

- The purpose of this report is to seek Council’s approval in delegating the authority to the Director of Transportation Services to make routine and administrative changes to the schedules of Niagara Traffic and Parking By-law 89-2000, as amended.
- The current process requires that any change to the Traffic and Parking By-law requires a formal report to Public Works Committee. Once approved by Committee

the approved report and appropriate by-law is submitted to Regional Council for approval.

- The report preparation and approval process takes 5 to 6 weeks for routine and administrative items.
- Streamlining the approval process through delegated authority provides a higher level of service to Regional Council and to the public as amendments to the Traffic and Parking schedules can be implemented more efficiently and in a shorter time period.
- The delegated authority will be exercised based on sound engineering principles and guidelines, best practices, applicable policies and current legislation as described in the proposed policy attached as Appendix 1 - Delegation of Traffic and Parking By-law Matters Policy; and will support Transportation Services' direction in implementing Niagara's Vision Zero Road Safety Program.
- Any decisions made by the Director of Transportation Services pursuant to the delegated authority, with related correspondence, will be documented and filed in accordance with the Retention by-law.
- The Director of Transportation Services will provide a memorandum to the Regional Clerk requesting the submission of the necessary by-law(s) directly to Council for passage to effect any proposed revisions to the schedules of the Traffic and Parking by-law pursuant to the policy.
- A quarterly report will be issued to the Public Works Committee with the updated Traffic and Parking By-law 89-2000 to reflect the summary of the aforesaid Traffic Schedule revisions that come into force and effect during that time.

Financial Considerations

This proposed change will improve efficiencies in the overall process and service delivery by reducing the volume of reports received by Public Works Committee and redirecting Transportation Services staff to other projects and requests.

There are no direct financial implications to these proposed changes.

Analysis

Section 23.1 of the *Municipal Act, 2001* permits municipalities to delegate their powers and duties subject to certain restrictions, depending on the nature and scope of the

delegation. A delegation may be made to members of Council, committees, individuals appointed by Council or Regional staff and may be subject to conditions that Council considers appropriate.

Staff regularly submit reports to the Public Works Committee on routine or housekeeping items contained in the Traffic By-law 89-2000. These reports require Public Works and Clerks' staff time as well as the attention of the Public Works Committee. The process of preparing a report and submitting it for approvals has a five (5) to six (6) week minimum lead time. The by-law is then submitted for Council approval nine (9) days after Public Works Committee.

In order to simplify and expedite the implementation of changes to the schedules of Traffic and Parking By-law 89-2000, staff are recommending that authority to make routine and administrative revisions to the Schedules of By-law 89-2000 listed in Appendix 2 - Traffic By-law 89-2000 Schedules, be delegated to the Director of Transportation Services. The required by-law amending the schedules of the Parking and Traffic by-law will be submitted directly to Regional Council for approval based on a memorandum from the Director of Transportation Services to the Regional Clerk documenting the exercise of the delegated authority in accordance with the Policy attached as Appendix 1 - Delegation of Traffic and Parking By-law Matters Policy.

If the Director of Transportation Services determines that the proposed change is not of a routine nature or is otherwise outside of the scope of the Policy, a report would be brought forth to Public Works Committee. An example of a matter that is not routine, would be the removal of an all-way stop control.

An example of the type of matter that would be delegated to the Director of Transportation Services is a request to adjust the speed limit along a section of regional roadway. Pursuant to the policy, Staff would collect all the necessary data such as operating speeds, roadway geometry, collision data, number of accesses and land use type. The data would be populated into the warrants of the Council approved Speed Limit Policy PW5.R01.5 and based on the results of this review the Director of Transportation Services would determine if a speed limit adjustment is warranted (and if so provide a memorandum (example attached as Appendix 3) to the Regional Clerk to request the submission of the necessary by-law to Regional Council for passage).

Another example is when the Region reconstructs a roadway and has to prohibit parking to allow for the implementation of bike lanes. Prior to construction of the roadway; an Environmental Assessment Study including public consultation takes

place, and the necessary approvals to proceed with the capital improvements. The parking prohibition to implement the findings of the study is a routine task that would be undertaken pursuant to the delegated authority. Staff are also contacted by local area municipalities requesting parking prohibitions, duration adjustments or other related matters that can be undertaken pursuant to the policy.

The schedules of Traffic and Parking By-law 89-2000 that would be subject to the delegated authority are outlined in Appendix 2 - Traffic By-law 89-2000 Schedules. The proposed Delegation of Traffic and Parking By-law Matters Policy is attached as Appendix 1 - Delegation of Traffic and Parking By-law Matters Policy which describes the manner in which the proposed delegated authority will be exercised.

Alternatives Reviewed

The alternative would be to continue to report to Public Works Committee to seek approval for all changes to the Traffic and Parking by-law. This is not recommended because delegated authority provides a higher level of service to Council and to the public, as amendments to the Traffic and Parking Schedules can be implemented more efficiently. Regional Staff consulted with their counterparts in City of Hamilton and Regional Municipality of York where this model has been successful during the last decade.

Relationship to Council Strategic Priorities

This report is being brought forth as the result of direction by Public Works Committee and supports a sustainable and engaging government.

This recommendation is part of Council Strategic Priorities of Community Well-Being, by ensuring Public services and programs are delivered in equitable, coordinated, efficient, effective manner to Niagara residents and will allow operational changes to be implemented quickly to promote a sustainable transportation network.

Prepared by:
Petar Vujic
Road Safety and Permits Program Manager
Public Works Department

Recommended by:
Bruce Zvaniga, P.Eng.
Commissioner of Public Works (Interim)
Public Works Department

Recommended and Submitted by:
Ron Tripp, P.Eng.
Acting Chief Administrative Officer

This report was prepared in consultation with Sulaf Alkarawi, Associate Director - Transportation Services, Carolyn Ryall, Director Transportation Services and Donna Gibbs, Director, Legal and Court Services

Appendices

Appendix 1	Delegation of Traffic and Parking By-law Matters Policy
Appendix 2	Traffic By-law 89-2000 Schedules
Appendix 3	An example of Speed Limit Reduction Memorandum to Regional Clerk

Niagara Region

Corporate Policy **C-XXX-000**

Policy Category	*Name of Policy*
Administrative	*Delegation of Authority Respecting Traffic and Parking By-law 89-2000 matters*

Policy Owner	Public Works, Transportation Services, Director
Approval Body	Council
Approval Date	July 23, 2020
Effective Date	July 23, 2020
Review by Date	July 23, 2025

1. Policy

Regional Council has delegated authority to the Director of Transportation Services to make routine and administrative amendments to Schedules A-N; P-R; and, T-Y of Traffic and Parking By-law 89-2000, as amended, as may be required from time to time in response to complaints, requests or reviews undertaken to ensure the safety of Regional roads in compliance with applicable standards, policies and legislation.

2. Purpose

The delegation of authority to the Director of Transportation Services will streamline the approval process for necessary routine and administrative amendments to Traffic and Parking By-law 89-2000 to enhance responsiveness to community safety and increase efficiency in process and service delivery.

3. Scope

The Director of Transportation Services is delegated the authority to make routine and administrative amendments as may be required from time to time in response to complaints, requests or reviews undertaken to the following schedules of the Traffic and Parking By-law 89-2000:

- SCHEDULE A - Stopping Prohibitions
- SCHEDULE B - Standing Prohibitions
- SCHEDULE C - Parking Prohibitions
- SCHEDULE D - Trailer & Commercial Motor Vehicle Parking Prohibitions
- SCHEDULE E - Limited Parking Restrictions

- SCHEDULE F - Angle Parking
- SCHEDULE G - Parking Meter Zones
- SCHEDULE H - Public Parking Zones
- SCHEDULE I - Public Vehicle Bus Stops
- SCHEDULE J - Vending Stops
- SCHEDULE K - Taxi Cab Stands
- SCHEDULE L - Loading Prohibitions
- SCHEDULE M - Loading Zones
- SCHEDULE N - Through Highways
- SCHEDULE P - Stop Sign Locations
- SCHEDULE Q -Yield Sign Locations
- SCHEDULE R - Prohibited Turns
- SCHEDULE T - One-way Highways
- SCHEDULE U - Designated Lanes
- SCHEDULE V - Speed Limits on Bridges
- SCHEDULE W - Speed Limits
- SCHEDULE X - Speed Limits – 40 km/h in School Zones
- SCHEDULE Y - Reduced Load Restrictions - March 1st to April 30th

The Director of Transportation Services will exercise the delegated authority to achieve an improvement in road safety in compliance with applicable standards, policies and legislation and sound engineering principles and guidelines, and based on the following considerations:

<u>Schedules A-M</u>

When making decisions related to Zones or Restrictions in Schedules A-M, the Director of Transportation Services will consider the following factors:

- Existing geometric design (lane widths, sidewalk, curvature, elevations, etc.)

- Heavy Vehicle Percentages
- Road classification
- Presence of curb and gutter
- Impact to sight lines as outlined by TAC Geometric Design Guide for Canadian Roads
- Adherence to standards as outlined by TAC Geometric Design Guide for Canadian Roads
- Presence of bicycle lanes and potential impact
- Area Designation (Rural, Urban, Commercial, Residential, Tourist section, etc.)
- Vicinity to traffic control device
- Vision Zero and Safe System Approach

Schedules N; P; Q; R; T; U

When making decisions related to Zones or Restrictions in Schedules N; P, Q, R, T and U, the Director of Transportation Services will consider the following factors:

- Warrants from OTM Book 5 – Regulatory Signs using traffic counts conducted at intersections as part of annual traffic study program
- Collision History
- Vicinity to traffic control device
- Vision Zero and Safe System Approach

Schedules V-X

When making decisions related to Zones or Restrictions in Schedules V – X the Director of Transportation Services will consider the following factors:

- Council approved policy PW5.R01.5 Public Works Department Policy Manual – Speed Limit Policy, December 15 2005.

- Vision Zero and Safe System Approach

Schedule Y

When making decisions related to Zones or Restrictions in Schedule Y, the Director of Transportation Services will consider the following factors:

- The required duration of the prohibition to protect damaged or deteriorated highways until such time as they can be either repaired or reconstructed.

- Vision Zero and Safe System Approach

Prior to any by-law being submitted for Council approval, the Director of Transportation Services shall communicate with the affected municipality to advise of the recommended change(s).

If the Director of Transportation Services determines that the proposed change to the Traffic and Parking By-law 89-2000 is not of a routine or administrative nature or is otherwise outside of the scope of this policy, a report will be brought forth to Public Works Committee for consideration.

Any decision made by the Director of Transportation Services, including related correspondence and studies, will be documented and retained in accordance with the Region's Records Retention by-law.

Upon receipt of a memorandum from the Director of Transportation Services documenting the exercise of delegated authority pursuant to this policy, the Regional Clerk will submit the necessary by-laws to amend Traffic and Parking By-law 89-2000 directly to Council for passage at their next meeting.

The Director of Transportation Services will report to Public Works Committee for information purposes regarding amendments made to Traffic and Parking By-law 89-2000 by delegated authority pursuant to this policy on a quarterly basis.

3.1. Roles and Responsibilities

- The Director of Transportation Services, is responsible for implementing this policy, including establishing any procedures as may be required and reporting to Public Works Committee on a quarterly basis regarding amendments made by delegated authority pursuant to this policy.

- The Commissioner of Public Works is responsible for monitoring compliance with the policy and reporting to Council regarding required updates to the policy.
- The Regional Clerk is responsible for submitting the necessary by-laws to amend Traffic and Parking By-law 89-2000 directly to Regional Council for passage upon receipt of a memorandum from the Director of Transportation Services issued pursuant to this policy.

4. References and Related Documents.

4.1. Legislation, By-Laws and/or Directives

Highway Traffic Act

Ontario Traffic Manuals

Municipal Act, s.23.1

4.2. Procedures

The Director of Transportation Services is authorized to develop procedures as required to implement this policy.

5. Related Policies

PW5.R01.5 Public Works Department Policy Manual – Speed Limit Policy, December 15 2005

C-A-008 Delegation of Powers and Duties policy

6. Document Control

The electronic version of this document is recognized as the only valid version.

Approval History

Approver(s)	Approved Date	Effective Date

Revision History

Revision No.	Date	Summary of Change(s)	Changed by

PW 5-2020 APPENDIX 2
TRAFFIC BY-LAW 89-2000 SCHEDULE

SCHEDULE A
Stopping Prohibitions

SCHEDULE B
Standing Prohibitions

SCHEDULE C
Parking Prohibitions

SCHEDULE D
Trailer & Commercial Motor Vehicle Parking Prohibitions

SCHEDULE E
Limited Parking Restrictions

SCHEDULE F
Angle Parking

SCHEDULE G
Parking Meter Zones

SCHEDULE H
Public Parking Zones

SCHEDULE I
Public Vehicle Bus Stops

SCHEDULE J
Vending Stops

SCHEDULE K
Taxi Cab Stands

SCHEDULE L
Loading Prohibitions

SCHEDULE M
Loading Zones

SCHEDULE N
Through Highways

SCHEDULE P
Stop Sign Locations

SCHEDULE Q
Yield Sign Locations

SCHEDULE R
Prohibited Turns

SCHEDULE T
One-way Highways

SCHEDULE U
Designated Lanes

SCHEDULE V
Speed Limits on Bridges

SCHEDULE W
Speed Limits

SCHEDULE X
Speed Limits – 40 km/h in School Zones

SCHEDULE Y
Reduced Load Restrictions
March 1st to April 30th

Public Works
1815 Sir Isaac Brock Way, Thorold, ON L2V 4T7
905-980-6000 Toll-free: 1-800-263-7215

MEMORANDUM

PW 5-2020 – Appendix 3

Subject: Speed Limit Reduction, Regional Road 37 Merritt Road, City of Thorold and City of Welland

Date: July 14, 2020

To: Regional Clerk

From: Carolyn Ryall, Director Transportation Services

The purpose of this memorandum is to amend the posted speed limit on Regional Road 37 (Merritt Road) from Highway 406 to Regional Road 50 (Niagara Street) from 80km/h to 60km/h as determined necessary by Transportation Services Staff

Merritt Road is a two-lane east west arterial roadway, having a rural cross-section with some curbing and paved shoulders. Merritt Road has an average annual daily traffic of 10100 vehicles, providing a connection to Welland north, Thorold south and Highway 406.

Over the past several years many residential homes have been developed on the south side of Merritt Road. A westbound left turn lane was installed on Merritt at Eastman Gateway. The MTO also modified the off-ramp configurations and added a median to deter rear end collisions at Grisdale Road.

Regional staff has undertaken the necessary studies to determine if the reduction in the posted speed limit is warranted, incorporating best practices specific to design and operational effectiveness within the geometric design of the roadway. Based on the findings, staff has recommended the posted speed limit reduction from 80 km/h to 60 km/h on Merritt Road from Highway 406 to Regional Road 50 (Niagara Street). The reduction of the posted speed limit is reflective of the land use change and compliant with the Council approved Speed limit Policy.

Respectfully submitted and signed by

_____

Carolyn Ryall
Director, Transportation Services

EXAMPLE

Subject: Award of Tender 2020-T-6 Area Winter Maintenance

Report to: Public Works Committee

Report date: Tuesday, July 14, 2020

Recommendations

1. That Contract 2020-T-6 Area Winter Maintenance **BE AWARDED** to Steed and Evans Limited, based on year one pricing of $3,605,378 (including 13% HST) for a ten (10) year term, and;

2. That the Regional Chair and Regional Clerk **BE AUTHORIZED** to execute the Contract and any required documents related thereto in a form satisfactory to the Director of Legal and Court Services.

Key Facts

- The purpose of this report is to seek Council's approval to award Contract 2020-T-6, Area Winter Maintenance to Steed and Evans Limited for a ten (10) year term.
- The Procurement By-law 02-2016 as amended on February 28, 2019 requires Council approval for all tender awards in excess of $5,000,000, which is the case with the cumulative value of this contract award.
- The procurement was undertaken in anticipation of the expiration of the current Area Winter Maintenance contract at the end of the current 2019 – 2020 winter season.
- A Request for Tender for Area Winter Maintenance Contract (Contract 2020-T-6) was issued to the following subset of prequalified bidders developed from Request for Prequalification (2019-RFPQ-301):
    - Steed and Evans Limited;
    - Integrated Maintenance & Operations Services Inc.
- As outlined in Appendix 1 appended to this report as Appendix 1 – 2010-T-6 Summary of Bids, one (1) bid submission from Steed and Evans Limited at a year one (1) bid price of $3,190,600 (excluding taxes) was received and deemed compliant with the requirements of the Tender.

- The estimated cumulative value of this contract over the ten (10) year term is $35,419,192 (excluding taxes).

Financial Considerations

The estimated cumulative value of this contract over the ten (10) year term is $35,419,192 (excluding taxes) with due consideration to annual adjustment for CPI and diesel fuel escalation.

In 2020 Council approved an operating budget for this contract in the amount of $2,702,991. To date in 2020, $1,830,382 has been spent on these services. With the award of this contract, it is anticipated that the actual costs for these services would exceed budget by approximately $407,000 in 2020.The increase in the contract actuals compared to budget will be accommodated by the overall transportation services 2020 operating budget. As communicated in PWC-C 17-2020 Snowplow Costs (Appendix 6), to date winter maintenance savings of $400,739 have been realized which will be used to offset this overage.

Through the annual budget approval process, staff will adjust future year operating budgets as needed, taking into consideration the new cost of this contract throughout the duration of the Contract term. Staff estimated there would be an increase of approximately fifteen percent (15%) in the 2021 budget forecast (See Appendix 4 - Multi Year Forecast) for this contract. Forecasted increases were based on additional legislated service level requirements and a review of other recent winter maintenance contract awards with MTO and other comparable Municipalities. The projected increase were based on the following:

- Increase in winter material costs;
- Increase in insurance costs;
- Increase in level of service to match legislation of mandated bike lane maintenance;
- Higher level of accountability in liquidated damage section;
- Increase costs of purchasing new winter vehicles;
- MBNC benchmarking indicated the following % increases from the 2017-18 winter seasons for other Municipalities.

ROAD309 Operating Cost for Winter Control of Roadways per Lane Km Maintained

Municipality	2018 Result	2017 Result	% Change
Durham	$5,450.22	$4,770.79	14.24 %
Halton	$5,202.32	$4,974.55	4.58 %
Hamilton	$3,635.58	$3,532.64	2.91 %
London	$3,974.28	$3,405.58	16.70 %
Niagara	$4,413.43	$4,060.28	8.70 %
Waterloo	$4,729.31	$4,088.91	15.66 %
York	$6,622.97	$5,621.76	17.81 %

Staff will recalibrate the operating budget each year based on best estimates of anticipated contract payments.

Analysis

In April 23 2019, Council approved a second one year extension of the current Area Winter Maintenance Contract 2008-RFP-40 to provide staff with adequate time to complete a service delivery review. This extension is scheduled to expire prior to the start of the 2020 – 2021 Winter season (Appendix 2 – PW 18-2019 Winter Maintenance Extension). As part of this report the following amendment was accepted:

That an amending agreement with Steed and Evans Limited **BE PREPARED** by the Director of Legal and Court Services to exercise the ***final*** one year option and extend the contract end date to September 3, 2020, following Council approval.

Operational Review:

In accordance with the recommendations outlined in the Value for Money Audit of Snowplowing, Road Maintenance and Landscaping Services – Final Report 15-2387, a competitive service delivery was completed in 2019.

Currently the Transportation Operations division operates within a “hybrid” business model during the winter season utilizing the Niagara Region, City of St. Catharines and an Area Maintenance Contractor forces.

As part of the analysis performed in 2019, Niagara Region Operation staff conducted a competitive service delivery exercise encompassing all established winter routes. As part of the routing analysis, Niagara Region evaluated all of the existing winter routes

and the total lane kilometers maintained and made strategic decisions on the overall routing strategy and areas of maintenance based on:

- current Niagara Region winter vehicle capacity and staff complement;
- geographical areas in proximity to the four (4) Regional Operation facilities;
- optimizing partnerships with Municipalities; and
- the award of an Area Maintenance Contract as part of a hybrid winter operations model.

Based on the analysis, in those areas that Niagara Region staff did not have the capacity to manage in-house, staff consulted with other local municipalities including Niagara-on-the-Lake, Wainfleet, Fort Erie, St Catharines, Lincoln and Port Colborne.

St Catharines indicated they could continue with present agreement but would not have capacity to manage any additional Niagara Region Roads. Port Colborne was the only other Municipality that indicated they had capacity to undertake any winter maintenance on Niagara Region Roads.

Staff have reviewed changes in pertinent legislation, Ontario Regulation 239/02 Minimum Maintenance Standards for Municipal Highways which includes Bike Lane standards for winter maintenance and have updated internal policies and procedures to reflect legislative changes and to incorporate the Transportation Master Plan objectives around Complete Streets.

Staff then developed a revised Hybrid business model based on the conclusions of the competitive service delivery exercise identified above and attached as, Appendix 3 - Winter Service Area Map. The findings of the operational review were considered/included in the 2020 RFPQ and tender processes to ensure Niagara Region's winter level of service met all current regulations and standards.

Request for Prequalification (RFPQ) Process:

Transportation and Procurement staff met on September 17, 2019 to identify the optimum procurement strategy and process which would be employed for this procurement. The team evaluated the merits of both a Request for Proposal and a Request for Prequalification followed by a Request for Tender process.

A prequalification process, followed by a competitive tender was selected as the preferred procurement strategy because it offered the best combination of procurement processes to provide the optimum balance of bidder capability, financial stability, staff resourcing to meet service levels and qualifications/experience in similar work coupled with providing Niagara Region with best value from a financial perspective.

Pursuant to consultation with Staff in Transportation Operations, procurement initiated a prequalification process, 2019-RFPQ-301, in November 2019 which included a minimum technical threshold of seventy-five percent (75%) of the evaluation criteria.

During this open Prequalification process, a total of three (3) addenda were issued to provide Proponents with responses to questions which they asked. Staff noted that none of the questions received suggested that further refinements outlined in the RFPQ document were necessary.

Pursuant to the prequalification process, a total of three (3) submissions were received, two (2) of which were deemed prequalified on February 20, 2020 as they had met the minimum technical threshold based on the stated evaluation criteria; Steed and Evans Limited and Integrated Maintenance & Operations Services Inc. In accordance with our stated process, on May 14, 2020, Niagara Region extended invitations to both prequalified bidders to bid on Contract 2020-T-06.

It should be noted that from the onset of the procurement, Staff did anticipate there could potentially be a limited number of Bidders who would be both qualified and capable of facilitating this contract in large part due to the significant requirements in terms of the scope and service level requirements. In this regard, Staff note that currently within the Niagara Region area there are only two (2) winter maintenance contracts of this magnitude (Niagara Region and MTO).

Request for Tender (RFT) Process:

To ensure Niagara Region’s requirements were aligned with best practices and current market standards, the tender was developed with due consideration of Staff experience, a review of similar procurements conducted from other jurisdictions including the MTO’s procurement documentation for winter maintenance and the outcomes from the competitive service delivery process which was initiated from the Value for Money Audit of Snowplowing, Road Maintenance and Landscaping Services.

In reviewing contracts of a similar nature from other Municipalities and the Ministry of Transportation (Region of Waterloo, Peel Halton East, Toronto-York and Niagara), a ten (10) year term was considered to be the best option:

- Ten (10) year term aligns the amortization of Contractor Fleet with the amortization of the Niagara Region Winter Fleet which allowed for an accurate comparisons of costs.
- The contractors' capitalization of a fleet in a competitive procurement process for a shorter term could potentially result in increased costs, making the value of this tender unaffordable within the Operating budget.
- Recommendations from the Office of the Auditor General of Ontario, Special Report on Winter Highway Maintenance, recommended that Contracts became longer in duration: Previous AMC contracts were for seven to nine years. The current performance-based MTO contracts are for nine (9) to 13 years.

The tender document Contract 2020-T-6 was posted on May 14 2020. While there was some delay in the targeted posting in large part due to COVID-19, staff considers the time afforded to Bidders to respond to the tender, and prepare for commencement of services following award sufficient. During this open tendering period, a total of one (1) addendum was issued on May 25, 2020 to provide Proponents with responses to questions which they asked. Staff noted that none of the questions received suggested that further refinements to the requirements and tendering timeline were necessary.

Pursuant to that public tendering process, a total of one (1) bid was received. Niagara Region's Procurement & Strategic Acquisitions division reviewed the bid received for compliance, and determined it to be complaint with the requirements of the tender document. In this second stage, the submission from Steed and Evans Limited is being recommended for award of this contract.

Of note, on the day before the closing date of Contract 2020-T-6, Niagara Region did receive a notice of no bid from one of the Prequalified Bidders.

Staff are confident that a fair, transparent and competitive procurement process was undertaken and as such are supportive of the recommendation being presented to Council.

Contract award requires resources from Corporate Services in order to finalize and approve the required contract documents for execution. Transportation Operations staff

will be providing resources throughout the length of the contract in order to manage the contract and conduct periodic audits of the Contractor's performance.

Alternatives Reviewed

Three alternative solutions were reviewed:

1. Renew existing contract for an additional one (1) year term.
2. Tender existing winter maintenance service model in place for a ten year term.
3. Tender revised hybrid winter maintenance service model for a ten (10) year term based on routing analysis maximizing:

    a) Capacity of Niagara Region Winter Fleet;

    b) Capacity of Local Municipality Winter Fleets if available;

    c) Adjusted Contract area to manage remainder of winter routes.

The preferred alternative was option three (3) to tender based on the results of the competitive service delivery exercise encompassing all established winter routes.

Relationship to Council Strategic Priorities

Sustainable and Engaging Government, this winter maintenance tender shows a commitment to high quality, efficient, fiscally sustainable and coordinated core services activities.

Foster Partnerships, leveraging resources of other Municipalities with the Niagara Region resources maximizes capacity in an efficient cost effective manner.

Other Pertinent Reports

Value for Money Audit of Snowplowing, Road Maintenance and Landscaping Services – Final Report 15-2387 (Appendix 5).

PW 18-2019 Winter Maintenance Extension (Appendix 2).

PWC-C 17-2020 Snowplow Costs (Appendix 6).

Prepared by:
Shawn McCauley
Associate Director Transportation Operations
Public Works Department

Recommended by:
Bruce Zvaniga, P.Eng.
Commissioner of Public Works (Interim)
Public Works Department

Submitted by:
Ron Tripp, P.Eng.
Acting Chief Administrative Officer

This report was prepared in consultation with: Carolyn Ryall, Director Transportation Services, Brian McMahon, Program Financial Specialist, Donna Gibbs, Director Legal and Court Services and Bart Menage, Director Procurement and Strategic Acquisitions.

Appendices

Appendix 1	2020-T-6 Summary of Bids
Appendix 2	PW 18-2019 Winter Maintenance Extension
Appendix 3	Winter Service Area Map
Appendix 4	Multi Year Forecast
Appendix 5	Value for Money Audit of Snowplowing, Road Maintenance and Landscaping Services – Final Report 15-2387
Appendix 6	PWC-C 17 -2020 Snowplow Costs

Appendix 1 2020-T-6 Area Winter Maintenance

	2020-2021	13%	Total
Steed & Evans Ltd			
Year 1 Price	$ 3,190,600	$ 414,778.00	$ 3,605,378
Total Estimated Contract Price (excluding tax)	$ -	$ -	$ 35,419,192

Subject: Winter Maintenance Extension

Report to: Public Works Committee

Report date: Tuesday, April 16, 2019

Recommendations

1. That the amending agreement option to extend the term of the Area Winter Maintenance Services Contract under 2008-RFP-40 for an additional one year term ending September 3, 2020, as outlined in Appendix 1 of Report PW 18-2019, **BE APPROVED**;

2. That an amending agreement with Steed and Evans Limited **BE PREPARED** by the Director of Legal and Court Services to exercise the one year option and extend the contract end date to September 3, 2020, following Council approval; and

3. That the Chief Administrative Officer **BE AUTHORIZED** to execute the amending agreement with Steed and Evans Limited.

Key Facts

- The purpose of this report is to seek approval to exercise the option agreed to as part of the first amending agreement to extend the terms of the Area Winter Maintenance Services Contract - 2008-RFP-40 (Contract) with Steed and Evans Limited for one additional winter season (2019-2020) for reasons outlined in this report.
- The Purchasing By-law 2016-02 requires that Council approve negotiation awards/extensions greater than $1,000,000.
- The Contract negotiated in 2008 with Steed and Evans Limited was scheduled to expire on September 6, 2018.
- Staff proceeded with an amending agreement to extend the Contract for an additional winter season (2018-2019) and include an option for a further one year extension (2019-2020).
- The negotiation award extension (2018-2019) to Steed and Evans Limited was done in accordance with Purchasing By-law 2016-02 Section 19 (a) (vi) - the extension of an existing Contract being more effective than undertaking a formal procurement process – approved by the CAO under delegated authority in the fall of 2018 pursuant to Report GM 8-2018 for a total amount of $2,599,822 before taxes and Consumer Price Index (CPI) increase.

Financial Considerations

The amending agreement (Appendix 1) entered into with Steed and Evans Limited extended their contract to cover one additional winter season (2018-2019) and included an option for a further one year extension (2019-2020). Staff are now recommending to exercise the second one-year option on the 2019-2020 winter season. In year 11 (2018-2019), Steed and Evans Limited's contract increased by $40,000 to cover increases to their insurance premiums plus the annual CPI increase of 2.5% (approximately $63,995). In year 12 (2019-2020), only an annual CPI increase would be applied.

Funding for the Contract and anticipated Contract increases is provided for in the approved 2019 Transportation Services operating budget and will be provided for in the 2020 operating budget.

Transportation Operations winter maintenance budget totalling $7,971,739 in 2016, $8,482,487 in 2017 and $8,301,562 in 2018 is divided into four (4) sections. A detailed budget breakdown is outlined in Appendix 2 comparing actuals to budget for calendar years 2016 - 2018. A summary of 2018 actual costs are noted below by section:

1) Niagara Region utilizes regional staff and equipment to provide winter maintenance to 990 lane kilometers of roadway with an actual cost of $3,995,834 for the 2018 calendar year. It is important to note that this cost represents all vehicles and equipment, over a five-month period, within the Transportation Operations section. A more precise figure will be made available in the coming months once staff are further able to isolate work-specific tasks for each vehicle/equipment.

2) Area Winter Services Maintenance Contract utilizes Steed and Evans Limited staff and equipment to provide winter maintenance to 674 lane kilometers of roadway with an actual cost of $2,821,368 for the 2018 calendar year.

3) City of St Catharines utilizes city staff and equipment to provide winter maintenance to 126 lane kilometers of roadway at a cost of $348,617 for the 2018 calendar year.

4) Supporting winter services activities are delivered across the entire regional road network of 1790 lane kilometers with a budget of $852,498 for the 2018 calendar year. Services such as snow fence erection and removal, winter sand cleanup and winter drainage are delivered through a combination of Niagara Region staff and outside contractors.

Niagara Region's actual costs in 2016 and 2017 are significantly lower than budgeted cost due to the milder winter conditions resulting in lower overtime costs and lower fuel usage. The 2018 calendar year costs are higher due to the increase in winter events

from January to April. The City of St. Catharines' actual costs are relatively constant from 2016 - 2018. The Contract, with Steeds and Evans Limited, (a fixed price plus contract) actual costs are relatively flat to budget costs with the slight variance attributed to adjustments for fuel and salt usage.

Analysis

Niagara Region operates within a "hybrid" business model during the winter season utilizing the Niagara Region, City of St. Catharines and an Area Maintenance Contractor (currently Steed and Evans Limited) forces.

- Niagara Region Staff maintain 19 plow routes covering 990 lane kilometers of roadway.
- City of St. Catharines maintain 126 lane kilometers of Regional Roads through an amalgamation of Region Roads within in the City's own routing system.
- Steed and Evans Limited maintains 10 plow routes covering 674 lane kilometers.

As outlined in the Corporate Value for Money Audit of Snowplowing, Road Maintenance and Land Scaping Services eight (8) recommendations were provided concerning value-for-money, effective risk management and operational Improvement for winter control.

Several of these recommendations required staff to collect the necessary data, which will influence the terms of a new Area Winter Maintenance Services Contract.

- **R1: Document the end time of winter events so it is possible to measure the time it takes to reclaim bare pavement.**
  - Starting in 2016, Staff have collected this information and at the end of the 2018-2019 winter season will have three (3) complete winter seasons to analyse. This information measures timeframes for reclaiming bare pavement as per winter Maintenance Standards contained in Ontario Regulation 366/18.This data will be used to update our Level of Service documents to be included in the tendering of a new Area Maintenance Services contract.

- **R2: Restructuring budgeting/ accounting to separate core winter services from supporting services and allow accurate comparisons of the costs of direct delivery versus contracted delivery for winter control.**
  - The implementation of The Enhanced Financial Management Service has allowed Staff to streamline finance processes and provide comprehensive reporting capabilities. As shown in Appendix 1, Niagara Region winter control costs are in line with Steed and Evans Limited costs. At the end of the 2018-2019 winter season, Staff will have three (3) full years of data to analyse.

- **R3: Collect and use pass kilometer data to better monitor and report on winter control activities.**

- In 2016 staff began to collect this information and determined that comparing costs against actual lane kilometers was a more productive measure because it could be calculated utilizing our existing plow routes. This GIS data could be updated yearly to reflect any additions or subtractions of road segments throughout the year as indicated in Appendix 2.

- **R4: Implement winter control achievement reports for winter storm events.**
  - Niagara Region Staff have collected this information starting in the 2016–2017 winter season. In the 2017-2018 winter season Steed and Evans Limited also began collecting this data. This data measures the event responses by Niagara Region and its contracted service providers.
    - System wide winter event responses > 24 hours in duration;
    - System wide winter event responses < 24 hours in duration
    - Significant localized winter event responses > hours in duration.

    This data will be used to update our Level of Service documents to be included in the tendering of a new Area Maintenance Services contract.

- **R5: Provide Annual reports to Council on the level of service achievement for the winter season.**
  - Staff have developed a process to collect the necessary data recommended over the last two winter seasons and will provide a report outlining these findings at the end of the 2018 - 2019 winter season.

- **R6: Reduce the Winter Control Budget to the level required for a typical winter instead of a severe winter.**
  - Through the annual budget approval process over the last three (3) years, staff have adjusted the budgets accordingly based on Council guidance.

- **R7: Prepare in advance for forecasted winter storm events by rescheduling staff shifts within the two-week pay period.**
  - Staff have adjusted winter shift schedules accordingly based on weather forecasts and the conditions outlined in the CUPE 1287 Collective Agreement.

- **R8: Conduct a competitive service delivery exercise at the end of the current winter contract encompassing all established routes.**
  - This analysis will be completed after the 2018 – 2019 winter season. Yard replacement/rehabilitation decisions at Niagara Region's Smithville and Pelham patrol yards will have to be taken into consideration as part of this analysis.

Staff have been in communication with the MTO on their new Contractor Directed Maintenance Contract model that commenced in August 2018. Staff will be reviewing

the effectiveness of this new contract throughout the 2018-2019 winter season with MTO staff in order to see if the principle concepts in this contract can be applied to Niagara Region's next Area Maintenance Services contract.

The Transportation Master Plan has put more emphasis on street scaping and active transportation. In the short term, by 2021, the Region will focus on implementing policies that will transform its approach to transportation, addressing existing constraints in the road system, filling in gaps in the active transportation network, and taking the next steps to plan for the major network needs for the future. Specifically, the early actions to be undertaken in the first five (5) years of the program include incorporating the Complete Streets approach in the Region's design process. Staff are gathering information on how these changes will impact winter maintenance costs.

The major objective for winter operations are to meet or exceed the Minimum Maintenance Standards for Municipal Highways (Ontario Provincial Regulation 239/02 – Municipal Act 2001). This regulation was amended May 3, 2018 to the Minimum Maintenance Standards for Municipal Highways O. Reg. 366/18 (Appendix 3). These amendments added maintenance sections on snow accumulation on bicycle lanes. Staff will be compiling data on additional maintenance costs associated with this change that will be incorporated into a new winter maintenance services contract to ensure compliance with the Act.

Alternatives Reviewed

In 2017, staff considered issuing a two year contract to cover the 2018-2019 and 2019 – 2020 winter seasons. When reviewing this option, Staff felt it was an unreasonable expectation to ask a contractor to capitalize a fleet in a competitive procurement process for this short duration (2 years). It is Staff's recommendation to go forward with a procurement in the fall of 2019 for a new 10-year winter maintenance contract once the data collection analysis identified in the Value for Money Audit, as noted above, is completed, and staff can incorporate necessary changes in the new Area Maintenance Services Contract document. The new contract will commence in October 2020.

Steed and Evans Limited has indicated they have no concerns utilizing their existing fleet throughout the proposed extension.

Relationship to Council Strategic Priorities

Moving people and goods: winter maintenance activities allow for the safe movement of vehicles and pedestrians throughout the Niagara Region.

Other Pertinent Reports

- Value for Money Audit of Snowplowing, Roads Maintenance, and Landscaping Services – Final Report 15-2387

Prepared by:
Shawn McCauley, CRSS, C-Tech, B.B.E.
Associate Director Transportation

Recommended by:
Catherine Habermebl
Acting Commissioner
Public Works Department

Submitted by:
Ron Tripp, P.Eng.
Acting Chief Administrative Officer

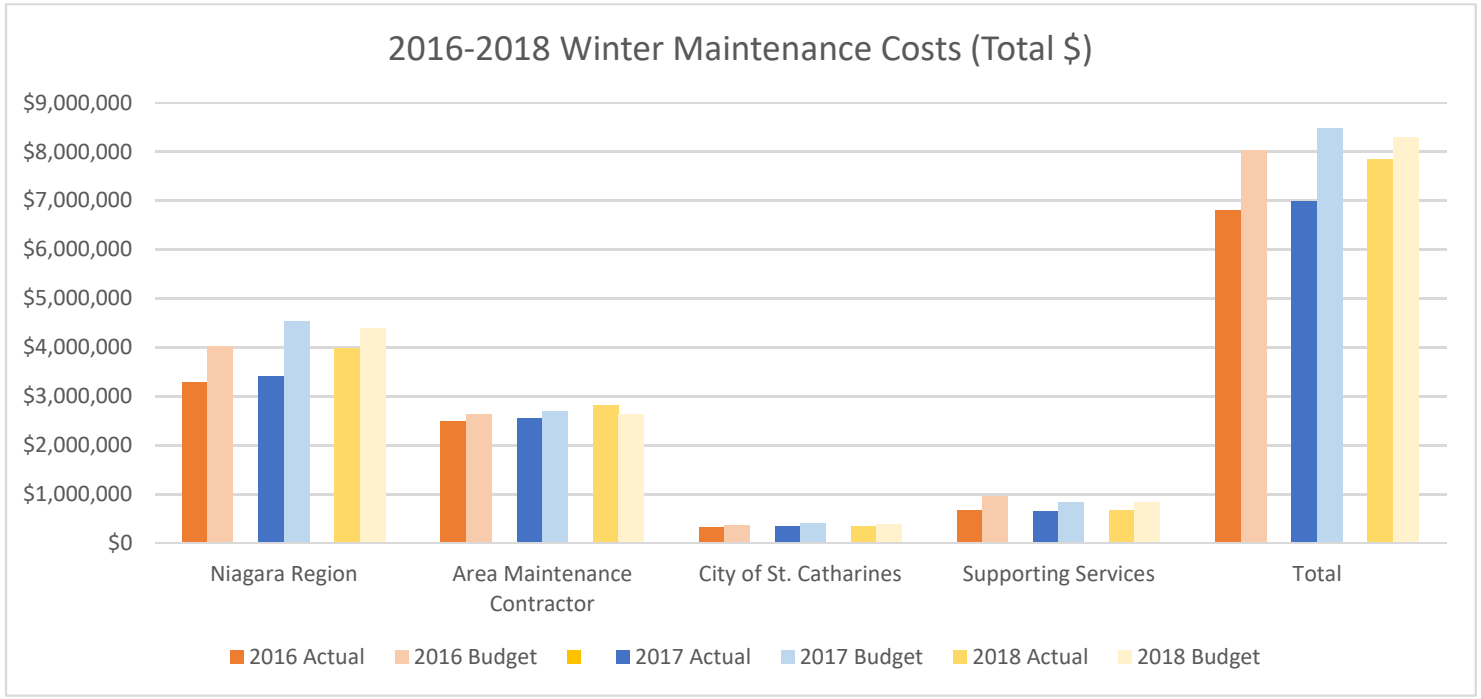
This report was prepared in consultation with Brian McMahon Program Financial Analyst, reviewed by Carolyn Ryall, Director Transportation Services and Curt Anderson, Manager Road and Bridge Operations.

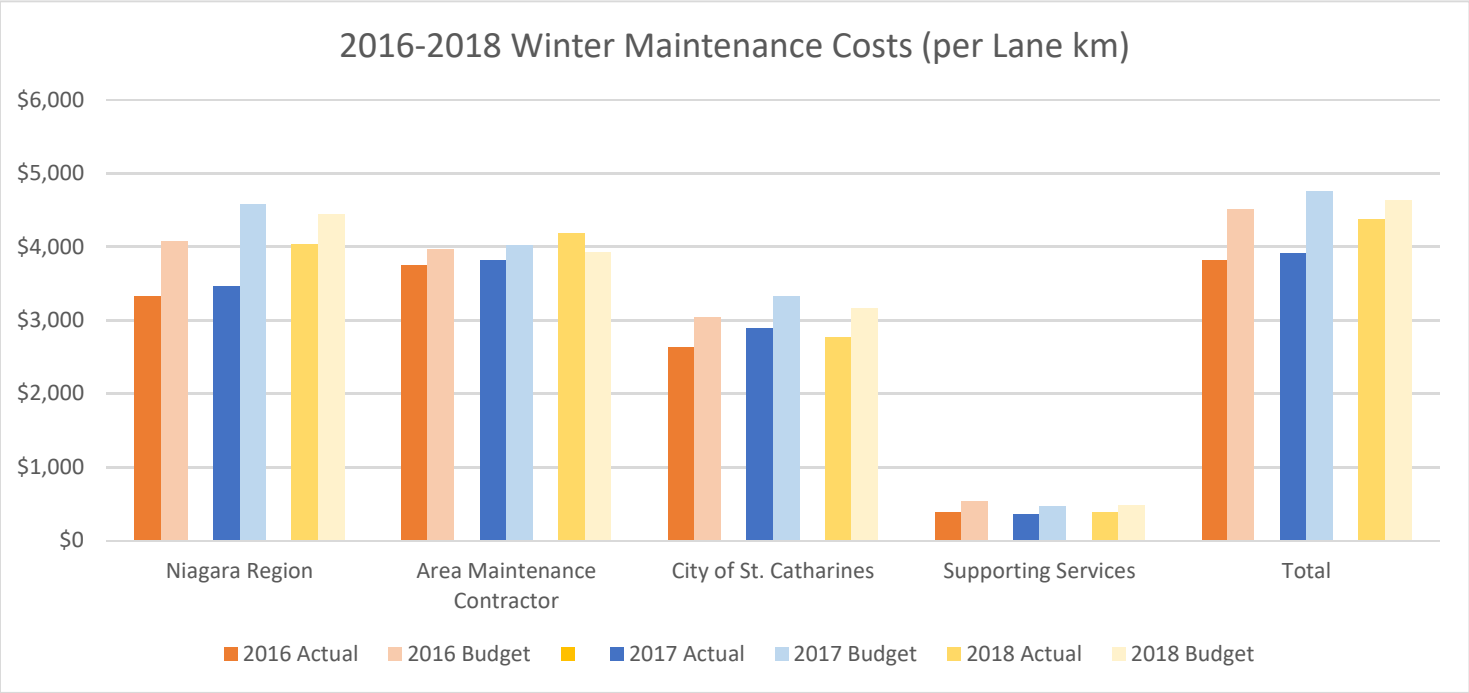
Appendices

Appendix 1	Winter Maintenance Costs
Appendix 2	Amending Agreement 2008-RFP-40
Appendix 3	Minimum Maintenance Standards for Municipal Highways O. Reg. 366/18

2016-2018 Winter Maintenance Costs
Budget vs Actuals

Budget vs Actual $	Niagara Region			Area Maintenance Contractor			City of St. Catharines			Supporting Services			Total		
Total Lane Km's Maintained	989	989	990	668	670	674	125	122	126	1782	1781	1790	1782	1781	1790
Year	2016	2017	2018	2016	2017	2018	2016	2017	2018	2016	2017	2018	2016	2017	2018
Winter Budget	4,037,881	4,533,599	4,399,064	2,650,000	2,700,000	2,650,000	381,000	406,000	400,000	968,289	842,888	852,498	8,037,170	8,482,487	8,301,562
Winter Actual	3,287,709	3,425,507	3,995,834	2,504,624	2,559,293	2,821,368	329,728	353,490	348,617	687,276	648,681	686,215	6,809,336	6,986,972	7,852,034
Budgeted Cost per lane Km	4,083	4,584	4,443	3,967	4,030	3,932	3,048	3,328	3,175	543	473	476	4,510	4,763	4,638
Actual Cost per Lane Km	3,324	3,464	4,036	3,749	3,820	4,186	2,638	2,897	2,767	386	364	383	3,821	3,923	4,387


2016-2018 Winter Maintenance Costs (Total $)
$9,000,000
$8,000,000
$7,000,000
$6,000,000
$5,000,000
$4,000,000
$3,000,000
$2,000,000
$1,000,000
$0
Niagara Region
Area Maintenance Contractor
City of St. Catharines
Supporting Services
Total
2016 Actual
2016 Budget
2017 Actual
2017 Budget
2018 Actual
2018 Budget


2016-2018 Winter Maintenance Costs (per Lane km)
$6,000
$5,000
$4,000
$3,000
$2,000
$1,000
$0
Niagara Region
Area Maintenance Contractor
City of St. Catharines
Supporting Services
Total
2016 Actual
2016 Budget
2017 Actual
2017 Budget
2018 Actual
2018 Budget

PW 18-2019 Appendix 2

AMENDING AGREEMENT

THIS AGREEMENT made as of the 4th day of September, 2018.

BETWEEN:

THE REGIONAL MUNICIPALITY OF NIAGARA

(Hereinafter called the "**Region**")

- and -

STEED AND EVANS LIMITED

(Hereinafter called the "**Contractor**")

WHEREAS by an Agreement dated the 6th day of October, 2008 (hereinafter called the "Original Agreement"), the Region and the Contractor agreed that the Contractor shall provide Area Winter Maintenance Services under 2008-RFP-40 (hereinafter called the "Project");

AND WHEREAS the parties hereto desire to amend the Original Agreement to extend the term of the Original Agreement;

NOW THEREFORE this in consideration of the sum of TWO DOLLARS ($2.00) and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

1. The Original Agreement shall be amended as of the date set out above for one additional year ending on September 3, 2019 with the option in favour of Niagara Region and at Niagara Region's sole and absolute discretion to extend the term for one additional one year term ending on September 3, 2020.

2. Payment to the Contractor shall be in accordance with the terms and conditions outlined in the Original Agreement, save an except for a one-time increase to the annual payment of $40,000.00 to cover increased insurance premiums. The parties agree the applicable aggregate fee, inclusive of the $40,000.00 increase, for the period September 4, 2018 to September 3rd, 2019, is $2,599,822.11.

3. Section 2.5 Contract Security in 2008-RFP-40 forming part of the Original Agreement shall be amended by requiring the substitution of a Performance Bond in the amount of $2,000,000.00 in place of the Original Agreement requirement of a combination Performance Bond and Letter of Credit, which replacement Performance Bond shall will remain in effect for the duration of the contract.

4. The terms, covenants, provisos, and stipulations in the Original Agreement are hereby confirmed in full force save and except such modifications only as are necessary to make them applicable to this Amending Agreement.

IN WITNESS WHEREOF the parties hereto have duly executed this Agreement.

THE REGIONAL MUNICIPALITY OF NIAGARA

Per: _____

Name: Carmelo D'Angelo, BSC, MPA
Title: Chief Administrative Officer

I have the authority to bind the Corporation.

STEED AND EVANS LIMITED

Per: Bob Hunter

Name:
Title: Construction Mgr

Name:
Title:

We have the authority to bind the Corporation.

PW 18-2019 Appendix 3

O. Reg. 366/18: MINIMUM MAINTENANCE STANDARDS FOR MUNICIPAL HIGHWAYS

filed May 3, 2018 under *Municipal Act, 2001, S.O. 2001, c. 25*

Skip to content
Print Download

ontario regulation 366/18

made under the

Municipal Act, 2001

Made: May 2, 2018
Filed: May 3, 2018
Published on e-Laws: May 3, 2018
Printed in *The Ontario Gazette*: May 19, 2018

Amending O. Reg. 239/02

(MINIMUM MAINTENANCE STANDARDS FOR MUNICIPAL HIGHWAYS)

1. (1) The definition of "surface" in subsection 1 (1) of Ontario Regulation 239/02 is amended by striking out "roadway or shoulder" and substituting "sidewalk, roadway or shoulder".

(2) Subsection 1 (1) of the Regulation is amended by adding the following definitions:

"bicycle facility" means the on-road and in-boulevard cycling facilities listed in Book 18 of the Ontario Traffic Manual;

"bicycle lane" means,

(a) a portion of a roadway that has been designated by pavement markings or signage for the preferential or exclusive use of cyclists, or

(b) a portion of a roadway that has been designated for the exclusive use of cyclists by signage and a physical or marked buffer;

"encroachment" means anything that is placed, installed, constructed or planted within the highway that was not placed, installed, constructed or planted by the municipality;

"pothole" means a hole in the surface of a roadway caused by any means, including wear or subsidence of the road surface or subsurface;

"sidewalk" means the part of the highway specifically set aside or commonly understood to be for pedestrian use, typically consisting of a paved surface but does not include crosswalks, medians, boulevards, shoulders or any part of the sidewalk where cleared snow has been deposited;

"significant weather event" means an approaching or occurring weather hazard with the potential to pose a significant danger to users of the highways within a municipality;

"utility" includes any air, gas, water, electricity, cable, fiber-optic, telecommunication or traffic control system or subsystem, fire hydrants, sanitary sewers, storm sewers, property bars and survey monuments;

"utility appurtenance" includes maintenance holes and hole covers, water shut-off covers and boxes, valves, fittings, vaults, braces, pipes, pedestals, and any other structures or items that form part of or are an accessory part of any utility;

"weather hazard" means the weather hazards determined by Environment Canada as meeting the criteria for the issuance of an alert under its Public Weather Alerting Program.

(3) Subsections 1 (2) and (3) of the Regulation are amended by striking out "annual" wherever it appears.

(4) Subsection 1 (4) of the Regulation is revoked and the following substituted:

(4) For the purposes of this Regulation, unless otherwise indicated in a provision of this Regulation, a municipality is deemed to be aware of a fact if, in the absence of actual knowledge of the fact, circumstances are such that the municipality ought reasonably to be aware of the fact.

(5) The Table to section 1 of the Regulation is revoked and the following substituted:

TABLE
CLASSIFICATION OF HIGHWAYS

Column 1 Average Daily Traffic (number of motor vehicles)	Column 2 91 - 100 km/h speed limit	Column 3 81 - 90 km/h speed limit	Column 4 71 - 80 km/h speed limit	Column 5 61 - 70 km/h speed limit	Column 6 51 - 60 km/h speed limit	Column 7 41 - 50 km/h speed limit	Column 8 1 - 40 km/h speed limit
53,000 or more	1	1	1	1	1	1	1
23,000 - 52,999	1	1	1	2	2	2	2
15,000 - 22,999	1	1	2	2	2	3	3
12,000 - 14,999	1	1	2	2	2	3	3
10,000 - 11,999	1	1	2	2	3	3	3
8,000 - 9,999	1	1	2	3	3	3	3
6,000 - 7,999	1	2	2	3	3	4	4
5,000 - 5,999	1	2	2	3	3	4	4
4,000 - 4,999	1	2	3	3	3	4	4
3,000 - 3,999	1	2	3	3	3	4	4
2,000 - 2,999	1	2	3	3	4	5	5
1,000 - 1,999	1	3	3	3	4	5	5
500 - 999	1	3	4	4	4	5	5
200 - 499	1	3	4	4	5	5	6
50 - 199	1	3	4	5	5	6	6
0 - 49	1	3	6	6	6	6	6

2. The Regulation is amended by adding the following section:

Purpose

2.1 The purpose of this Regulation is to clarify the scope of the statutory defence available to a municipality under clause 44 (3) (c) of the Act by establishing maintenance standards which are non-prescriptive as to the methods or materials to be used in complying with the standards but instead describe a desired outcome.

3. (1) The heading before section 3 of the Regulation is amended by striking out "MINIMUM" and substituting "MAINTENANCE"

(2) Subsections 3 (1) and (2) of the Regulation are amended by striking out "minimum" wherever it appears.

(3) Subsection 3 (4) of the Regulation is amended by striking out "section 16.1" and substituting "section 16.1, 16.2, 16.3 or 16.4".

4. Subsections 3.1 (1) and (2) of the Regulation are amended by striking out "minimum" wherever it appears.

5. (1) Subsection 4 (1) of the Regulation is amended by striking out the portion before clause (a) and substituting the following:

Snow accumulation, roadways

(1) Subject to section 4.1, the standard for addressing snow accumulation on roadways is,

. . . . .

(2) Subsection 4 (3) of the Regulation is amended by adding "and, if applicable, lane width under clause (1) (b)," after "roadway" in the portion before paragraph 1.

(3) Subsection 4 (4) of the Regulation is amended by adding "and lane width" after "roadway" in the portion before clause (a).

(4) Subsections 4 (5) and (6) of the Regulation are revoked and the following substituted:

(5) For the purposes of this section, addressing snow accumulation on a roadway includes,

(a) plowing the roadway;

(b) salting the roadway;

(c) applying abrasive materials to the roadway;

(d) applying other chemical or organic agents to the roadway;

(e) any combination of the methods described in clauses (a) to (d);

(6) This section does not apply to that portion of the roadway,

(a) designated for parking;

(b) consisting of a bicycle lane or other bicycle facility; or

(d) used by a municipality for snow storage;

(5) The heading of the Table to section 4 of the Regulation is revoked and the following substituted:

SNOW ACCUMULATION - ROADWAYS

7. The Regulation is amended by adding the following sections:

Snow accumulation on roadways, significant weather event

4.1 (1) If a municipality declares a significant weather event relating to snow accumulation, the standard for addressing snow accumulation on roadways until the declaration of the end of the significant weather event is,

(a) to monitor the weather in accordance with section 3.1; and

(b) if deemed practicable by the municipality, to deploy resources to address snow accumulation on roadways, starting from the time that the municipality deems appropriate to do so.

(2) If the municipality complies with subsection (1), all roadways within the municipality are deemed to be in a state of repair with respect to snow accumulation until the applicable time in the Table to section 4 expires following the declaration of the end of the significant weather event by the municipality.

(3) Following the end of the weather hazard in respect of which a significant weather event was declared by a municipality under subsection (1), the municipality shall,

(a) declare the end of the significant weather event when the municipality determines it is appropriate to do so; and

(b) address snow accumulation on roadways in accordance with section 4.

Snow accumulation, bicycle lanes

4.2 (1) Subject to section 4.3, the standard for addressing snow accumulation on bicycle lanes is,

(a) after becoming aware of the fact that the snow accumulation on a bicycle lane is greater than the depth set out in the Table to this section, to deploy resources as soon as practicable to address the snow accumulation; and

(b) after the snow accumulation has ended, to address the snow accumulation so as to reduce the snow to a depth less than or equal to the depth set out in the Table to this section to provide a minimum bicycle lane width of the lesser of 1 metre or the actual bicycle lane width.

(2) If the depth of snow accumulation on a bicycle lane is less than or equal to the depth set out in the Table to this section, the bicycle lane is deemed to be in a state of repair in respect of snow accumulation.

(3) For the purposes of this section, the depth of snow accumulation on a bicycle lane and, if applicable, lane width under clause (1) (b), may be determined in the same manner as set out in subsection 4 (4) and by the persons mentioned in subsection 4 (3), with necessary modifications.

(4) For the purposes of this section, addressing snow accumulation on a bicycle lane includes,

(a) plowing the bicycle lane;

(b) salting the bicycle lane;

(c) applying abrasive materials to the bicycle lane;

(d) applying other chemical or organic agents to the bicycle lane;

(e) sweeping the bicycle lane; or

(f) any combination of the methods described in clauses (a) to (e).

TABLE

Snow Accumulation – Bicycle Lanes

Column 1 Class of Highway or Adjacent Highway	Column 2 Depth	Column 3 Time
1	2.5 cm	8 hours
2	5 cm	12 hours
3	8 cm	24 hours
4	8 cm	24 hours
5	10 cm	24 hours

Snow accumulation on bicycle lanes, significant weather event

4.3 (1) If a municipality declares a significant weather event relating to snow accumulation, the standard for addressing snow accumulation on bicycle lanes until the declaration of the end of the significant weather event is,

(a) to monitor the weather in accordance with section 3.1; and

(b) if deemed practicable by the municipality, to deploy resources to address snow accumulation on bicycle lanes, starting from the time that the municipality deems appropriate to do so.

(2) If the municipality complies with subsection (1), all bicycle lanes within the municipality are deemed to be in a state of repair with respect to snow accumulation until the applicable time in the Table to section 4.2 expires following the declaration of the end of the significant weather event by the municipality.

(3) Following the end of the weather hazard in respect of which a significant weather event was declared by a municipality under subsection (1), the municipality shall,

(a) declare the end of the significant weather event when the municipality determines it is appropriate to do so; and

(b) address snow accumulation on bicycle lanes in accordance with section 4.2.

8. Section 5 of the Regulation is revoked and the following substituted:

Ice formation on roadways and icy roadways

5. (1) The standard for the prevention of ice formation on roadways is doing the following in the 24-hour period preceding an alleged formation of ice on a roadway:

1. Monitor the weather in accordance with section 3.1.

2. Patrol in accordance with section 3.

3. If the municipality determines, as a result of its activities under paragraph 1 or 2, that there is a substantial probability of ice forming on a roadway, treat the roadway, if practicable, to prevent ice formation within the time set out in Table 1 to this section, starting from the time that the municipality determines is the appropriate time to deploy resources for that purpose.

(2) If the municipality meets the standard set out in subsection (1) and, despite such compliance, ice forms on a roadway, the roadway is deemed to be in a state of repair until the applicable time set out in Table 2 to this section expires after the municipality becomes aware of the fact that the roadway is icy.

(3) Subject to section 5.1, the standard for treating icy roadways is to treat the icy roadway within the time set out in Table 2 to this section, and an icy roadway is deemed to be in a state of repair until the applicable time set out in Table 2 to this section expires after the municipality becomes aware of the fact that a roadway is icy.

(4) For the purposes of this section, treating a roadway means applying material to the roadway, including but not limited to, salt, sand or any combination of salt and sand.

(5) For greater certainty, this section applies in respect of ice formation on bicycle lanes on a roadway, but does not apply to other types of bicycle facilities.

TABLE 1
ice formation prevention

Class of Highway	Time
1	6 hours
2	8 hours
3	16 hours
4	24 hours
5	24 hours

TABLE 2
Treatment of ICY ROADWAYS

Class of Highway	Time
1	3 hours
2	4 hours
3	8 hours
4	12 hours
5	16 hours

Icy roadways, significant weather event

5.1 (1) If a municipality declares a significant weather event relating to ice, the standard for treating icy roadways until the declaration of the end of the significant weather event is,

(a) to monitor the weather in accordance with section 3.1; and

(b) if deemed practicable by the municipality, to deploy resources to treat icy roadways, starting from the time that the municipality deems appropriate to do so.

(2) If the municipality complies with subsection (1), all roadways within the municipality are deemed to be in a state of repair with respect to any ice which forms or may be present until the applicable time in Table 2 to section 5 expires after the declaration of the end of the significant weather event by the municipality.

(3) Following the end of the weather hazard in respect of which a significant weather event was declared by a municipality under subsection (1), the municipality shall,

(a) declare the end of the significant weather event when the municipality determines it is appropriate to do so; and

(b) treat icy roadways in accordance with section 5.

8. (1) Subsection 6 (1) of the Regulation is amended by striking out “minimum”.

(2) Section 6 of the Regulation is amended by adding the following subsections:

(1.1) For the purposes of this section, the surface area and depth of a pothole may be determined in accordance with subsections (1.2) and (1.3), as applicable, by a municipal employee, agent or contractor whose duties or responsibilities include one or more of the following:

1. Patrolling highways.

2. Performing highway maintenance activities.

3. Supervising staff who perform activities described in paragraph 1 or 2.

(1.2) The depth and surface area of a pothole may be determined by,

(a) performing an actual measurement; or

(b) performing a visual estimate.

(1.3) For the purposes of this section, the surface area of a pothole does not include any area that is merely depressed and not yet broken fully through the surface of the roadway.

9. (1) Subsections 7 (1) and (2) of the Regulation are revoked and the following substituted:

Shoulder drop-offs

(1) If a shoulder drop-off is deeper than 8 cm, for a continuous distance of 20 metres or more, the standard is to repair the shoulder drop-off within the time set out in the Table to this section after becoming aware of the fact.

(2) A shoulder drop-off is deemed to be in a state of repair if its depth is less than 8 cm.

(2) The Table to section 7 of the Regulation is revoked and the following substituted:

TABLE
SHOULDER DROP-OFFS

Class of Highway	Time
1	4 days
2	4 days
3	7 days
4	14 days
5	30 days

10. (1) Subsections 8 (1) and (2) of the Regulation are revoked and the following substituted:

Cracks

(1) If a crack on the paved surface of a roadway is greater than 5 cm wide and 5 cm deep for a continuous distance of three metres or more, the standard is to repair the crack within the time set out in the Table to this section after becoming aware of the fact.

(2) A crack is deemed to be in a state of repair if its width or depth is less than or equal to 5 cm.

(2) The Table to section 8 of the Regulation is revoked and the following substituted:

TABLE
CRACKS

Column 1 Class of Highway	Column 2 Time
1	30 days
2	30 days
3	60 days

4	180 days
5	180 days

11. Subsection 9 (1) of the Regulation is amended by striking out "minimum".

12. Subsections 10 (0.1), (1), (2), (3), (4), (5) and (6) of the Regulation are revoked and the following substituted:

Luminaires

(1) The standard for the frequency of inspecting all luminaires to check to see that they are functioning is once per calendar year, with each inspection taking place not more than 16 months from the previous inspection.

(2) For conventional illumination, if three or more consecutive luminaires on the same side of a highway are not functioning, the standard is to repair the luminaires within the time set out in the Table to this section after becoming aware of the fact.

(3) For conventional illumination and high mast illumination, if 30 per cent or more of the luminaires on any kilometre of highway are not functioning, the standard is to repair the luminaires within the time set out in the Table to this section after becoming aware of the fact.

(4) Despite subsection (2), for high mast illumination, if all of the luminaires on consecutive poles on the same side of a highway are not functioning, the standard is to deploy resources as soon as practicable after becoming aware of the fact to repair the luminaires.

(5) Despite subsections (1), (2) and (3), for conventional illumination and high mast illumination, if more than 50 per cent of the luminaires on any kilometre of a Class 1 highway with a speed limit of 90 kilometres per hour or more are not functioning, the standard is to deploy resources as soon as practicable after becoming aware of the fact to repair the luminaires.

(6) Luminaires are deemed to be in a state of repair,

(a) for the purpose of subsection (2), if the number of non-functioning consecutive luminaires on the same side of a highway does not exceed two;

(b) for the purpose of subsection (3), if more than 70 per cent of luminaires on any kilometre of highway are functioning;

(c) for the purpose of subsection (4), if one or more of the luminaires on consecutive poles on the same side of a highway are functioning;

(d) for the purpose of subsection (5), if more than 50 per cent of luminaires on any kilometre of highway are functioning.

13. The Regulation is amended by striking out "minimum" wherever it appears in the following provisions:

1. Sections 11 to 16.

2. Subsection 16.1 (1).

14. Subsections 16.1 (2), (2.1), (3) and (4) of the Regulation are revoked and the following substituted:

(2) If a surface discontinuity on or within a sidewalk exceeds two centimetres, the standard is to treat the surface discontinuity within 14 days after acquiring actual knowledge of the fact.

(3) A surface discontinuity on or within a sidewalk is deemed to be in a state of repair if it is less than or equal to two centimetres.

(4) For the purpose of subsection (2), treating a surface discontinuity on or within a sidewalk means taking reasonable measures to protect users of the sidewalk from the discontinuity, including making permanent or temporary repairs, alerting users' attention to the discontinuity or preventing access to the area of discontinuity.

(5) In this section,

"surface discontinuity" means a vertical discontinuity creating a step formation at any joint or crack in the surface of the sidewalk or any vertical height difference between a utility appurtenance found on or within the sidewalk and the surface of the sidewalk.

15. The Regulation is amended by adding the following sections.

Encroachments, area adjacent to sidewalk

16.2 (1) The standard for the frequency of inspecting an area adjacent to a sidewalk to check for encroachments is once per calendar year, with each inspection taking place not more than 16 months from the previous inspection.

(2) The area adjacent to a sidewalk that has been inspected in accordance with subsection (1) is deemed to be in a state of repair in respect of any encroachment present.

(3) For greater certainty, the area adjacent to a sidewalk begins at the outer edges of a sidewalk and ends at the lesser of the limit of the highway, the back edge of a curb if there is a curb and a maximum of 45 cm.

(4) The area adjacent to a sidewalk is deemed to be in a state of repair in respect of any encroachment present unless the encroachment is determined by a municipality to be highly unusual given its character and location or to constitute a significant hazard to pedestrians.

(5) If a municipality determines that an encroachment is highly unusual given its character and location or constitutes a significant hazard to pedestrians, the standard is to treat the encroachment within 28 days after making such a determination, and the encroachment is deemed in a state of repair for 28 days from the time of the determination by the municipality.

(6) For the purpose of subsection (4), treating an encroachment means taking reasonable measures to protect users, including making permanent or temporary repairs, alerting users' attention to the encroachment or preventing access to the area of the encroachment.

Snow accumulation on sidewalks

16.3 (1) Subject to section 16.4, the standard for addressing snow accumulation on a sidewalk after the snow accumulation has ended is,

a) to reduce the snow to a depth less than or equal to 8 centimetres within 48 hours; and

b) to provide a minimum sidewalk width of 1 metre.

(2) If the depth of snow accumulation on a sidewalk is less than or equal to 8 centimetres, the sidewalk is deemed to be in a state of repair in respect of snow accumulation.

(3) If the depth of snow accumulation on a sidewalk exceeds 8 centimetres while the snow continues to accumulate, the sidewalk is deemed to be in a state of repair with respect to snow accumulation, until 48 hours after the snow accumulation ends.

(4) For the purposes of this section, the depth of snow accumulation on a sidewalk may be determined in the same manner as set out in subsection 4 (4) and by the persons mentioned in subsection 4 (3) with necessary modifications.

(5) For the purposes of this section, addressing snow accumulation on a sidewalk includes,

(a) plowing the sidewalk;

(b) salting the sidewalk;

(c) applying abrasive materials to the sidewalk;

(d) applying other chemical or organic agents to the sidewalk; or

(e) any combination of the methods described in clauses (a) to (d).

Snow accumulation on sidewalks, significant weather event

16.4 (1) If a municipality declares a significant weather event relating to snow accumulation, the standard for addressing snow accumulation on sidewalks until the declaration of the end of the significant weather event is,

(a) to monitor the weather in accordance with section 3.1; and

(b) if deemed practicable by the municipality, to deploy resources to address snow accumulation on sidewalks starting from the time that the municipality deems appropriate to do so.

(2) If the municipality complies with subsection (1), all sidewalks within the municipality are deemed to be in a state of repair with respect to any snow present until 48 hours following the declaration of the end of the significant weather event by the municipality.

(3) Following the end of the weather hazard in respect of which a significant weather event was declared by a municipality under subsection (1), the municipality shall,

(a) declare the end of the significant weather event when the municipality determines it is appropriate to do so; and

(b) address snow accumulation on sidewalks in accordance with section 16.3.

Ice formation on sidewalks and icy sidewalks

16.5 (1) Subject to section 16.6, the standard for the prevention of ice formation on sidewalks is to,

(a) monitor the weather in accordance with section 3.1 in the 24-hour period preceding an alleged formation of ice on a sidewalk; and

(b) treat the sidewalk if practicable to prevent ice formation or improve traction within 48 hours if the municipality determines that there is a substantial probability of ice forming on a sidewalk, starting from the time that the municipality determines is the appropriate time to deploy resources for that purpose.

(2) If ice forms on a sidewalk even though the municipality meets the standard set out in subsection (1), the sidewalk is deemed to be in a state of repair in respect of ice until 48 hours after the municipality first becomes aware of the fact that the sidewalk is icy.

(3) The standard for treating icy sidewalks after the municipality becomes aware of the fact that a sidewalk is icy is to treat the icy sidewalk within 48 hours, and an icy sidewalk is deemed to be in a state of repair for 48 hours after it has been treated.

(4) For the purposes of this section, treating a sidewalk means applying materials including salt, sand or any combination of salt and sand to the sidewalk.

Icy sidewalks, significant weather event

16.6 (1) If a municipality declares a significant weather event relating to ice, the standard for addressing ice formation or ice on sidewalks until the declaration of the end of the significant weather event is,

(a) to monitor the weather in accordance with section 3.1; and

(b) if deemed practicable by the municipality, to deploy resources to treat the sidewalks to prevent ice formation or improve traction, or treat the icy sidewalks, starting from the time that the municipality deems appropriate to do so.

(2) If the municipality complies with subsection (1), all sidewalks within the municipality are deemed to be in a state of repair with respect to any ice which forms or is present until 48 hours after the declaration of the end of the significant weather event by the municipality.

(3) Following the end of the weather hazard in respect of which a significant weather event was declared by a municipality under subsection (1), the municipality shall,

(a) declare the end of the significant weather event when the municipality determines it is appropriate to do so; and

(b) address the prevention of ice formation on sidewalks or treat icy sidewalks in accordance with section 16.5.

Winter sidewalk patrol

16.7 (1) If it is determined by the municipality that the weather monitoring referred to in section 3.1 indicates that there is a substantial probability of snow accumulation on sidewalks in excess of 8 cm, ice

formation on sidewalks or icy sidewalks, the standard for patrolling sidewalks is to patrol sidewalks that the municipality selects as representative of its sidewalks at intervals deemed necessary by the municipality.

(2) Patrolling a sidewalk consists of visually observing the sidewalk, either by driving by the sidewalk on the adjacent roadway or by driving or walking on the sidewalk or by electronically monitoring the sidewalk, and may be performed by persons responsible for patrolling roadways or sidewalks or by persons responsible for or performing roadway or sidewalk maintenance activities.

Closure of a highway

16.8 (1) When a municipality closes a highway or part of a highway pursuant to its powers under the Act,the highway is deemed to be in a state of repair in respect of all conditions described in this Regulation from the time of the closure until the highway is re-opened by the municipality.

(2) For the purposes of subsection (1), a highway or part of a highway is closed on the earlier of,

(a) when a municipality passes a by-law to close the highway or part of the highway; and

(b) when a municipality has taken such steps as it determines necessary to temporarily close the highway or part of a highway.

Declaration of significant weather event

16.9. A municipality declaring the beginning of a significant weather event or declaring the end of a significant weather event under this Regulation shall do so in one or more of the following ways:

1. By posting a notice on the municipality's website.

2. By making an announcement on a social media platform, such as Facebook or Twitter.

3. By sending a press release or similar communication to internet, newspaper, radio or television media.

4. By notification through the municipality's police service.

5. By any other notification method required in a by-law of the municipality.

Commencement

16. This Regulation comes into force on the day it is filed.

Made by:

Kathryn McGarry

Minister of Transportation

Date made: May 2, 2018

Tags

- Laws

Rate

Rate this page

Share

Facebook Twitter Print

e-Laws

e-Laws provides access to official copies of Ontario's statutes and regulations.

Contact Us

Contact us

Topics

- Arts and culture
- Business and economy
- Driving and roads
- Education and training
- Environment and energy
- Government
- Health and wellness
- Home and community
- Jobs and employment
- Law and safety
- Laws
- Rural and north
- Taxes and benefits
- Travel and recreation

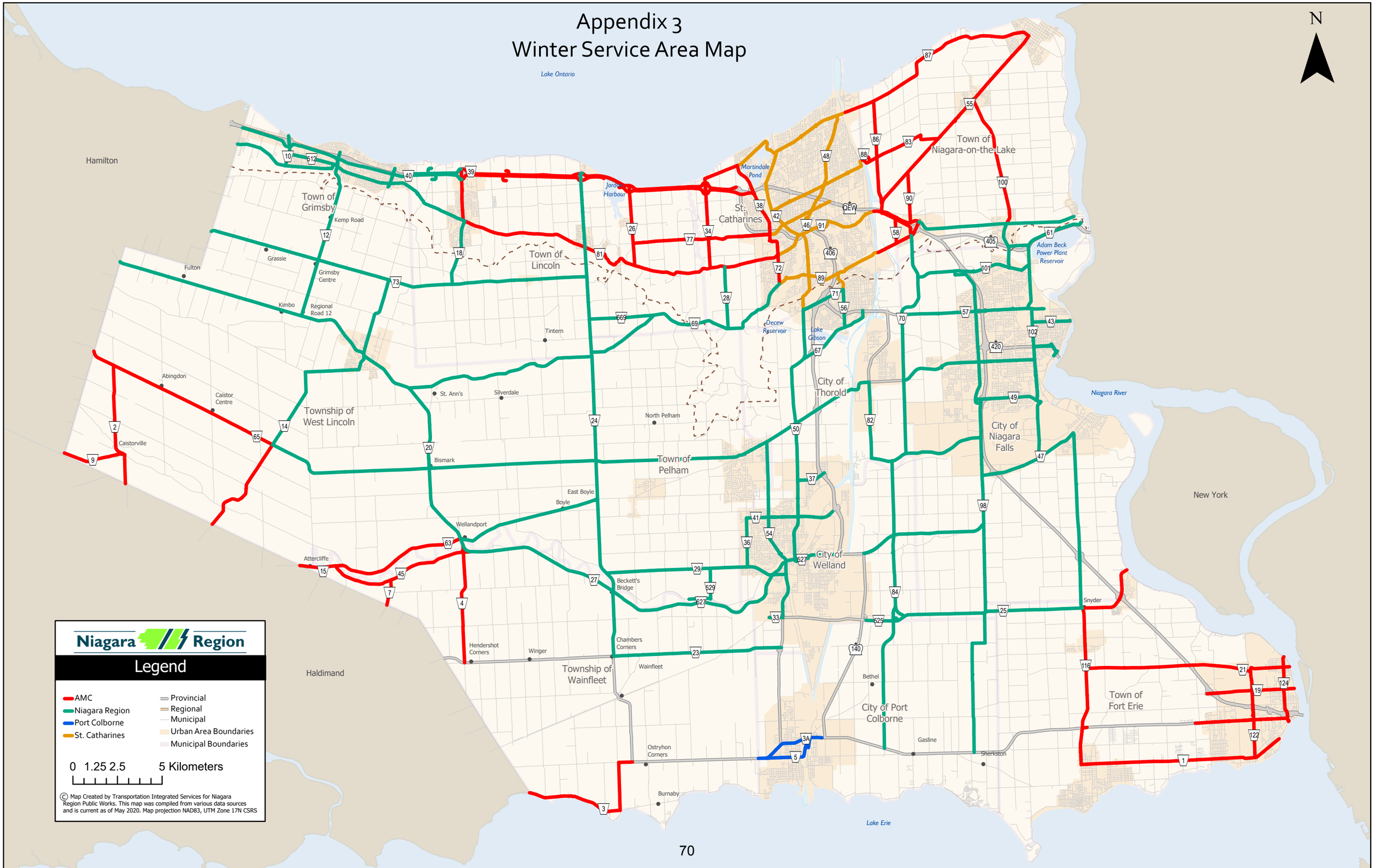
ABOUT ONTARIO

- privacy
- accessibility
- terms of use

© Queen's Printer for Ontario, 2012-19

b

Appendix 3
Winter Service Area Map



Appendix 4 Multi Year Forecast

Prior Year Schedule of Revenue and Expenditures by Account (including Multi Year)
DeptID: D_60108 Winter Maintenance Contract
Fiscal Year: 2020

	2019 Budget 2020 Total	2020 Budget 2020 Total	2020 Budget 2020 Variance	2020 Budget 2020 Variance %	2021 Budget 2020 Total	2021 Budget 2020 Variance	2021 Budget 2020 Variance %	2022 Budget 2020 Total	2022 Budget 2020 Variance	2022 Budget 2020 Variance %
A_44482 Hired Equipment - Roadways	2,700,000	2,700,000	0	-	3,105,000	405,000	15.0%	3,167,100	62,100	2.0%
A_44000AB Operational & Supply	**2,700,000**	**2,700,000**	**0**	**-**	**3,105,000**	**405,000**	**15.0%**	**3,167,100**	**62,100**	**2.0%**
A_60014 ABD Radio & Comm Equip (60114)	3,142	2,991	(151)	(4.8%)	3,051	60	2.0%	3,112	61	2.0%
A_60000AA Intercompany Charges	**3,142**	**2,991**	**(151)**	**(4.8%)**	**3,051**	**60**	**2.0%**	**3,112**	**61**	**2.0%**
Gross Expenditure Subtotal	**2,703,142**	**2,702,991**	**(151)**	**0.0%**	**3,108,051**	**405,060**	**15.0%**	**3,170,212**	**62,161**	**2.0%**
Gross Revenue Subtotal	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Net Expenditure (revenue) before indirect allocations	**2,703,142**	**2,702,991**	**(151)**	**0.0%**	**3,108,051**	**405,060**	**15.0%**	**3,170,212**	**62,161**	**2.0%**
A_70002 Ind Alloc FMP Trans (70102)	99	94	(5)	(4.8%)	95	1	0.7%	97	2	2.1%
A_70003 Ind Alloc FMP Budget (70103)	14,902	13,992	(910)	(6.1%)	14,587	596	4.3%	14,982	394	2.7%
A_70023 Ind Alloc Procure Admin(70123)	1,241	2,842	1,601	129.0%	2,899	57	2.0%	2,961	62	2.1%
A_70224 Cap Levy-Prog Support (70324)	-	5	5	-	5	0	0.6%	5	0	0.4%
Allocation Subtotal	**16,242**	**16,933**	**690**	**4.3%**	**17,587**	**654**	**3.9%**	**18,045**	**458**	**2.6%**
Net Expenditure (revenue) after indirect allocations	**2,719,385**	**2,719,924**	**539**	**0.0%**	**3,125,637**	**405,714**	**14.9%**	**3,188,256**	**62,619**	**2.0%**
FTE - Reg	-	-	-	-	-	-	-	-	-	-
FTE - Temp	-	-	-	-	-	-	-	-	-	-
FTE - Student	-	-	-	-	-	-	-	-	-	-

DILLON
CONSULTING

The Regional Municipality of Niagara Value for Money Audit of Snowplowing, Roads Maintenance, and Landscaping Services

Final Report

May 24, 2016 – 15-2387

Table of Contents

Executive Summary

Background

At the February 23, 2015 Audit Committee meeting, Report RRIT 01-2015 External Value for Money Audits was discussed and members selected three value-for-money audits to be completed. One of the three program/service areas identified for a value for money audit was snowplowing, roads maintenance, and landscaping services.

The Regional Municipality of Niagara retained Dillon Consulting Limited, in collaboration with Performance Concepts Consulting Limited, to undertake the program review of its snowplowing, roads maintenance, and landscaping services which are delivered by its Transportation Operations division. This audit was completed using the best available data as provided by the Region.

Overview of Transportation Operations

Niagara Region provides winter maintenance, landscaping and road maintenance services across 1,697 lane kilometers of roads through areas of geographic diversity (urban versus rural areas). The Transportation Operations division of Public Works is a multidisciplinary service area that manages and performs all road and roadside maintenance activities, including forestry and signs maintenance. The Transportation Operations division operates within a "hybrid" business model whereby a mix of in-house staff and contracted service providers are utilized to meet operational objectives. The average direct-staffing operating budget for roads over the past few years has been $16.4 million dollars (annually). Additionally, approximately $4.2 million is allocated to private contractors or to local area municipal cost sharing contracts.

Program Review Scope and Team

The scope of this program review included:

- Document/map the current Region's business model including the level of outsourced vs. internally managed activity – current work processes, performance measures, service levels and operational standards;
- Determine if the Region uses an appropriate mix of internal and contracted services for all services;
- Detail and validate all costs and their components such as service costs, long term capital costs and maintenance costs, etc.;
- Identify, through a comparative analysis, business model and process improvements that should be considered, indicating the relevant benefits and risks to the various business enhancements including competitive service delivery, in-sourcing, or total outsourcing of services/activities (risks to include, but not be limited to service/operational risks, financial risks and market risks); and,

- Consider input from private sector contractors in transportation operations and any relevant industry associations; and,
- Provide comment on any other relevant information obtained during the program review which would be of importance for Council to know, act upon in the future or investigate further.

The program review was undertaken independently by Dillon Consulting Limited and Performance Concepts Consulting using information provided by Regional Staff.

Focus Group Findings: A Culture of Continuous Improvement

Semi-structured interviews and semi-structured focus group discussions were conducted at the outset of the program review to provide an initial sense of core issues that would help focus the program review's analysis on areas for improvement. These positive aspects about the organization were noteworthy from the interviews and focus group sessions:

- staff had clear opinions about how things are working;
- there are high levels of collaboration and team work; and,
- there is a clear culture of "continuous improvement".

Industry Research: Better Performance Measurement Is Needed Industry-Wide

Industry-wide quantitative peer benchmarking of transportation operations suffers from shortcomings in the input data and a lack of standardized documentation. This is indicative of the industry-wide need to strengthen performance measurement and reporting. Municipalities are still in a transition period to fully implementing an asset management IT platform that would assist with this challenge. From the perspective of the Ontario Auditor General in the Report on Winter Highway Maintenance, there are on-going problems with verifying/monitoring contractor performance.

The Ontario Good Roads Association indicates that many municipalities have contracted out transportation operations services but the degree of contracting out varies so there is no apparent ideal mix of contracted-out and in-sourced services. Steed & Evans, the Region's snow removal contractor, notes that contractors will accept performance-based contracts but are wary of penalty charges. Although the trend is for municipalities to make the contractor fully liable when outsourcing transportation operations, the municipality should retain supervisory capacity and some in-house capacity to maintain its own assets.

Peer Benchmarking Findings: Niagara Faces Many of the Same Challenges as its Peers

Municipal peer jurisdictions were investigated to determine what others are doing to improve efficiency and effectiveness. Peer municipalities were selected because they face similar operational challenges. The following peer municipalities were investigated: Durham (Region); Halton (Region); Ottawa (single tier City); Peel (Region); and, Waterloo (Region).

Niagara, with its structure including a Commissioner, Directors, Managers, Supervisors and frontline staff, is on par with the peer municipalities of Durham, Halton, Peel, and Waterloo that have similar organizational structures. Niagara also delivers a similar range of transportation operations services as its peers that deliver winter control, surface maintenance, roadside maintenance, and signs and signals maintenance. There is no apparent need for restructuring based on this evidence.

Table ES-1: Peer Benchmarking Summary

	Durham	Halton	Ottawa*	Peel	Waterloo	Niagara
Asset mgmt. IT platform	No	Yes	In progress	Yes	In progress	Yes
MMS reporting	No	No	No	No	No	No
Service-based budget	No	No	In progress	Yes	In progress	No
Flexible staffing	No	n/a	No	No	No	Yes
Contracting-out	Mostly in-sourced	100% to local municipalities	Mostly in-sourced	~80%	~35%	~20%
Comparable unit costs	No	n/a	No	No	No	No

*winter control only

Niagara faces many of the same challenges as peer municipalities. As shown in the above table, Niagara is on par with peers in terms of adopting new technologies and moving toward stronger asset management. Niagara is also on par with many peers regarding MMS reporting – there is room for improvement across all jurisdictions. Niagara should move towards more direct communications with Council on Level of Service/budgeting and should move toward selecting and reporting on clear, relevant KPIs. With regards to contracting-out, each municipality has a unique model. The variation of service delivery models across all of the municipalities suggests that there are no models that are inherently superior. Similar to the peer municipalities, Niagara does not have sufficient information to accurately compare the cost of in-sourced versus out-sourced services, and would require further due diligence before changing its blend.

Recognizing that there is interest in alternative service delivery to potentially achieve cost-savings, the following provides an overview of the risks and benefits based on the industry research and feedback from the peer municipalities:

Table ES-2: Risk and Benefits of Contracting Out

	Risks	Benefits
Cost	Cost-saving measures implemented by the contractor assist with its profitability and do not get passed on to the municipality, as compared to cost-saving measures implemented by the municipality that allow it to reduce its operational budget (or deliver more services for the same amount) in following years.	Under a contract, the municipality can control year-over-year cost by indexing the services provided, which is currently the case in the Region's contract with Steed & Evans. Competition among contractors is an incentive to demonstrate cost-effectiveness when bidding.
Resources	As experienced by MTO, a contract may be awarded to contractor that does not have sufficient personnel and equipment to do the work.	A contractor has greater flexibility than a municipality to make adjustments to its workforce level.
Levels of Service / MMS Response Times	If Council decides it wants to change the level of service, this would be difficult to implement until the contract comes up for renewal. As experienced by MTO, when the contractor does not meet MMS response times then the penalties may be so great that the contractor walks away from the contract.	As experienced in Ottawa, a municipality may be more likely to over-deliver on level of service, as compared to a contractor that aims to meet the level of service while matching effort to budget.
Supervision	As experienced by MTO, contractors cannot be expected to reliability report on their own performance.	There are no apparent benefits when supervision is contracted out.
Reporting	From a liability perspective, the municipality should maintain its own records, resulting in some duplication if the contractor is also providing reports. It is unusual for a contractor to integrate with a municipality's asset management and work order platform, whereas this is better integrated when the services are delivered by staff.	If the vehicles are properly equipped, the contractor can generate detailed reports from the AVL systems, although the same applies if municipal vehicles are similarly equipped.
Liability	The municipality remains liable regardless of how much work is contracted out.	The contractor shares some liability.

Areas of Analysis

The following areas of Transportation Operations have been analyzed and full details appear in the body of this report:

- winter season maintenance activities;
- non-winter season maintenance activities;
- workforce demographics; and,
- CityWorks maintenance management system and key performance indicators.

Summary of Recommendations

The following is a compilation of all the thirteen recommendations arising from this program review, organized into three themes.

A. Better Manage the Winter Control Budget and Consider Alternative Service Delivery after Due Diligence

Reduce the winter control budget to the level required for a typical winter instead of a severe winter.

Niagara should transition to a risk-based budgeting model (weather defined risk) by adopting a reduced-but-sustainable winter control budget. This reduced budget should be calibrated to provide event response core capacity for a normal-to-moderately severe winter season. In order to ensure the reduced risk-based budget does not negatively impact levels of service, bare pavement achievement performance data should be used to determine the appropriate sustainable level of budget reduction for the next year. Based on the difference between the 2014 direct-delivered core winter control budget and actual of approximately $400,000, the audit team recommends that the Region reallocate this amount from the direct delivery budget to the reserve for the 2016/2017 winter. This is a prudent approach that manages the risk of being under-resourced until the Region has performance data demonstrating the ability to consistently meet bare pavement achievement levels below 6 hours as per Regulation 293/02. When the Region is certain it is meeting the MMS, then it can consider further budget adjustments.

Conduct a competitive service delivery exercise at the end of the current winter contract encompassing all established routes.

To determine whether in-sourcing or out-sourcing is the most cost-effective, Niagara needs to conduct a competitive service delivery exercise that includes all the routes delivered by Region staff and delivered by the outside contractor. The

competitive service delivery bids submitted by Region management/staff and/or potential contractors should provide total service delivery costs, pass-kilometre based unit costs, and guaranteed bare pavement achievement response times. Scheduling/deployment should not be prescribed, allowing Region and/or contractor bids to adopt a wide range of potential scheduling/deployment models featuring best practices. Bid requirements could set out expected winter season severity (i.e., an events profile) to inform costing and bare pavement achievement responses.

In support of the above principal recommendation, the following supporting recommendations are made to facilitate due diligence:

i) **Document the end time of winter events so it is possible to measure the time it takes to reclaim bare pavement.**
ii) **Restructure budgeting accounting to separate core winter services from supporting services and allow accurate comparison of the costs of direct delivery versus contracted delivery for winter control.**
iii) **Collect and use pass kilometre data to better monitor and report on winter control activities.**

B. Strengthen Key Performance Indicators and Reporting

Implement winter control achievement reports for winter storm events.

Reports should be prepared for the following categories of event responses by the Region and its contracted service providers:

- system-wide winter event responses > 24 hours in duration;
- system-wide winter event responses < 24 hours in duration; and,
- significant localized winter event responses > 24 hours in duration.

Provide annual reports to Council on the level of service achievement for the winter season.

For this (2015-2016) and all subsequent winter seasons, Council should receive a report demonstrating actual levels of winter control "bare pavement achievement" (versus the 4-6 hour service level timeframes in Regulation 239/02). The report should provide a breakdown of level of service achievement in the event categories identified in this audit. Each subsequent winter season will require this report.

Niagara should use the portfolio of KPIs set out in this program review to create annual service delivery targets and report on actual results achieved.

To ensure the appropriate data is available to populate these KPIs, it will be necessary to track time spent on productive activities (i.e. directly generating work outputs) separately from non-productive time/activities (example: travel time).

Niagara should implement a performance dashboard that reports on KPIs to support operational improvement and a results-based culture.

The dashboard tool should integrate enterprise financial data; CityWorks activity based operational data, and CityWorks asset management information.

C. Ensure Labour is Aligned to Niagara's Needs

Prepare in advance for forecasted winter storm events by rescheduling staff shifts within the two week pay-period.

Niagara should transition to a more flexible "fixed cost" staffing/deployment model. This would build on the existing approach used during the "shoulder seasons" when staff levels are ramped up or down depending on the weather conditions and forecasts. The current version of the Region's fixed cost model features a pool of staff resources scheduled uniformly across each two-week pay period – essentially deploying its available event response capacity independently of winter event timing. This static/uniform approach to staff deployment can evolve, since the Region has advanced weather forecasting capabilities. Restructuring the static/uniform scheduling process into a more dynamic process will achieve improved "matching" of a reduced winter staff pool with forecast winter events during each two-week staffing cycle.

- Shifts can be changed 24-hours' notice (as appropriate) to meet forecast winter events, thereby concentrating staff's straight-time man hours around predictable/forecast periods of event response.
- Shifts without a forecast winter event response (during the same two-week period) may end up featuring below-normal scheduled staffing.
- A dynamic staffing model of cancelled/rescheduled shifts is permitted within the collective agreement, provided that the total number of hours are correct over a 2-week period and provided that 24-hours' notice is given for shift changes.

The restructured model will function more like a standard mandatory callout for forecast winter events. Traditional callouts with overtime are still available when needed to deal with unanticipated winter events.

Conduct an "activity-based" review of budget allocations based on the labour hours required to properly maintain infrastructure and complete reactive maintenance.

Niagara should conduct an activity-based review of its 2016 annual budget allocations for surface, roadside, signs/markings, and signals maintenance activity categories. The activity-based budget review should be based on a process that first considers the required number of planned maintenance man-hours for each activity category. These planned maintenance man-hour calculations will permit the Region to prepare a planned maintenance "coverage rate" – where a consistent / targeted percentage of assets are inspected / maintained each year in each activity category. Once calculated man-hour requirements are in place, staff pay rates can then be applied to arrive at the new budget allocations for each activity category. Finally, a reactive maintenance hours allowance should be added to the planned man-hours requirement for each activity category.

Shortfalls in actual labour hours of maintenance completed should be offset with an increase in the following year so the Region does not fall behind in maintenance.

Once an activity-based budget is in place for non-winter maintenance activity categories, any major shortfall between actual service hours versus budgeted hours should be corrected in the following budget year. The correction should ensure actual maintenance hours catch up with the budgeted maintenance hours for the two years in question. This budget catch-up provision will ensure planned maintenance workload remains a priority – resulting in the preservation of asset values over time.

The Region of Niagara should closely monitor its changing workforce demographics.

The Region needs to:

- Manage predictable future budget impacts;
- Implement appropriate cost controls provisions when/if needed; and,
- Improve service delivery capacity by maximizing the number of annual productive hours available per employee.

Closure

After this report is submitted to Council and direction is received by Management, it is imperative that an implementation plan be prepared to help Transportation Operations implement this program review's recommendations. This will provide Transportation Operations with the logical roadmap that it needs to achieve change management, continuous improvement, and demonstrate value-for-money.

1.0 Introduction

1.1 Program Review Background

On February 5, 2015, Regional Council approved the 2014-2018 Council Strategic Priorities, which included direction to have external Value-For-Money or Performance Audits completed and reported directly to the Audit Committee.

At the February 23, 2015 Audit Committee meeting, Report RRIT 01-2015 External Value for Money Audits was discussed and members selected three value-for-money audits to be completed. One of the three program/service areas identified for a value for money audit was snowplowing, roads maintenance, and landscaping services.

The Regional Municipality of Niagara retained Dillon Consulting Limited, in collaboration with Performance Concepts Consulting Limited, to undertake the program review of its snowplowing, roads maintenance, and landscaping services which are delivered by its Transportation Operations division.

1.2 Overview of Transportation Operations

Niagara Region provides winter maintenance, landscaping and road maintenance services across 1,697 lane kilometers of roads through areas of geographic diversity (urban versus rural areas). The Transportation Operations division of Public Works is a multidisciplinary service area that manages and performs all road and roadside maintenance activities, including forestry and signs maintenance. The activity based approach used in this division allows management to assign the appropriate in-house or contracted resources required to meet the road maintenance standards as set by the Region.

The Transportation Operations division operates within a “hybrid” business model whereby a mix of in-house staff and contracted service providers are utilized to meet operational objectives. The average direct-staffing operating budget for roads over the past few years has been $16.4 million dollars (annually). Additionally, approximately $4.2 million is allocated to private contractors or to local area municipal cost sharing contracts.

Transportation Operations’ business model requires that it efficiently deploys available resources to meet its mandated performance objectives. The business model is defined by the use of “split-job” staffing. The division consolidates its summer workforce from seasonal service groups (e.g. signs, lane marking and forestry) to create a 24/7 core winter complement from November to April. The core winter complement provides direct supervision and winter maintenance services across 19 pass-routes. These pass-routes cover 939 lane kilometers of

roadway (717 rural lane kilometers and 211 urban lane kilometers. Coverage is delivered out of four separate depots (yards): the Pelham Patrol Yard, the Smithville Patrol Yard, the Thorold Patrol Yard, and the Welland Patrol Yard. The Region's winter area maintenance contractor maintains 10 routes, consisting of 637 lane kilometers (378 rural lane kilometers and 259 urban lane kilometers). Finally, the City of St. Catharines maintains 122 urban lane kilometers and 2 rural lane kilometers within its borders on behalf of the Region.

Summer maintenance activities include road surface maintenance, shoulder maintenance, drainage maintenance, mowing, tree trimming and removal and repairs to safety devices. Typically, Transportation Operations staff monitor road surface and other asset (e.g. bridges) conditions, conduct minor repairs and manage contractors brought on for larger scale activities. For larger scale projects, the division develops a scope of work, and puts out a request for quotation or tender, using a competitive process to award the work to third party contractors.

The Transportation Operations division is staffed as follows:

- 1 Director, 1 Associate Director, 3 Managers;
- 10 non-union supervisors;
- 4 clerks;
- 6 winter patroller / lead heads;
- forestry: 5 arborists year round, 2 seasonal;
- general Transportation Operations front line: 60 full-time unionized field staff;
- signals: 13 year round – installers / technicians / electricians, including 2 lead hands; and,
- signs and markings: 6 year round, 15 seasonal including 1 extra seasonal lead hand.

1.3 Program Review Scope and Team

The scope of this program review included:

- Document/map the current Region's business model including the level of outsourced vs. internally managed activity – current work processes, performance measures, service levels and operational standards;
- Determine if the Region uses an appropriate mix of internal and contracted services for all services;
- Detail and validate all costs and their components such as service costs, long term capital costs and maintenance costs, etc.;
- Identify, through a comparative analysis, business model and process improvements that should be considered, indicating the relevant benefits and risks to the various business enhancements including competitive service delivery, in-sourcing, or total

outsourcing of services/activities (risks to include, but not be limited to service/operational risks, financial risks and market risks); and,

- Consider input from private sector contractors in transportation operations and any relevant industry associations; and,
- Provide comment on any other relevant information obtained during the program review which would be of importance for Council to know, act upon in the future or investigate further.

The program review was undertaken independently by Dillon Consulting Limited and Performance Concepts Consulting using information provided by Regional Staff, as well as the consultant's own research and analysis.

1.4 Program Review Objectives

The objectives of this program review were:

- Benchmark peer municipalities to investigate what they are doing to optimize efficiency and effectiveness, and identify any "better practices" in terms of organizational design, service bundles, core delivery processes, business planning/measurement frameworks, IT tools, asset management, risk management, performance measurement, and/or budgeting suitable for Niagara to adopt;
- Assess the Region's current transportation operations costs and program delivery functions through an engagement strategy (interviews, group working sessions, etc.) and a performance profile of service levels, actual results, unit cost trends, and available effectiveness data;
- Review the Region's other linked programs to identify potential cross-department linkages meriting investigation and develop a potential restructuring critical path if any organizational scenarios seem viable for implementation; and,
- Consider and identify alternative service delivery approaches, including differing blends of direct versus purchased services.

1.5 Methodology

A key component of a value-for-money audit through a program review is to maintain objectivity that provides a reliable, evidence-based analysis. This Program Review has been structured with an overriding commitment to an impartial third party evidence-based assessment applying four main analytical approaches:

- metric and data-based historic and current performance assessment (i.e., using quantifiable / measurable information);
- risk-based assessment of go-forward cost savings and process improvements;
- SWOT (strengths, weaknesses, opportunities and threats) analysis leading to identification of improvement opportunities; and,

- a blend of quantitative and qualitative assessment tools.

This audit was completed using the best available data. Previous reports were also referenced particularly for the winter and non-winter analysis. Two key reports were the "Transportation Services Operations Delivery Review" (2014) and the "Niagara Patrol Yards Study Retrofit Smithville & Pelham Patrol Yards" (2013).

Approximately 65% of the Region's operational budget is for winter control, so the audit team expected a high likelihood of finding cost-saving opportunities in winter control.

1.6 How this Report is Organized

The report is organized by the major areas of analysis that were conducted for this program review, as follows:

- **Section 2.0: Focus Groups – What We Heard** provides an overview of the findings from individual and group interviews conducted at the outset of the program review;
- **Section 3.0: Peer Benchmarking and "Better Practices" Analysis** provides an overview of the findings from studying peer municipalities, industry expertise/research, and OMBI data;
- **Section 4.0: Winter Analysis and Findings** provides the analysis of the winter season maintenance activities;
- **Section 5.0 Non-Winter Analysis and Findings** provides the analysis of the non-winter season maintenance activities;
- **Section 6.0 Workforce Demographics Analysis and Findings** contains the analysis of the division's staffing;
- **Section 7.0: Key Performance Indicators and CityWorks** contains the analysis of the maintenance management system tools; and,
- **Section 8.0: Closure** provides closure to the review.

In addition, **Appendix A: Results from Focus Group Sessions** provides details of the interviews noted in Section 2.0 and **Appendix B: Summary of Strengths, Weaknesses, Opportunities, and Threats** provide a matrix overview of the study findings and their linkages to the recommendations.

1.7 Acknowledgements

The consulting team would like to acknowledge the contributions and cooperation of Transportation Operations staff, Human Resources staff, and Organizational Performance staff for this program review.

2.0 What We Heard

2.1 Focus Groups with the Region of Niagara

Semi-structured interviews and semi-structured focus group discussions were conducted at the outset of the program review to provide an initial sense of core issues that would help focus the program review's analysis on areas for improvement. These interviews occurred in September 2015 and were conducted with:

- the Director of Transportation Services, the Associate Director of Transportation Operations, and the Associate Director of Systems and Planning;
- Managers in sections of Transportation Operations (e.g., roads/bridges, technology, signals/signs, pavement marking);
- Project managers responsible for deployment of CityWorks;
- maintenance yard supervisors; and,
- lead hands /winter patrollers.

Generally the tone of the interviews demonstrated the characteristics of a culture supportive of continuous improvement and/or internal communication. The tone of the interviews was:

- authentic (i.e., staff spoke freely and openly);
- respectful; and,
- largely positive.

These positive aspects about the organization were noteworthy from the interviews and focus group sessions:

- staff had clear opinions about how things are working;
- there are high levels of collaboration and team work; and,
- there is a clear culture of "continuous improvement".

It should be noted that observations emanating from the interviews and focus groups do not lead to any specific recommendations since these sessions were intended to assist the program review team in focusing their analysis efforts. The results from the interviews and focus group sessions are provided in **Appendix A**.

2.2 Interview with Steed & Evans (Snow Removal Contractor)

A semi-structured interview was conducted with the Niagara area manager for Steed & Evans. Steed & Evans holds a 10-year winter control contract for several of the Region's snow removal routes. The contract term is from 2008-2018. Overall, the contractor believes that the Region has a suitable blend of direct and contracted service delivery and emphasizes that they have a good relationship with the Region. Steed & Evans noted that it would have capacity to take on

more work as long as they had sufficient time to prepare[1]. The following bullets summarize the key insights from the interview:

- **Winter Maintenance Activities:**
  - The contractor's vehicles are all equipped with AVL and satellite equipment to track the vehicle's movements:
    - The AVL data is paid for by the Region and both the Region and the contractor have access to the data;
    - Currently the AVL and the material spreader communicate – and it is possible that in the next generation of equipment the standard will be for the AVL to communicate with the plow as well (this is available now but not standard);
  - Reporting is done through winter patrol diaries which are provided to the Region:
    - Patrol deployment is through two 10-hour shifts and increases dependent on the weather;
    - It is difficult to determine when "bare pavement" is achieved since this can depend on temperature and/or traffic volume to activate the salt;
    - A clear protocol would be needed to mark the storm event end times and the definition of "bare-pavement" achievement;
  - The contractor completes its own internal "daily costing" tracking/reporting to monitor spending for its own purpose;
  - The contractor pays an hourly rate rather than an on-call rate for their senior drivers as a way to keep good staff;
    - In this respect, the contractor believes that the municipality has an advantage since it could assign drivers to other tasks whereas for the contractor this is idle time;
  - It is appreciated that there is a relationship with the Region of Niagara and the sense that they can work together to solve problems;
  - Capacity and the existing contract:
    - The contractor could increase capacity to complete more work but would need to be an adequate time-frame to implement an increase;
    - The existing contract is for 10 years and a shorter contract would have the impact of heavily favouring the existing contractor since a 5-year

[1] It is presumed that six months' notice would be needed since this timeframe was noted in Section 1.9 of the 2008 Request for Proposals: "No later than six (6) months prior to the end of the first five (5) years of the contract term, the Region and the Proponent will then have an opportunity to decide whether or not to continue the contract under the same terms and conditions as the original contract for the remaining five (5) years based on the Region's assessment of the Proponent's performance",

minimum is required to make it feasible to purchase or lease equipment; and,

- The overall impression by the contractor is that the Region is doing a good job of balancing a blend of direct and contracted service delivery.

- **Non -Winter Maintenance Activities:**
  - Re-iterated that it is important for a municipality to have some capacity to take care of its assets rather than contracting 100% of service delivery.

3.0 Industry Research and Peer Benchmarking Analysis

This section of the report provides observations and findings regarding the industry and peer municipalities, and helps inform the discussion in Sections 4 through 7 of the report where the ultimate recommendations are made.

3.1 Industry Research

The following subsections summarize the audit team's research of the industry. This research was conducted to determine the current state of transportation operations service delivery and to gather any industry knowledge (e.g., trends) that might be relevant for improving Niagara's service delivery.

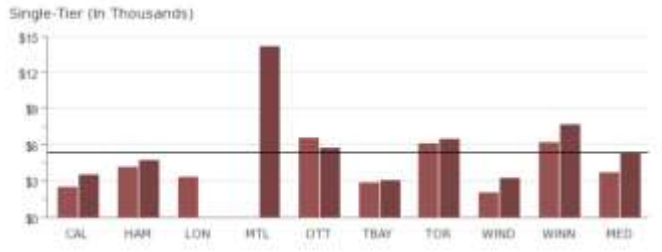
3.1.1 OMBI Reporting

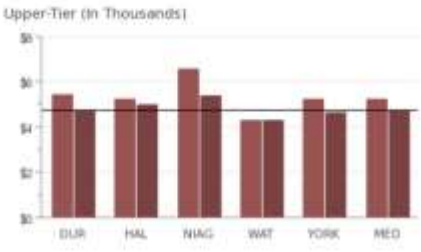
The audit team reviewed the 2014 Road reporting from the Ontario Centre for Municipal Best Practices for the same municipalities for winter and non-winter activities. As well, the audit team reviewed twelve winter control "best practice" cases prepared by the Ontario Centre for Municipal Best Practices across 2000-2006.

The 2014 OMBI data for winter control appears below.

How much does it cost to maintain our roads in winter?

Fig 28.4 Total Cost for Winter Maintenance of Roadways per Lane Km Maintained (includes amortization)





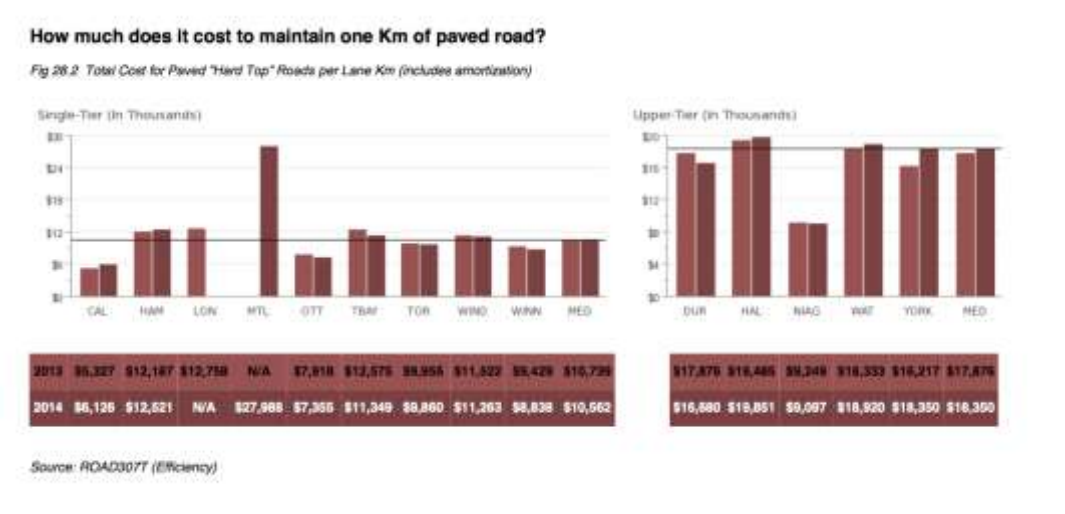
2013	$2,600	$4,194	$3,379	N/A	$6,614	$2,900	$6,190	$2,139	$6,279	$3,787
2014	$3,605	$4,823	N/A	$14,196	$5,813	$3,133	$6,582	$3,345	$7,715	$5,318

$5,478	$5,266	$6,620	$4,310	$5,286	$5,286
$4,741	$5,009	$5,394	$4,355	$4,675	$4,741

Source: ROAD309T (Efficiency)

OMBI does not publicly report winter event frequency/severity along with its cost per lane kilometre data. Therefore it is difficult to make value-for-money inferences about relative unit costs across the peers. The audit team holds the professional opinion that comparisons of Niagara's system performance against itself over time will provide greater insights than potentially misleading OMBI comparisons that lack weather based context and do not address differences in bare pavement achievement times.

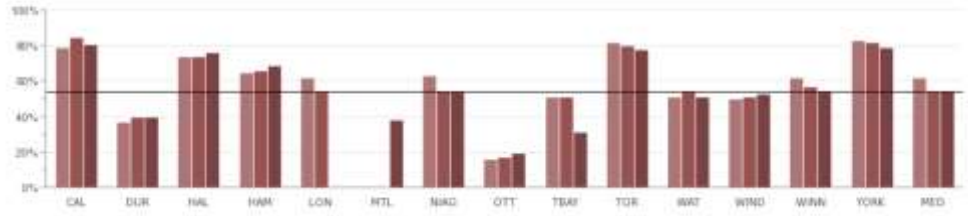
OMBI reports regional municipalities' spending on non-winter road maintenance (see below). It is clear that there is an inherent problem with the OMBI data because Durham, Halton, and Waterloo's spending totals are 100% higher than Niagara's reported data; this is more likely a result of what data is provided by the municipalities and less likely to be a true benchmark of cost-effectiveness. OMBI has long suffered from inconsistent definitions of operating versus capital cost definitions used by participants, as well as wide variations in the approach to amortized asset values/replacement value calculations for road networks of different ages.



OMBI also reports on pavement quality ratings. Participants use widely varying approaches to measuring pavement quality – all that is standardized are the "Good to Very Good" rating categories. Niagara pavement quality data matches the sample median. No maintenance program performance inferences are possible using this non-comparable data.

What percent of paved roads are rated good to very good?

Fig 28.5 Percent of Paved Lane Km where the Condition is Rated as Good to Very Good



2012	79%	37%	74%	65%	62%	N/A	63%	16%	51%	82%	51%	50%	62%	83%	62%
2013	88%	40%	74%	68%	54%	N/A	54%	17%	51%	80%	54%	61%	57%	82%	54%
2014	81%	40%	76%	69%	N/A	38%	54%	19%	31%	78%	51%	53%	54%	79%	54%

Source: ROAD405M (Customer Service)

It is noted that the Transportation Services Operations Delivery Review conducted by AMEC in 2014 used OMBI results to compare Niagara to peer municipalities. While it drew some conclusions, these were qualified by statements such as "for a better comparison, the annual snowfall… should be taken into account". This underscores the gap that currently exists in the industry: **there is no truly comparable benchmarking (i.e., reporting on a standardized set of key performance indicators) available to fairly assess the transportation operations services of municipalities**.

3.1.2 Ontario Auditor General Report on Winter Highway Maintenance

A recent winter control audit of the Ontario highway system executed by the Provincial Auditor found that the MTO was not accurately reporting bare pavement achievement times.

Figure 12: Fines Assessed, Winter 2013/14
Source of data: Ministry of Transportation

Reason	Amount ($)	# of Instances[1]
Inaccurate reporting of winter operations and activities	360,500	283
Untimely deployment	1,558,050	115
Circuit times not met	7,173,000	300
Continuous plowing service not maintained	250,500	67
Multi-lane highways not plowed using a staggered approach	343,500	41
Incorrect salt and sand application rates	358,000	68
Equipment breakdowns & equipment not fully utilized	1,739,875	156
Bare Pavement not achieved within the maximum time allowed	525,000	13
Frost and slippery conditions not addressed	196,000	11
Other winter maintenance outcome target categories[2]	843,875	65
Total	**13,348,300**	**1,119**

1. Total number of instances where contractors were notified that either one or multiple outcome targets were not met.
2. Includes untimely clearing of shoulders, passing lanes, commuter parking lots and truck inspection stations.

The above table from the Auditor's 2015 report documents the incidence of inaccurate reporting in one winter season – 283 incidents of detected reporting inaccuracies and a total of 1,119 compliance failures with contractors.

The following quote from the Provincial Auditor's report is instructive on the need for accurate/dependable reporting of bare pavement achievement times by service providers.

> "*We were also concerned about the accuracy of the information the Ministry receives from contractors on their performance against the bare-pavement target. In the winter 2013/14, Coordinator audits identified over 200 instances of contractors submitting inaccurate information to the Ministry. In our audit, we noted instances where some contractors either failed to input bare-pavement data for an entire winter season or reported inaccurate information to the Ministry. We also noted instances where the Ministry, after identifying bare pavement data errors, did not correct the information in the system used for public reporting.*"

The findings of the Provincial Auditor's report demonstrate that problems with level of service reporting and problems with verifying/monitoring contractor performance are widespread and impact various jurisdictions. It also inherently suggests that a risk of outsourcing transportation operations services is verifying/monitoring contractor performance.

3.1.3 Trends Reported by the Ontario Good Roads Association

The Ontario Good Roads Association (OGRA) was asked to comment on emerging industry best practices, challenges and trends in service delivery. The following summarizes the information gathered through a semi-structured interview with the Manager of Policy and Research at OGRA.

- **Winter and Non-Winter Maintenance Activities:**
  - Good recordkeeping is the foundation of the MMS:
    - OGRA has been encouraging members to standardize reporting, including by using weather station data and combining it with maintenance schedules;
    - OGRA has launched a winter maintenance "app" which allows municipalities to prepare an annual winter maintenance plan using a standardized template;
  - Technologies for winter control vehicles (such as AVL) have been getting more sophisticated and OGRA has been looking for ways to bring down the costs of some technologies so they are accessible for all municipalities;

- Case law is as much a driver of winter maintenance as are changing regulations: there is a recent case in Ontario where farmers were awarded a claim based on decreased land values caused by over-salting the road;
- Active transportation (e.g., public transit, cycling) is becoming more important and new maintenance obligations are emerging;
- OGRA is lobbying the province to change MMS to "Maintenance Standard" since the word "Minimum" leaves the impression that more should be done;
- Service delivery models:
  - OGRA does not take a position on what is the most appropriate service delivery model or blend of models between direct and contracted models;
  - OGRA believes that every municipality is a unique context and all models have benefits and drawbacks;
  - OGRA notes that many municipalities have contracted out services hoping it would be more efficient or cost effective but the results have not been clear;
- Climate change:
  - Assumption that warmer weather will lead to cheaper winter maintenance/road maintenance may not be correct:
    - For example, salt may need to be applied each time a temperature threshold is crossed; and,
    - Concern that some capital investments (equipment and infrastructure) may become obsolete as conditions change.

- **Asset Management:**
  - OGRA lobbied the province to make Asset Management a requirement for getting provincial funding. This has led to more strategic planning for new assets and a greater confidence in the condition of existing assets;
  - Most municipalities are moving towards using asset management software to track maintenance activities against specific assets;
  - Municipalities fall on a wide spectrum in terms of how much progress they have made toward asset management;
  - It is common for regular maintenance budgets to be deferred in favour of reactive maintenance or new capital investments:
    - More holistic asset management helps with keeping maintenance as a priority; and,
    - Municipalities are sometimes finding that assets do not age exactly as expected; sometimes infrastructure will look older or newer than expected. When an asset is lasting well, it can be reasonable to defer maintenance.

3.1.4 Trends Reported by Steed & Evans

The Region's snow removal contractor Steed & Evans provided the following information about the industry based on the contractor's experience:

- **Winter Maintenance Activities:**
  - Overall, contracts work better when they are not adversarial;
  - MTO previously issued contracts with specific requirements around equipment and man power (i.e., number of vehicles) whereas the current contracts are based on performance standards and penalizing underperformance – these contracts have not been working well since contractors may not be appropriately resourced to complete the work and the penalties are so punitive that the contractor sometimes walks away rather than paying;
  - Despite the efforts to download liability to a contractor, a municipality needs to have some capacity to maintain (or supervise the maintenance of) its assets;
- **Non-Winter Maintenance Activities:**
  - Many MTO contracts are for year-round road maintenance – this is a way to balance resources between winter and non-winter operations; and,
  - Re-iterated that it is important for a municipality to have some capacity to take care of its assets rather than contracting 100% of service delivery.

3.1.5 Observations from the Industry Research

The following paragraphs describe the findings of the industry research. As noted earlier, this subsection of the report provides findings that help inform the discussion in Sections 4 through 7 of the report where the ultimate recommendations are made.

- **OMBI Winter and Non-Winter:** Industry-wide quantitative peer benchmarking of winter control achievements and costs is not technically viable at this point in time due to the shortcomings in OMBI public reporting (i.e., no winter event frequency/severity) and the absence of bare pavement achievement timeframes across peer regions. Meaningful non-winter industry-wide peer benchmarking is also not technically viable at this point in time due to the shortcomings in OMBI public reporting (e.g., lack of standardized life cycle asset costing across participants) and the absence of consistent pavement quality measurement tools across peer regions. There are no performance inferences emerging from the OMBI data which is indicative of the industry-wide need to strengthen performance measurement and reporting.
- **Province of Ontario Auditor General:** There are on-going problems with verifying/monitoring contractor performance which is inherently a risk of outsourcing transportation operations services.
- **ORGA:** Good standardized documentation is a challenge industry-wide although the collective move towards asset management IT platforms is expected to help in the near future. Many municipalities have contracted out transportation operations

services but the degree of contracting out varies so there is no apparent ideal mix of contracted-out and in-sourced services.

- **Steed & Evans:** Contractors will accept performance-based contracts but are wary of penalty charges. Although the trend is for municipalities to make the contractor fully liable when outsourcing transportation operations, the municipality should retain supervisory capacity and some in-house capacity to maintain its own assets.

3.2 Peer Municipalities

The following matrix (**Table PM-1**) summarizes existing knowledge, research, data gathering, and interviews with peer municipalities. It should be noted that the matrix was developed using available data and in some cases complete information was not available or information was out of date. Municipalities with incomplete data were still retained as comparators because the available information provided insight on other topics. For example, the City of Ottawa was included because it completed an audit of winter maintenance in 2015, however other information on Ottawa is not known.

Peer municipalities were selected because they face similar operational challenges to the Region of Niagara and/or they have recently completed audits of winter or non-winter transportation operations.

The following peer municipalities were investigated:

- Durham (Region);
- Halton (Region);
- Ottawa (single tier City);
- Peel (Region); and,
- Waterloo (Region).

Table PM-1: Peer Municipality Comparisons

	Durham (Region)	Halton (Region)	Ottawa (Single Tier City)*	Peel (Region)	Waterloo (Region)	How does Niagara Compare?
Organizational Structure	**DEPARTMENTS –** Works – Roads and Transportation – Transportation Operations and Maintenance **STAFFING MODEL** • Commissioner, Works • Director, Transportation & Field Services • Manager, Transportation Infrastructure • Supervisors of Maintenance Operations • Maintenance Operators **DEPLOYMENT** • Five regional depots and a traffic operations centre	**DEPARTMENTS –** Public Works – Transportation – Transportation Operations and Maintenance • Contract management for winter and non-winter control, pavement markings, signals, signs **STAFFING MODEL** • Commissioner, Public Works • Manager, Transportation • Supervisor (1 only), Transportation Operations and Maintenance (non-union) **DEPLOYMENT** • No works yards • Non-winter control patrollers deploy from main Regional building – looking to contract this out • Winter control is patrolled by Local municipalities (since winter control is contracted out to the Local municipalities)	**DEPARTMENTS –** Operations Portfolio - Public Works Department – Roads Services Branch. **STAFFING MODEL** • Deputy City Manager (Operations) • General Manager Public Works • Manager, Roads Service Branch • Approximately 590 employees are engaged in winter operations. **DEPLOYMENT** • 17 yards across five zones	**DEPARTMENTS –** Public Works – Transportation – Transportation Operations and Maintenance **STAFFING MODEL** • Commissioner, Public Works • Director, Transportation Planning • Manager, Transportation Operations and Maintenance • Supervisors, patrollers and frontline staff **DEPLOYMENT** • Two work yards, one in the north and one in the south. • Bulk of deployment from two yards in the south (urban areas), the northern area roads are generally rural.	**DEPARTMENTS –** Transportation and Environmental Services Department – Transportation Division – Transportation Operations **STAFFING MODEL** • Commissioner, Transportation and Environmental Services • Director, Transportation • Manager, Transportation Operations • 7 non-union supervisors, 6 technologists and administrative support, 60 full time unionized frontline staff, • Additional seasonal (winter) staff, 2 supervisors and 13 frontline staff **DEPLOYMENT** • Several work yards.	Niagara, with its structure including a Commissioner, Directors, Managers, Supervisors and frontline staff is on par with the peer municipalities of Durham, Halton, Peel, and Waterloo in terms of Organizational Structure.

	Durham (Region)	Halton (Region)	Ottawa (Single Tier City)*	Peel (Region)	Waterloo (Region)	How does Niagara Compare?
Winter Maintenance Activities						
Service Delivery Model	• Direct delivery augmented by contracted resources – no pre-determined routes assigned to contractors. Contractors deployed flexibly as required.	• All services are contracted out to the Local Municipalities on a three year agreement cycle.	• Municipality owns 73% of the fleet of plows/salters/combination units (236 municipally owned, 88 contracted). • Most of winter operations are delivered directly, one area is contracted dating from before the City was amalgamated. • City is currently assessing whether the composition of direct delivery/outsourcing should be changed.	• Hybrid model of direct delivery and contracted services. • Approximate split is 20% direct delivery, 80% contracted services for core winter services. • Direct delivery focused on proactive/first response. • Non-core (road patrol, supervision) activities are direct delivery by the Region. • Region patrollers and supervisors call in contractors and manage storm response.	• Region directly maintains most roads outside of the limits of the tri-cities (Cambridge, Kitchener, Waterloo). • Several roads outside the tri-cities (former MTO) are maintained by contractors through AMC style contract. • Cities are contracted to maintain the roads within the limits of the three cities with the Region continuing to provide some activities. • No second shift for Region direct delivery – crews deploy and are overtime funded for any evening/night winter events.	There are a range of service delivery models that combine direct delivery and contracted services in different ways and different proportions. Halton and Peel contract a higher proportion of work (to lower tier municipalities in Halton and to private contractors in Peel). Like Durham, Ottawa, and Waterloo, Niagara directly delivers a higher portion of the services. Some municipalities, like Durham and Peel integrate the contracts into the Regional Operations and supervise and deploy them directly. Other municipalities like Ottawa and Niagara use an AMC style contract where contractors are responsible for specific geographies and are directly responsible for supervision and deployment. Each of the service delivery models is unique in some respect. The variation of service delivery models across all of the municipalities suggests that there are no models that are inherently superior.

	Durham (Region)	Halton (Region)	Ottawa (Single Tier City)*	Peel (Region)	Waterloo (Region)	How does Niagara Compare?
Level of Service	• Level of service per the MMS. No current ability to demonstrate/measure direct delivery/contractor achievement of winter MMS service levels for bare pavement achievement.	• Level of service per the MMS. No current ability to demonstrate/measure local municipal achievement of winter MMS service levels for bare pavement achievement.	• Level of service was higher than MMS by between 1 and 6 hours depending on the road classification. • LOS was adopted by Council in 2003 and had not been reviewed since. • 2015 audit found that the levels of service were often being exceeded and this year they have been monitoring crews more closely to ensure they do not exceed the standards. • 2015 audit found that there is no documented assurance that the level of service is being met. • The audit further recommended reducing level of service to provincial standards to reduce costs.	• Level of service exceeds MMS. • Level of service report is approved by council every 4 years (each term of council). • Council gives Public Works the direct mandate to deliver the higher than required LOS. • Reporting on success of delivering on Level of Service not known.	• Level of service per the MMS. No current ability to demonstrate/measure tri-city or contractor or direct staff achievement of winter MMS service levels for bare pavement achievement. • Risk based deployment plans differ across each city, so service level achievement is uneven as is value-for-money. • Different cost profiles among tri-city providers for the same season and different overtime frequency. Financial exposure significant in a severe winter. • Legal liability clearly transferred to each tri-city provider.	Niagara's level of service is the MMS but it cannot demonstrate that it is meeting the MMS. That places Niagara on par with the peers for ability to report on achievement of MMS (there is room for improvement among all the peers). Niagara should work towards more direct communication with Council in setting Levels of Service (such as in Ottawa or Peel).

	Durham (Region)	Halton (Region)	Ottawa (Single Tier City)*	Peel (Region)	Waterloo (Region)	How does Niagara Compare?
Budgeting	• No sophisticated system of budgeting/tracking winter events, unit costs or bare pavement achievement using AVL data. • No existing activity based budgeting linking service levels to deployed resources.	• No system coverage price set within local municipality contracts. • Region is invoiced by amount of work / activity (open-ended). • Contracts allow Halton to utilize different levels of staffing from municipalities at different times (more flexibility). • 2009 audit called for better monitoring of budget to actual costs.	• 2013 Winter Operations budget was $55.3 million and actual expenditures were $79.2 million. • Monthly reporting on budget variances includes comparisons of budget to actual by detailed cost category. 2015 audit recommended linking this reporting to weather information and staff allocations of time. • Reconciliation of winter materials is only performed once per year.	• Core Budget based on "Winter Storm Equivalent" units: the cost for 8 hours of full deployment of resources - includes, overhead, labour, equipment, contractors, and materials for anti-icing, de-icing, plowing and snow removal. • Budget based on a ten-year trend line of actual spending/winter events; current budget is for 29 "Winter Storm Equivalents". • Costs that are more static such as patrols and installing snow fences are budgeted separately. • This system allows Region to isolate budget shortfalls/surpluses that are caused by seasonal weather variation. • Maintains a snow reserve at a level that would cover overspending caused by extreme weather for two back to back extreme years. In lighter years surpluses are reallocated to the reserve fund so it is kept at the ideal level.	• Tri-city budgets do not separate region road funding from local road funding. It is unclear what data supports tri-city cost recovery claims so there is a current wide variation in unit costs.	Niagara should work toward linking Winter Budgeting to climatic conditions. Only Peel takes this best practice approach, whereas Niagara is on par with the other peer municipalities that also budget year-to-year.
Cost comparison	• Not available.	• Not available. With better reporting would be possible to compare costs directly across the different municipalities.	• Not available. • The City is currently completing a review to compare the cost of direct delivery with outsourcing.	• Information not available. • Acknowledge that it might be possible to reduce costs by reducing LOS but that it is difficult to quantify.	• Information not available.	No municipality is able to accurately compare the cost of direct delivery and contracted winter services. Information insufficient to assess how Niagara compares to peer municipalities in this respect.

	Durham (Region)	Halton (Region)	Ottawa (Single Tier City)*	Peel (Region)	Waterloo (Region)	How does Niagara Compare?
Risk Management	• Sufficient direct resources are available to cover all routes. Contractors are used to augment resources when storms are long or heavy precipitation. • Contractors are deployed directly by Region's supervisors. • Region patrols all routes. • Winter reserve is in place for heavy winter seasons.	• No ceiling limit as to amount billed. • Unclear how Local Municipalities determine Region's portion of an activity.	• 2015 audit found that current resourcing levels create "idle capacity" and recommending reducing resources. • 2015 audit also recommended developing procedures and policies to specify/prioritize work activities when there is no snow clearing occurring.	• Contracts for core winter services allow flexibility based on weather variations while retaining control of level of service and storm management. • Draws connection between risk and levels of service – 2010 audit was prompted by an Ontario Supreme Court Case where a municipality was held liable because it could not demonstrate that it had met the MMS. • Possible that providing a higher level of service improves safety and convenient movement of goods and services and therefore reduces liability.	• Region staffs to a minimum level meaning that in cases of illness or vacation, some equipment and crews cannot be deployed. • Reactive and planned maintenance are often in conflict.	Niagara maintains flexible staffing during the shoulder seasons to minimize idle time. Niagara is ahead of peer municipalities in terms of flexibility of deploying its in-house resources while attempting to minimize "idle time" (though there is still room for improvement by better managing how staffed are scheduled during winter).
Non-Winter Maintenance Activities						
Service Delivery Model	• Blend of direct and contracted work. • Most surface maintenance is completed by contractors.	• All services are contracted out to the Local Municipalities on a three year agreement cycle. • Some private contracts tendered together with Local Municipalities, such as pavement markings and crack sealing.	• Information not available.	• Direct delivery of most maintenance services. • Maintains roads for some other jurisdictions including MTO. • Transportations Operations is not involved in construction or major rehabilitations or resurfacing. • Pavement markings and signals maintenance are contracted out. • Signals maintenance is delivered by local municipalities in two of three local municipalities.	• Direct delivery of most maintenance services outside of the three city limits.	Niagara delivers service through a blend of direct and contracted work, so it has a similar service delivery model to the peer municipalities of Durham, Peel, and Waterloo. Halton contracts all maintenance work, and information about Ottawa is not available. The variation of service delivery models across all the municipalities suggests that there are no models that are inherently superior.
Level of Service	• See winter.	• See winter.	• Information not available.	• See winter.	• Level of service per the MMS.	See winter.

	Durham (Region)	Halton (Region)	Ottawa (Single Tier City)*	Peel (Region)	Waterloo (Region)	How does Niagara Compare?
Budgeting	• No existing activity based budgeting linking service levels to deployed resources.	• See winter.	• Information not available.	• Information not available.	• 2014 audit recommended transitioning to an activity based budget. Activity based budgeting would require enhanced time tracking and asset management regimes.	Like Niagara, some peers are moving toward activity based budgeting and stronger asset management regimes. Information insufficient to assess how Niagara compares to peer municipalities in this respect.
Cost Comparisons	• Information not available.	• See winter.	• Information not available.	• Information not available.	• Information not available.	No municipality is able to accurately compare the cost of direct delivery and contracted services. Information insufficient to assess how Niagara compares to peer municipalities in this respect.
Risk Management	• Information not available.	• See winter.	• Information not available.	• 2010 audit recommended changes to reduce risk around signals liability. Recommended that records of maintenance to signals were retained by the municipality independently of the contractor and that the Region hire an electrician to review the work of the contractor.	• See winter.	Information insufficient to assess how Niagara compares to peer municipalities in this respect.

	Durham (Region)	Halton (Region)	Ottawa (Single Tier City)*	Peel (Region)	Waterloo (Region)	How does Niagara Compare?
Workforce Demographics						
Workforce Demographics (This is included since it can provide an early warning regarding potential productivity improvement or erosion associated with workforce trends and resultant changes in available work hours.)	• Information not available.	• Not applicable since Region does not deliver services directly.	• Information not available. • Succession planning is part of the annual planning activities completed by the City of Ottawa. Potential successors are identified for all positions that are considered "critical" and succession planning including career development and training is provided to help employees prepare for more senior positions.	• Information not available.	• Aging workforce presents a need for succession planning and is a significant risk/opportunity for the Region.	Ottawa's approach to succession planning is more pro-active than Niagara's; however, information is insufficient to assess how Niagara compares to peer municipalities in this respect.
Key Performance Measures and Asset Management						
Time Tracking	• Not clear that labour hours are linked to activities.	• 1 staff for contract monitoring. • Time tracking by activity not applicable as all activities are contracted.	• Time is tracked by activity and can be linked to service requests. • Audit found that 25% of winter time is allocated to "Yard", "Litter", "On-call" and "other" even in a relatively heavy winter. • Activity sheets and service requests seem to be completed on paper and provided to yard clerks.	• Information not available.	• Time for productive, travel time, non-productive time, is mixed together for maintenance activities. • Different individuals track productive/non-productive time differently. • Manual paperwork and data entry are a burden on frontline and supervisory staff.	Although Niagara tracks time by activity, the time for productive, travel, and non-productive time is recorded as one, putting it on par with peer municipalities that all need to refine their activity based time tracking. This would improve Niagara's ability for budget analysis.

	Durham (Region)	Halton (Region)	Ottawa (Single Tier City)*	Peel (Region)	Waterloo (Region)	How does Niagara Compare?
Asset Management	• Maintenance activities are not directly linked to specific assets.	• Proprietary asset management system tracks Region's signals (maintained by others), signs, pavement management • System triggers work orders which are fed to Local Municipalities, can be directly from 311 • Work orders issued and entered at dispatch • Looking to transition to Hansen • Work order generation and entry will be done in-field	• Information not available.	• Hansen platform links service requests to asset management. • Information entered in the field using tablet computers. • Updates to record keeping for winter patrol (to minimize duplication in forms) were recommended in 2010 Audit.	• Asset management software has been acquired and is being implemented over time. • Existing asset/information management is not sufficient to support staff in performing maintenance activities. • Currently, reactive and proactive maintenance is not tracked against individual assets. • Asset inventories are inconsistent and not kept current.	Niagara's use of the CityWorks platform is on par with Halton and Peel that also use an IT system for asset management and properly tracking maintenance to assets.

	Durham (Region)	Halton (Region)	Ottawa (Single Tier City)*	Peel (Region)	Waterloo (Region)	How does Niagara Compare?
Level of Service/Performance Targets, Tracking, and Reporting	• No established KPIs reported. • No established measurement regime for bare pavement achievement timeframes following the end of a winter storm event.	• Level of service is set, but does not prescribe methodology or performance targets • GPS and "Road Patrol Manager" software implemented in 2012 to improve documentation.	• Levels of service were established and approved by Council in 2003; • Reporting through OMBI but not directly to Council • "Service Excellence Scorecard" is used to report performance indicators. This scorecard is not ideal, it tracks time as "productive" or "sick/vacation" rather than based on activity, and it does not report on clean-up time after a storm, and it does not report time to complete a service request. • Vehicles are equipped with GPS "where's my plow app" available to citizens and supervisors, but there has been no follow up analysis to determine if the intended benefits of investing in the technology has been realized. • Concern that the "real costs" of depreciation and overhead are not known. • Reports on time allocations for employees are available and can be customized by time period, person, or activity code.	• 2010 audit recommended "random monitoring" and "spot checks" of work performed by contractors to ensure contracted work is being adequately performed.	• Plows and vehicles are equipped with GPS/AVL. • In field supervision is limited and widely viewed as insufficient by staff. • Performance standards for services are not known or worked towards and certainly not measured consistently. • Performance measurement is not possible with existing data tools; they do not allow for review, analysis or reporting on KPIs. • Performance measurements are not shared or compared across the Yards or Supervisors.	Ottawa has the clearest performance measures (although not KPIs) and regularly reports on them. Niagara needs KPIs and should move towards this with regular reporting.

	Durham (Region)	Halton (Region)	Ottawa (Single Tier City)*	Peel (Region)	Waterloo (Region)	How does Niagara Compare?
Monitoring Service Providers	• Information not available.	• Contract agreements with Local Municipalities include provisions for performance targets and reporting but it is not clear if the reporting has been implemented. Municipalities want Region to provide reporting staff. • Salt management reporting. • Only other form of reporting is invoicing of time and system km. • 2009 audit suggested updating agreements with municipalities to include consequences for non-adherence.	• Supervisors review snow clearing activity on an ad-hoc basis, if a standard or contractual requirement is not met deficiency reports are provided to the procurement group. • Concern that salt deliveries were being accepted containing up to 15% less salt than documented. Recommended random weight checks of salt trucks.	• In winter, contractors are directly supervised by Peel.	• Performance reporting and/or measurement is not provided through the contracts with the local municipalities in the three cities. • Performance reporting is not required from the private contractors. • There are no enforceable financial incentives or penalties associated with non-performance for neither the local municipalities nor the contractors.	Monitoring service providers is a common challenge among peer municipalities, including Niagara since its patrollers can verify that work has been completed but cannot always verify that the contractor has met MMS response times.

3.2.1 Observations from the Peer Benchmarking and "Better Practices" Analysis

The following is a summary of the key observations from the preceding peer benchmarking matrix. This summary helps inform the discussion in Sections 4 through 7 of the report where the ultimate recommendations are made.

3.2.1.1 Organization Design

Niagara, with its structure including a Commissioner, Directors, Managers, Supervisors and frontline staff, is on par with the peer municipalities of Durham, Halton, Peel, and Waterloo that have similar organizational structures. Niagara also delivers a similar range of transportation operations services as its peers that deliver winter control, surface maintenance, roadside maintenance, and signs and signals maintenance. There is no apparent need for restructuring based on this evidence.

3.2.1.2 Winter Maintenance Activities

- There are a range of models blending direct and contracted service delivery. For instance Halton Region relies on local municipal direct delivery (costs reimbursed), while the City of Ottawa provides most services directly. Waterloo Region features urban service delivery by the cities of Cambridge/Kitchener/Waterloo within their respective boundaries, while Waterloo Region's staff deliver services across the remaining local municipalities. Niagara uses more contracted services than some municipalities and less than others. Niagara uses an area maintenance contract where the contractor is responsible for specific geographies as compared to some municipalities that incorporate contracted resources into their general deployment. The variation of service delivery models across all of the municipalities suggests that there are no models that are inherently superior, including Niagara's.
- None of the peer municipalities could definitively compare the cost of direct delivery of activities by their own staff versus contracted providers versus local municipal staff – because the data to report on specific performance measures is lacking, and basic analysis (e.g., cost per lane kilometre) is too coarse to provide actual insights given the complexity of the services delivered and the variable environment in which they are delivered. Ottawa is currently attempting to complete this type of exacting activity based costing analysis for winter control. The information available is insufficient to assess how Niagara compares to peer municipalities in this respect.
- The Region of Peel is driving service planning innovation by linking winter control staffing, budgets and service levels to winter weather "risk scenarios". Peel's core winter budget is based on units of "Winter Storm Equivalent" where service levels can be custom designed based on the system-wide deployment of a fully-costed fleet of heavy machinery for an eight hour period. Peel obtains Council approval for its winter service level (i.e., the number of Winter Storm Equivalents) from Council at the

beginning of a term. Niagara is on par with the peers – no municipality can verify that it is meeting the MMS. Niagara should move towards linking budget to weather scenarios and should work towards more direct communication /approval with Council regarding desired levels of service.

- Niagara maintains flexible staffing during the shoulder seasons to minimize stand by or winter prep time. Niagara is ahead of peer municipalities in terms of ensuring its in-house resources can be easily deployed while attempting to minimize stand by or winter prep time (though there is still room for improvement by better managing how staff are scheduled during winter).

3.2.1.3 Non-Winter Maintenance Activities

- Peer municipalities employ a range of service delivery models (i.e. direct and contracted blends). Niagara delivers service through a blend of direct and contracted work, so it has a similar service delivery model to the peer municipalities of Durham, Peel, and Waterloo. Halton contracts all maintenance work, and information about Ottawa is not available. The variation of service delivery models across all of the municipalities suggests that there are no models that are inherently superior.
- As discussed above for winter, unit cost comparisons for different service delivery models are not available/reliable. The information available is insufficient to assess how Niagara compares to peer municipalities in this respect.
- Niagara should work towards more clear communication with Council in terms of budgeting and Level of Service targets, using the systems such as CityWorks that it has in place.
- Municipalities are starting to move towards activity based budgeting that is directly linked to asset management. In general, time tracking and asset management regimes are not yet in place to allow for activity based budgeting. Niagara is on par with peer municipalities in moving toward activity based budgeting.

3.2.1.4 Workforce Demographics

- Municipalities such as Ottawa have integrated succession planning into their annual planning activities. Municipalities that are not proactivity planning for succession should consider this a risk. Waterloo's recent operational review also considered workforce demographics as a future risk/opportunity requiring careful monitoring. Niagara appears to be adequately managing changes to workforce demographics.

3.2.1.5 Key Performance Measures and Asset Management

- Most of the peer municipalities track labour time by mixing together productive and non-productive labour hours (including travel time). Where activities are tracked separately (as in Ottawa which represents the best practice) then it becomes easier to identify and measure productivity, gauge any surplus capacity, and build accurate

activity based budgets. Niagara is on par with most peer municipalities in terms of tracking productive and non-productive time.

- Peer municipalities have adopted GPS/AVL technology for winter machinery and smaller vehicles, but have not properly integrated the technology/data to results based planning and reporting processes (i.e., the location of the vehicle and distance travelled can be determined, but it is not always clear if the vehicle was plowing the road, or simply travelling). Niagara is on par with peer municipalities in adopting GPS/AVL technology.
- Peer municipalities are attempting to transition to more robust asset management systems that link planned maintenance activities/hours to specific asset classes. Ideally applying proper levels of planned maintenance hours in a rational/targeted fashion optimizes asset life cycles. By using CityWorks for asset management and properly tracking maintenance to assets, Niagara is on par with Halton and Peel that use similar systems for asset management.
- Lack of evidence based reporting on service level achievement is a common problem. Gathering performance data reports from alternate service providers, including local municipalities and private contractors is a persistent problem among peers. Niagara, which cannot always verify that its contractor is meeting the MMS, is on par with peer municipalities in this regard.
- The Region of Peel has suggested a connection between providing a higher LOS and reduced liability. The reduced liability only exists where the achievement of the maintenance standards is appropriately tracked and documented. If the municipality cannot demonstrate the achievement of LOS, then actual performance (unproven) does not matter from a liability perspective. With respect to having levels of service but not comprehensively tracking/documenting them, Niagara is on par with peer municipalities this regard.
- Few peer municipalities have key performance indicators in place with regular results reporting back to Council, management or frontline staff. Even where indicators have been selected and reporting is in place as in Ottawa, it can still be a challenge to ensure the KPIs are relevant from a value-for-money perspective. Niagara should move towards selecting and reporting on clear, relevant KPIs (e.g., dollars per pass kilometres as discussed in Section 4.6 and those KPIs suggested in Table KPI-1 in Section 7).
- Monitoring service providers is a common challenge among peer municipalities. Niagara is on par with peer municipalities in this respect.

3.3 Risks and Benefits of Contracting Out

Recognizing that there is interest in alternative service delivery to potentially achieve cost-savings, the following provides an overview of the risks and benefits based on the industry research and feedback from the peer municipalities:

Table ES-1: Risk and Benefits of Contracting Out

	Risks	Benefits
Cost	Cost-saving measures implemented by the contractor assist with its profitability and do not get passed on to the municipality, as compared to cost-saving measures implemented by the municipality that allow it to reduce its operational budget (or deliver more services for the same amount) in following years.	Under a contract, the municipality can control year-over-year cost by indexing the services provided, which is currently the case in the Region's contract with Steed & Evans. Competition among contractors is an incentive to demonstrate cost-effectiveness when bidding.
Resources	As experienced by MTO, a contract may be awarded to contractor that does not have sufficient personnel and equipment to do the work.	A contractor has greater flexibility than a municipality to make adjustments to its workforce level.
Levels of Service / MMS Response Times	If Council decides it wants to change the level of service, this would be difficult to implement until the contract comes up for renewal. As experienced by MTO, when the contractor does not meet MMS response times then the penalties may be so great that the contractor walks away from the contract.	As experienced in Ottawa, a municipality may be more likely to over-deliver on level of service, as compared to a contractor that aims to meet the level of service while matching effort to budget.
Supervision	As experienced by MTO, contractors cannot be expected to reliability report on their own performance.	There are no apparent benefits when supervision is contracted out.
Reporting	From a liability perspective, the municipality should maintain its own records, resulting in some duplication if the contractor is also providing reports. It is unusual for a contractor to integrate with a municipality's asset management and work order platform, whereas this is better integrated when the services are delivered by staff.	If the vehicles are properly equipped, the contractor can generate detailed reports from the AVL systems, although the same applies if municipal vehicles are similarly equipped.
Liability	The municipality remains liable regardless of how much work is contracted out.	The contractor shares some liability.

4.0 Winter Analysis and Findings

Niagara Region funds/delivers/oversees winter control services across an arterial road network consisting of 1,808 lane kilometres. The Region's winter control model includes the following service delivery components:

- Direct delivery of winter event core services by Region staff across 19 routes totalling 1,005 lane kilometres;
- Direct delivery of a portfolio of supporting winter control activities by Region staff across the entire Regional network of 1,808 lane kilometres;
- Contracted delivery of winter event response services by a contractor across 10 routes totalling 672 lane kilometres; and,
- Direct delivery of winter event response services by the City of St. Catharines across 127 lane kilometres of Regional roads integrated into routes primarily consisting of City roads.

The following analysis of winter control system performance/value-for-money is based on financial and operational data for three calendar years (2012-2014). The winter seasons of 2012-2014 provided the audit team with three diverse scenarios in terms of winter weather (i.e., storm event frequency and severity) – this was an ideal circumstance for the value-for-money analysis.

4.1 Direct Delivery of Core Winter Services by Region Staff

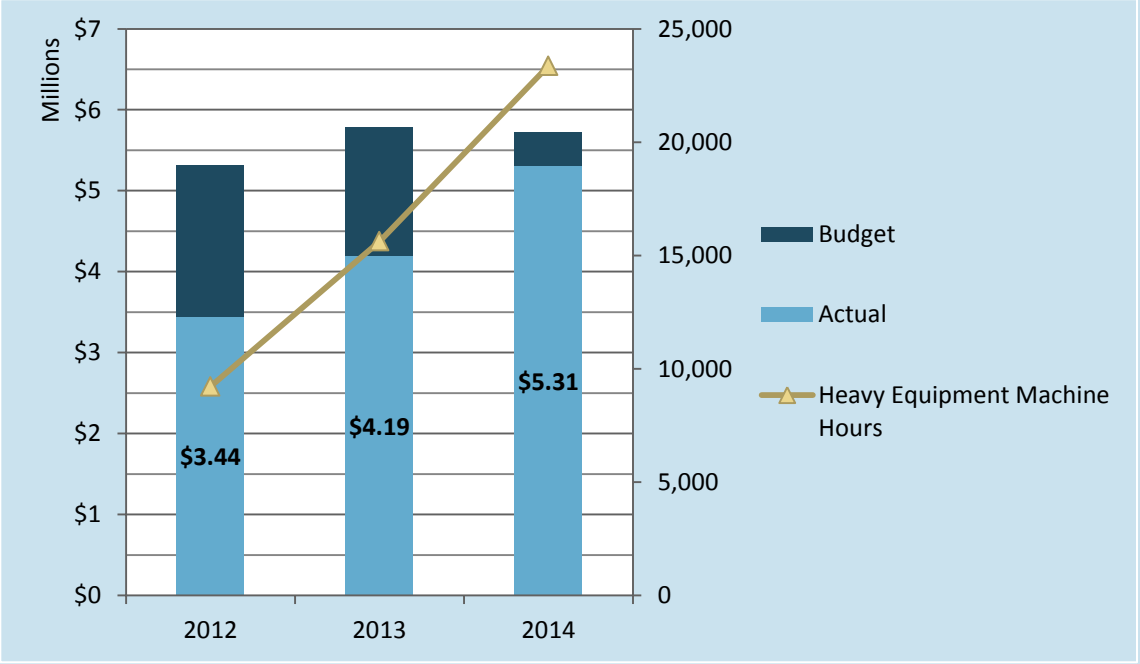
Table W-1 below provides a summary of the winter core services response model delivered by Region staff across 2012-2014. The Region's operating budget for directly delivered core services (i.e., snowplowing/de-icing) falls within a fairly narrow range of $5.31M to $5.78M. However actual spending varied significantly from $3.4M to $5.26M. Major system-wide winter storm events requiring a response across all 19 routes ranged from 7 storms in 2012 to 28 storms in 2014. Local events (i.e., not system-wide) requiring a significant event response ranged from 37 in 2012 to 54 in 2014. Heavy equipment machine hours for snowplowing/de-icing vary across 2012-2014 in proportion with winter storm events. Machine hours in 2014 are 23,369 – an increase of 14,148 over 2012 levels. Budgeted unit costs of service delivery are reasonably stable - whether tracked on a "lane kilometre" basis or a "machine hour" basis. However, actual unit costs vary significantly based on storm frequency and machine hour trends. The actual cost per lane km in 2014 was $5,266 – approximately 54% higher than the 2012 actual cost per lane km of $3,410.

Table W-1: Direct Staff Delivery of *Core* Winter Services (2012-2014)

	2012 Season	2013 Season	2014 Season
# Lane Kilometres Receiving Coverage	1,009	1,009	1,009
Heavy Equipment Machine Hours	9,221	15,622	23,369
Utility Vehicle Machine Hours	14,698	15,778	15,254
Total Machine Hours	23,919	31,400	38,623
* Winter Budget $	$5,318,953	$5,784,659	$5,721,998
* Winter Actual $	$3,440,801	$4,192,392	$5,313,241
Budgeted Cost per Lane Km	$5,272	$5,733	$5,760
Actual Cost per Lane Km	$3,410	$4,155	$5,266
Budgeted Cost per Total Machine Hour Delivered	$222	$184	$148
Actual Cost per Total Machine Hour Delivered	$144	$135	$138
* Major Storm Events -System Wide > 24 Hours	3	5	7
* Major Storm Events -System Wide < 24 Hours	4	17	21
* Significant Local Events < 24 hours with OT	15	12	22
* Significant Local Events < 24 Hours No OT	22	34	32

The Region's current direct delivery winter control budget which was not overspent even during the severe winter of 2014 that consumed over 23,000 heavy equipment machine hours indicates an exceptional amount of event response capacity. As illustrated below in **Figure W-1**, the actual cost for direct delivery winter control was approximately $400,000 less than the budgeted amount.

Figure W-1: Budget and Actual Dollars of Core Winter Services (2012-2014)



4.2 Direct Staff Delivery of Supporting Winter Control and Other Activities

Table W-2 below provides a summary of the supporting winter control activities delivered by Region staff across 2012-2014. Supporting winter control activities include snow fencing, snow removal, winter drainage, winter sand clean-up, brine station maintenance and an "other" category. These supporting winter control activities are delivered across the entire Regional road network consisting of 1,808 lane kilometres. Spending patterns were fairly stable across the 2012-2014 winter seasons, ranging from $879k in 2012 to $773k in 2013. Utility vehicle machine hours varied from 5,800 to 6,933. Unit costs were also reasonably stable on both a "per lane kilometre" basis and a "machine hour" basis. However, costs did not track particularly closely to variations in storm event frequency – it appears that winter support activities represent a fixed level of effort/cost that is independent of weather trends. One notable exception to the fixed effort pattern was the spike of machine hours during the mild 2012 winter. In 2012, the number of heavy equipment machine hours (linked to the delivery of core services as shown in **Table W-1**) is much lower than in other seasons. These man hours seem to have migrated (approximately 1,000 hours) into the supporting activities (see **Table W-2**). The resulting spike of 6,933 utility vehicle hours is much higher than the levels documented in 2013 and 2014.

Table W-2: Direct Staff Delivery of *Supporting* Winter Control and Other Activities (2012-2014)

	2012 Season	2013 Season	2014 Season
# Lane Kilometres Receiving Coverage	1,808	1,808	1,808
Heavy Equipment Machine Hours	198	163	130
Utility Vehicle Machine Hours	6,933	5,800	5,982
Total Machine Hours	7,131	5,963	6,112
Winter Budget $	$879,924	$773,790	$872,315
Winter Actual $	$879,924	$773,790	$872,315
Budgeted Cost per Lane Km	$487	$428	$482
Actual Cost per Lane Km	$487	$428	$482
Budgeted Cost per Total Machine Hour Delivered	$123	$130	$143
Actual Cost per Total Machine Hour Delivered	$123	$130	$143
Major Storm Events -System Wide > 24 Hours	3	5	7
Major Storm Events -System Wide < 24 Hours	4	17	21
Significant Local Events < 24 hours with OT	15	12	22
* Significant Local Events < 24 Hours No OT	22	34	32

4.3 Man-Hour and Machine Hour Trends

Machine-hour trends across 2012-2014 display two operational realities (see **Table W-3**). Heavy equipment usage is highly variable depending on winter event frequency/severity. However, utility vehicle usage is stable across seasons; reflecting the fixed effort/costs

associated with the core activities of winter patrol and supervision, plus the bundle of supporting winter activities.

Table W-3: Winter Control Machine Hours

	2012	2013	2014
Region Maintained Roads: Heavy Equipment	9,221	15,662	23,369
Region Maintained Roads: Utility Vehicles	14,698	15,778	15,254
All Roads Maintenance: Heavy Equipment	198	163	130
All Roads Maintenance: Utility Vehicles	6,933	5,800	5,982
TOTAL	*31,050*	*37,402*	*44,735*

Despite the wide variation in winter severity/storm events across the 2012-2014 seasons, man-hours deployed/expended are very stable (see **Table W-4**). The 2014 winter was one of the most severe winters in decades however the expended man-hours of 56,574 were only 6% higher than expended man-hours during the mild winter of 2012. The man-hour data demonstrates the fact that the Region has designed a fixed-cost direct staffing model; this is an issue since there is very limited variation in deployed manpower over diverse winter seasons.

Table W-4: Winter Control Man Hours

	2012	2013	2014
Region Maintained Routes	38,198	41,842	43,177
Maintenance Across All Roads	14,897	12,855	13,397
TOTAL	*53,095*	*54,697*	*56,574*

4.4 Winter Control and Public Safety – Direct Delivery Model

Despite the spike in system-wide storm events during the 2013 and 2014 winter seasons, the number of reported winter collisions on Region maintained roads remained relatively flat. Assuming driver "adaptive behavior" regarding collision avoidance was largely constant across 2012-2014 winter seasons, it is reasonable to conclude the Region's "peak winter" deployment model was a significant factor in limiting collisions/protecting public safety during the severe winters of 2013 and 2014. The Region's "peak" deployment model features the capacity to

meet the demands of an exceptionally severe winter like 2014 without compromising public safety – note the 23,369 hours of deployed heavy equipment (to deliver core winter event responses) compared to the appreciably lower levels of heavy equipment deployment in 2012 and 2013.

Table W-5: Collision Frequency on Region Maintained Roads

	2012	2013	2014
# Reported Winter Collisions on All Region Roads	**1,011**	**1,112**	**1,058**
Region Maintained Roads: Heavy Equipment Hours	**9,221**	**15,662**	**23,369**
Region Maintained Roads: Utility Vehicle Hours	14,698	15,778	15,254
Major Storm Events -System Wide > 24 Hours	3	5	7
Major Storm Events -System Wide < 24 Hours	4	17	21

4.5 Winter Control Overtime Trends – Direct Delivery Model

The winter control overtime hours/costs for the 2012-2014 seasons track closely with the frequency and severity of winter events. The time of day that a given winter event occurs also impacts overtime trends, since lower levels of scheduled staffing occur after 3pm each weekday and on weekends. Overtime hours of 4,383 were deployed during the severe 2014 winter – a 61% increase over the relatively mild 2012 winter. Overtime costs followed a similar pattern as overtime hours – featuring 2014 totals that were 66% higher than 2012.

Table W-6: Winter Control Overtime Trends

	2012 Season	2013 Season	2014 Season
Overtime Hours	2,721	2,859	4,383
Overtime Spending	$84,351	$91,974	$140,256
Major Storm Events -System Wide > 24 Hours	3	5	7
Major Storm Events -System Wide < 24 Hours	4	17	21
Significant Local Events < 24 hours with OT	15	12	22
Significant Local Events < 24 Hours No OT	22	34	32
Overtime Hours per Event (including Major Storm Events and Significant Local Events with Overtime)	124	84	88

4.6 Private Contractor Delivery of Core Winter Services

Core services (i.e., snowplowing/di-icing) are delivered by a private contractor across 10 routes totalling 672 lane kilometres. Actual spending in 2012 and 2013 closely matches budgeted spending in 2012 and 2013 (see **Table W-7** below). In 2014 the actual spending of $2,873,333 exceeded the budget by $373,333. The cost overrun in 2014 was due to winter event frequency levels, which required the use of more gas and salt, and provisions in the contract allow for variations in these material costs to be passed on to the Region. Machine hours/man hours expended by the contractor were not available to the audit team for review. The profile of local winter events that the contractor responded to was not available to the audit team for review (to the extent it differed from the Region's profile of direct delivery events). System-wide event response frequency mirrors the staff direct delivery workload for 2012-2014.

Table W- 7: Private Contractor Delivery of Core Winter Services

	2012 Season	2013 Season	2014 Season
# Lane Kilometres Receiving Coverage	672	672	672
# Machine Hours of Service Delivered	NA	NA	NA
Winter Budget $	$2,325,000	$2,325,000	$2,500,000
Winter Actual $	$2,287,637	$2,341,359	$2,873,333
Budgeted Cost per Lane Km	$3,460	$3,460	$3,720
Actual Cost per Lane Km	$3,404	$3,484	$4,276
Budgeted Cost per Machine Hour Delivered	NA	NA	NA
Actual Cost per Machine Hour Delivered	NA	NA	NA
# Major Storm Events - System-wide >24 hours	3	5	7
# Major Storm Events – System-wide < 24 hours	4	17	21
# Significant Local Events	NA	NA	NA

A comparison of the Region direct delivery model versus the private contractor model has been prepared by the audit team (see **Table W-8** below). The Region's direct delivery actual costs do not track closely against the budget because of variations in winter event frequency/severity. The Region also attempts to achieve bare pavement (following the end of each winter event) that meets the Province's minimum maintenance standard of 6 hours. In contrast the private contractor employs a level of effort model under a lump sum contract (while also required to meet the bare pavement achievement service level target as the contract's primary objective). This allows the contractor to match deployed effort/cost against the contract budget providing it can also meet the bare pavement achievement target. Region unit costs per lane kilometre are higher than the contractor in 2013 and 2014.

Table W-8: Comparison of Unit Costs between Direct Delivery and Contractor Models

REGION			
	2012 Season	2013 Season	2014 Season
Budgeted Cost per Lane Km	$5,272	$5,733	$5,760
Actual Cost per Lane Km	$3,410	$4,155	$5,266
Major Storm Events -System Wide > 24 Hours	3	5	7
Major Storm Events -System Wide < 24 Hours	4	17	21
CONTRACT			
	2012 Season	2013 Season	2014 Season
Budgeted Cost per Lane Km	$3,460	$3,460	$3,720
Actual Cost per Lane Km	$3,404	$3,484	$4,276
Major Storm Events -System Wide > 24 Hours	3	5	7
Major Storm Events -System Wide < 24 Hours	4	17	21

Note: The Region's objective is to meet MMS, whereas the contractor's objective is to meet MMS and match effort to its bid price.

Caution should be exercised in the interpretation of this per kilometre unit cost data (i.e. the cost of winter control divided by the number of lane kilometres maintained). A preferred unit cost comparison would be based on the actual number of pass kilometres executed across the routes (i.e., the cost of winter control divided by the number of pass kilometres completed).

The "pass kilometre" measurement records the total number of times that the roads receive treatment (i.e., material spreading or snow clearing). For example, the contractor in Niagara maintains 672 lane kilometres in the winter, so if the contractor cleared snow over the 672 lane kilometres a total of ten times in a season then it would have completed 6,720 pass kilometres. Measuring costs per pass kilometres would make it possible to fairly compare the cost of service delivery between the Region and the contractor. In addition to better comparison between the Region and the Contractor, unit cost per pass kilometre would be a better comparison for peer benchmarking. Using this measure would help to equalize differences between municipalities such as climatic conditions or different proportions of road surfaces. A 2007 report from Iowa State University recognized pass kilometres/plow down kilometres as one of the few reliable and stable measures that can be used to track outputs for winter control. At that time, only four of the forty-three jurisdictions studied could measure pass kilometres (one of the four was Edmonton, Alberta), however it was recognized that reporting pass kilometres would become easier as technology evolved.[2]

[2] Maze, T.H., C. Albrecht, D. Kroeger, and, J. Wiegand (2007). NCHRP Web-Only Document 136: Performance Measures for Snow and Ice Control Operations. *Centre for Transportation Research and Education, Iowa State University.*

This pass kilometre data is contained in the Region's AVL database for each piece of heavy equipment, but is neither reported nor regularly accessed. Unit cost comparisons should not be used to support decision-making about competing service delivery models in the absence of pass kilometre unit data. The current contract does not require the contractor to supply system performance data such as pass kilometres or bare pavement achievement times.

4.7 City of St. Catharines Delivery of Core Winter Services

The City of St. Catharines integrates 127 lane kilometres of regional road sections into its various snowplowing routes across the City (see **Table W-9** below). The City budgets approximately $300k annually for region winter control services, and then recovers its costs according to actual activity levels – which in turn are tied to winter event frequency/severity. The City overspent the budget during the severe 2014 winter season, and was very close to budget during the 2013 season. The mild winter of 2012 featured significant under-spending versus budget. Winter event frequency data is not reported, nor are bare pavement achievement times for the various routes including regional road sections. In any event, regional road standards for achieving bare pavement (i.e., 6 hours for Class 1-2 arterial road sections) would not apply to routes composed of local City roads. The Region enjoys a significant operational benefit from the current arrangement with the City, since no direct delivery equipment needs to be diverted from its own routes to service road sections within the City that do not form continuous/serviceable routes.

Table W-9: St. Catharines Delivery of Core Winter Services

	2012 Season	2013 Season	2014 Season
Lane Km Receiving Coverage	127km	127km	127km
# Machine Hours of Service Delivered	NA	NA	NA
Winter Budget $	$297,513	$299,187	$299,187
Winter Actual $	$151,053	$317,299	$446,633
Budgeted Cost per Lane Km	$2,343	$2,356	$2,356
Actual Cost per Lane Km	$1,189	$2,498	$3,517
Budgeted Cost per Machine Hour Delivered	NA	NA	NA
Actual Cost per Machine Hour Delivered	NA	NA	NA

Because St. Catharines has incorporated the Region's Roads into the local snow removal routes, a direct comparison of the unit costs for the Region versus St. Catharines would not be possible.

4.8 Actual Winter Control Performance Against the Region's Bare Pavement Service Level Standard

The Province sets out municipal winter control service levels (by regulation) for five categories of roads (see **Table W-10** below). The Region's network of arterial roads is primarily Class 2,

with a few roads (running up and down the escarpment) maintained as Class 1. The Provincial Minimum Maintenance Standards (MMS) include snow accumulation depth that should trigger a snowplowing response by the Region. The MMS also include target timeframes to return the road to a desired navigable condition following the end of a winter event. The Region's winter control service level derived from the MMS is bare pavement achieved within 6 hours of the end of a winter event[3].

Table W-10: MMS Standards for Bare Pavement Achievement (Hours)

Class of Highway	Depth	Time
1	2.5 cm	4 hours
2	5 cm	6 hours
3	8 cm	12 hours
4	8 cm	16 hours
5	10 cm	24 hours

The audit team has not been provided with any quantifiable data concerning bare pavement achievement times for the Region's direct service delivery or contractor routes. Like many other Ontario municipalities, as discussed in the "Better Practices" analysis, Niagara does not track end-times for winter events. Therefore there is no defined point in time where the "stopwatch is turned on" to calculate timeframes for a post-event clean-up effort that achieves bare pavement. In the absence of any measurement based service level achievement data, the audit team has only anecdotal observations/assurances from staff that they meet Class 1-2 MMS standards for the direct delivery routes. There is also no evidence that the contractor meets MMS standards on the 10 contracted routes.

It is difficult to truly ascertain the value-for-money of the Region's winter control service in the absence of data regarding bare pavement achievement by region staff and the contractor. Given the timing of the program review and importance of having this data for managing risk, the audit team provided an interim recommendation to Management in late 2015 prior to the completion of the audit. This interim recommendation appears as Recommendation #1 in this report. The interim recommendation provided the Region with clear direction to take immediate technical preparations to measure bare pavement achievement for system-wide winter event responses beginning January 1, 2016.

[3] While the reasonableness of this service level for Niagara could be debated, it is a regulated standard so the municipality has no choice but to meet it.

4.9 Winter Control Findings

The following paragraphs describe the findings of the winter control analysis and the ultimate recommendations are provided in the following subsection of this report.

- The Region's current direct delivery winter control budget which was not overspent even during the severe winter of 2014 that consumed over 23,000 heavy equipment machine hours indicates an exceptional amount of event response *capacity*.
- The relatively "flat" trend displayed by Regional road winter collision data (2012-2014) suggests the Region's current winter control model was a significant public safety contributor during the severe 2013 and 2014 "outlier" winters.
- The direct delivery winter control budget creates surplus event response capacity during mild/normal winter seasons (e.g. 2012). For instance, the 2012 winter consumed 14,148 fewer heavy machinery hours than the 2014 winter. The Region is able to redeploy surplus event response capacity towards a range of other winter maintenance and non-maintenance activities during mild/typical winters. It is not possible to assess whether the value-for-money associated with these discretionary activities (during a mild/normal winter) is equivalent to the value-for-money associated with the core activities of winter event response (in a heavy winter).
- Across the 2012-2014 seasons, spending on secondary winter control activities (i.e., not event response or patrol) was maintained in the $872k - $879k range despite the variations in winter severity. Man-hours spent on these activities increased during the mild 2012 winter season (by approximately 1,000 added man hours) – again demonstrating that there is some surplus capacity that is re-deployed to non-core activities during mild winters.
- The Region's current winter control model is best understood as a "fixed cost" deployment model – relying heavily on direct delivery by Regional staff, and a supporting contractor. The annual operating budget for this fixed cost model (approximately $6.5M) currently generates capacity levels that are matched to severe "outlier" winters, while creating surplus capacity during mild/normal winters. In this sense the current model/budget eliminates severe winter financial risk but maximizes mild winter financial risk. This risk management profile is not typical of most municipal winter control budgets, where a winter reserve fund is used to manage the risk of "outlier" winters (outside the annual operating budget).
- Measurement gaps currently prevent the Region from documenting the direct delivery model's "bare pavement achievement times" following the end of a winter event. The Region's contractor does not currently report "bare pavement achievement times" following the end of a winter event. Therefore the Region cannot verify compliance with its Minimum Maintenance Standard (MMS) derived service standard for post-event snow plowing or icy road treatment. Given these measurement gaps it is therefore difficult to definitively determine the value-for-money of the current winter control model.

- Pass kilometre data – one of the few reliable performance measures for winter control – is central to proper winter system planning, budgeting and results reporting. The Region currently collects/owns AVL data on the movement of its heavy winter machinery across the road system. With refinements AVL data can generate valuable pass kilometre data. In order to properly track pass kilometres of core winter control work outputs (not just heavy machine movement) the Region would need to install AVL sensors for spreaders and plow blades on all units (including the contractor). The Region could then define/track pass kilometres of winter control output using AVL data with the spreader active and/or the plow blade "down".

4.10 Recommendations: Winter Control

The following recommendations are provided concerning value-for-money, effective risk management, and operational improvement for winter control.

Note that recommendations "R1", "R4"and, "R5" were provided in formal correspondence to Management on November 25, 2015, concerning the need to measure bare pavement achievement times during the current winter season. Region Staff has indicated that a plan had been developed and implementedto address the initial recommendations. To this end, staff developed a new winter event log and conducted a trial of the event logging so that it could be rolled out to the contractor and the City of St. Catharines for the 2016-2017 winter. The preliminary results of the trial on the Region's direct delivered winter control routes during the 2015-2016 winter suggest that it can meet the MMS.

R1. Document the end time of winter events so it is possible to measure the time it takes to reclaim bare-pavement.

Commencing in January 2016, Niagara and its contracted service providers should establish a common methodology for documenting the end of a winter event in order to subsequently measure timeframes for re-claiming bare pavement as per winter minimum maintenance standards contained in Ontario Regulation 293/02. This methodology will require the Region to create geographic "event zones" in order to reflect the reality that a system-wide winter event does not end at the same time across the entire region. The methodology should include a combination of real time weather station data and Supervisor/Patrol staff qualitative assessments in order to determine event "end times".

R2. Restructure budgeting accounting to separate core winter services from supporting services and allow accurate comparison of the costs of direct delivery versus contracted delivery for winter control.

Niagara should restructure its 2016-2017 winter accounting structure to ensure distinct cost centres exist for the following service delivery components:[4]

- Direct staff delivery of *core* winter service activities (i.e. snowplowing/de-icing/patrol) currently delivered across the current 19 standardized routes;
- Direct staff delivery of *supporting* winter service activities currently delivered across the entire regional road system of 1,808 lane kilometres (i.e. snowfencing/snow removal);
- Contractor delivery of *core* winter service activities (i.e. snowplowing/de-icing) currently delivered across the current 10 standardized routes; and,
- Direct delivery of *core* winter service activities by the City of St. Catharines (i.e. snowplowing/de-icing) for 127 lane kilometres of regional road sections currently integrated within City-defined routes.

R3. Collect and use pass kilometre data to better monitor and report on winter control activities.

Pass kilometre data is central to proper winter system planning, budgeting and results reporting. Niagara should ensure that *pass kilometre* data (i.e. the true "countable unit" of core winter service delivery) is properly integrated into its budgeting, business planning and results reporting processes for 2017 (see section 4.6 for more information on "pass kilometres"). The Region currently collects/owns AVL data on the movement of its heavy winter machinery across the road system. In order to properly track pass kilometres of *work* (not just machine movement) the Region should install AVL sensors for both spreaders and plow blades on all units (including the contractor). The Region should track pass kilometres of work defined by AVL data featuring the spreader functioning and/or the plow blade "down". Pass kilometre data should also inform future decisions around contractor selection and the recommended competitive service delivery initiative. Finally, pass kilometre data should support future targeted peer benchmarking efforts that provide meaningful insights beyond the overly simplistic OMBI model now in place.

[4] Note that certain activities are tracked year-round, so for example, drainage or road surface maintenance completed in the winter would be coded separately from the winter control budget.

R4. Implement winter control achievement reports for winter storm events.

Reports should be prepared for the following categories of event responses by the Region and its contracted service providers:

- system-wide winter event responses > 24 hours in duration;
- system-wide winter event responses < 24 hours in duration; and,
- significant localized winter event responses > 24 hours in duration.

R5. Provide annual reports to Council on the level of service achievement for the winter season.

For this (2015-2016) and all subsequent winter seasons, Council should receive a report demonstrating actual levels of winter control "bare pavement achievement" (versus the 4-6 hour service level timeframes in Regulation 239/02). The report should provide a breakdown of level of service achievement in the event categories identified in R4. Each subsequent winter season will require this report.

R6. Reduce the winter control budget to the level required for a typical winter instead of a severe winter.

Niagara should transition to a risk-based budgeting model (weather defined risk) by adopting a reduced-but-sustainable winter control budget. This reduced budget should be calibrated to provide event response core capacity for a normal-to-moderately severe winter season. In order to ensure the reduced risk-based budget does not negatively impact levels of service, bare pavement achievement performance data (R1-R5) should be used to determine the appropriate sustainable level of budget reduction for the next year. Based on the difference between the 2014 direct-delivered core winter control budget and actual of approximately $400,000, the audit team recommends that the Region reallocate this amount from the direct delivery budget to the reserve for the 2016/2017 winter. This is a prudent approach that manages the risk of being under-resourced until the Region has performance data demonstrating the ability to consistently meet bare pavement achievement levels below 6 hours as per Regulation 293/02. When the Region is certain it is meeting the MMS, then it can consider further budget adjustments.

R7. Prepare in advance for forecasted winter storm events by rescheduling staff shifts within the two week pay-period.

Niagara should transition to a more flexible "fixed cost" staffing/deployment model. This would build on the existing approach used during the "shoulder seasons" when staff levels are ramped up or down depending on the weather conditions and forecasts. The current version of the Region's fixed cost model features a pool of staff resources scheduled uniformly across each two-week pay period – essentially deploying its available event response capacity independently of winter event timing. This static/uniform approach to staff deployment can evolve, since the Region has advanced weather forecasting capabilities. Restructuring the static/uniform scheduling process into a more dynamic process will achieve improved "matching" of a reduced winter staff pool with forecast winter events during each two-week staffing cycle.

- Shifts can be changed at 24-hours' notice (as appropriate) to meet forecast winter events, thereby concentrating staff's straight-time man hours around predictable/forecast periods of event response.[5]
- Shifts without a forecast winter event response (during the same two-week period) may end up featuring below-normal scheduled staffing.
- A dynamic staffing model of cancelled/rescheduled shifts is permitted within the collective agreement, provided that the total number of hours are correct over a 2-week period and provided that 24-hours' notice is given for shift changes.

The restructured model will function more like a standard mandatory callout for forecast winter events. Traditional callouts with overtime are still available when needed to deal with unanticipated winter events.

R8. Conduct a competitive service delivery exercise at the end of the current winter contract encompassing all established routes.

To determine whether in-sourcing or out-sourcing is most cost-effective, Niagara needs to conduct a competitive service delivery exercise that includes all the routes delivered by Region staff and delivered by the outside contractor. The competitive

[5] Article 20.04 of the collective agreement states: "Twenty-four (24) hours notice shall be given before change of shifts. Failure to provide at least sixteen (16) hours rest between shifts which are being changed shall result in payment of overtime at established rates for any hours worked during such normal rest period."

service delivery bids submitted by Region management/staff and/or potential contractors should provide total service delivery costs; pass-kilometre based unit costs, and guaranteed bare pavement achievement response times. Scheduling/deployment should not be prescribed, allowing Region and/or contractor bids to adopt a wide range of potential scheduling/deployment models featuring best practices. Bid requirements could set out expected winter season severity (i.e., an events profile) to inform costing and bare pavement achievement responses.

5.0 Non-Winter Analysis and Findings

The Region delivers non-winter maintenance activities using a blend of staff direct delivery and contractors. These maintenance activities can be grouped into paved surface, roadside, signs and markings, and traffic signals. The same core group of Transportation Operations staff that deliver winter control services also deliver non-winter maintenance activities.

The table below sets out direct service delivery "budget versus actuals" spending trends for non-winter maintenance. The surface maintenance budget is divided into direct delivery and contract components. Across 2012-2014 the "Surface Direct" actual spending level is significantly less than budget. The under-spending in "Surface Direct" is driven by lower-than-budgeted man-hours of work. The budget offset for lower-than-budgeted man-hours of "Direct Surface" activity can be found in the over-expenditure Signals and Signs/Markings activities. Across 2012-2014 man-hours of Region staff labour are being consistently re-deployed to priority Signals maintenance activities – activities that produce extra revenue via maintenance services sold to Niagara's local municipalities.

Roadside activities also fluctuate over/under budget across the 2012-2014 periods. The scheduling of specialized equipment (impacted by weather) plays a significant role in the labour hours deployed in any given season for roadside maintenance.

Improved internal purchasing processes implemented in 2014 have reduced the Surface Contractor program's inability to get planned work done in 2013. The $497k deficit in 2013 has been reduced to $50k in 2014.

NW-1: Non-Winter Maintenance Budget versus Actual Expenditures (2012-2014)

	2012 Budget $	2012 Actuals $	Variance $	2013 Budget $	2013 Actuals $	Variance $	2014 Budget $	2014 Actuals $	Variance $
Surface Direct	1,390,274	821,750	568,524	1,117,133	633,330	483,803	1,121,739	913,530	208,209
Surface Contracts	170,000	212,383	(42,383)	650,000	152,692	497,308	652,990	602,634	50,356
Surface Total	1,560,274	1,034,133	--	1,767,133	786,022	--	1,774,729	1,516,164	--
Roadside	1,687,078	1,667,957	19,121	1,664,654	1,895,035	(230,381)	1,869,144	1,482,653	386,491
Signs & Markings	1,217,205	1,349,673	(132,468)	1,230,167	1,413,022	(182,855)	1,230,216	1,148,464	81,752
Signals	1,158,564	1,154,967	3,597	1,174,650	1,291,246	(116,596)	1,174,650	1,154,057	20,593
Total Variance	--	--	416,391	--	--	451,279	--	--	747,401

NW-2: Direct Surface Maintenance Imbalance of Budget versus Actual Spending: In Detail

	2012	2013	2014
$ Value Uncompleted Surface Work	*568,524*	*483,803*	*208,209*
Surface Man Hours Expended	6,169	7,814	9,265

There is a sizeable gap between budgeted and actual spending on surface maintenance. The Region has been reducing this gap over the past several years.

5.1 Productivity and Cost Trends in Non-Winter Maintenance

From a productivity perspective it is instructive to examine trends in the service delivery output (measured in expended dollars) per 100 man-hours of inputs. If you consider 100 man hours to be a fixed input, the amount of dollars spent per 100 man-hours of output can be considered a proxy of productivity. In 2014 the dollars of output per 100 man-hours of input were lower than 2012 levels across Surface, Roadside and Signs/Markings activity groupings. In contrast, the 2014 dollars of output per 100 man-hours of input for Signals was appreciably higher than 2012 levels.

NW-3: Non-winter Spending Outputs ($) per 100 Man-hours of Inputs

	2012 Actuals	2013 Actuals	2014 Actuals
Surface Maintenance (Direct)	*$13,320 per 100 Man Hours*	*$8,105 per 100 Man Hours*	*$9,860 per 100 Man Hours*
Roadside Maintenance	*$7,446 per 100 Man Hours*	*$8,621 per 100 Man Hours*	*$6,183 per 100 Man Hours*
Signs & Markings	*$5,926 per 100 Man Hours*	*$7,118 per 100 Man Hours*	*$5,379 per 100 Man Hours*
Signals Maintenance	*$6,242 per 100 Man Hours*	*$6,644 per 100 Man Hours*	*$7,378 per 100 Man Hours*

The unit cost trend (**Table NW-4**) tracks actual costs (across activity groupings) against system lane kilometres. In 2014 unit costs are higher than 2012 levels for Surface Direct, and Surface Contract. Unit costs are stable for Signals, and declined for Roadside and Signs/Markings. The total costs per lane km remain relatively stable across the three years, fluctuating less than 5%.

NW-4: Non-winter Unit Cost per Lane KM (2012-2014)

	2012 Actuals	2013 Actuals	2014 Actuals
Surface Maintenance – Direct Staff	*$454 of output per lane km*	*$350 of output per lane km*	*$505 of output per lane km*
Surface Maintenance - Contract	*$117 of output per lane km*	*$84 of output per lane km*	*$333 of output per lane km*
Roadside Maintenance	*$923 of output per lane km*	*$1,048 of output per lane km*	*$820 of output per lane km*
Signs & Markings	*$717 of output per lane km*	*$761 of output per lane km*	*$616 of output per lane km*
Signals Maintenance	*$639 of output per lane km*	*$714 of output per lane km*	*$638 of output per lane km*
Total	*$2850 of output per lane km*	*$2957 of output per lane km*	*$2912 of output per lane km*

The non-winter overtime profile (**Table NW-5**) demonstrates a significant increase in OT hours across Surface, Roadside, Markings/Signs, and Signals activity categories. As the number of Markings, Signs and Signals being maintained have increased, the need for unanticipated “after hours” reactive maintenance also increases. A significant portion of the 2012-2014 OT hours for Signals is being recovered from local municipalities.

NW-5: Non-winter overtime profile

OVERTIME PROFILE

Service Category	2012 OT Hours	2012 OT Avg Rate	2013 OT Hours	2013 OT Avg Rate	2014 OT Hours	2014 OT Avg Rate	Rationale
Winter Control	2,721	$ 31.00	2,859	$ 32.17	4,383	$ 32.00	additional staff to get to meet MMS
Pavement Surface Maintenance	930	$ 32.92	1,138	$ 32.54	1,393	$ 33.40	pothole maintenance to meet MMS
Roadside Maintenance	858	$ 32.52	891	$ 30.07	1,360	$ 29.48	Emergency tree call ins
Markings & Signs Maintenance	1,391	$ 26.89	1,400	$ 26.41	2,594	$ 28.54	Emergency sign/detour call ins
Signals Maintenance	5,021	$ 31.00	5,327	$ 31.08	6,350	$ 32.17	After hour call ins to meet stanadrds

5.2 Non-Winter Maintenance Findings

The following paragraphs describe the findings of the non-winter maintenance analysis and the ultimate recommendations are provided in the following subsection of this report:

- The Region's activity based budgeting approach to Surface, Roadside, Signs/Markings, and Signals features wide variations in "budget versus actuals" financial performance. Of particular note is the Region's accomplishment in re-engineering its purchasing process for Surface Contracting – thereby eliminating a 2013 under-spending deficit of $500k for small capital projects. An on-going trend of under-spending for Direct Surface work has been reduced by 63% between 2012 and 2014. Overall trends indicate on-going significant variation in "budget versus actual" financial performance driven by shifting operational priorities, weather impacts and difficult-to-predict vacation patterns where staff pay is not allocated to any activity.
- Productivity trends are uneven, as measured by spending outputs per 100 hours of staff labour inputs. Surface, Roadside and Signs/Markings spending per 100 hours of labour inputs are significantly lower in 2014 than they were in 2012. The productivity trend for Signals is positive: output spending per 100 hours of labour inputs is significantly higher in 2014 compared to 2012.
- Unit costs per lane kilometre are being managed well by the Region. Unit costs are down significantly for Roadside and Signs/Markings. Unit costs are constant for Signals. Only the Surface category demonstrates higher unit costs – this is a good sign since it signifies pavement improvement projects are being initiated and are spending a greater proportion of the annual budget compared to 2013 before improvements were made to purchasing processes.
- Increases in staff overtime hours can be explained in terms of growing numbers of signals, signs and other assets requiring immediate "after hours" reactive maintenance; however, as a percentage of overall expenditures, overtime continues to track as a relatively minor cost factor because some of these costs are recovered from the local municipalities.

5.3 Recommendations: Non-Winter Maintenance

The following recommendations address a number of the non-winter findings:

R9. Conduct an "activity-based" review of budget allocations based on the labour hours required to properly maintain infrastructure and complete reactive maintenance.

Niagara should conduct an activity-based review of its 2016 annual budget allocations for surface, roadside, signs/markings, and signals maintenance activity categories. The activity-based budget review should be based on a process that first considers the required number of planned maintenance man-hours for each activity category. These planned maintenance man-hour calculations will permit the Region to prepare a planned maintenance "coverage rate" – where a consistent / targeted percentage of assets are inspected / maintained each year in each activity category. Once calculated man-hour requirements are in place, staff pay rates can then be applied to arrive at the new budget allocations for each activity category. Finally, a reactive maintenance hours allowance should be added to the planned man-hours requirement for each activity category.

R10. Shortfalls in actual labour hours of maintenance completed should be offset with an increase in the following year so the Region does not fall behind in maintenance.

Once an activity-based budget is in place for non-winter maintenance activity categories (see R9), any major shortfall between actual service hours versus budgeted hours should be corrected in the following budget year. The correction should ensure actual maintenance hours catch up with the budgeted maintenance hours for the two years in question. This budget catch-up provision will ensure planned maintenance workload remains a priority – resulting in the preservation of asset values over time.

6.0 Workforce Demographics Analysis and Findings

An analysis of workforce demographics was conducted for this program review since it can provide an early warning regarding potential productivity improvement or erosion associated with workforce trends and resultant changes in available work hours. The analysis considers potential increases / reductions in staff salary costs associated with their progression through position wage ranges; the result can be an upcoming productivity dividend or deficit, paired with salary cost budget implications.

Numerous staff were hired when the Region was formed in the mid-1970s and most of these staff have retired. Another cluster of hires occurred in the mid-1980s so it is likely that another large group of staff will be retiring soon. There have been new staff hired for the frontlines in recent years that are both young and capable – highly skilled, well-trained, engaged – so there is not a concern among this group of staff.

WD – 1: Workforce Demographics Current and Projected to 2020

Frontline Employees	Current (2015)	Five Years Out Status (2020)
Average age	46 years	51 years
% at top of pay grid (CUPE)	89%	84%
% at top of pay grid (Non U)	25%	--
% entitled to 5 weeks holiday (maximum allotment)	16%	25%
% eligible for retirement within 5 years	4%	8.5%*
*Assuming half of eligible employees do retire.		

The 5-year workforce trend in the chart indicates limited downward pressure on the operating budget as some unionized frontline staff at the top of the wage scale retire. The 5-year workforce trend indicates relatively constant available work hours per frontline employee resulting from vacation time. Note that the percentage of non-unionized staff at the top of the pay grid cannot be projected since wage increases are performance based.

The 5-year workforce trend also demonstrates a doubling of the retirement eligibility – from 4% to 8.5% of frontline staff eligible to retire; however, it is expected that new staff can deliver more work hours per FTE at the low end of the wage grid, resulting in some efficiency gains.

The analysis of workforce demographics also includes a review of annual unscheduled time away. The nearly 27,000 hours of unscheduled time away is equivalent to 15 FTE. It was explained that the unscheduled time away includes employees who are on long-term disability. Long-term disability benefits are not financed by the Region and employees who are on long-term disability are replaced, meaning this is not a cost or a productivity risk for the Region. Discounting long-term disability the unscheduled time away amounts to approximately 15,000 hours of unscheduled time away, equivalent to 7.5 FTE. It is understood that some other types of leave are also financed other than through the Region and that some positions are replaced for the duration of an employee's absence. To the extent possible, it would be helpful for Niagara to reduce the amount of unscheduled time away as a means of gaining productivity from its staff resource. It is understood that the Transportation Operations Department and the Human Resources Department have been working to decrease unscheduled time away.

WD – 2: Unscheduled Time Away

Type of Leave	Total Hours Away (in 2014)
LTD Leave	11,526.0
STD Leave	8,850.5
WSIB	1,751.0
Compassion Leave	618.0
Medical Leave unpaid	144.0
Appointment	579.0
Authorized Leave unpaid	3077.33
Authorized Leave paid	6.5
Unauthorized Leave unpaid	120.0
Unsupported Medical-Unauth Leave	24.0
Total unscheduled time away	26,696.83 hours

6.1 Workplace Demographics Findings

The following paragraphs describe the findings of the workplace demographics analysis:

- The 5-year workforce trend in the chart indicates relatively constant operating budget and available work hours per front line employee.
- The 5-year workforce trend demonstrates a doubling of the retirement eligibility – from 4% to 8.5% of frontline staff eligible to retire. It is expected that new staff can deliver more work hours per FTE at the low end of the wage grid, resulting in some productivity gains to balance out the impact of senior staff's reduction in available work hours.

6.2 Recommendations: Workforce Demographics

The following are the recommendations for the workforce demographics component of the program review:

R11. The Region of Niagara should closely monitor its changing workforce demographics.

The Region needs to:

- Manage predictable future budget impacts;
- Implement appropriate cost controls provisions when/if needed; and,
- Improve service delivery capacity by maximizing the number of annual productive hours available per employee.

7.0 Key Performance Indicators and CityWorks

Regional governments, and their various organization business units, are best understood as service delivery systems. In the case of the Transportation Operations division, the staff, the equipment, the contractor, and materials are the inputs leading to outputs of winter control, surface, roadside, signs/markings, and signals maintenance (consisting of detailed activities/processes). This horizontal systems view of Transportation Operations as shown in **Figure KPI-1** demonstrates the "program logic model" which is the basis for building a portfolio of Key Performance Indicators (KPIs).

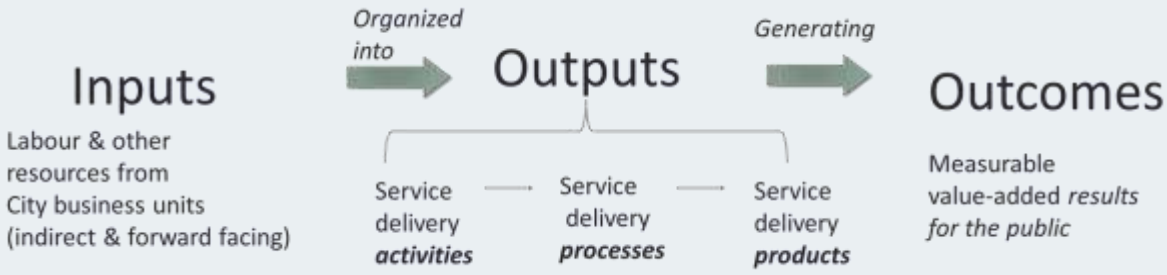


Figure KPI-1 – Program Logic Model

The program review team found that existing accomplishment units must be modernized to reflect new operational technologies (e.g., grass cutting is measured by "blade cuts" instead of hectares mowed, despite changes in the breadth of a blade cut). This means moving away from accomplishment units and towards KPIs for core service activities. By using KPIs, transportation operations is able to link its budget and outcomes – meaning that it commits to deliver "x" units of service, at unit cost "y", while achieving quality/effectiveness result "z".

Table KPI-1 outlines a portfolio of KPIs that is consistent with the systems based view of Transportation Operations. It has been developed by the audit team since there are no industry-wide standard KPIs. This is not an exhaustive portfolio and may be modified or expanded.

KPI-1: Recommended Key Performance Indicators

	Winter Control	Pavement	Roadside	Signs & Markings	Signals
Units of Service Delivered	Machine Hours or Pass Kilometres versus Target	Planned Maintenance Hours versus Target	Planned Maintenance Hours versus Target	Planned Maintenance Hours versus Target	Planned Maintenance Hours versus Target
Unit Cost Delivered	Gross Operating Cost per Machine Hour or Pass Kilometre versus target	Gross Operating Cost per Maintenance Hour versus Target	Gross Operating Cost per Maintenance Hour versus Target	Gross Operating Cost per Maintenance Hour versus Target	Gross Operating Cost per Maintenance Hour versus Target
Quality/ Effectiveness Level Achieved	Prompt/adequate event response initiated; post-event clean up times meeting MMS.	Planned maintenance annual "coverage rate" of assets	Planned maintenance annual "coverage rate" of assets	Planned maintenance annual "coverage rate" of assets	Planned maintenance annual "coverage rate" of assets

7.1 Towards a Performance Reporting Dashboard

Niagara has and uses corporate KPIs and can build upon this results-based culture for Transportation Operations. It is necessary that Transportation Operations move towards a performance-based reporting "dashboard" that automatically populates KPIs from CityWorks and other established data sources. Upon initial implementation, a simple yet powerful graphic dashboard can provide periodic feedback to Management on how the Region is doing in terms of actual service delivery results versus targets; eventually, once fully operationalized, the dashboard can provide continuous feedback on system performance.

The information in the dashboard can be a powerful tool for educating the public on service delivery and demonstrating accountability to Council. It is also beneficial since it can inform static reports, such as the division's input to OMBI and other benchmarking efforts. Furthermore, it reinforces frontline staff commitment to data collection – staff see their inputs to the system are being analyzed, and the information is cycling back and leading to something useful.

7.2 Assessment of CityWorks Roll-Out

The Region's CityWorks data management application is critical to the successful implementation of KPIs and a dashboard. The following observations are instructive concerning the ongoing refinement of the Region's CityWorks rollout.

Transportation Operations continues to roll out the CityWorks asset management and maintenance management system. The asset management focus creates linkages between the traditional maintenance management tracking of activity based labour hours to specific assets or road sections (i.e., by geography). Therefore the consumption of maintenance inputs (i.e.,

labour, materials, and other costs) by assets can inform capital budget investment decisions/priorities.

There is a current window of opportunity to decide what performance data is gathered for input to CityWorks and how it is best organized in terms of periodic reporting because the CityWorks platform has the ability to automate and continuously report on performance – with the proviso that the data is correctly coded and inputted.

The implementation of CityWorks is well underway. It is headed in a positive direction that will help management better understand the results being delivered by staff; however, it is not sufficiently refined to achieve best practices in KPI design/reporting. It should be noted that IT staff have an excellent understanding of what the technology is capable of to create a "best practice" Transportation Operations business model. The overall data framework and the data collection processes are still under development and flexible.

7.3 KPIs and CityWorks Findings

The following paragraphs describe the findings of the KPI and CityWorks analysis and the ultimate recommendations are provided in the following subsection of this report.

- Some existing "accomplishment units" are out of date with respect to modern operational technologies and core service activities.
- CityWorks asset management software is being implemented. The asset management focus creates linkages between the traditional maintenance management tracking of activities to specific assets or road sections (i.e., by geography).
- CityWorks is currently being implemented, since the deployment of the program is still evolving, it is an opportune time to ensure that CityWorks is implemented and organized to properly support budget setting and the monitoring of performance indicators.

7.4 Recommendations: KPIs and CityWorks

The following are the recommendations for the KPIs and CityWorks component of the program review:

R12. Niagara should use the portfolio of KPIs set out in this program review to create annual service delivery targets and report on actual results achieved.

To ensure the appropriate data is available to populate these KPIs, it will be necessary to track time spent on productive activities (i.e. directly generating work outputs) separately from non-productive time/activities (example: travel time).

R13. Niagara should implement a performance dashboard that reports on KPIs to support operational improvement and a results-based culture.

The dashboard tool should integrate enterprise financial data; CityWorks activity based operational data, and CityWorks asset management information.

8.0 Closure

The Region is a growth municipality that seeks to provide exceptional customer service to its residents. As Niagara continues to grow, there will be greater pressure to do more with fewer resources to accommodate this growth. The Region has a number of internal review methods and initiatives to continue to advance its culture of improvement, and the program reviews play an important role. Niagara must continue to implement improvement activities, measure performance and build the systems needed to ensure efficient and effective service delivery.

Upon reflection of the thirteen recommendations presented in this report, it is apparent that there are three overarching themes that should guide Council in directing the continuous improvement of Transportation Operations. To aid Council, the following is a compilation of all the thirteen recommendations arising from this program review, organized into these three themes:

A. Better Manage the Winter Control Budget and Consider Alternative Service Delivery after Due Diligence

- Reduce the winter control budget to the level required for a typical winter instead of a severe winter. [R6]

- Conduct a competitive service delivery exercise at the end of the current winter contract encompassing all established routes. [R8]

  In support of the above principal recommendation, the following supporting recommendations are made to facilitate due diligence:

  i) Document the end time of winter events so it is possible to measure the time it takes to reclaim bare pavement. [R1]
  ii) Restructure budgeting/accounting to separate core winter services from supporting services and allow accurate comparison of the costs of direct delivery versus contracted delivery for winter control. [R2]
  iii) Collect and use pass kilometre data to better monitor and report on winter control activities. [R3]

B. Strengthen Key Performance Indicators and Reporting

- Implement winter control achievement reports for winter storm events. [R4]
- Provide annual reports to Council on the level of service achievement for the winter season. [R5]
- Niagara should use the portfolio of KPIs set out in this program review to create annual service delivery targets and report on actual results achieved. [R12]
- Niagara should implement a performance dashboard that reports on KPIs to support operational improvement and a results-based culture. [R13]

C. Ensure Labour is Aligned to Niagara's Needs

- Prepare in advance for forecasted winter storm events by rescheduling staff shifts within the two week pay-period. [R7]
- Conduct an "activity-based" review of budget allocations based on the labour hours required to properly maintain infrastructure and complete reactive maintenance. [R9]
- Shortfalls in actual labour hours of maintenance completed should be offset with an increase in the following year so the Region does not fall behind in maintenance. [R10]
- The Region of Niagara should closely monitor its changing workforce demographics. [R11]

After this report is submitted to Council and direction is received by Management, it is imperative that an implementation plan be prepared to help Transportation Operations implement this program review's recommendations. This will provide Transportation Operations with the logical roadmap that it needs to achieve change management, continuous improvement, and demonstrate value-for-money.

References

AMEC Environment & Infrastructure (2014). Transportation Services Operations Delivery Review: Niagara Region.

AMEC Environment & Infrastructure (2013). Niagara Patrol Yards Study Retrofit, Smithville & Pelham Patrol Yards: Design Brief.

City of Ottawa, Office of the Auditor General (2015). Audit of Winter Operations: Capacity Planning and Performance Measurement.

Dillon Consulting and Performance Concepts for the Region of Waterloo (2014). Program Review for Transportation Operations.

Region of Halton, Corporate Services Department, Internal Audit (2012). Roads Maintenance Agreements Administration – Phase I Winter Maintenance and Patrol Follow Up Audit Report.

Region of Halton, Corporate Administration Office, Internal Audit (2015). Roads Maintenance Agreements Administration – Phase II Audit Report.

Region of Peel, Commissioner of Public Works (2015). Roads Operations and Maintenance Level of Service. Report to Council.

Region of Peel, Internal Audit (2010). Roads Maintenance Audit. Report to Audit Committee.

Region of Peel, Internal Audit (2010). Transportation – Contract Management Audit. Report to Audit Committee.

Appendix A

Results from Focus Group Sessions

The results of the interviews have been summarized to provide a perspective on the organization, rather than any individual person's perspective.

The findings from the interviews and focus group sessions are organized into six areas: staff/resources; equipment (winter/summer); deployment of resources; business process and performance data; winter control levels of service; and, budget and business planning.

Staff/Resources

Staff report that they are able to achieve desired service levels for both winter and non-winter maintenance activities. They further noted that there is an emphasis on promoting a culture of "continuous improvement." Feedback indicated that there is on-going service delivery improvement dialogue between frontline staff and managers – and a resulting consensus from the interviews that it has resulted in positive changes to procedures and influenced good decisions (e.g., LEAN process, input into equipment purchases).

With respect to the winter control shift design, feedback indicated that the shifts seem reasonable to both management and frontline staff. As a result, the Region is generally able to keep the roads clean without calling in additional staff (except in severe storm events) and without too much down time. It is recognized by staff in Transportation Operations that 12 hour shifts are not desirable from an employee quality of life perspective; however, there is recognition that it "makes sense" and is necessary for the winter season.

Feedback indicated that overtime may warrant adjustments to shifts in some departments (i.e., signals); however, it was also noted that overtime might be largely on a project-specific basis and the overtime incurred for activities conducted through evenings may be the most effective way to minimize daytime traffic interruptions.

Feedback also indicated that there is a suitable match between the planned level of staffing and the actual number of staff. There are enough staff to keep the equipment on the roads, and no major concerns were raised with attendance issues or vacation scheduling (partly because a new policy requires staff to choose vacation times early in the year).

The Region's flexible model ensures adequate staffing and equipment deployment. Staff indicated that Transportation Operations shares resources between yards / units when needed, and this is both a common practice and effective.

Feedback also indicated that the seasonal transition of work force is well-matched to the needs of the Region. A reasonable level of staff utilization is maintained in both winter and summer seasons. This is achieved by various tactics:

- Some of the core winter staff are assigned to forestry and pavement markings and signs in the summer as well as road maintenance;
- There are "provisional weeks" for 12 hour snowplow shifts in shoulder seasons to allow flexibility, reduce unnecessary expense, and get more core work done; and,
- There are only two drivers per shift after hours until mid-December, and then there are three.

Equipment (Winter/Summer)

Staff expressed satisfaction with the Region's Transportations Operations equipment, which is fairly new and viewed as high quality.

They noted that the combination units used during winter (versus the split sand / snow units) has added efficiency to winter control activities. Although the equipment is new, staff acknowledged a long-term challenge as equipment ages simultaneously across its lifecycle – so staff expect increased maintenance costs and reduced reliability over time, and this may reduce the ability of the Region to adopt new technologies across the fleet's life-cycle.

Other new specialized equipment used for stone shouldering and grass cutting is also helping to improve productivity. Staff noted that there are still some additional pieces of equipment that are desired; for example, a "hot box" would allow asphalting with less dead time by eliminating travel back to yards for more material.

Furthermore, staff note that sharing more specialized equipment across the east and west yards is working well, and that utilization is high without undue wait times for equipment. Some large equipment is rented by Transportation Operations and staff acknowledge that this requires advance planning and equipment is not always available at optimal times.

Deployment of Resources

Staff indicated that two of the patrol yards are old and are very close to being obsolete. In 2004, the Region completed a study that determined that the existing patrol yards were deficient for the needs of the department. A follow up study completed in 2013, concluded that the Smithville and Pelham Yards, should be closed and replaced with one new yard. It is not clear that the current/proposed yard locations are optimal in terms of minimizing travel time to job sites prior to the commencement of core maintenance activities. Consideration should be given to the location of infrastructure and other assets (where work is executed) relative to the yard locations, since there is the potential to reduce travel time to job sites and convert this into core activity hours. It is outside the scope of this audit to determine yard locations or the viability of shared-use facilities with local municipality yards.

Staff expressed satisfaction with the effective sharing of staff and equipment across yards and business units. The east-west sharing of equipment is widely supported and supervisors do not hesitate to ask for an extra person when needed – which results in good collaboration, keeps everyone busy, and keeps projects moving forward. It was noted that the work order system, CityWorks helps to facilitate this by making it easier to move resources around (i.e., charge another yard staff person's time to your maintenance program).

Business Process and Performance Data

Staff indicated that there is room for improvement in some of Transportation Operations business processes and performance measurement. Existing Key Performance Indicators (KPIs) that measure the accomplishment of maintenance activities need refinement (e.g., the measurement units for ditching work is out of date). Staff also noted the need for some new KPIs to be developed.

There is a key measurement challenge for winter control. The Ontario Minimum Maintenance Standard (MMS) requires that the municipality achieve clean-up of roads within specified time frames and this is a key performance requirement for the Region's winter control activities. While staff believe they are meeting the MMS, a procedure is required so that the start and end times of winter storms can be tracked, which would then allow Transportation Operations to accurately measure its bare pavement times. The current method for tracking weather seems effective: the Region has seven weather stations and divides itself into four weather quadrants and this seems to work well. This system recognizes that the weather is not uniform across the Region at a given time; for example, a storm event may have ceased in Wainfleet whereas it may still be on-going in Niagara on the Lake.

The Region's maintenance platform, CityWorks, is still fairly new and only some staff are fully trained on the software. Transportation Operations staff indicated that they are continually adapting the software so that it works best for the Region's needs. There is the potential to adopt mobile applications for CityWorks that would allow for management of work orders, logging of work, etc., in the field which has potential efficiency benefits. It was noted, however, that efficiency gains may be lost if data connections are not reliable through the Region so the cost/benefit of investing in mobile applications needs to be carefully considered.

Winter Control[6] Levels of Service

Regional staff expressed pride in the level of service they maintain for winter control. Staff believe that the service they provide is better than the service that is delivered by the contractor. However, there is no data to substantiate this and better reporting using standardized data and KPIs would provide an opportunity for a fair comparison between direct delivery and contracted-out delivery.

With respect to routing, there were various perspectives among staff. It is not clear among staff how the routes are established and whether they are the most efficient routes possible. Additionally, it is not clear if there is a better way to manage winter control on some of the Region's major urban roads, especially when maintenance activities coincide with peak traffic hours. If the Region proceeds with replacing the Smithville and Pelham patrol yards as proposed in 2013, it will have an impact on winter routing. The 2013 study indicated that the Region's routing times and travel distances to the routes from the patrol yard would increase, but that the Region would still be able to meet MMS requirements.

Budget and Business Planning

Staff indicated that there are different approaches/commitment to seasonal planning across the yards and that this could be coordinated better. One obstacle to long-term planning is that any digging must be preceded by a "locate" for buried utilities; however, the long and inconsistent time that it takes to obtain a locate creates a challenge for seasonal planning and specialized equipment scheduling.

Staff indicate that a stronger linkage could be made between budgeting and the CityWorks maintenance management system, resulting in an activity-based approached to budgeting based on labour hours to deliver maintenance at specific service levels. Geographically, the Region continues to grow and add new assets every year, and there is a need to recognize that this leads to increased maintenance requirements. Without regular maintenance, existing infrastructure can depreciate faster and may need to be replaced on a shorter lifecycle. Maintaining existing assets protects the infrastructure investments that the Region has already made.

[6] There is no standalone theme for non-winter maintenance since no significant issues were raised during the interviews. Feedback on non-winter maintenance is incorporated into the other themes.

Observations from the Focus Groups

As noted earlier, observations emanating from the interviews and focus groups do not lead to any specific recommendations since these sessions were intended to assist the program review team in focusing their analysis efforts. However, the following observations are offered by the consulting team to give context to the feedback received in each theme **and are based on the consultant's knowledge and experience with similar audits in other municipalities**,.

Staff/Resources

Niagara is doing well in terms of its staffing and resources: whereas other municipalities are trying to promote a culture of continuous improvement, this is already established at the Region. The scheduling flexibility of staff and high level of equipment deployment for maintenance is also places Niagara in a pool of municipalities that excel at managing their resources.

Equipment (Winter/Summer)

Niagara is ahead of many municipalities due to its inventory of new equipment; however, will face lifecycle challenges as the equipment ages simultaneously. The use of specialized equipment and the need for some other pieces of specialized equipment is not uncommon, and places Niagara on par with other municipalities.

Deployment of Resources

The concern about the location of yards emerges from time-to-time as all municipalities grow so this is to be expected for Niagara. If the Region proceeds with replacing the two existing patrol yards with one yard, the Region should consider and prepare for the impact this will have on travel time and routing. The sharing of equipment between yards is common and on par with other municipalities as a best practice.

Business Process and Performance Data

Stronger performance measurement is a common challenge for many municipal transportation operations divisions, primarily because many of them are still in a transition implementing asset management plans and making their maintenance management system fully operational across the business unit. With respect to KPIs, measuring clean-up times for winter control under Ontario's Minimum Maintenance Standard, and the integration of the CityWorks maintenance management system, Niagara is on par with other municipalities.

Winter Control Levels of Service

Many municipalities in Ontario do not have sufficient data to measure the winter control levels of service, although they have the mechanisms in place to do so (e.g., GPS on

maintenance vehicles, road patrollers, weather stations). Additionally, municipalities do not receive full reporting on their contracted-out services that would allow for a fair comparison against directly delivered services. In this regard, Niagara is also on par with other transportation operations.

Budget and Business Planning

There are a handful of municipalities in Ontario that are moving towards an activity-based budgeting approach (e.g., City of Kitchener, Regional Municipality of Waterloo); other municipalities are still using typical budgeting approaches (e.g., fixed percentage increase) that do not accurately reflect the costs involved to properly maintain assets year-over-year. With respect to services impacted by seasonal fluctuations – such as winter control – Niagara is considering a three-year blended average to help inform the budgeting process. Niagara is slightly ahead of other municipalities in regards to its budgeting and business planning by using a three-year blended average instead of a year-over-year approach.

Appendix B

Summary of Strengths, Weaknesses, Opportunities and Threats

The following table summarizes the analyses of this report in terms of "Strengths, Weaknesses, Opportunities, and Threats" (SWOT). The table also indicates the recommended strategic direction to respond to the SWOT item and identifies which recommendations are linked to each strategic direction.

Table SWOT-1: Summary of Strengths, Weaknesses, Opportunities and Threats, and Strategic Directions

Strengths	Strategic Direction	Recommendations
Collaboration, teamwork, and culture of "continuous improvement"	1. Maintain culture of collaboration, teamwork, and "continuous improvement"	R12, R13
Good communication between management and frontline staff	2. Maintain open communication between management and frontline staff	R13
Flexible resourcing (e.g. staff and equipment are shared across patrol yards, staffing during shoulder season linked to seasonal forecasts)	3. Maintain/increase flexibility in resourcing	R7
Workforce demographics are stable and management is conducting succession planning	4. Continue to monitor demographics and conduct succession planning	R11
Winter control model contributes to public safety in severe winters	5. Maintain high levels of winter control	R6
Weaknesses	**Strategic Direction**	**Recommendations**
Business processes and performance measurements are out of date	6. Update business processes and performance measurement data	R3, R12, R13
Need additional tracking/reporting on MMS (winter) by the contractor and the Region	7. Improve tracking and reporting of MMS achievement for winter control	R3, R4, R5

Direct comparison of costs and outcomes between the contractor and the Region not possible	8. Improve accounting and reporting to enable better comparisons	R1, R3, R4, R5
Need more direct communication with Niagara Council regarding LOS/achievement and budget variance within the overall department budget	9. Improve communication with Regional Council on LOS/achievements and budgeting	R1, R2, R5
AVL data (tracking) for vehicles captures the movements of the vehicles but does not differentiate between time spent working (i.e. plowing or spreading materials) and travel time	10. Use AVL data to track different vehicle activities for better winter system planning and results reporting	R3
Region falls behind on surface/roadside maintenance (direct delivery) because resources are redeployed to other activities	11. Ensure surface and roadside maintenance is not neglected	R9, R10
Opportunities	**Strategic Direction**	**Recommendations**
New asset management software – CityWorks is being implemented	12. Fully leverage CityWorks to track activities to assets and to monitor and report on performance	R9, R12, R13
Region is growing & adding new infrastructure/assets each year; unit costs have remained stable	13. Align business planning with asset growth	R9, R12, R13
Region's winter control budget capacity is sufficient for even the most severe winters (e.g. 2013-2014)	14. Reduce winter control budget to reflect a typical winter rather than a severe winter	R6, R7, R8

Threats	Strategic Direction	Recommendations
Smithville and Pelham Patrol Yards are close to being obsolete	15. Have travel time data available to inform future decisions about patrol yard locations	R1, R3, R4, R9, R12, R13
Reliance on provincial "locates" can impact scheduling of personnel and equipment	16. Continue to request locates in sync with scheduling to the extent possible	N/A
Climate change is impacting weather patterns and increasing instances of severe weather	17. Increase flexibility in winter control model; improve monitoring and reporting	R1, R2, R3, R4, R7, R9, R12

Public Works
1815 Sir Isaac Brock Way, Thorold, ON L2V 4T7
905-980-6000 Toll-free: 1-800-263-7215

MEMORANDUM

PWC-C 17-2020

Subject: Councillor Information Request - Snowplow Costs

Date: June 16, 2020

To: Public Works Committee

From: Shawn McCauley, Associate Director Transportation Operations

The purpose of this memorandum is to provide a response to the following information request made at the Public Works Committee meeting held on January 14, 2020:

> *Councillor Gale requested information respecting any potential cost savings from snow clearing operations due to the mild winter we have had so far. He also inquired about the duties of plow operators when there is no snow clearing being done.*

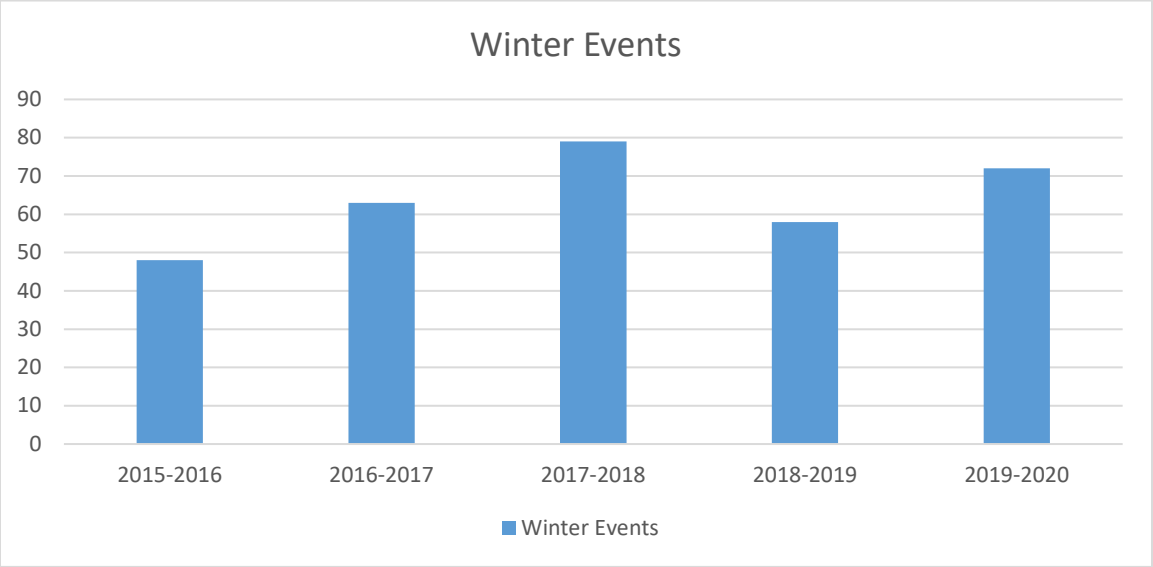
Winter Operations

The Transportation Operations division operates a "hybrid" business model during the winter season utilizing Niagara Region staff, City of St. Catharines staff and an Area Maintenance Contractor (currently Steed and Evans Limited).

- Niagara Region staff maintain 19 plow routes covering 996 lane kilometres.
- City of St. Catharines manages 126 lane kilometres of Regional Roads through amalgamation of Region Roads within in the City's own routing system.
- Steed and Evans Limited maintains 10 plow routes covering 673 lane kilometres.

Although the 2019 – 2020 winter season was relatively mild, a significant number of smaller winter events were experienced that required a response from our winter operations staff, including several early storms in October and November 2019. The table below shows a summary of winter events over the last five (5) winter seasons. Even though the number of winter events falls within the historical range experienced over the last four (4) winter seasons, the total of 72 winter events is higher than the four (4) year average of 62 winter events.

Table 1: Summary of winter events over the last five (5) winter seasons

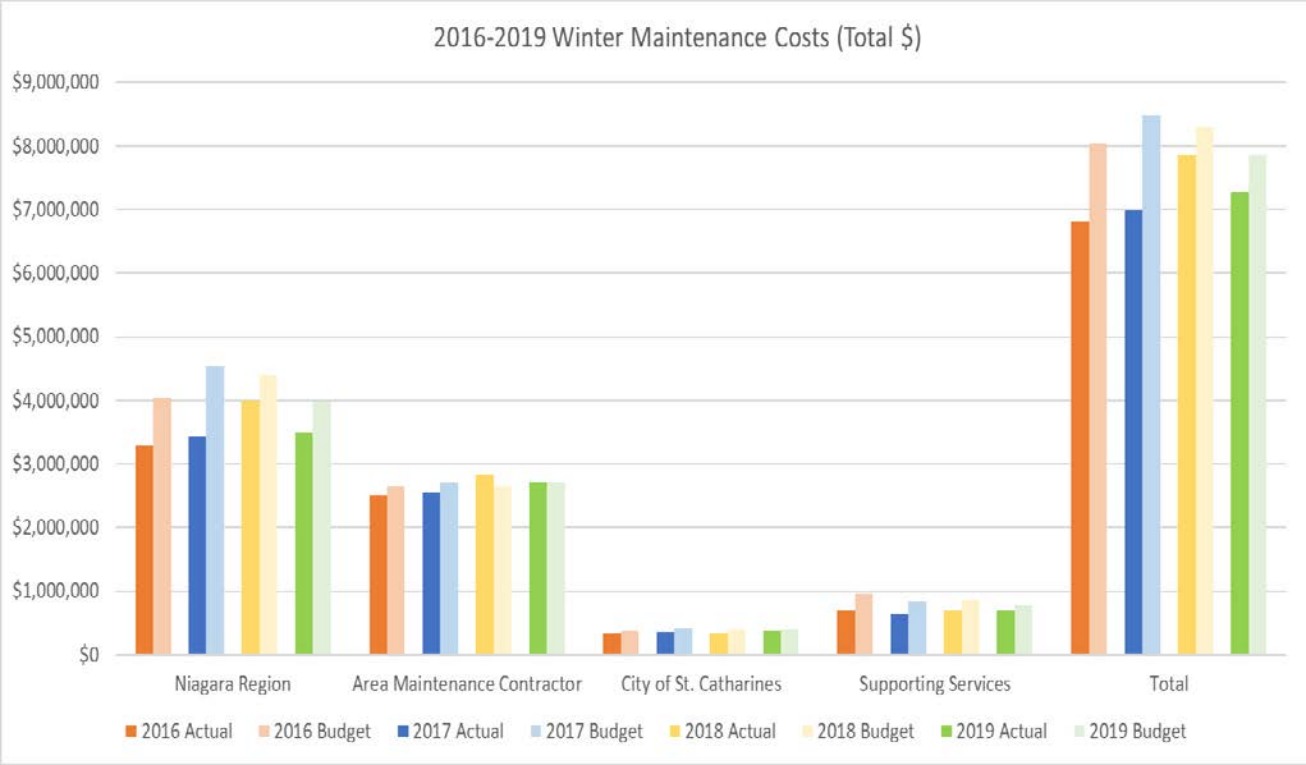


The 2020 operating budget for winter maintenance is $7,999,226, to date (April 2020) the Niagara Region has incurred costs of $3,990,863, including savings of $269,706 on winter materials, $31,022 on equipment including fuel savings, and $99,651 on overtime.

The annual winter maintenance budget is broken into four sections, Niagara Region, Area Maintenance Contract, City of St. Catharines and Supporting Winter Services. Costs for supporting winter services include services such as snow fence erection and removal, winter sand cleanup and winter drainage. These services are delivered through a combination of Niagara Region staff and outside contractors. Table 2 summarizes these costs over the last four years.

Appendix 1 - Winter Maintenance Costs - gives a detailed breakdown of actuals versus budget for 2016 to 2019.

Table 2: Winter Cost Summary



Budget savings are reflected in the overall Transportation Services department operating results for the year. In addition, the new area winter maintenance contract has incorporated provisions in it to assist with providing more cost-effective delivery of winter maintenance activities. Report PW 24-2020, recommending the award of the new contract, is to be considered at the June 16, 2020 Public Works Committee.

Winter Maintenance staff have a variety of activities they perform when there is no winter activity forecasted.

Day Shifts/Weekends

During extended periods of warmer weather during the winter months there is a corresponding increase in the need for other road maintenance repair activities to ensure compliance with Ontario Regulation 239/02 (Minimum Maintenance Standards).

1. An increase in freeze thaw cycles which leads to an increase in the need for pothole repair.

2. Shoulder maintenance - milder weather conditions lead to rutting and shoulder drop offs.
3. Drainage maintenance - ensuring culverts and catch basins are functioning.

Night Shifts

1. Washing/cleaning and minor maintenance of all vehicles in the yards. This ensures our fleet is ready to respond, avoids calling in fleet staff on overtime to perform routine maintenance.
2. Yard Maintenance, done in house, reduces costs by not having to utilize a contract cleaning contractor.
3. Receive deliveries of some winter materials after hours. Avoids overtime charges to receive order.
4. Perform brine station preventative maintenance to avoid breakdowns during winter storm events.
5. Snow fence material loaded for the next day. Increases the number of daylight hours spent in the field actually installing fence.
6. Reduce overtime calls to respond to request for service, instead of calling staff in. Night shift staff responds to potholes, debris, drainage problems, signs and trees.
7. The required annual illumination inspection can be completed utilizing night staff without incurring overtime costs.
8. Job training, mandatory health and safety and human resource training is completed during shifts on line.

The shift schedule allows flexibility to add or subtract staff based on weather forecasts, during the start of the schedule if milder conditions are forecasted. The schedule also provides the capability to save on unnecessary overtime costs if weather conditions permit, by not replacing staff who are absent (vacation, sick, etc.) from a scheduled shift.

Other Maintenance items were started due to an early spring:

1. Debris Pickup.
2. Tree Maintenance.
3. Roadside Maintenance.

4. Bridge/ Culvert inspections.
5. Winter Sand Cleanup.
6. Annual Inspections of assets (Bridges, culverts, guide rail).

Respectfully submitted and signed by

_____
Shawn T McCauley, B.B.E., C Tech
Associate Director Transportation Operations

Appendices

Appendix 1 Winter Maintenance Costs

Subject: Award of Contract 2020-T-59 Reconstruction of Regional Road 71 (St. David's Road)

Report to: Public Works Committee

Report date: Tuesday, July 14, 2020

Recommendations

1. That Contract 2020-T-59 – Reconstruction of Regional Road 71 (St. David's Road) From Highway 406 ramps to Regional Road 56 (Burleigh Hill Drive/Collier Road), in the City of St. Catharines and the City of Thorold, **BE AWARDED** to Beam-Rankin Joint Venture Limited, at their bid price of $9,451,597 (including 13% HST);

2. That a gross capital budget adjustment in the amount of $3,290,153 gross and $0 net **BE APPROVED** (and **INITIATED**) for the Reconstruction of Regional Road 71 (St. David's Road), and that the gross capital budget adjustment **BE FUNDED** from cost sharing agreements with both the City of St. Catharines ($2,115,852) and City of Thorold ($1,174,301).

Key Facts

- The purpose of this report is to seek Council's approval to award Contract 2020-T-59 for the Reconstruction of Regional Road 71 (St. David's Road) From Highway 406 ramps to Regional Road 56 (Burleigh Hill Drive/Collier Road) to Beam-Rankin Joint Venture Limited.
- The Purchasing By-law 2016-02 requires that Council approve tender awards greater than $5,000,000.
- Per the Budget Control By-Law, Council approval is required if a gross budget adjustment being requested is greater than $1,000,000.
- The project is being undertaken as a result of a Municipal Class Environmental Assessment completed in 2018, and has been identified as a supporting project for the 2021 Canada Summer Games.
- A public tender process was initiated and three bids were received with the lowest bid being $8,364,245 (excluding taxes) from Beam-Rankin Joint Venture Limited.

- The City of St. Catharines and the City of Thorold are cost sharing partners in this project and have a total contribution of $3,565,153 with respective contributions of $2,390,852 for the City of St. Catharines and $1,174,301 for the City of Thorold related to the construction of storm sewers, sanitary sewers, watermains, and sidewalks.
- Together with a prior approved cost share budget of $275,000 for the City of St. Catharines, a gross budget adjustment of $3,290,153 is required to cover the total cost sharing contribution for the City of St. Catharines and the City of Thorold.

Financial Considerations

In 2015, Council approved a budget for 20000319 (St. David's Road East Reconstruction) of $1,766,000 to complete the environmental assessment, detailed design, property acquisition, and utility relocations. In 2019 Council further approved an additional $5,168,000 for construction, contract administration and inspection, construction testing, and the City of St. Catharines cost share of $275,000 increasing the overall project budget for 20000319 to $6,934,000. Council also previously approved a budget for 20000982 (St. David's Road Watermain Replacement) of $2,140,000 for the design and construction of a trunk watermain replacement. Therefore, the combined overall budget for the two projects is $9,074,000.

The City of St. Catharines and the City of Thorold are cost sharing partners in this project and have a total cost sharing contribution of $3,565,153 (including 1.76% non-recoverable HST) with respective contributions of $2,390,852 for the City of St. Catharines and $1,174,301 for the City of Thorold. Together with a prior approved cost share budget of $275,000 for the City of St. Catharines a gross budget adjustment of $3,290,153 is required to add up to the total cost sharing contribution for the City of St Catharines and City of Thorold. Through the life of the project, the scope of work undertaken on behalf of the City of St. Catharines and the City of Thorold was further refined to include system improvements, underground servicing, and future development servicing.

A return of funds to the Capital Variance – Levy Project of $816,416 will result in a net overall combined project budget increase from $9,074,000 to $11,547,737.

A full budget breakdown can be found in Appendix 3 Total Estimated Project Cost.

Analysis

- In 2017, Niagara Region initiated a Schedule B Municipal Class Environmental Assessment for the Regional Road 71 (St. David's Road) reconstruction.
- The Municipal Class Environmental Assessment Study for St. David's Road was completed, and the Project Report filed, in June 2018, recommending improvements to address existing road conditions and intersection safety, and to implement active transportation facilities.
- This project is a supporting project for the 2021 Canada Summer Games, and is targeted to be completed prior to the start of the Games.
- Water and Wastewater Services identified the need to replace the existing Zone 2 Standpipe feedermain as part of this project.
- The original scope of work identified by Water and Wastewater Services was for the replacement of the existing aged Zone 2 transmission watermain from Marmac Drive to the Zone 2 Standpipe. During the course of the project additional system improvements were identified and incorporated in the project. These system improvements included; a new feedermain for the Zone 2 standpipe; new drain line for the Zone 2 Standpipe; additional valve chambers; and upgrades to existing valve chambers on St. David's Road and at the Zone 2 Standpipe. These improvements will increase operational efficiency, remove bottle necks for improved efficient service, and will significantly reduce the likelihood of water main breaks.
- The original cost sharing with the City of St. Catharines was for the replacement of sidewalks in the project area. However, the City of St. Catharines and the City of Thorold identified additional improvements to their local infrastructure namely watermain replacement and sanitary sewer replacements, and in addition, servicing of future developments was identified by the City of Thorold.
- Formal cost sharing agreements with the City of St. Catharines and the City of Thorold have been agreed to and include the estimated cost share amounts and payment schedules.
- The proposed improvements for St. David's Road include a two lane urban cross section with a multi-use path on the south side, and sidewalks on the north side.
- Niagara Region retained CIMA+, through a competitive procurement process, to undertake the detailed design for the project through a competitive process under 2018-RFP-37.

- A public tender process was initiated on April 9, 2020, to obtain tenders for the Reconstruction of Regional Road 71 (St. David's Road) From Highway 406 ramps to Regional Road 56 (Burleigh Hill Drive/Collier Road). Niagara Region received three electronic bids on May 12, 2020.
- Niagara Region's Procurement & Strategic Acquisitions reviewed the bids received for compliance, and determined that all bids were compliant.
- CIMA+ reviewed the bids received, and has provided a recommendation to award Tender 2020-T-59 to Beam-Rankin Joint Venture Limited at their bid price $8,364,245 (excluding HST) as noted in Appendix 2.
- Contract award requires resources from Corporate Services in order to execute the required contract documents. Transportation Engineering staff will be providing resources throughout the project in order to manage the contract with assistance from Corporate Services on contract/project payments.

Alternatives Reviewed

A Municipal Class Environmental Assessment Study (EA) for St. David's Road was completed, and the Environmental Study Report filed, on July 6, 2018, recommending improvements to address existing road conditions and intersection safety, and to implement active transportation facilities.

Four alternative solutions were reviewed as part of the EA:

1. Do nothing;
2. Roadway Surface Improvements;
3. Roadway Reconstruction with Operational Improvements; and
4. Roadway Reconstruction with Operational Improvements and Active Transportation Facilities.

The preferred alternative for St. David's Road was "Roadway Reconstruction with Operational Improvements and Active Transportation Facilities."

In addition to the alternative solutions, three alternatives were reviewed as a subset to address active transportation facilities:

1. Multi-use path on the south side of St. David's Road through the entire study area;

2. Bicycle lanes and sidewalks on both sides of the road from Tupper Drive/Barbican Gate to Collier Road/Burleigh Hill Drive; and

3. Cycle track and sidewalks on both sides of St. David's Road through the entire study area.

The preferred alternative for active transportation facilities was a Multi-use path on the south side of St. David's Road through the entire study area.

As part of the EA process, two Public information Centres were held. The first session occurred on March 22, 2017, and the second was held on April 5, 2018. In addition to the Public Information Centres a presentation to the Region's Active Transportation Sub-Committee (ATSC) was made on March 29, 2017.

Relationship to Council Strategic Priorities

This recommendation relates to the Responsible Growth and Infrastructure Planning strategic priority since the planned upgrades will ensure reliable and effective transportation modes including an inter-connection of various types of transportation.

Other Pertinent Reports

PW 54-2015 - Transfer of Road Jurisdiction in the City of St. Catharines and City of Thorold

Prepared by:
Graeme Guthrie, C.E.T.
Senior Project Manager, Transportation Engineering
Public Works Department

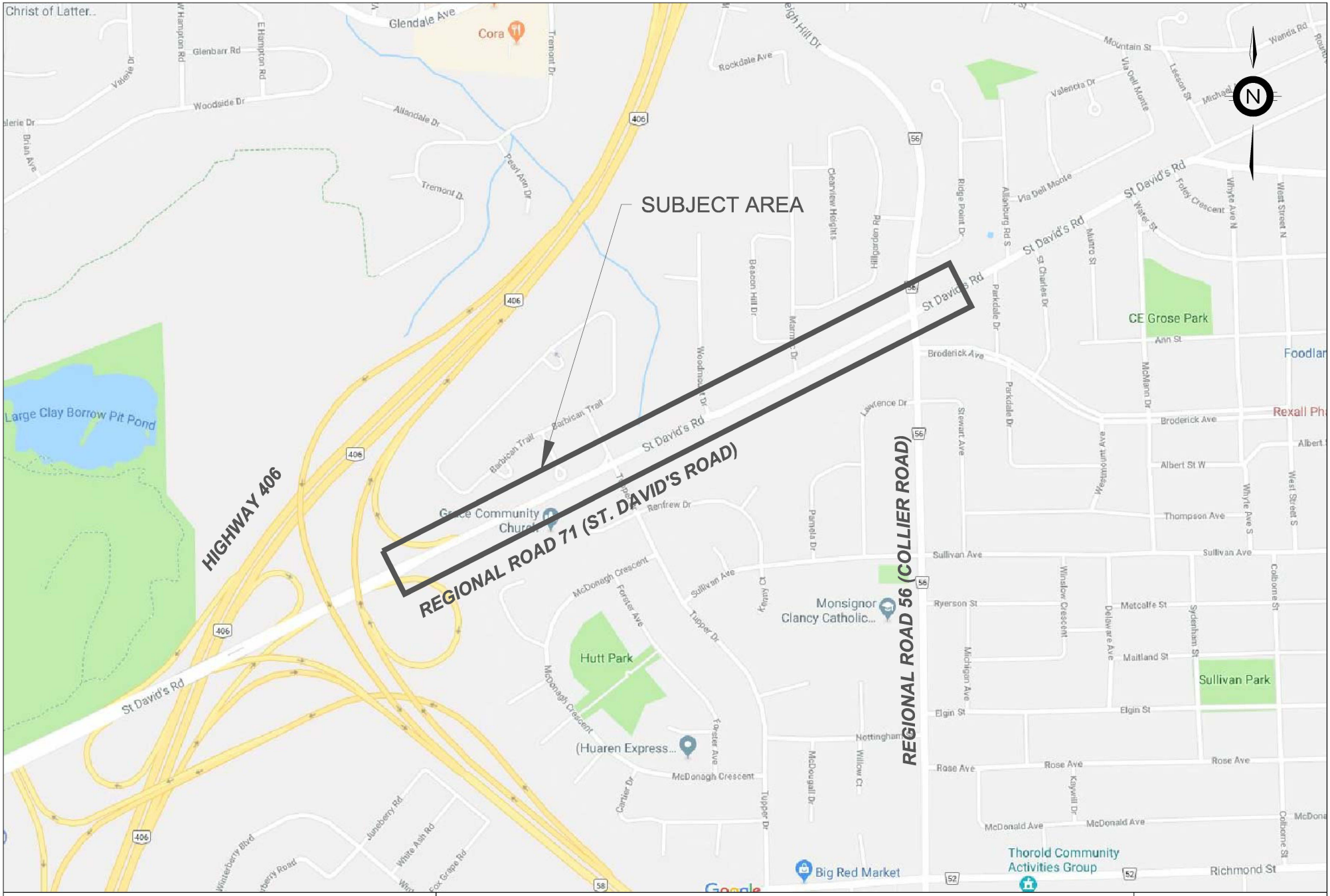
Recommended by:
Bruce Zvaniga, P.Eng.
Commissioner of Public Works (Interim)
Public Works Department

Submitted by:
Ron Tripp, P.Eng.
Acting Chief Administrative Officer

This report was prepared in consultation with Frank Tassone, Associate Director Transportation Engineering, Tracie Byrne, Manager Purchasing Services, Dan Ane Manager, Program Financial Support, and reviewed by Carolyn Ryall, Director Transportation Services.

Appendices

Appendix 1	Key Plan
Appendix 2	Summary of Bids Received
Appendix 3	Total Estimated Project Cost



Niagara Region

APPENDIX 1 - REPORT PW 25-2020

REGIONAL ROAD 71 (ST. DAVID'S ROAD)

FROM HIGHWAY 406 TO REGIONAL ROAD 56 (COLLIER RD / BURLEIGH HILL DR)

IN THE CITY OF THOROLD AND CITY OF ST. CATHARINES

DATE	2020-05-12
SCALE	NOT TO SCALE
REF. No.	APPENDIX 1
DWG No.	KEYPLAN

DRAWING FILE: L:\Engineering\Regional Road 71 (St. Catharines)\E1526 St. David's Rd – Highway 406 to Burleigh Hill Drive\Drawings\KEYPLANS\RR71 PW 25-2020 Appendix 1\RR71 PW 25-2020 Appendix 1.DWG PLOTTED: May 12, 2020 – 11:18am PLOTTED BY: KELLER

PW 25-2020 APPENDIX 2
Summary of Bids Received
Contract Award
Reconstruction of Regional Road 71 (St. David's Road) From Highway 406 ramps to Regional Road 56 (Burleigh Hill Drive/Collier Road) In the City of St. Catharines and the City of

Bidder	Tender Price (Excluding HST)
Beam-Rankin Joint Venture Limited	$ 8,364,245
Peters Excavating Inc.	$ 8,470,000
New-Alliance Ltd	$ 10,333,414

PW 25-2020 APPENDIX 3
Total Estimated Project Cost
Contract Award

Reconstruction of Regional Road 71 (St. David's Road) From Highway 406 ramps to Regional Road 56 (Burleigh Hill Drive/Collier Road) In the City of St. Catharines and the City of Thorold

	Council Approved Budget	Budget Increase/ Reallocation	Revised Council Approved Budget	Expended & Committed as of 05/01/20	Forecast	Budget Remaining
	(A)	(B)	(C) = (A) + (B)	(D)	(E)	(F) = (C)-(D)-(E)
Total Estimated Project Cost (20000319)*						
(a) Planning	1,500,000	(1,500,000)	-	-	-	-
(b) Construction (including Construction Contigency and 1.76% non-refundable HST)**						
i. Niagara Region	5,159,000	(1,130,582)	4,028,418	-	3,459,490	568,928
ii. Cost Sharing - City of St. Catharines	275,000	1,898,502	2,173,502	-	2,173,502	-
iii. Cost Sharing - City of Thorold		1,078,288	1,078,288	-	1,078,288	-
(c) Project Contingency		500,000	500,000	-	500,000	-
(d) Consulting Engineering Services						
i. Environmental Assessment		148,362	148,362	148,362	-	-
ii. Detailed Design						
1. Niagara Region		452,195	452,195	204,707		247,488
2. Cost Sharing - City of St. Catharines		114,190	114,190	-	114,190	-
3. Cost Sharing - City of Thorold		50,442	50,442	-	50,442	-
iii. Contract Administration & Inspection						
1. Niagara Region		224,463	224,463	-	224,463	-
2. Cost Sharing - City of St. Catharines		85,022	85,022	-	85,022	-
3. Cost Sharing - City of Thorold		37,558	37,558	-	37,558	-
iv. Geotechnical Service-Quality Control						
1. Niagara Region		47,888	47,888	-	47,888	-
2. Cost Sharing - City of St. Catharines		18,138	18,138	-	18,138	-
3. Cost Sharing - City of Thorold		8,013	8,013	-	8,013	-
(e) Project Management (In-House) and Operations		186,000	186,000	-	186,000	-
(f) Traffic Signals and Signs		203,520	203,520	-	203,520	-
(g) Utility Relocation		868,154	868,154	318,154	550,000	-
Total Estimated Project Costs (20000319)	**6,934,000**	**3,290,153**	**10,224,153**	**671,223**	**8,736,514**	**816,416**
Total Estimated Project Cost (20000982)*						
(a) Construction (including Construction Contigency and 1.76% non-refundable HST)**	1,755,000	45,176	1,800,176	-	1,800,176	-
(b) Project Contingency	217,375	(117,375)	100,000	-	100,000	-
(c) Consulting Engineering Services					-	
i. Detailed Design	110,000	(14,277)	95,723	-	95,723	-
ii. Contract Administration & Inspection		71,272	71,272	-	71,272	-
iii. Geotechnical Service-Quality Control		15,205	15,205	-	15,205	-
(d) Project Management (In-House) and Operations	57,625		57,625	10,025	47,600	-
Total Estimated Project Costs (20000982)	**2,140,000**	**0**	**2,140,000**	**10,025**	**2,129,975**	**-**
Total Estimated Project Costs Combined	**9,074,000**	**3,290,153**	**12,364,153**	**681,248**	**10,866,489**	**816,416**
Project Funding Sources (20000319)						
Capital Levy	(6,659,000)		(6,659,000)		(6,659,000)	-
Municipal Cost Sharing - St. Catharines	(275,000)	(2,115,852)	(2,390,852)		(2,390,852)	-
Municipal Cost Sharing - Thorold		(1,174,301)	(1,174,301)		(1,174,301)	-
Total Estimated Project Funding Sources (20000319)	**(6,934,000)**	**(3,290,153)**	**(10,224,153)**	**-**	**(10,224,153)**	**-**
Project Funding Sources (20000982)						
Water Reserve	(1,240,000)		(1,240,000)		(1,240,000)	-
Debt Funding	(900,000)		(900,000)		(900,000)	-
Total Estimated Project Funding Sources (20000982)	**(2,140,000)**	**-**	**(2,140,000)**	**-**	**(2,140,000)**	**-**
Total Estimated Project Funding Sources Combined	**(9,074,000)**	**(3,290,153)**	**(12,364,153)**	**-**	**(12,364,153)**	**-**

*All costs include 1.76% non-refundable HST.
** Total Contract Cost includes both Regional and Municipal cost sharing amounts.
** Total Contract Award is equal to i) $8,364,245 before tax; ii) $8,511,456 including 1.76% non-refundable HST; $9,451,597 including 13% HST.

Subject: Uploading a Section of Livingston Avenue, Town of Grimsby to Niagara Region

Report to: Public Works Committee

Report date: Tuesday, July 14, 2020

Recommendations

1. That pursuant to its authority under Subsection 52(1) of the Municipal Act, 2001, Regional Council **APPROVE** adding the following lower-tier highway in the Town of Grimsby to its highway system, namely Livingston Avenue from Casablanca Boulevard to west of Emily Street, within the limits of Ofield Orchard Plan 441;
2. That a copy of this report and a copy of Regional Council's decision **BE SENT** to The Corporation of the Town of Grimsby;
3. That the necessary by-law **BE PREPARED** and **PRESENTED** to Regional Council to add the highway to the Regional Road system; and
4. Upon passage, a copy of the by-law **BE SENT** to The Corporation of the Town of Grimsby, as the highway will be removed from the jurisdiction of the Town.

Key Facts

- The purpose of this report is to seek approval to upload and vest the jurisdiction to Niagara Region of the approximately 210m section of Livingston Avenue from Casablanca Boulevard to west of Emily Street, within the Town of Grimsby.
- The Municipal Act, 2001 provides in section 52 that an upper-tier municipality may add a lower-tier highway, including a boundary line highway, to its highway system from any of its lower-tier municipalities and in section 53 that the upper-tier municipality assumes any agreements that are related to the uploaded section of highway and shall pay to the lower-tier municipality, before the due date, all amounts becoming due upon any debt of the lower-tier municipality in respect of the highway.
- In 1957, the Ofield Orchard Plan 441 was registered dedicating streets as public highways including Livingston Avenue from Casablanca Boulevard to the westerly edge of subdivision (west of Emily Street).
- During the 1970's the Grimsby Traffic Study confirmed the need for future east-west capacity along the Livingston Avenue Corridor and the Town of Grimsby constructed a sanitary sewer line along the Livingston Avenue corridor from Casablanca Boulevard to Hunter Road.

- On May 6, 1982, Regional Council passed By-law 3079-82 to dedicate the Livingston Avenue Corridor lands from Oakes Road to west of Emily Street as Regional Road 512. The By-law did not include the section of Livingston Avenue within Ofield Orchard Plan 441 between Casablanca Boulevard to west of Emily Street.
- The 1995 Town of Grimsby Transportation Study recommended the extension of Livingston Avenue (RR 512) between Casablanca Boulevard and Oakes Road which was reaffirmed by the 2017 Regional Transportation Master Plan and the 2020 Livingston Avenue Extension Environmental Assessment Study.
- In March 2019, the Casablanca Boulevard and GO Station Access Environmental Assessment study was approved that included upgrading Livingston Avenue between Casablanca Boulevard to west of Emily Street as a 2 lane urban road plus centre turn lane with dedicated cycling lanes and sidewalks on both sides of the street.

Financial Considerations

The Casablanca Boulevard and GO Station Access Environmental Assessment, approved March 2019, includes the redesign and construction of the Casablanca Boulevard / Livingston Avenue intersection and Livingston Avenue from Casablanca Boulevard westerly to the future intersection access with the Region owned lands south of the CN rail corridor.

The Livingston Avenue design (currently ongoing) and construction scheduled for late 2020 through mid 2022 is approved as part of the overall Casablanca / South Service Road Project (10RC1329).

Uploading Livingston Avenue (from Casablanca Boulevard to west of Emily Street) to Niagara Region will result in additional operating costs of approximately $8,000 annually for the 210m, 2 lane section of road. A similar decrease in the Town of Grimsby annual operations budget would occur from the jurisdiction transfer.

The operating cost estimate is based on the Municipal Benchmarking Network (MBN) Canada 2019 operating cost per lane KM of $18,000.

Niagara Region contacted the Town of Grimsby to relay the upload of the remaining section of Livingston to the Region. As part of that outreach Niagara Region has confirmed with the Town of Grimsby that there are no debts associated with the segment of lands for which the Region would become obligated. The operating costs

associated with this segment of road will be accommodated within the Niagara Region Transportation division operating budget.

Analysis

In October 1957, the Ofield Orchard Plan 441 was registered with the Township of North Grimsby. Plan 441 dedicated the streets as public highways including Livingston Avenue from Casablanca Boulevard (Ofield Road) to the westerly limit of the subdivision (approximately 210m). This section of Livingston Avenue is currently under the jurisdiction of the Town of Grimsby. Attached hereto as Appendix 1 is a sketch showing the location of Plan 441 and other relevant streets referenced in this Analysis (Appendix 1 – Map – RR 512 Corridor and Area Subject to Upload).

Prior to the registration of Plan 441, the Hamilton-Queenston Highway travelling through Grimsby, Beamsville and St. Catharines was designated as Provincial Highway 8 in 1925. During the 1950's and 1960's, the Department of Highways undertook studies reviewing possible diversions of Highway 8 around local communities. In the 1970's, a new alignment for Highway 8 between Oakes Road and Kerman Road was established by the Department of Highways which resulted in lands being obtained or expropriated within these limits. The Highway 8 Diversion corridor as defined by the Department of Highways is now Regional Road 512 (Livingston Avenue) east of Casablanca Boulevard.

The 1971 Grimsby Traffic Study identified the long-term requirement for additional east-west road capacity in the west portion of the Town of Grimsby to preserve the heritage/culture of the original Highway 8 corridor. The long-term Recommended Street Plan identified Livingston Avenue from Main Street West (RR 81) to Casablanca Boulevard within the Highway 8 Diversion corridor as an arterial road.

In November 1981, the Consolidated Roads Bylaw was passed (confirmed by Order in Council June 1982) that established Livingston Avenue as Regional Road 512 from Casablanca Boulevard easterly to the intersection of Regional Road 81 at Patton Street and the jurisdiction of this section vested with Niagara Region.

In 1982, By-law 3079-82 dedicated the lands within the Highway 8 Diversion corridor, between Oakes Rd. to the westerly limit of Plan 441 (West of Emily Street) as Regional Road 512 (Livingston Avenue). It is noted that By-law 3079-82 did not include the section of Livingston Avenue between Casablanca Boulevard and the westerly limit of Plan 441.

In 1995, the Town of Grimsby Transportation Study recommended the extension of Regional Road 512 (Livingston Avenue) between Regional Road 10 (Casablanca Blvd.) and Oakes Road / Regional Road 81 (Main St. West). This recommendation was included in the Town of Grimsby Official Plan (2012) to encourage the use of Regional Road 512 (Livingston Avenue) and discourage the use of Regional Road 81 (Main St. West).

The Niagara Region Transportation Master Plan, approved by Regional Council in 2017, reaffirmed that additional east-west road capacity is required in west Grimsby and recommended the Regional Road 512 (Livingston Avenue) extension from Regional Road 10 (Casablanca Blvd.) to Oakes Rd. / Regional Road 81 (Main St. West).

In 2018, Regional Council approved the undertaking of the Casablanca Boulevard and GO Station Access Environmental Assessment, which included the section of Livingston Avenue from Casablanca Boulevard to west of Emily Street to provide access for the Region owned lands on the south side of the CNR tracks.

In March 2019, the Casablanca Boulevard and GO Station Access Environmental Assessment study was approved that included upgrading existing Livingston Avenue between Casablanca Boulevard to west of Emily Street as a 2 lane urban road plus centre turn lane with dedicated cycling lanes and sidewalks on both sides of the street.

In 2018, Regional Council approved the undertaking of the (Regional Road 512) Livingston Avenue Extension Environmental Assessment study to address the need for additional east-west capacity in west Grimsby. The Environmental Assessment Study identified that the preferred solution was the extension of Livingston Avenue between Main Street West/Oakes Road North and Casablanca Boulevard.

The Livingston Avenue Extension ESR, as submitted May 2020, assumes that Livingston Avenue (RR 512) is a continuous transportation corridor from Main Street West/Oakes Road North easterly to Main Street West/Patton Street for efficiency of maintenance, operation, wayfinding, and governance.

To address the issue that By-law 3079-82 did not include the section of Livingston Avenue between Casablanca Boulevard and the westerly limit of Plan 441 and the need for a continuous Regional Road, the Region is recommending that this section of road be uploaded to Niagara Region pursuant to Section 52 of the *Municipal Act.*

- Section 52 (1) – Jurisdiction, upper-tier municipality

    - **52** (1) An upper-tier municipality may add a lower-tier highway, including a boundary line highway, to its highway system from any of its lower-tier municipalities. 2001, c. 25, s. 52 (1).

The transfer of jurisdiction also invokes Section 53 of the Municipal Act

- If jurisdiction over a highway is transferred from one municipality to another municipality under section 52,

    - (a) the municipality to which jurisdiction over the highway has been transferred stands in the place of the transferor under any agreement in respect of the highway; and

    - (b) if jurisdiction over the highway has been transferred from a lower-tier municipality to its upper-tier municipality, the upper-tier municipality shall pay to the lower-tier municipality, before the due date, all amounts becoming due upon any debt of the lower-tier municipality in respect of the highway. 2001, c. 25, s. 53.

Region staff has confirmed with Town of Grimsby staff that there are no agreements in place to which section 53(a) would apply and there are no debts that would need to be paid pursuant to section 53(b).

Alternatives Reviewed

Do-Nothing

- This alternative does not address the objective that Niagara Region has continuous Regional jurisdiction for the section of Livingston Avenue (RR 512) between Main Street West/Oakes Road and Main Street West/Patton Street.

Relationship to Council Strategic Priorities

Uploading and vesting to Niagara Region the jurisdiction of Livingston Avenue between Casablanca Boulevard to west of Emily Street is consistent with the implementation of transportation policies and infrastructure in accordance with Council Strategic Plan (2019-2022) – Responsible Growth and Infrastructure Planning:

- Environmental Sustainability and Stewardship
- Facilitating the Movement of People and Goods

2020 Council Strategic Priorities (https://www.niagararegion.ca/priorities/default.aspx)

Other Pertinent Reports

Niagara Region Transportation Master Plan
(https://www.niagararegion.ca/2041/transportation-master-plan/default.aspx)

Casablanca Boulevard and GO Station Access Environmental Assessment
(https://niagararegion.ca/projects/casablanca-livingston-ea/default.aspx)

Livingston Avenue Extension Environmental Assessment
(https://niagararegion.ca/projects/livingston-ea/default.aspx)

Prepared by:
Carolyn Ryall
Director Transportation Services
Public Works Department

Recommended by:
Bruce Zvaniga, P.Eng.
Commissioner of Public Works (Interim)
Public Works Department

Submitted by:
Ron Tripp, P.Eng.
Acting Chief Administrative Officer

This report was prepared in consultation with: Jack Thompson, Transportation Strategic Projects Lead; Brian McMahon, Program Financial Specialist; Dan Ane, Manager, Program Financial Support; Bruce Zvaniga, Commissioner of Public Works (Interim); Sterling Wood, Legal and Court Services; Norma Price, Law Clerk.

Appendices

Appendix 1 – Map – RR 512 Corridor and Area Subject to Upload

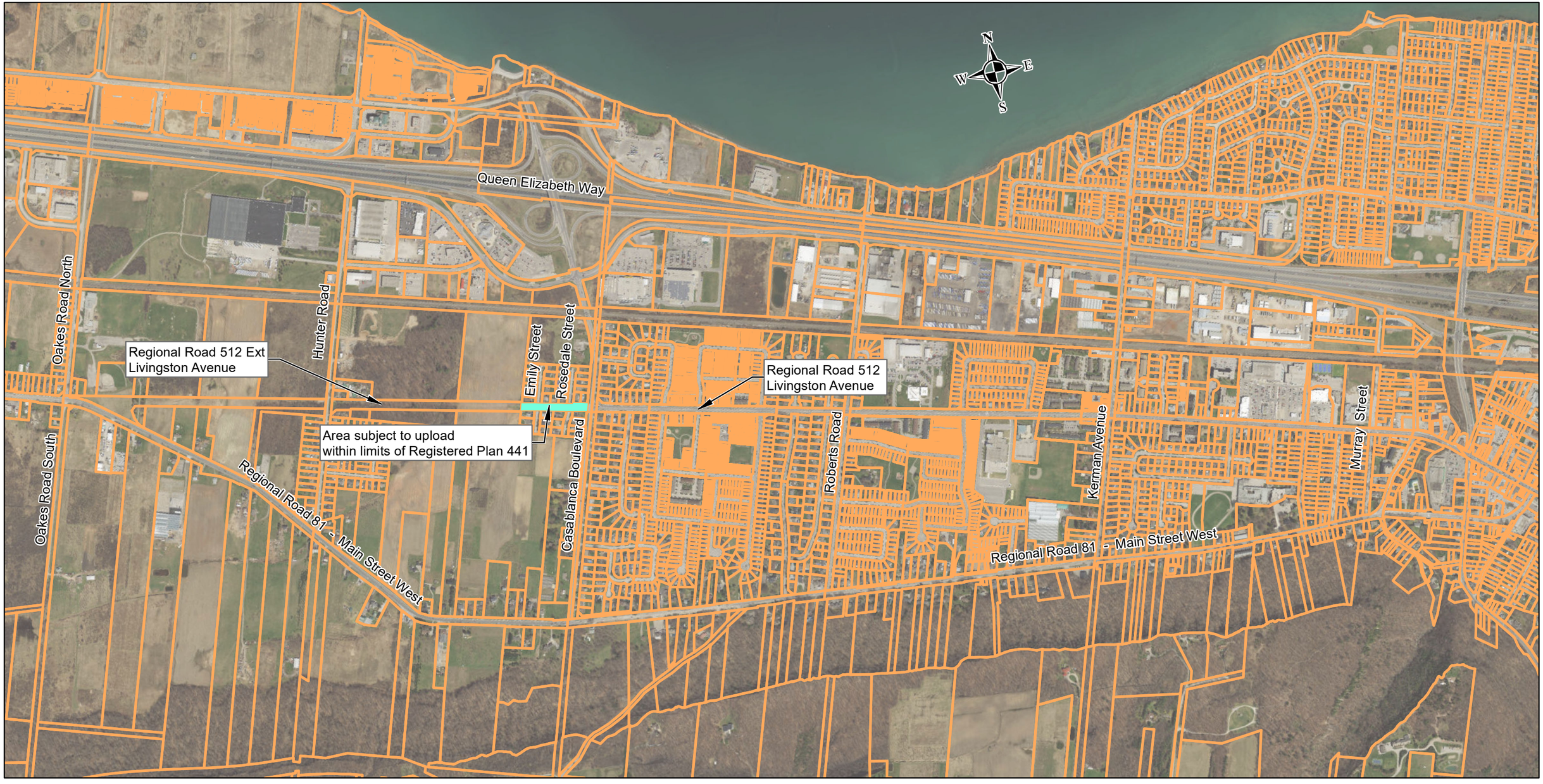


ILLUSTRATION SHOWING REGIONAL ROAD No.512 (LIVINGSTON AVE.)
TOWN OF GRIMSBY

LEGEND:

- DENOTES TERANET MAPPING
- DENOTES PROPOSED UPLOAD SECTION OF LIVINGSTON AVENUE

DISCLAIMER
This map was compiled from various sources and is current as of June 2020.
The Region of Niagara makes no representations or warranties whatsoever, either expressed or implied, as to the accuracy, completeness, reliability, and currency or otherwise of the information shown on this map.
© 2015 Niagara Region and its suppliers. Projection is UTM, NAD 83, Zone 17. Airphoto (Spring 2018)

CAUTION:
- This is not a Plan of Survey

SCALE = 1:12,000

0 155 310 620 Metres

Niagara Region

Transportation Services
Surveys & Property Information
IR-20-128 Date: 2020-06-18

Subject: Report to Amend By-Law No. 48-2012 – A By-Law to Remove Highways from the Regional Road System in the Town of Grimsby

Report to: Public Works Committee

Report date: Tuesday, July 14, 2020

Recommendations

1. That By-law No. 48-2012 passed on May 24, 2012 **BE AMENDED** to clarify the description of the lands intended to be removed from the Regional Road system and transferred to the Town of Grimsby; and
2. That the form of Amending By-Law attached hereto as Appendix 5 **BE APPROVED** by Regional Council.

Key Facts

- The purpose of this report is to seek Council's approval for an amendment to By-Law No. 48-2012 to properly re-describe the lands.
- The jurisdiction of Regional Road 39, known as the North Service Road from the boundary with the City of Hamilton easterly to Olive Street was transferred to the Town of Grimsby by By-law 48-2012, however this By-law was not registered on title for the subject lands due to the legal descriptions not being acceptable to the Land Registry Office.
- Reference plans along the QEW corridor have now been prepared by the Ministry of Transportation and accurate descriptions of the lands are now available.
- Survey's staff have been fully engaged in matching the lands in the new reference plans to the lands originally downloaded to the Town of Grimsby and the preparation of the descriptions in the attached draft by-law.
- The passing and registration of the amended by-law will permit the Town of Grimsby to apply to change the records at the Land Registry Office to show the Town of Grimsby as the registered owner of the subject lands.

Financial Considerations

The financial implications were detailed in Public Works Report PWA 04-2012 and set out the estimated cost savings which would result from the transfer of the North Service Road to the Town of Grimsby and the assumption of a portion of the South Service

Road and Clarke Street from the Town of Grimsby to Niagara Region. The Town of Grimsby has been maintaining the portions of the roads that were transferred to the Town pursuant to By-law No. 48-2012.

Analysis

The Ministry of Transportation (MTO) downloaded certain lands in the QEW corridor to Niagara Region by Order in Council 2517/98, registered in the Land Registry Office on December 11, 1998 as RO749145 (the “OIC 1998”). The OIC 1998 did not contain a legal description of the lands, but contained a basic line drawing to illustrate the lands that vested in the jurisdiction and control of Niagara Region.

On May 24, 2012, Council passed By-law 48-2012 authorized by Report PWA 04-2012, which transferred a portion of the lands set out in OIC 1998 to the Town of Grimsby.

It was determined that the survey costs to properly describe the lands downloaded to Grimsby would be excessive and it was understood that MTO would be completing reference plans for both the north and south service roads in the future. The reference plans to properly describe the lands in OIC 1998, were completed by MTO in 2017. These reference plans were the basis for the description contained in an amended Order in Council 1904/2017, registered in the Land Registry Office on November 17, 2017 as NR466062 (the “OIC 2017”).

In order to finalize the intended transfer of title in the Land Registry Office, as requested by the Town of Grimsby, the By-law attached has been prepared to reflect the acceptable descriptions.

Appendix 1 attached provides an aerial view of the lands intended to be downloaded to the Town of Grimsby from the Regional boundary with Hamilton to Olive Street, which are identified in red. The lands shown in green were already under the jurisdiction of the Town of Grimsby and did not form part of By-law 48-2012.

Appendices 2, 3 and 4 are enlarged views of the area, and set out the lands described in the attached by-law as follows:

Appendix 2 – being the Firstly described lands

Appendix 3 – being the Secondly described lands

Appendix 4 – being the Thirdly described lands

Alternatives Reviewed

This Report is to clarify the extent of an existing decision of Council from 2012 and as such no alternatives were considered.

Relationship to Council Strategic Priorities

This Recommendation would be consistent with Council objectives related to supporting responsible growth and infrastructure planning as well as supporting the co-ordinated services that form part of a Sustainable and Engaging Government.

Other Pertinent Reports

- PWA 04-2012 – Transfer of Road Jurisdiction in the Town of Grimsby

Prepared by:
Sterling Wood
Legal Counsel
Corporate Services

Recommended by:
Bruce Zvaniga, P.Eng.
Commissioner of Public Works (Interim)
Public Works Department

Submitted by:
Ron Tripp, P.Eng.
Acting, Chief Administrative Officer

This report was prepared in consultation with Norma Price, Law Clerk and Normans Taurins, Manager, Surveys & Property Information, and reviewed by Carolyn Ryall, Director of Transportation.

Appendices

Appendix 1 Aerial View – Regional Boundary to Olive Street

Appendix 2 Aerial View – Firstly described lands in the attached By-law

Appendix 3	Aerial View – Secondly described lands in the attached By-law
Appendix 4	Aerial View – Thirdly described lands in the attached By-law
Appendix 5	Amending By-law

PW 30-2020 APPENDIX 1

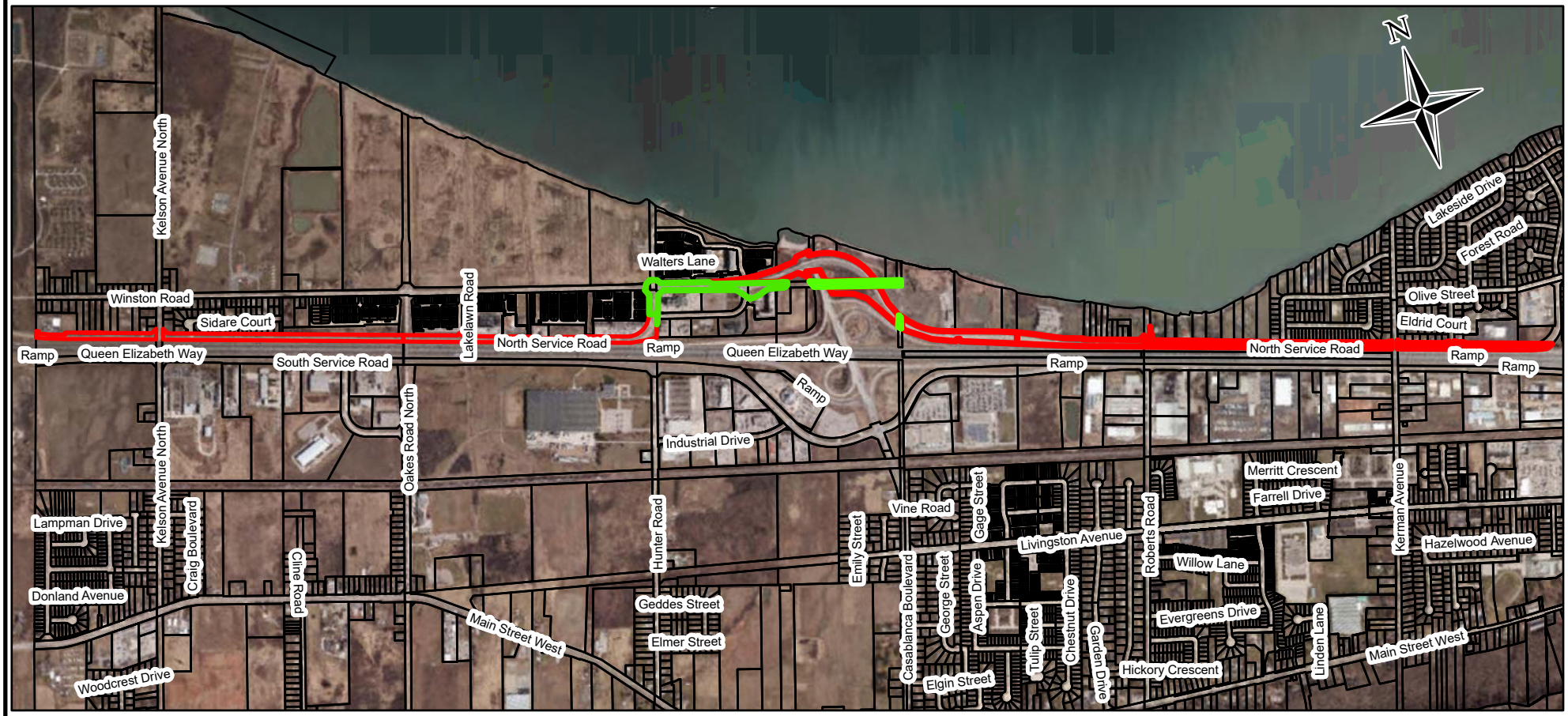


ILLUSTRATION SHOWING APPROXIMATE LOCATION OF NORTH SERVICE ROAD
TOWN OF GRIMSBY

LEGEND:

- DENOTES TERANET MAPPING
- DENOTES PROPOSED DOWNLOAD
- DENOTES PORTION OF EXISTING TOWN OF GRIMSBY ROAD JURISDICTION

Niagara Region

DISCLAIMER
This map was compiled from various sources and is current as of November 19, 2019.
The Region of Niagara makes no representations or warranties whatsoever, either expressed or implied,
as to the accuracy, completeness, reliability, and currency or otherwise of the information shown on this map.
© 2019 Niagara Region and its suppliers. Projection is UTM, NAD 83, Zone 17. Airphoto (Spring 2018)

SCALE = 1:20,000

0 200 400 800 Metres

Transportation Services
Surveys & Property Information
IR-19-271-2 Date: 2019-11-19

PW 30-2020 APPENDIX 2

ILLUSTRATION SHOWING APPROXIMATE LOCATION OF NORTH SERVICE ROAD - DOWNLOAD - FIRSTLY TOWN OF GRIMSBY

LEGEND:

- DENOTES TERANET MAPPING
- DENOTES PROPOSED DOWNLOAD

Niagara Region

DISCLAIMER
This map was compiled from various sources and is current as of November 19, 2019.
The Region of Niagara makes no representations or warranties whatsoever, either expressed or implied, as to the accuracy, completeness, reliability, and currency or otherwise of the information shown on this map.
© 2019 Niagara Region and its suppliers. Projection is UTM, NAD 83, Zone 17. Airphoto (Spring 2018)

SCALE = 1:10,000

0 100 200 400 Metres

Transportation Services
Surveys & Property Information
IR-19-271-1 Date: 2019-11-19

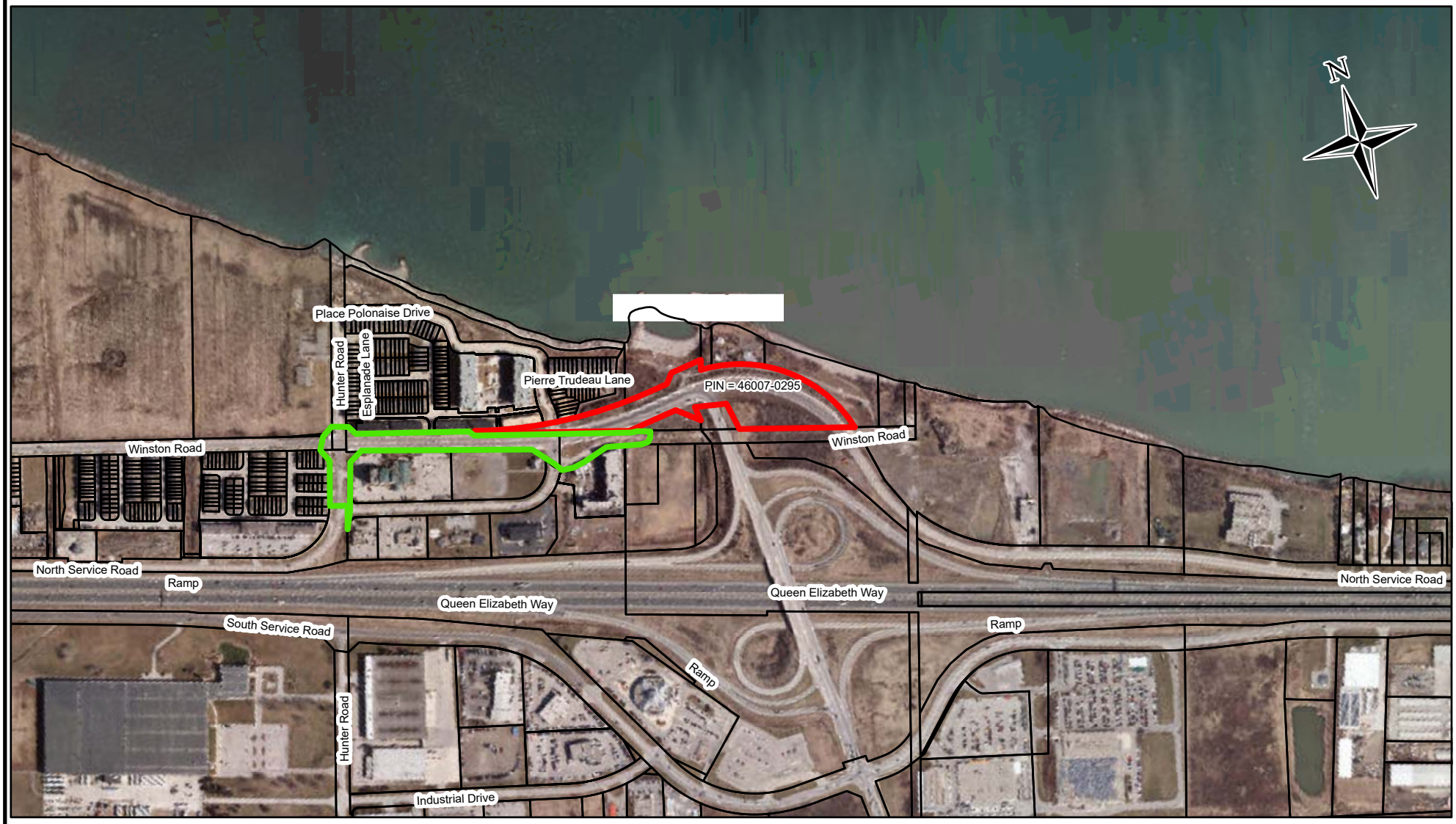


ILLUSTRATION SHOWING APPROXIMATE LOCATION OF NORTH SERVICE ROAD - DOWNLOAD - SECONDLY
TOWN OF GRIMSBY

LEGEND:

- DENOTES TERANET MAPPING
- DENOTES PROPOSED DOWNLOAD
- DENOTES PORTION OF EXISTING TOWN OF GRIMSBY ROAD JURISDICTION

DISCLAIMER
This map was compiled from various sources and is current as of November 19, 2019.
The Region of Niagara makes no representations or warranties whatsoever, either expressed or implied, as to the accuracy, completeness, reliability, and currency or otherwise of the information shown on this map.
© 2019 Niagara Region and its suppliers. Projection is UTM, NAD 83, Zone 17. Airphoto (Spring 2018)

SCALE = 1:8,000

0 80 160 320 Metres

Niagara Region

Transportation Services
Surveys & Property Information
IR-19-271-2 Date: 2019-11-19

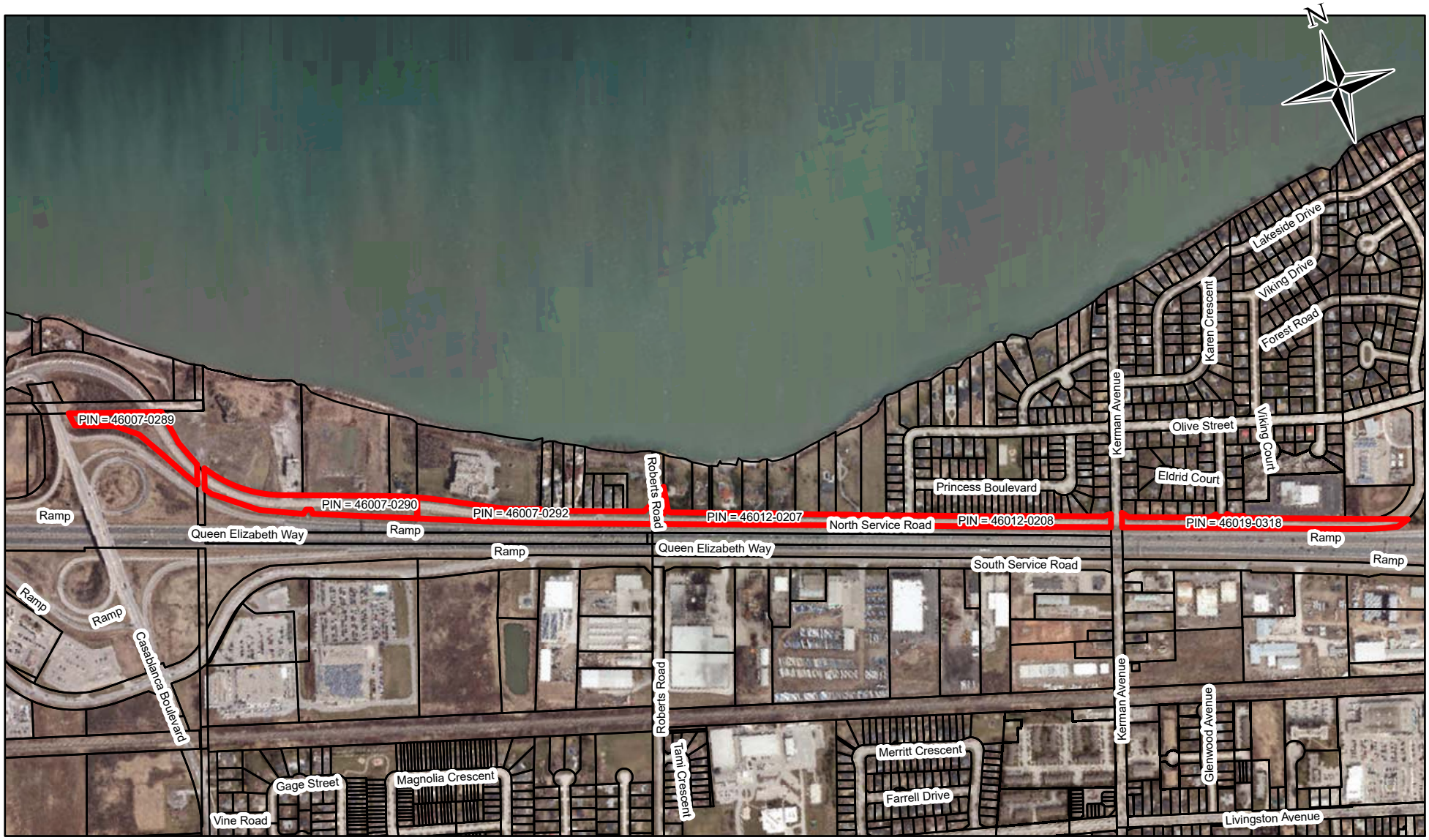


ILLUSTRATION SHOWING APPROXIMATE LOCATION OF NORTH SERVICE ROAD - DOWNLOAD - THIRDLY
TOWN OF GRIMSBY

LEGEND:

- DENOTES TERANET MAPPING
- DENOTES PROPOSED DOWNLOAD

DISCLAIMER
This map was compiled from various sources and is current as of November 19, 2019.
The Region of Niagara makes no representations or warranties whatsoever, either expressed or implied, as to the accuracy, completeness, reliability, and currency or otherwise of the information shown on this map.
© 2019 Niagara Region and its suppliers. Projection is UTM, NAD 83, Zone 17. Airphoto (Spring 2018)

SCALE = 1:10,000

0 100 200 400 Metres

Transportation Services
Surveys & Property Information
IR-19-271-3 Date: 2019-11-19

Bill <> Authorization Reference:

THE REGIONAL MUNICIPALITY OF NIAGARA

BY-LAW NO. <>

A BY-LAW TO AMEND BY-LAW 48-2012, BEING
A BY-LAW TO REMOVE HIGHWAYS FROM THE REGIONAL ROAD SYSTEM
IN THE TOWN OF GRIMSBY

WHEREAS by By-Law 48-2012 passed on May 24, 2012, the Council of The Regional Municipality of Niagara enacted that certain lands in the Town of Grimsby be removed from the Regional Road System (the "Subject Lands");

WHEREAS the description of the Subject Lands was not precisely set out to contain the information required by the Land Registry Office for registration on title to the Subject Lands;

WHEREAS since the passing of By-Law 48-2012, the Subject Lands have been surveyed, and a more accurate description is now available;

WHEREAS in order to clarify the description of the lands described as Firstly, Secondly and Thirdly in By-law 48-2012, this By-law has been prepared;

NOW THEREFORE the Council of The Regional Municipality of Niagara enacts as follows:

1. That By-law 48-2012 be amended to reflect the updated description of the Subject Lands, which were removed from the Regional Road System in the Town of Grimsby:

Firstly:

That the Firstly described lands in By-law 48-2012 (Regional Road 39 known as North Service Road from the Westerly Boundary of the Regional Municipality of Niagara in the Town of Grimsby easterly to the Southerly Limited of P.I.N. 46006-0059(LT) in the vicinity of Windward Drive in the Town of Grimsby) be re-described as follows:

P.I.N. 46001-0277
Part Lot 23, Con 1, North Grimsby, and part of the Street; Part of Lots 1 to 6, Registered Plan 456, being Part 4, 30R-13918; Town of Grimsby; and

P.I.N. 46001-0280
Part Lots 21 and 22, Con 1, North Grimsby, being Part 5, on 30R-13918; Town of Grimsby; and

P.I.N. 46006-0430
Part Lots 19 and 20, Con 1, North Grimsby, and Part of the Road Allowance between Lots 18 and 19 and part of the Road Allowance between Lots 20 and 21, North Grimsby, being Part 1, 30R-13975, S/T debts in RO192562; Town of Grimsby

Secondly:
That the Secondly described lands in By-law 48-2012 (Regional Road 39 known as North Service Road as described in P.I.N. 46007-0054(LT) being part of lots 17 & 18 Concession Broken Front North Grimsby; Parts 1, 2, 11 HWY 856, except Part 1 RO620420; Parts 1 to 3 HWY 878; Part 1 HWY875 except Part 1 RO620420; Parts 1 to 3 HWY 878; Part 1 HWY875 except Part 1 30R-1193 in the Town of Grimsby) be re-described as follows:

P.I.N. 46007-0295
Part Lots 17 - 18, Con Broken Front North Grimsby, designated as Part 1, 30R-14226; Town of Grimsby

Thirdly:
That the Thirdly described lands in By-law 48-2012 (Regional Road 39 known as North Service Road from the Southerly Limit of Road Allowance known as Winston Road East of Casablanca Boulevard to the Southerly Limit of Olive Street in the Town of Grimsby) be re-described as follows:

P.I.N. 46007-0289
Part Lot 17, Con 1, North Grimsby and part of the Road Allowance between Lots 16 and 17 North Grimsby being Part 8 on 30R-14226; Town of Grimsby; and

P.I.N. 46007-0290
Part Lot 16, Con 1, and part of the Road Allowance between Lots 16 and 17 North Grimsby being Part 13 on 30R-14226; Town of Grimsby; and

P.I.N. 46007-0292
Part Lot 15, Con 1, and part of the Road Allowance between Lots 14 and 15 North Grimsby being Part 1 on 30R-14664; Town of Grimsby; and

P.I.N. 46012-0207
Part Lot 14, Con 1 North Grimsby being Parts 12 and 13 on 30R-14664; and Part of the Road Allowance Between Lots 14 and 15, Con 1 North Grimsby being Part 14 on 30R-14664; subject to an easement as in R25087; Town of Grimsby; and

P.I.N. 46012-0208
Part Lot 13, Con 1 North Grimsby being Part 7 on 30R-14664; Town of Grimsby; and

P.I.N. 46019-0318
Part Lots 11 and 12, Con 1 North Grimsby and Part of Lots 95, 109, 114 and 115, and all of Cherry Lane, registered Plan 459, being Part 1 on 30R-14665; Town of Grimsby.

2. That this by-law shall come into force and effect on the day upon which it is passed.

THE REGIONAL MUNICIPALITY OF NIAGARA

_____
James Bradley, Regional Chair

_____
Ann-Marie Norio, Regional Clerk

Passed: July 23, 2020

Subject: Update on Extended Producer Responsibility - Batteries

Report to: Public Works Committee

Report date: Tuesday, July 14, 2020

Recommendations

1. That the Commissioner of Public Works **BE AUTHORIZED** to enter into an agreement on behalf of The Regional Municipality of Niagara with Call2Recycle Canada Inc. for the funding of the Region's Drop-off Depot Battery Collection and Recycling Program in a form satisfactory to the Director of Legal & Court Services;
2. That the Director of Waste Management Service or his/her delegate **BE AUTHORIZED** to enter into negotiations with Raw Materials Company Inc. for an agreement for the funding of Niagara Region's Multi-Residential Battery Collection and Recycling Program; and
3. That Niagara Region Public Works staff **BE AUTHORIZED** to cease operation of the Curbside Battery Collection and Recycling Program as of July 1, 2020.

Key Facts

- The purpose of this report is to seek Council's approval to enter into an agreement with Call2Recycle Canada Inc. ("Call2Recycle") for the funding of Niagara Region's Drop-off Depot Battery Collection and Recycling Program for an initial term of one year with a provision for automatic renewal for subsequent terms of one year each. The agreement may be terminated by either party at any time for any reason with at least 180 days' prior written notice.
- The report is being submitted to Committee post July 1, 2020 due to staff working out the details of Extended Producer Responsibility as it relates to battery collection and recycling. This will not impede the Region's ability to obtain funding from July 1st onward.
- Niagara Region has operated a Household Hazardous Waste (HHW) program for the past thirty-four years, which includes the collection and recycling of batteries in order to provide residents with options to properly dispose of batteries and to ensure they are recycled and disposed of safely.
- Niagara Region's Battery Collection and Recycling Program consists of curbside battery collection, HHW drop-off depot and multi-residential building collection programs.

- The Ministry of Environment, Conservation and Parks has directed that the current used Battery Program, operated by Stewardship Ontario through the Municipal Hazardous or Special Waste (MHSW) Program under the *Waste Diversion Transition Act, 2016,* is to cease operation for batteries only on July 1, 2020.
- Since 2011, Niagara Region has received funding under the Stewardship Ontario Battery Incentive Program to offset the costs of collecting, transporting and recycling of single-use batteries, which will expire as of July 1, 2020.
- With the Province moving to an Extended Producer Responsibility funding model, in order to retain a level of funding beyond July 1, 2020, staff are recommending that Niagara Region enter into a funding agreement with Call2Recycle based on Call2Recycle's experience, existing battery producer agreements, established battery recycling infrastructure, and funding rate.
- As a result of increasing costs and decreasing funding, as well as the availability of other drop-off locations, staff are recommending that the Curbside Battery Collection and Recycling Program end as of July 1, 2020.
- Staff are seeking approval to negotiate an agreement with Raw Materials Company Inc. as service provider for funding of the multi-residential battery collection and recycling program after July 1, 2020.

Financial Considerations

Since 2011, Niagara Region has received funding for the collection and recycling of household batteries. Under the current funding agreements with Stewardship Ontario and Raw Materials Corporation, Niagara Region's battery collection and recycling program has been a net revenue generator. Funding under the existing program has been a combination of an hourly rate for the operation of the battery program through the HHW Drop-off Depots by Stewardship Ontario and a per kilogram rate for batteries collected through Raw Materials Corporation (Niagara Region service provider) for the curbside, HHW drop-off depot and multi-residential battery collection program.

As of July 1, 2020, under the Extended Producer Responsibility (EPR) model that would be facilitated through Call2Recycle, funding will be received based on the collected weight of batteries at a rate of $0.55 per kilogram. Table 1 provides a comparison of net costs (revenues) for 2019 for each battery collection program under the existing funding mechanism and under the proposed EPR agreements. The costs for each battery collection program are directly attributable to the program, such as contractor costs and promotion and education materials, but exclude any allocation of staff-related costs required to operate the programs. Under EPR funding, the HHW drop-off depot program

would be funded directly by a Producer Responsibility Organization while the curbside and multi-residential programs would be funded by the service provider (battery hauler).

In 2019, Niagara Region received a total of $25,408 in funding which was used to offset $13,878 in direct costs of the battery collection and recycling program resulting in a net funding surplus of $11,530. Under the revised EPR funding agreements, Niagara Region would receive a total of $12,955 of funding, resulting in a net cost of $923.

Table 1 – Comparison of Net Cost (Revenue) under Current vs. EPR Funding Agreements

Battery Program	Current Program Funding Model Net Cost (Revenue)	EPR Program Funding Model Net Cost (Revenue)
Curbside Collection	$2,382	$9,645
HHW Drop-off Depot	(13,600)	(8,410)
Multi-Residential	(312)	(312)
Total Net Cost (Revenue)	**($11,530)**	**$923**

Analysis

Background

Niagara Region established the Household Hazardous Waste program thirty-four years ago, which includes the collection and recycling of batteries. The purpose of the Battery Collection and Recycling Program is to provide residents with options to properly dispose of batteries to ensure that they are recycled and disposed of safely in order prevent them from being landfilled or entering the environment.

In addition to disposing of batteries at retail and other community collection locations, Niagara residents have the option of disposing of their household batteries in one of four ways:

Curbside Battery Collection Program – Niagara Region has operated a curbside battery collection program for the last seven (7) years. The curbside battery program is a one-week event, typically coinciding with Earth Week every April. Residents place their used batteries at the curb on their regular collection day, next to their Grey/Blue

Box in a clear, sealed bag. A total of 45,802 kilograms (45.8 tonnes) of batteries have been recycled through the curbside battery program since the pilot in 2012. From April 22 to 26, 2019, a total of 7,696 kilograms (7.7 tonnes) of batteries were collected.

Household Hazardous Waste Depots – Residents can drop off their batteries year round at one of Niagara Region's four HHW depots located at the Bridge Street Landfill (Fort Erie), Humberstone Landfill (Welland), Niagara Road 12 Landfill (West Lincoln) and Thorold HHW Drop-off depot (Thorold). In 2019, a total of 15,291 kg (15.3 tonnes) of batteries was collected at the drop-off depots.

Keen on Green Initiative for Niagara Region Facilities – Batteries are collected at Niagara Region facilities through the Corporate Keen on Green initiative, which is committed to keeping batteries out of the landfill. Battery pails and drums have been provided by Raw Materials Corporation at all Niagara Region building locations. Since 2013, over 2,820 kg (2.82 tonnes) of household batteries have been collected for recycling and Keen on Green has donated over $2,100 to the United Way from the proceeds of this program.

Multi-Residential Buildings – A multi-residential battery collection program was launched in late 2016 to provide a convenient and accessible service for residents living in multi-residential buildings to safely dispose of their household batteries. There are currently sixty-nine (69) multi-residential properties across Niagara participating in the program. In 2019, a total of 567 kg (0.57 tonnes) of batteries were collected for recycling. Since 2017, a total of 1,166 kg (1.16 tonnes) of batteries have been collected through the Multi-Residential program.

Extended Producer Responsibility

Since 2011, Ontario municipalities have been eligible to receive funding to offset the costs of collection, transportation and processing of single-use batteries. During this time Stewardship Ontario, a not-for profit organization funded and governed by industry stewards, has been responsible for the management of the battery collection program, including funding.

With the enactment of the *Resource Recovery and Circular Economy Act*, 2016 (RRCEA), the Province is shifting to a producer responsibility framework for products and packaging, making producers and brand holders accountable for recovering resources and reducing waste associated with products.

The Ministry of Environment, Conservation and Parks has directed that the current used Battery Program, operated by Stewardship Ontario through the Municipal Hazardous or Special Waste (MHSW) Program under the Waste Diversion Transition Act, 2016, is to cease operation for batteries only on July 1, 2020.

The Province's Made-in-Ontario Plan, released on November 29, 2018, refers to and reinforces the Province's position on EPR: "Make producers responsible for the waste generated from their products and packaging" (https://prod-environmental-registry.s3.amazonaws.com/2018-11/EnvironmentPlan.pdf). Public Works Committee was informed of this plan in WMPSC-C 9-2019. The RRCEA will put in place a new framework that makes individual battery producers responsible for the collection and end-of-life management of batteries. The two categories of batteries that fall within the new framework are:

- primary batteries (single use); and
- rechargeable batteries

The RRCEA identifies targets that producers are to meet for collection and recycling of batteries. Producers may use a third party organization called a Producer Responsibility Organization (PRO) to oversee this process. As the battery recycling program transitions to producers on July 1, 2020, municipalities will be able to enter into an agreement with a PRO.

Extended Producer Responsibility Funding

As of July 1, 2020, battery funding will change as the management of batteries transitions to battery producers. Niagara Region's current funding is based on two methodologies. The curbside collection, Keen on Green and multi-residential programs are funded on a per kilogram basis, while HHW Drop-off Depots receive funding based on an hourly rate for the operation of the collection depots.

In 2019, the Battery Collection and Recycling Program generated $25,408 in funding which was used to offset overall program costs and resulted in a net funding surplus of $11,530. By comparison, it is estimated that applying the new EPR funding would have resulted in $12,955 in total funding and a net program cost of $923 in 2019.

Producer Responsibility Organizations

At the current time there are three registered battery PROs in Ontario - Call2Recycle, Canadian Battery Association and Ryse Solutions Inc. Staff understand that Call2Recycle and the Canadian Battery Association have signed a Memorandum of Understanding to form a partnership.

Call2Recycle was established in 1997 to recycle batteries and cellular telephones. Over the years, they have built on their experience and have established a robust battery recycling infrastructure across Canada. Call2Recycle have secured agreements with over three hundred battery producers from national brands and retailers with private labels to manage batteries on their behalf. For these reasons, staff recommend contracting with Call2Recycle.

Niagara Region has received a draft agreement from Call2Recycle for the funding of the collection and recycling of batteries at Niagara Region Drop-off Depots. The fundamental terms of Call2Recycle's agreement include:

- Funding - Niagara Region will receive $0.55 per kilogram of collected batteries
- Contract Term - one year contract with automatic one year annual renewals, with option to end the contract with a minimum 90 days' notice prior to the end of the term
- Termination- by either party for any reason upon 180 days' prior written notice at any time
- Eligible batteries - both single use and rechargeable batteries will be accepted and eligible for funding

Staff are recommending that Niagara Region enter into an agreement with Call2Recycle based on Call2Recycle's experience in battery recycling, existing agreements with battery producers across Canada, established battery recycling infrastructure, and funding rate.

Call2Recycle only provides funding for the collection and recycling of batteries at drop-off depots. As a result, at the time of writing this report, staff are in discussion with Raw Materials Company for the funding of the Multi-Residential Battery Collection and Recycling Program. The current agreement with Raw Materials Company expires on June 30, 2020. Although the EPR system is in effect as of July 1, 2020, it is not anticipated that residents will experience any disruptions in service while new

agreements are being implemented with PROs and / or service providers during the transition of batteries to EPR.

Curbside Battery Collection and Recycling Program

Due to increasing Contractor costs and decreasing funding as of July 1, 2020, staff is estimating a net cost increase of approximately $10,000 in 2021 for the operation of the Curbside Battery Collection and Recycling Program. As a result, it is recommended that the Curbside Battery Collection not continue at this time.

Alternatives Reviewed

Two possible alternatives were considered for the collection and recycling of batteries. The first option is for Niagara Region to end the entire Battery Collection and Recycling Program since producers will now be responsible for the collection and overall management of batteries in Ontario. This option was not pursued since producers may experience challenges in the first year of transitioning to the management of the battery recycling program. However, it is recommended that Niagara Region staff review the Battery Recycling and Collection Program annually in order to determine if, and when, it is suitable to end the Battery Collection and Recycling Program.

The second option is for Niagara Region to not enter into an agreement with Call2Recycle or any other PRO and to fund the entire battery recycling program. This option would preserve current service levels, maintain convenience for residents and assist in eliminating batteries from entering the landfill or natural environment. This option is not recommended since, without an agreement, Niagara Region would not receive any funding and would assume full costs of the Battery Collection and Recycling Program.

Relationship to Council Strategic Priorities

This recommendation aligns with Council’s strategic priority of Responsible Growth and Infrastructure Planning, specifically as it relates to Environmental Sustainability and Stewardship. By entering into an agreement with Call2Recycle, Niagara Region will continue to optimize waste diversion opportunities, minimize costs and maintain convenience for Niagara residents.

Other Pertinent Reports

- WMPSC-C 2-2020
- WMPSC-C 9-2019

Prepared by:
Emil Prpic
Associate Director, Waste Disposal Operations & Engineering
Waste Management Services

Recommended by:
Bruce Zvaniga, P.Eng
Commissioner of Public Works (Interim)
Public Works

Submitted by:
Ron Tripp, P.Eng.
Acting Chief Administrative Officer

This report was prepared in consultation with Patricia D'Souza, Legal Counsel, Corporate Services and reviewed by Sara Mota, Program Financial Specialist, Corporate Services and Catherine Habermebl, Director Waste Management Services.

Public Works
1815 Sir Isaac Brock Way, Thorold, ON L2V 4T7
905-980-6000 Toll-free: 1-800-263-7215

MEMORANDUM

PWC-C 24-2020

Subject: COVID-19 Response and Business Continuity in Public Works

Date: July 14, 2020

To: Public Works Committee

From: Bruce Zvaniga, P.Eng., Commissioner of Public Works (Interim)

As reported previously, Public Works has remained focused on keeping the critical public infrastructure operational while responding to the COVID19 pandemic. Departmental staff continue to ensure that the community has: safe drinking water, reliable wastewater systems, recycling and waste collection/disposal, regional specialized and regular transit and a well-maintained regional road system. Public Works staff recognize and are dedicated to the essential role they play ensuring that healthcare, social services, emergency responders and the community-at-large can depend upon the reliable availability of these core municipal services.

Public Works leadership is actively participating in the Operations Section of the Municipal Emergency Control Group. Working with all other departments, the Business Continuity Plan and staff redeployment strategy is monitored and adjusted to respond to changing conditions. As of June 26, 44.5 Public Works staff are actively re-deployed outside of the department delivering essential services. Over the next few weeks some of these staff will need to be recalled to address the increased needs in Public Works from the Provincial Stage 2 re-opening and major contracts underway.

The Department Leadership team are actively participating in virtual meetings with their counterparts in the Local Area Municipalities, and provincial committees to share our successes and learn how others have overcome challenges.

The following provides a brief highlight from each of the four (4) divisions on their respective status, service changes, actions taken and future outlook.

Water & Wastewater Services

Current Status of Operations

High quality, safe and reliable water and wastewater services in accordance with health regulations and standards continue to be provided.

Both the Drinking Water and Wastewater Quality Management Systems (QMS) remain active. A Water QMS Management Review was completed on May 28, 2020.

Capital infrastructure projects are deemed essential and continue to be delivered.

Service/Operational Changes

- Cancellation of the Niagara Children's Water Festival; supplementary virtual water festival developed and launched on June 9
- Cancellation of the Water Wagon service
- Recreational Vehicle wastewater holding tank disposal service (re-opened April 19 for Sundays only, and only at the Niagara Falls Wastewater Treatment Plant.)

Significant Initiatives or Actions undertaken

- Developed a full divisional staffing mitigation strategy to deal with any staff shortages that may occur due to COVID-19.
- Developing a W-WW Division Pandemic Recovery Framework in anticipation for Region entering into the Recovery Phase of the Pandemic Response Plan.
- Received license from Health Canada to produce disinfectant spray and hand sanitizer for Regional workplace use during the COVID-19 emergency response to alleviate supply chain shortages when required. Currently able to produce 40 litres per week.
- Cancellation of all non-essential meetings, plant tours, training activities, visitor access.
- Implemented COVID-19 protocols for consultants, contractors and project managers at plant facilities.
- Enhanced focus on the health and well-being of staff operating the essential systems including limiting access to the plant and deferring all non-essential contracted services.
- Assigned maintenance staff to dedicated areas and implemented flexible start and end work locations to avoid both unnecessary travel and exposure.

- One employee per vehicle where possible; installation of plexi-glass barriers in some vehicles, where no barriers installed staff will use masks and face shields
- Setup static sanitation stations in all staffed W-WW facilities and deployed mobile sanitation kits for all fleet vehicles.
- Implemented W-WW tailored daily COVID-19 spot check reports including regular reporting of facility sanitation supply inventories.
- Adopted changes to ensure no physical interaction on deliveries, courier and lab samples.
- Changes to pickup and handling of uniform laundry.
- Portable washrooms have been setup at Wastewater and Water facilities to accommodate contractors, couriers and sewage haulers.
- Face shields, half mask respirators and surgical masks are being used as a form of source protection for staff where certain activities do not allow for proper physical distancing
- Screening signage, screening protocol and limited door access have been implemented at all Water-Wastewater buildings. Daily reports of staff well-being and screening are being provided to management for recording and documentation purposes.
- Screening protocol for all vendors and contractors also implemented at all worksites.
- Constructors at various worksites have put into place proper distancing, working measures and PPE for the well-being of all staff.
- Accepting digital signatures for MECP form approvals.
- Capital project delivery through all phases continuing with proper protocols for consultants, contractors as well as for internal staff in place

Operational Outlook

1 month

- Implementing phased W-WW Pandemic Re-Opening Plan in accordance with Public Health advisement and direction from the Region’s Emergency Operations Centre.

3 months

- Implementing phased W-WW Pandemic Re-Opening Plan in accordance with Public Health advisement and direction from the Region’s Emergency Operations Centre.

6 months

- The focus continues to be on the maintenance of all key components, the sustainable supply of key chemicals and materials and most importantly on the well-being of the staff managing these essential systems.

Transportation Services

Current Status of Operations

Essential bridge, culvert and roadway works, forestry, traffic control, pavement markings and signage are critical services which continue to be provided.

Design, construction management and environmental assessments continue from engineering staff and consultants.

Staff continue to monitor all material shipments, supplies and construction contracts experiencing delays to understand larger impacts to ongoing construction project schedules.

Essential and critical project interpretation based on Provincial announcements continues to change and affects the delivery of projects and levels of service to the residents of Niagara Region. This is continuously monitored and adjusted to meet Provincial directions.

Service/Operational Changes

Dispatch is providing 24 hour support with all calls received by the Region; in particular directing residents for COVID-19 to Public Health and by-law enforcement (Local and Regional) seven days a week.

Earlier in assessing the separation of staff in field operations, the normal weekday shift and management oversight had been split into two groups scheduled to not physically interact with each other. As a result, the hours of operation were stretched from 5 a.m. - 9:30 p.m. with the support of the union and management.

Since the implementation of two (2) shifts, management have continued to review staffing levels and needs. Due to the number of redeployments to Long Term Care (LTC) and EMS in support of the pandemic, vacancies, plus sick time, management reassessed the two shifts and converted back to one shift per day from 7 a.m. - 3 p.m.

Management is continuing to assess service levels against staffing needs and safety protocols and will adjust accordingly.

Significant Initiatives or Actions undertaken

Separation of field staff in vehicles where possible is being administered. Vehicle assignment to specific staff with the responsibility to clean / maintain on a daily basis.

Face masks and shields have been ordered for additional staff protection in certain circumstances.

Staff continue to monitor supplies out of Fleet stores such as wipes, hand sanitizer, N95 masks and are supporting other Divisions with resources as required.

Screening signage, screening protocol and limited door access have been implemented at all yards and the service center. Daily reports of staff well-being and screening are being provided to management for recording and documentation purposes.

Screening protocol for all vendors and contractors also implemented at yards and service centers.

Constructors at various worksites have put into place proper distancing, working measures and PPE for the well-being of all staff.

Updated protocols based on provincial regulations/guidelines for working on construction sites has been sent to Heavy Construction Association of the Region of Niagara to notify their members that they must adhere to these measures.

IT equipment to assist with working from home has been provided where applicable.

A number of Transportation Staff have already been trained and redeployed to assist other Departments where needed. In assisting with the redeployments to LTC, Staff manufactured personal screening barriers for screener positions at entry points of the homes as an additional safety measure.

Operational Outlook

1 month

- Essential and critical project interpretation based on Provincial announcements will affect the delivery of projects and levels of service to residents of Niagara region. This continues to be under review. The Business Continuity Plan with Redeployment Strategy of staff for the Division will be administered accordingly.

3 months

- Essential and critical project interpretation based on Provincial announcements will affect the delivery of projects and levels of service to residents of Niagara region. This continues to be under review. The Business Continuity Plan with Redeployment Strategy of staff for the Division will be administered accordingly.

6 months

- Contractors have shared their concern that once non-essential work can re-commence, there will be shortage within the trades due to demand. Contracts are continuing to be monitored by staff with regards to any shortages (supplies and trades) and updates will be highlighted.

Waste Management Services

Current Status of Operations

Restrictions to the curbside collection program and at the landfill sites/drop off depots have been lifted with minor restrictions still in place as noted below.

The processing of recyclable materials is being maintained, despite a shortage in staffing.

An online tool was successfully implemented in June to provide residents the ability to purchase garbage tags, CFC stickers and recycling and organic bins on line. Garbage tags and CFC stickers are mailed to the residents. For recycling and organic bins, payment is made on line and residents can pick up the bins at one of the Regional distributions centres.

Strategic initiatives are continuing such as the MRF Opportunity Review, implementation of new collection contracts and services levels, construction projects, and operational tenders. Staff continue to participate in stakeholder consultation

sessions regarding the Blue Box program and other programs transitioning over to a Producer Responsibility model.

Service/Operational Changes

Landfill Service Changes

There have been delays at the sites due to the recent changes implemented, including limiting the number of people on the drop-off pad to support COVID-19 physical distancing guidelines.

Preferred methods of payment are debit and credit, using the tap option.

Collection of large household item resumes

Restrictions on the number of daily bookings was in place for the month of June to manage volumes. As of July, the collection of large household items has fully resumed.

Curbside Battery Collection

Battery collection originally scheduled for April 20-24 was initially postponed so that staff could focus on the collection of regular garbage, recycling and organics. A decision was made to cancel the services due to staff redeployment as well as a change in the industry funding model.

Compost Giveaway

Compost giveaway originally scheduled for May 4-9 has been postponed until the week of September 14, 2020.

Recycling/Green Bin Distribution Locations Closed

Residents can use alternative rigid plastic containers.

For more information on waste management services, visit https://www.niagararegion.ca/waste.

Community Events

Presentations, community booths, sites tours and special events recycling have been postponed until further notice.

Significant Initiatives or Actions undertaken

Screening signage, screening protocol and limited door access have been implemented at all facilities. Daily reports of staff well-being and screening are being provided to management for recording and documentation purposes.

Screening protocol for all vendors and contractors has also been implemented at all facilities and sites.

Installation of a portable washroom and hand washing station for commodity drivers to avoid visitors entering the Recycling Centre.

Staggering breaks and lunch to reduce amount of people taking breaks at one time at the Recycling Centre.

Increased cleaning being completed at night and during the day (i.e. between lunch breaks and in high traffic areas).

Installed plexi-glass between sorters on the processing line, and at the scale houses located at the landfill sites/drop off depots.

Staff are travelling in separate vehicles to maintain physical distancing per health guidelines.

On-road staff working from home to start and end their day due to lack of public washroom availability, and to reduce the need to enter their work location.

Operational Outlook

1 month

-
- Implementing the divisional Pandemic Re-Opening Plan in accordance with Public Health advisement and direction from the Region’s Emergency Operations Centre.

- Staff working with IT and Finance to offer residents the ability to purchase garbage tags on-line.
- Staff will continue to develop and implement a communication strategy to inform residents about upcoming service changes that will occur with the new waste collection contracts. Initial communication plan adjusted due to COVID. The first direct mail piece (post card) is scheduled to hit mailboxes late June/early July.
- RFP will be issued for the division's Long-term Strategic Plan.
- The Business Continuity Plan with Redeployment Strategy of staff for the Division will be administered accordingly, and work that cannot be deferred is being managed by existing staff.

3 months

- The Business Continuity Plan with Redeployment Strategy of staff for the Division will be administered accordingly.
- Staff will continue to implement communications about the service changes that will occur with the new waste collection contracts.
- Staff will continue to meet with new collection contractors to ensure a successful start up

6 months

- New waste collection contracts are set to commence October 19, 2020. Staff will be working to address any major concerns and provide residents with information to fully participate in the curbside programs.
- The Business Continuity Plan with Redeployment Strategy of staff for the Division will be administered accordingly.

Niagara Region Transit/Specialized Transit & GO Implementation

Current Status of Operations

Niagara Region Transit (NRT) is operating at a modified version of the "Saturday" level of service:

- All Express routes were eliminated (40a, 40b, 45a, 45b, 60a, 65a, 70a, 75a) effective March 23
- 7:00 a.m. - 9:00 p.m. operating hours effective May 4 (typically 7:00 a.m. – 11:00 p.m.)
- Hourly service (60 minutes) on Routes 22, 25, 40, 45, 50, 55, 60, 65, 70 & 75

Niagara Specialized Transit (NST) is operating at the normal level of service, except for trips whose origins or destinations are to/from a location with reported cases of COVID-19 are not being provided. Reducing hours of operation is not a necessity in this case as Niagara Region only pays for trips delivered, rather than an hourly rate. Overall, NST trip requests are significantly reduced, however NST continues to deliver all requested trips within the capacity available. Ridership has begun to show small signs of recovery since the start of June.

Service/Operational Changes

The "Rear door boarding" policy enacted on March 23 to temporarily limit driver contact and respect physical distancing has been lifted. Through Inter-Municipal Transit Working Group (IMTWG) coordination, Niagara's transit providers have installed plexi-glass bio-barriers across the entire fleet of vehicles to protect bus operators. With these bio-barriers in place, reinstatement of front door boarding was able to begin on June 29, and collection of fares on July 2.

Hourly service on Routes 40 and 45 was reinstated to relieve capacity pressures on Routes 50 and 55 and to support the re-opening of the Outlet Collection at Niagara.

Significant Initiatives or Actions undertaken

All NRT and NST fleet vehicles have been professionally cleaned/disinfected/sanitized well beyond regular protocols, and Aegis antimicrobial spray was applied to all interior surfaces. This work was completed by the local transit service providers as they manage and operate the NRT fleet as part of their own.

Due to the low volume of trips, BTS has made every effort to deliver trips with only a single occupant in each vehicle, although this has not been formalized as a public policy.

Operational Outlook

1 month

- NRT staff continue to review ridership data closely in order to determine appropriate levels of service. As provincial guidelines continue to allow for businesses to re-open, it is premature to attempt to draw accurate ridership projections.

- The IMTWG has received provincial guidelines, however those guidelines did not address vehicle capacity. Through discussion with other transit properties in Ontario, Niagara's transit providers are on target to allow for an increased capacity to 50% whereas the services have been operating with capacity limits of under 20% since March. A limited number of extra buses are awaiting deployment to meet rising transit demand.
- A launch date for NRT OnDemand deployment in West Niagara has been set for August 17. Staff continues to work with its service provider Via Mobility to develop the service and communications plan. This will involve staff from both Niagara Region and our local area municipal partners in West Niagara being present in the communities of the service area to promote the new service.
- Work continues with our post-secondary partners to review projected enrollment and transit ridership for the Fall 2020 semester at both Brock University and Niagara College. With the percentage of enrolled students on campus undetermined at this time, transit staff are developing scenarios for meeting needs that arise from the campus sites where typically, very significant volumes of students use transit.
- Staff continues to work with Brock University and the Brock University Student Union to maintain the U-Pass Program for the 2020-2021 academic year. Niagara College terminated the U-Pass agreement in response to COVID-19 and thus students will be purchasing monthly passes in September.

3 months

- Possible further service adjustments based on ridership and in reaction to any provincial changes. Staff will continue to work with the IMTWG in reviewing the available data to ensure that adequate service is being provided while being mindful of the financial challenges faced by each municipality.
- Service adjustments will have to consider whether schools and universities remain closed for Fall semester, have modified on campus student populations, or have moved entirely online in course curriculum. The IMTWG is working with the post-secondary institutions to ensure that sufficient transit is available to support the needs of the students and that adequate compensation is received for the provision of such services.

6 months

- The IMTWG will begin working towards the implementation of a new fare payment technology through the funding provided by the Investing in Canada Infrastructure Program (ICIP). Due to the complexity of the program, an

implementation date in 2021 is most likely. Staff will continue to provide updates once a timeline has been established and at the major milestones.

- The Niagara Transit Governance Study report will be complete by summer 2020. Introduction of the final report to LNTC with recommendation on a new governance model by the Project Team and study consultants will be done in consultation with the CAO Working Group and the LNTC Chair.

As both the Province and Region move through the recovery process, staff at each of Niagara's transit providers will continue to collaborate in monitoring service levels, processes, and policies to ensure the safety of the residents and employees remain a priority and that decisions are made and communicated jointly wherever possible.

Respectfully submitted and signed by,

Bruce Zvaniga, P.Eng.
Commissioner of Public Works (Interim)

Waste Management Servies
1815 Sir Isaac Brock Way, Thorold, ON L2V 4T7
905-980-6000 Toll-free: 1-800-263-7215

MEMORANDUM **PWC-C 16-2020**

Subject: 2018 Waste Management Benchmarking Report

Date: Tuesday, July 14, 2020

To: Public Works Committee

From: Brad Whitelaw, Program Manager, Waste Policy & Planning

The purpose of this memorandum is to submit the annual 2018 waste management benchmarking review and evaluate performance against the Blue Box program goals, objectives and targets established in WMPSC-C 1-2017, Niagara Region's 2016-2021 Blue Box Program Plan. This memorandum was delayed due to the length of time required by Resource Productivity & Recovery Authority (RPRA) (https://rpra.ca/) to verify the 2018 Blue Box Datacall results and post them to their website.

Overview

The 2018 benchmarking report is comprised of three (3) key areas for performance measurement. For each measurement parameter, Niagara's target, the current value, and how it compares to the target and/or other municipal comparators, are described in Appendix A. The parameters reflect industry standard measurements for program or system performance, cost effectiveness and efficiencies. The performance and benchmarking results are summarized below.

1. Resource Productivity & Recovery Authority Residential Waste Diversion Rate

Niagara achieved the interim waste diversion goal of 56% by 2016, and is now working towards achieving the 65% target. Niagara's 2018 diversion rate of 56% was above the provincial average of approximately 50%. It was also higher than the average of the municipal comparator group (i.e. municipalities with a population greater than 250,000), which was approximately 52%. This measurement parameter and associated target will be revised once the new provincial diversion rate methodology is established.

2. Blue Box Recycling Plan Performance Measures and Targets

The Blue Box Recycling Plan goals, which align with Council's current target of 56% diversion by 2016 and 65% diversion by 2020, are to increase the diversion of residential Blue/Grey Box materials from disposal and extend the life of existing landfills. The performance results in support of program goals and associated objectives include some of the following observations. Appendix A contains the full results.

- Niagara has achieved the 2018 RPRA related targets and is performing better than the comparator group and provincial average. The RPRA measures consist of:

RPRA Measure	Niagara Region	Comparator Group Average	Provincial Average
2018 Blue Box Residue Rate	6.8%	n/a	9.8%
2018 Net Cost per Tonne Marketed	$222/tonne	$313/tonne	$374/tonne

- Niagara did not achieve the 2018 Blue Box participation rate target, based on the results of the 2018 curbside visual survey, but that may be due to the season and the number of households being away and not setting out material for collection.

- The 2018 Blue Box set-out rate was not measured, as part of the 2018 curbside visual survey. However, it is anticipated that the 2018 set-out rate remained the same as the 2016 set-out rate as no program change has occurred.

Curbside Waste Audit/Visual Survey Measure	Niagara Target	Niagara Actual
2018 Blue Box Participation Rate	82%	72%
2016 Blue Box Set-Out Rate	2.0/hhld/week	2.0/hhld/week

3. Municipal Benchmarking Network Canada (MBNC) Performance Measures

The subset of MBNC parameters that are related to cost effectiveness are used in this benchmarking review. Niagara was lower in cost than the 2018 MBNC average, in all areas:

MBNC Performance Measure	Niagara Region	MBNC Average
2018 Operating Cost for Garbage Collection per Tonne - All Property Classes	$87/tonne	$125/tonne
2018 Operating Cost for Solid Waste Disposal per Tonne - All Property Classes	$84/tonne	$133/tonne
2018 Operating Cost for Solid Waste Diversion per Tonne - All Property Classes	$133/tonne	$214/tonne
2018 Solid Waste Average Operating Cost per Tonne - All Property Classes	$136/tonne	$228/tonne

Conclusions

Improvements to waste management programs and program performance have occurred over the last several years. Niagara has met the established targets or is performing better than its comparator group and/or provincial averages. Niagara has met the majority of the short-term targets established for 2018, and is trending toward meeting its longer term targets.

These annual reviews are intended to ensure continuous improvement and that every effort is being made to ensure the waste management system is operated efficiently and cost-effectively.

Respectfully submitted and signed by

_____

Brad Whitelaw, BA, CIM, CPM, P.Mgr., CAPM
Program Manager, Waste Policy & Planning

Appendices

Appendix A 2018 Waste Management Benchmarking and Performance Monitoring Report

2018 Waste Management Benchmarking and Performance Monitoring Report

Overview

The 2018 Waste Management Benchmarking Report is comprised of three (3) key areas for performance measurement:

1. Resource Productivity & Recovery Authority (RPRA) Residential Waste Diversion Rate
2. Blue Box Recycling Plan Performance Measures and Targets
3. Municipal Benchmarking Network Canada (MBNC) Performance Measures

For each area/parameter, Niagara's target, the current value and how it compares to the target and other municipal comparators (where available) are described. The parameters reflect industry standard measurements for program or system performance, cost effectiveness and efficiencies.

Benchmarking and Performance Results

1. RPRA Residential Waste Diversion Rate

Niagara's Target:	56% by 2016 and 65% by 2020
2018 Value:	56% in 2018
Variance to Target:	Target achieved
Benchmarking Result:	Niagara is above the provincial and comparator group averages of 50% and 52%, respectively.

The RPRA residential waste diversion rate is calculated based on tonnes diverted in the following main categories:

- Recyclables material stream, which consists of marketed Blue Box material, electronics, scrap metal, construction/demolition material, asphalt shingles and other miscellaneous categories;
- Green Bin organics and leaf, yard and branch material; and
- Other material, which is primarily comprised of a RPRA calculated tonnage credit for grasscycling/grass ban, deposit-return, tires and backyard composting.

In 2018, Niagara generated 198,485 tonnes of residential solid waste, which was a decrease of approximately 1.1% compared to 2017. However, as illustrated in Table 1, using the RPRA methodology, which allocates additional multi-residential disposal tonnages to Niagara, the 2017 and 2018 adjusted tonnages are higher at 201,273 and 198,921 tonnes, respectively.

Table 1 – Residential Material Diverted as a Percentage of Total Solid Waste Generated in 2017 and 2018 (*using revised 2012 methodology, which adjusted disposal tonnage)

Residential Waste Stream	2017 Tonnes	2017 Percent of Total Waste	2018 Tonnes	2018 Percent of Total Waste
Total Generated	201,273	100%	198,921	100%
Waste Disposed	87,553*	43%	87,786*	44%
Material Diverted	113,720	57%	111,135	56%

For comparison, Table 2 provides the residential generation rate per capita for Niagara's comparator group. The majority of municipalities have seen increases at least once from 2012 to 2014, and 2017. However, most municipalities saw a decrease in 2015 and 2016. In 2018, over half of the municipalities decreased slightly from their 2017 level.

Table 2 – RPRA Residential Generation Rate Per Capita

Municipality	2018 Kg/Cap.	2017 Kg/Cap.	2016 Kg/Cap.	2015 Kg/Cap.	2014 Kg/Cap.	2013 Kg/Cap.	2012 Kg/Cap.
Large Urban							
Halton Region	364	372	375	389	413	406	412
Hamilton	394	415	397	405	419	411	407
London	383	409	399	407	405	401	398
Peel Region	362	360	361	362	368	366	366

Municipality	2018 Kg/Cap.	2017 Kg/Cap.	2016 Kg/Cap.	2015 Kg/Cap.	2014 Kg/Cap.	2013 Kg/Cap.	2012 Kg/Cap.
Toronto	285	283	280	296	310	317	319
York Region	318	314	316	326	336	328	342
Large Urban Average	**328**	**330**	**327**	**337**	**349**	**348**	**352**
Urban Regional							
Durham Region	383	376	377	380	385	378	380
Essex-Windsor	406	404	391	399	395	399	399
Niagara Region	421	439	427	435	442	437	438
Ottawa	355	362	352	362	367	372	366
Simcoe	457	476	473	475	465	461	469
Waterloo Region	327	329	330	347	346	354	348
Urban Regional Average	**380**	**385**	**379**	**387**	**389**	**390**	**389**

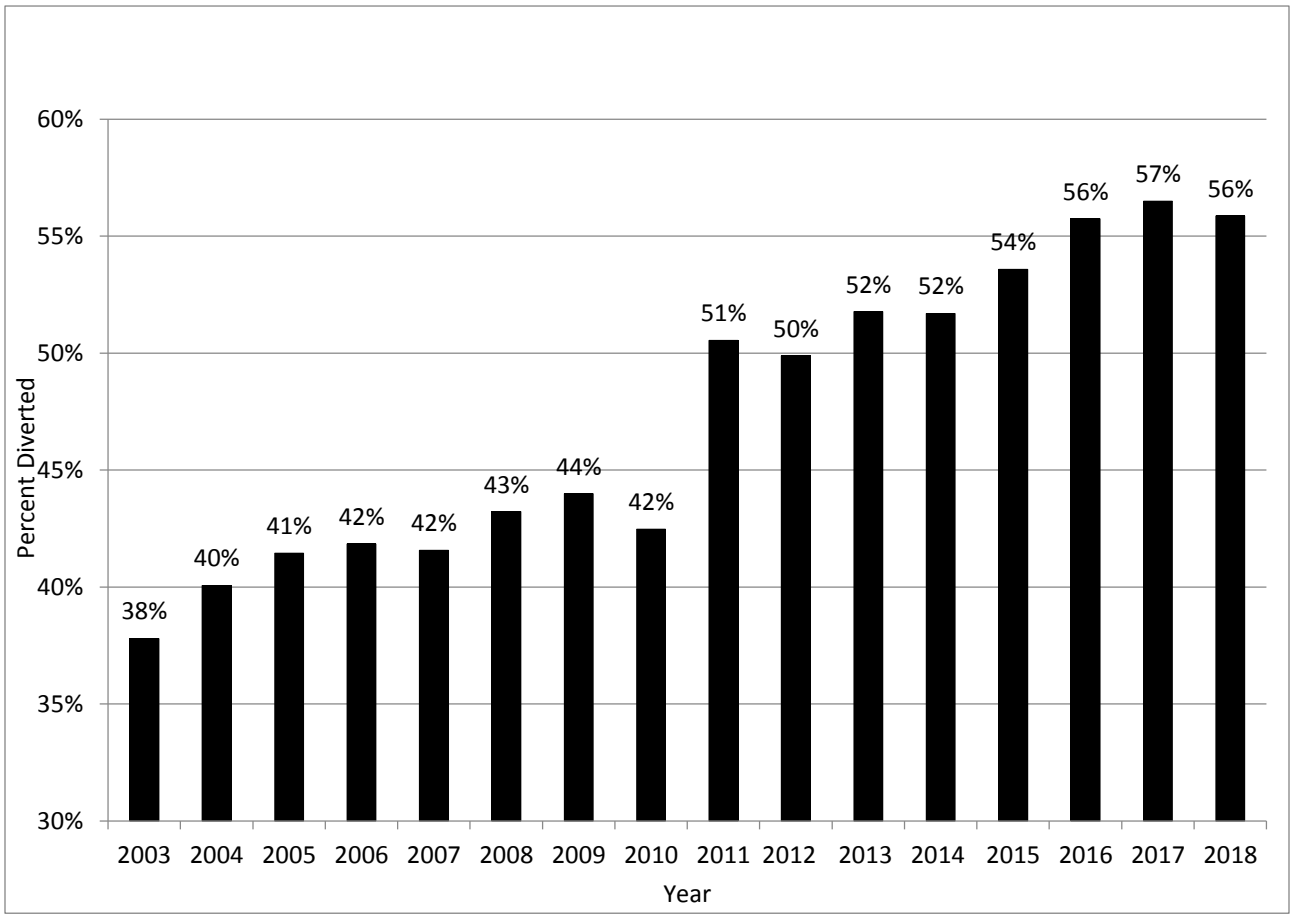
The overall trend in Chart 1 shows an improvement in Niagara's RPRA residential waste diversion performance between 2003 and 2018. Niagara's diversion rate of 56% increased by 14% compared to 2010, primarily due to the new collection service levels that were launched on February 28, 2011, as part of the new collection contract.

The services and associated policies that increased diversion, through enhanced programs and behavioural change incentives, included:

- Collection of both Blue and Grey Box material every week;
- Multi-residential recycling program;
- Green Bin organics program expansion to Wainfleet and West Lincoln and to multi-residential buildings up to six units across the Region;
- Reduction in garbage limits for households - one (1) garbage container (bag/can) limit per residential unit (to a maximum of twelve containers);
- Increase in the cost of the garbage tags from $1/tag to $2/tag to reflect full cost recovery;

- Initiation of a partial construction and demolition (C&D) depot diversion program; and
- Addition of plastic containers and rigid plastic packaging with the numbers 3 and 7 and non-numbered to the Blue Box Program (all plastic containers and rigid packaging are now accepted).

Chart 1 - Niagara Region's RPRA Residential Diversion Rate in 2003-2018

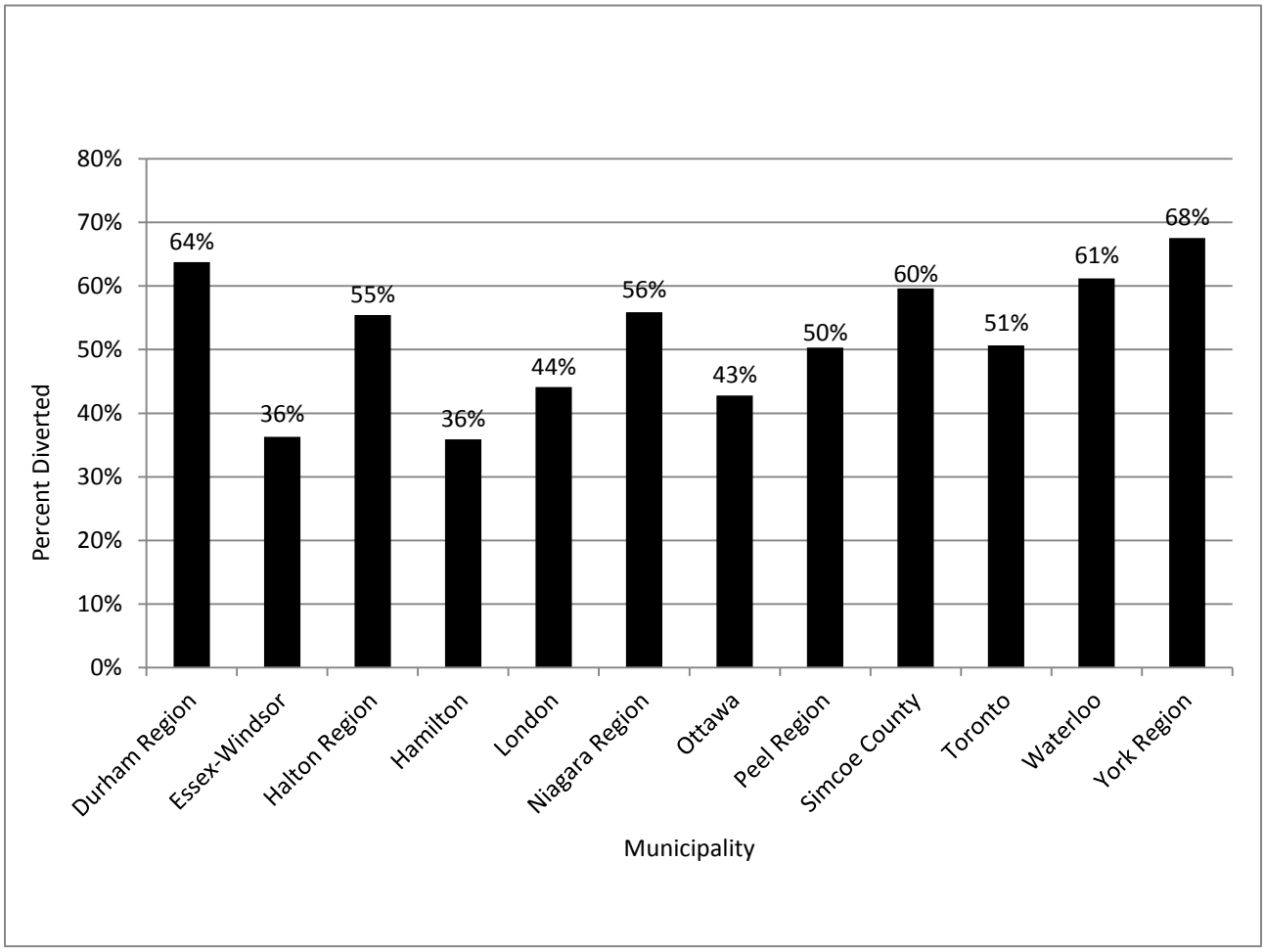


The 2018 diversion initiatives that were implemented include the following:

- Unlimited recycling and organics collection at schools, local area municipal and Niagara Regional facilities;
- Multi-residential textile recycling pilot program;
- Bottles for Charity recycling pilot program at Niagara Road 12;
- Porcelain recycling pilot program at all landfill and recycling drop-off depots.

Chart 2 below illustrates the 2018 RPRA residential waste diversion rates for Niagara and its eleven municipal comparators, which have a population greater than 250,000.

Chart 2 - Comparison of 2018 RPRA Residential Diversion Rates for Comparator Group



York, Durham, Halton and Waterloo have some of the highest diversion rates, which are generally attributable to every-other-week garbage collection. Simcoe County's diversion rate was also reported to be one of the highest at 60%, with a weekly one container garbage limit parallel to Niagara's program, and a very strong C&D depot recycling program.

Niagara is above the 2018 provincial average of approximately 50% diversion and higher than the average of the municipal comparator group, which is approximately 52%. In terms of ranking, Niagara is the 5th highest rate in the comparator group.

For comparison, Table 3 provides the residential diversion percentage by diverted material stream for the six (6) top performing municipal comparators, including Niagara, based on 2018 RPRA data.

Table 3 – RPRA Residential Diversion Percentage by Material Stream for 2018 for Top Performers in Comparator Group

Municipality	Deposit Return	Reuse	On-Property[1]	Blue Box	Other[2]	Organics	MHSW	2018 Diversion Rate
York Region	1.73%	0.00%	4.31%	17.30%	10.75%	33.10%	0.33%	67.52%
Durham Region	1.44%	2.77%	5.27%	16.75%	15.83%	21.24%	0.47%	63.76%
Waterloo Region	1.68%	0.00%	6.32%	18.52%	2.76%	31.63%	0.29%	61.21%
Simcoe County	1.19%	0.12%	3.28%	16.46%	18.43%	19.70%	0.42%	59.60%
Niagara Region	1.31%	0.57%	5.39%	18.02%	6.65%	23.49%	0.43%	55.87%
Halton Region	1.51%	0.01%	5.07%	18.54%	2.11%	27.87%	0.32%	55.43%
Toronto	1.94%	0.00%	4.38%	12.03%	3.46%	28.63%	0.23%	50.66%
						Comparator Group Average		**51.96%**
						RPRA Ontario Average		**49.66%**

Notes:

1. On Property includes backyard composting and grass cycling.
2. Other includes recyclables such as Waste Electrical and Electronic Equipment (WEEE), tires, and construction and demolition (C&D) materials.

In Table 3, the organic material stream shows a wide range of diversion percentages (lowest being 19.70% in Simcoe to the highest at 33.10% in York), with the majority of the municipalities being above Niagara's rate of 23.49%. York, Halton, Toronto and Waterloo's higher organics diversion rate may be attributable to providing every-other-week garbage collection.

Another significant observation from Table 3 is that Simcoe County has an exceptionally strong C&D depot diversion program (included in Other Recyclables) of 18.43%, which is an anomaly compared to the other top performers.

The experience in the top performing municipalities, supplemented by the results of historical waste audit data for Niagara's low density residential sector, demonstrate good potential for future diversion growth in Niagara's organics program and/or potential for food waste reduction through the Ontario Food Collaborative.

Future increases in Niagara's residential diversion rate are expected to trend towards meeting the target of 65%, with the implementation of smaller diversion initiatives and continuation of the extensive Social Marketing and Education Plan, as outlined in WMPSC-C 2-2019 in addition to the service level changes to begin October 2020. However the 65% diversion target will likely not be realized until a full year of every-other-week garbage collection has been in place.

Planned 2019-20 diversion initiatives include:

- Implementation of every-other-week garbage collection, and a four (4) bulky item limit per collection, as part of the new waste collection contract (October 2020);
- Implementation of a communication strategy and public education campaign for the new waste collection contract (summer 2020);
- Implementation of waste management web/mobile application for collection day look up, collection day reminders, notifications, and item search tool (October 2020);
- Continuation of the multi-residential textile diversion pilot program (2019-20);
- Continued participation in the Ontario Food Collaborative and implementation of a Niagara Region specific food waste reduction strategy (2019-20);
- Mattress recycling program at the Region's landfill drop-off depots (2019); and,
- Bridge Street, Humberstone and Niagara Road 12 Drop-off Depot improvements and continued encouragement of separation of loads at the Region's drop-off depots to facilitate increased diversion (2020)

Provincial policy changes (i.e. extended producer responsibility, organics diversion strategy), will also instigate more substantial diversion rate increases, particularly in the organics program area.

The Region is reviewing other methods to measure its waste diversion, which may be applied in future years. Metrics, such as the reduction of waste on a per capita basis, are being reviewed. Reduction (e.g. reducing avoidable food waste and reuse efforts) is difficult to measure using the traditional RPRA diversion rate calculation.

2. Blue Box Recycling Plan Performance Measures and Targets

The Blue Box Program's specific goals, which align with Council's objective of 65% diversion from disposal, are to increase the diversion of residential Blue/Grey Box materials from disposal and extend the life of existing landfills.

Key Blue Box Program objectives, which are related to the targets and benchmarking exercise, include the following:

- Optimizing collection and processing, in order to improve Niagara's performance factor (ratio of the program's net cost per tonne and its recycling rate) relative to other municipalities, which increases the program funding amount;
- Continuous improvement, including monitoring and reporting of Blue Box diversion successes against recycling targets;
- Facilitating the achievement of the various Blue Box Program performance measurement targets;
- Increasing program participation and recovery of Blue Box materials, while lowering residue rates; and
- Increasing level of customer (Regional service user) satisfaction.

The following section discusses Niagara's progress in achieving these goals and objectives. Niagara's 2018 program results are compared to:

- Targets set in the 2016-2021 Niagara Region Blue Box Recycling Plan; and
- Eleven comparator municipalities that have a population greater than 250,000 for the RPRA parameters and the RPRA provincial average.

The performance measures were defined in previous RPRA best practice requirements. The measures are based on outputs from the annual RPRA datacall process and data collected from curbside waste composition studies/audits, which are completed intermittently when introducing program changes.

Baseline Blue Box Program data from 2015 and 2016 curbside waste audits, and in some cases historical trends, were used as a general basis for developing targets for the performance measures. Targets have also been established considering approved program changes, targeted communications and processing facility improvements. Other municipal data were also used as a reference for developing targets for some measures.

RPRA Performance Measures

The RPRA utilizes a standard methodology (Generally Accepted Principles or GAP analysis) for municipal waste management reporting and residential waste diversion calculations. The performance measures, which are an output of the RPRA datacall process, are described below with associated Niagara targets. Data from eleven comparator municipalities that have a population greater than 250,000 are referenced for comparison and benchmarking purposes.

1.1 Blue Box Residue Rate

Niagara's Target:	4.2% in 2015, decreasing to 4.0% by 2018
2018 Value:	6.8% (based on residential tonnes disposed)
Variance to Target:	Target not achieved
Benchmarking Result:	Niagara is well below the Province-wide multi-stream (two or more streams) residue rate of 9.8% for 2018. The average single stream residue rate is higher at 20.3% for 2018.

Blue Box residue rate is defined as the percentage of collected Blue Box material that is rejected during processing. Residue typically includes non-recyclable material such as take-out coffee cups and other contaminants. The residue is then disposed resulting in less revenue, as the material cannot be sold to recycling end markets.

Niagara Region achieved a residential Blue Box residue rate of 1.8% in 2011 and 2012, and 1.7% in 2013 and 2014. The 2015-18 residue rates increased from 4.5% to 6.8%, due in large part to a lack of an end market for low-value mixed plastic.

2.2 Net Cost per Tonne Marketed

Niagara's Target:	$203/tonne in 2015, further decreasing and remaining below the average of the comparator group for each year.
2018 Value:	$222/tonne
Variance to Target:	Target not achieved
Benchmarking Result:	Niagara had the fourth lowest net program cost in 2018 ($222/tonne) in the comparator group, and was well below the

averages for the comparator group ($313/tonne) and Province-wide ($374/tonne).

A key performance indicator for the Blue Box Program is the net program cost per tonne marketed, as calculated by RPRA. This parameter includes the net cost for Niagara's Recycling Centre (i.e. processing, collection contract and program support costs (e.g. staff, promotion and education, etc.). The net cost reflects the revenue from the sale of recyclables.

As Table 4 indicates, Niagara's net residential Blue Box cost per tonne marketed was approximately $222 in 2018, which was a 50% increase compared to 2017. The main reason for the increase in 2018 was a decrease in revenue from the sale of recyclables. However, Niagara had the fourth lowest net program cost in 2018 and the second lowest net program cost in 2017 ($148/tonne). Niagara was well below the 2018 comparator group average of $313/tonne and the 2018 Province-wide average of $374/tonne.

Table 4 – RPRA Net Program Cost Per Tonne Marketed in 2017 and 2018

Municipality	**2018 Blue Box Tonnes Marketed**	**2018 Total Net Cost**	**2018 Net Cost Per Tonne Marketed [3]**	**2017 Net Cost Per Tonne Marketed [3]**
Large Urban				
Halton Region	38,780	$9,197,472	$237.17	$180.34
Hamilton	34,341	$12,051,944	$350.95	$260.55
London	21,832	$7,014,243	$321.28	$258.23
Peel Region	81,775	$30,052,636	$367.50	$313.67
Toronto	95,138	$61,075,282	$641.96	$446.33
York Region	65,812	$24,481,602	$371.99	$251.30
Large Urban Average	337,678	$143,873,178		
	Simple Average[1]		$381.81	$285.07
	Weighted Average[2]		$426.07	$321.60

Municipality	2018 Blue Box Tonnes Marketed	2018 Total Net Cost	2018 Net Cost Per Tonne Marketed [3]	2017 Net Cost Per Tonne Marketed [3]
Urban Regional				
Durham Region	43,278	$14,790,439	$341.75	$291.99
Essex-Windsor	23,158	$4,950,951	$213.79	$150.66
Niagara Region	35,855	$7,941,830	$221.50	$147.67
Ottawa	56,330	$11,522,545	$204.55	$120.01
Simcoe	24,831	$7,137,916	$287.46	$215.72
Waterloo Region	36,450	$7,286,372	$199.90	$185.01
Urban Regional Average	219,901	$53,630,053		
	Simple Average[1]		$244.83	$185.18
	Weighted Average[2]		$243.88	$182.10
Comparator Group Average	Simple Average[1]		$313.32	$235.12
	Weighted Average[2]		$354.22	$269.04
Ontario Grand Total (Weighted Average[2])			$373.52	$295.62

Notes:

1. Simple average of per tonne values.
2. Weighted averages are group total costs or revenues divided by total group tonnage.
3. Niagara's program includes a wide range of materials which, in some cases, is greater than those collected by other municipalities and will increase the net cost per tonne marketed.

Niagara has a cost effective program in comparison to other jurisdictions. The Urban Regional group is defined as municipalities with a population greater than 250,000 and less than four (4) people per square km.

As part of the Region's 2016-2021 Blue Box Recycling Plan, this target was re-evaluated and updated, considering more recent market conditions and other relevant factors, including various capital project efficiency improvements implemented at the Recycling Centre, such as optical sorters, aluminum separator, and a Polystyrene Densifier System to manage the polystyrene independently from mixed plastics. This produces higher revenues from the Region's mixed plastics stream.

Waste Composition Studies and Visual Audit – Program Monitoring Parameters

Waste composition studies and curbside visual audits are typically completed to measure performance changes as a result of introducing a program change or when industry stewardship funding becomes available for these activities.

A waste composition study is defined as a formal, structured process used to quantify the amount and type of waste, recyclables and organics being generated and diverted. A waste composition study, which included 170 household set-outs, was conducted across all twelve local area municipalities in the fall and winter of 2010, and in the spring and summer of 2011, after the start of the new collection contract and service levels. A follow-up, four (4) season waste composition study was completed in 2015/2016. Both studies received CIF funding.

Visual curbside audits, which have been completed since 2007, provide data regarding participation rates. As part of an earlier "It Takes Three Campaign" properties were randomly audited by Waste Management interns to determine if recyclables that had been set out at the curb were being properly sorted and prepared for pick up. Door-to-door visits to each audited home have occurred in 2012 and 2013 to promote the 'Blue Box Ins and Outs' campaign. The "Gold Star Recycler" program was carried out in conjunction with the audits in order to provide a visible and tangible reward, a form of thanks and public recognition for residents' waste diversion efforts. Visual audits were not completed in 2015 and 2016, due to a reallocation of intern resources. In 2017 and 2018, visual curbside audits of Blue and Grey Recycling Boxes were completed at approximately 1,000 low-density residential households. Those audit results meeting 'perfect' or 'near-perfect' criteria were given an "I'm a Gold Star Recycler" recycling box and an informative door hanger to encourage and reward their proper set-out practices.

Key performance measures, which are based on visual curbside audits and waste composition studies, are identified below.

2.3 Blue Box Participation Rates

Target: 82% from 2016 to 2021

2018 Value: 72%

Variance to Target: Target not achieved

The Blue Box participation rate is defined as the percentage of low density residential households on a curbside collection route who set out recyclables at least once in a consecutive two (2) week period.

As illustrated in Table 5, the trend has been towards an improved participation rate, which is attributable to the introduction of new services in 2011, the targeted social marketing and education campaigns and program maturity. Based on the 2015/16 Region curbside waste audit and the 2017 visual audit results, the Blue Box participation rate decreased, compared to the participation rates measured as part of previous visual audits completed, as part of the 'Blue Box Ins and Outs' campaign. However, the 2018 Blue Box participation rate improved from 2017. Minor audit variations may be attributable to the season and the number of households not setting out any material due to being away.

Table 5 – Blue Box Participation Rates

Curbside Waste Audits and Visual Audits	**Average Participation Rate**
2006 - Stewardship Ontario Waste Audits	57%
2004/07 – Niagara Region Curbside Waste Audits	60%
2010 – Niagara Region Curbside Waste Audits	71%
2010 - 'It Takes Three' Visual Audits	70%
2011 – Niagara Region Curbside Waste Audits	74%
2011 - 'It Takes Three' Visual Audits	73%
2012 - 'Blue Box Ins & Outs' Visual Audits	83%

Curbside Waste Audits and Visual Audits	Average Participation Rate
2013 - 'Blue Box Ins & Outs' Visual Audits	88%
2014 – 'Blue Box Ins & Outs' Visual Audits	85%
2015/16 – Niagara Region Curbside Waste Audits	82%
2017 – 'Blue Box Ins & Outs' Visual Audits	62%
2018 – 'Blue Box Ins & Outs' Visual Audits	72%

2.4 Blue Box Set-Out Rates

Target: 2.0 boxes (or containers) set out per hhld per week in 2016 to 2021

2016 Value: 1.5 boxes (or containers) were set out per hhld per week

Variance to Target: Target not achieved

It is anticipated that the 2018 Blue Box set-out rate remained the same as the 2016 rate as no significant program changes have occurred over the last few years.

The Blue Box set-out rate is defined as the average number of Blue/Grey Boxes or other recycling containers placed at the curb for pick-up, on a per household basis, per week. The average number of full container equivalents, in addition to the actual number of containers set-out, are included in Table 6 for the waste audits conducted between 2004 and 2016.

The average Blue Box set-out rate was at its lowest in the 2010 audits, at one (1) container per household, per week, and appears to be an anomaly compared to the other audit periods. The 2011 to 2016 set-out out rates did improve compared to 2010, but are still generally in line with the 2006/2007 data. The larger Blue/Grey Box capacity may explain why there is little improvement in this parameter overall.

Table 6 – Blue Box Set Out Rates

Audit Period	No. of Boxes (or other Containers) Per Household Per Week	No. of Equivalent Full Boxes (or other Containers) Per Household Per Week
Fall 2004	1.3	Not measured
Summer 2005	1.2	Not measured
Spring 2006	1.4	1.3
Summer 2006	1.5	1.5
Fall 2006	1.5	1.5
Winter 2007	1.5	1.4
Fall 2007	1.6	1.3
Fall and Winter 2010	1.0	1.0
Spring and Summer 2011	1.6	1.4
Summer 2012	1.6	Not measured
Summer 2013	1.6	Not measured
Summer 2014	1.5	Not measured
Summer 2015	1.5	1.4
Fall 2015	1.3	1.1
Winter 2016	1.4	1.2
Spring 2016	1.5	1.3

Monitoring Plan

Niagara Region's 2016-2021 Blue Box Recycling Plan was completed in 2016, as part of WMPSC-C 1-2017.

Blue Box Recycling Plan Summary

Based on the recommendations outlined in the KPMG Blue Box Program Enhancement and Best Practices Assessment Project Report, positive diversion results in other jurisdictions and stakeholder input, improvements to the Regional Blue Box Program have been implemented and other drivers to increase participation/capture rates, as part of the 2016-2021 Blue Box Recycling Plan. Every effort is being made to ensure the program is performing well (i.e. operated efficiently and in a cost-effective manner).

3.0 MBNC Performance Measures

A subset of MBNC parameters, which are related to cost effectiveness, are used in this benchmarking review. In 2018, Niagara had the lowest cost per tonne of the majority of its eight (8) comparator municipalities for the following parameters:

- Garbage Collection Cost per Tonne;
- Garbage Disposal Cost per Tonne;
- Diversion Cost (Collection and Processing) Cost per Tonne; and
- Solid Waste Average Operating Cost per Tonne

On an annual basis, Niagara's Garbage Collection, Disposal and Diversion Cost per Tonne parameters are typically lower than the MBNC average, which demonstrates the programs are cost effective.

Table 7 contains the results for the eight (8) comparator municipalities that participated in MBNC and are included in the RPRA comparator group (not all the RPRA municipal comparators participate in MBNC). There is a considerable amount of variation between the results of these municipalities, which may be related to differences in their waste management programs (i.e. bi-weekly vs. weekly garbage, no Green Bin program, single vs. dual stream recycling). The MBNC average applies to these eight (8) comparator municipalities only.

Table 7 – MBNC 2018 Performance measures (for All Property Classes)

Municipality	Garbage Collection Cost per Tonne	Disposal Cost per Tonne	Diversion Cost (Collection & Processing) Cost per Tonne	Average Operating Cost per Tonne
Durham Region (1)	$153.57	$117.72	$250.12	N/A
Halton Region (3)	$157.50	$49.58	$216.16	$207.17
Hamilton	$139.84	$377.14	$288.75	$411.57
London (3)	$102.15	$24.78	$128.78	$68.19
Niagara Region (3)	$87.26	$83.78	$132.81	$135.63
Toronto	$90.23	$163.87	$432.97	$307.87
Waterloo Region	$181.52	$144.92	$152.88	$191.20
Windsor	$89.75	$95.09	$180.27	$273.53
York Region (2)	N/A	$139.92	$141.82	N/A
MBNC Average	**$125.23**	**$132.98**	**$213.84**	**$227.88**

Notes:

1. Durham Region does not report Average Operating Cost per Tonne, as they do not have complete responsibility for all collection throughout the entire Region.
2. York Region does not report local municipal garbage collection information.
3. London and Niagara's Disposal Cost and Average Operating Cost per Tonne exclude the Landfill Liability amount. Halton's lower Disposal Cost per Tonne was due to a reduction in landfill operating-related expenditures

Conclusion

Continued improvements to Niagara's waste management programs and program performance have occurred over the last several years. Niagara has met the majority of the established targets and is generally performing better than its comparator group and/or Provincial averages. Niagara's 2016-2021 Blue Box Recycling Plan outlines potential changes to further improve performance in waste management program areas.

Benchmarking and performance reports will be completed annually, in order to compare changes in performance over time, results against targets and results against other municipal comparators. Every effort is being made to ensure Niagara's waste management system is operated efficiently and cost-effectively.

Waste Management Services
1815 Sir Isaac Brock Way, Thorold, ON L2V 4T7
905-980-6000 Toll-free: 1-800-263-7215

MEMORANDUM **PWC-C 22-2020**

Subject: Update on the New Waste Collection Contract (2019-RFP-156)

Date: Tuesday, July 14, 2020

To: Public Works Committee

From: Sherri Tait, Acting Manager, Waste Collection & Diversion

The purpose of this memorandum is to provide Public Works Committee with an update on the implementation of the new waste collection contract (2019-RFP-156), which is to commence on October 19, 2020.

Background

On October 17, 2019, Regional Council approved the Every-Other-Week (EOW) collection scenario for garbage collection for all residential properties and for those Industrial, Commercial & institutional (IC&I) and Mixed-Use (MU) properties located outside Designated Business Areas (DBAs), as a Base Service (PW 61-2019), and on November 14, 2019, Regional Council approved the Optional services, i.e. Delivery of Roll-Offs for Special Events Recycling, (PW 65-2019). The successful proponent for Collection Area One (Grimsby, Lincoln, Pelham, Thorold, Wainfleet and West Lincoln) is GFL Environmental Inc. (GFL), and the successful proponent for Collection Area Two (Fort Erie, Niagara Falls, Niagara-on-the-Lake, Port Colborne, St. Catharines and Welland) is Miller Waste Systems Inc. (Miller).

Implementation Update

Since January, Niagara Region has been meeting with Miller and GFL on a monthly basis to discuss various aspects of the implementation for the next waste collection contract. The sections below provide a high level update on major items/tasks.

GFL and Miller Yards

GFL's yard will be located at 411 Glendale Avenue in St. Catharines, which is the current yard of Emterra Environmental (Emterra) and Miller's yard will be located at 335 Townline Road in Niagara-on-the-Lake.

Collection Vehicles

GFL and Miller have placed orders for their collection vehicles and at the time this memorandum was written, the delivery of the collection vehicles for Miller was on schedule. GFL has indicated that potentially four (4) collection vehicles will not arrive until just before or after the contract starts due to COVID-19. GFL has arranged for six (6) vehicles from another municipal contract to use at the start of the contract.

Although not identified in their submission to the Negotiated Request for Proposal (NRFP), GFL has made a business decision to use compressed natural gas (CNG) vehicles for this contract.

With the finalization of the municipal enhanced collection services, Miller advised that they may acquire four (4) additional vehicles and as per their contingency plan, in their submission to the NRFP, they will use existing internal resources until any potential additional vehicles are delivered.

Collection vehicles utilized by both collection contractors will be equipped with Global Positioning System/Automatic Vehicle Location (GPS/AVL) systems and cameras.

Staffing

GFL and Miller have both hired their Operations Managers, both of whom have experience in curbside collection contracts in Niagara. Both contractors are looking at ways to interview staff due to COVID-19, including virtual interviews. Niagara Region has requested that both GFL and Miller encourage Emterra and Canadian Waste Management staff to finish their work with their respective employers prior to being hired full-time by GFL and Miller.

Next Steps

Niagara Region staff will continue to meet regularly with GFL and Miller in preparation for the commencement of the next contract. Niagara Region is working with both contractors to finalize contingency plans in the event that a second wave of COVID-19 occurs. Staff are also working with both contractors to finalize collection routes. Any changes to collection days/schedules will be communicated to residents and/or businesses in advance of October 19th.

Staff will continue to provide updates to Council on a regular basis.

Respectfully submitted and signed by

_____

Sherri Tait
Acting Manager, Waste Collection & Diversion

Waste Management Services
1815 Sir Isaac Brock Way, Thorold, ON L2V 4T7
905-980-6000 Toll-free: 1-800-263-7215

MEMORANDUM **PWC-C 23-2020**

Subject: Terms of Reference for Long Term Waste Management Strategic Plan

Date: Tuesday, July 14, 2020

To: Public Works Committee

From: Jennifer Mazurek, Program Manager, Policy, Planning and Engagement

This purpose of this memorandum is to provide members of the Public Works Committee (PWC) with an overview of the Terms of Reference (TOR) and timelines proposed for Niagara Region's Waste Management Long Term Strategic Plan (WMSP).

Background

The need for a WMSP was originally identified in PWA 32-2010 Contract Award for Garbage, Recycling and Organics Collection Services. In 2011, Waste Management prepared a Request for Proposal (RFP) that was finalized but not released due to Public Works Committee's concern with the estimated project costs. In lieu of the WMSP, three of the core project deliverables were undertaken in 2011 and subsequently other major planning initiatives have been completed:

(i) A review focused on alternative waste management technologies viable for implementation in Niagara Region was initiated and then evolved into annual monitoring and reporting by Waste Management staff of projects in Canada (most recent report WMPSC-C 34-2019).
(ii) A study and resulting approval of the current financing methodology for Waste Management Services (PWA 55-2011).
(iii) A Blue Box program diversion plan, required to fulfill Best Practices requirements for the Resource Productivity and Recovery Authority (RPRA) annual datacall, was developed in 2011 and subsequently updated in 2016 (WMPSC-C 01-2017).
(iv) The Environmental Assessment for the vertical expansion of the Humberstone Landfill was initiated in 2012 and received the final approval in 2019 (WMPSC-C 26-2019).
(v) Review and implementation of new service levels for the next collection contracts (PW 61-2019).

While the above initiatives are important, an integrated long-term WMSP was recommended and approved through the 2017 waste management operating budget as a multi-year project, to be initiated after the implications of provincial waste reduction legislation and regulations are identified. Provincial direction will impact the amount of tonnage to be managed in Niagara Region's waste management system (e.g. the quantity of material that may be directed to potential alternative technology facilities). A WMSP will establish a planning framework and strategic direction for waste management in Niagara Region over the next 25 years to ensure resource recovery, sustainable long-term disposal infrastructure, and to enhance revenue opportunities. A detailed implementation plan, with timelines, will be developed for the first five years from 2022 – 2026, and then in five year intervals between 2027 - 2046. The WMSP should recommend sustainable, diverse, long-term waste management practices and systems that are consistent with Niagara Region's corporate vision and strategies.

Requirements

The WMSP must consider existing policies, practices, directions and best practices, as well as the potential upheaval in the waste management industry resulting from provincial policies and world market conditions, to define the vision, goals, targets, strategies, actions and measures that will guide Niagara Region's decisions with respect to the management of waste.

As a result of this project, Niagara Region will have a guiding document to support decisions related to Waste Management infrastructure, programs and policies. The document will provide innovative strategies and solutions for management of Niagara Region's waste stream that minimize disposal. Cost benefit analysis based on financial, social and economic factors will be provided for the recommended infrastructure and programs/services. The WMSP will be flexible enough to adapt to changing legislation, increasing provincial targets, changes in waste composition, population growth, and advances in technology. The TOR incorporates the following components:

(i) Assessment of System – 'Where We Are'

- What is Niagara Region's baseline?
- How does Niagara Region compare to other municipalities?
- What are best practices provincially, nationally and internationally?

(ii) Development of Direction and System Options – 'Where We Want To Go'

- What are the vision, goals and guiding principles supporting Niagara Region's long-term needs?
- What is Niagara Region's updated diversion goal and timeline?
- What are the gaps and challenges we will resolve?
- What innovative opportunities for program delivery and waste processing technologies can be implemented and how will we determine which alternatives are preferred?

(iii) Preferred System – 'How We Are Going To Get There'

- What options are preferred?
- What will the implementation plan look like for the first five (5) years between 2022-2027and then over the remaining twenty (20) years? How and when will the recommendations be implemented?
- How will the components of the system be financed, including a review of current financing methodology?
- What investments are required from Niagara Region?
- How will Niagara Region adapt to legislative and regulatory changes?
- What performance measures, targets and methods for monitoring progress in the plan should be used?

The plan will not be developed in isolation. Stakeholders that will be consulted and informed throughout the process include:

- Waste Management Planning Steering Committee (WMPSC), Public Works Committee (PWC), Niagara Region and Local Area Municipal Councils
- Regional departments including Planning and Development Services and Corporate Services
- Residents
- Business groups
- Waste Management service providers (collectors, processors)
- External municipal customers (e.g. Region of Waterloo)

Timelines

Table 1 below outlines estimated timelines for high-level milestones associated with the project.

Table 1: Estimated Timelines for High-Level Milestones

Milestone	**Estimated Dates**
RFP Issued	August 2020
RFP Award	October 2020
Public and Stakeholder Engagement	Q1 2021
Strategic Plan Draft	Q4 2021
Report to Council	Q1 2022

Related Projects and Potential Risks

It is important to note that in addition to the WMSP and in response to a motion from the City of Niagara Falls, Niagara Region has had preliminary discussion with the Continuous Improvement Fund (CIF) to complete an independent review of "the current practices related to garbage collection and recycling/recycling materials recovery facility" with the intent that "recommendations on how the system can be made more cost effective and efficient for the taxpayer" will be implemented over the term of the next collection contract, subject to Niagara Region Council approval. Staff are currently working with an equipment manufacturer to acquire a design and the associated costing to convert our existing two-stream recycling processing facility into a single-stream facility. Results from this report will be considered in development of the WMSP.

Provincial legislation/policy announcements and development of provincial plans to support the shift to a producer responsibility model for recyclable material, occurring during preparation of the WMSP, may influence the recommendations or ability of Niagara Region to implement short-term recommendations. The successful consultant will be expected to incorporate strategies in the WMSP to manage the risks that changes will impact Niagara Region programming.

Lastly, stakeholder group fatigue may result in low participation rates, as the same groups were consulted in late 2018 regarding Waste Management services for the collection contract starting on October 19, 2020. Also, it is expected that the ongoing and evolving situation related to COVID-19 will impact Niagara Region's ability to interact with stakeholders at in-person events. To mitigate these risks, it is expected that

the successful consultant will propose innovative and alternative methods to encourage participation (e.g. options for on-line engagement). Waste Management staff will ensure Corporate Communications is engaged throughout the project.

Next Steps

Per the timelines outlined above, Waste Management staff are working with procurement staff to draft an RFP, targeting release in Q3 2020 with award process completed before the end of 2020. Staff in other departments have been consulted during development of the TOR, including staff in the Asset Management Office and in Planning and Development Services, to ensure that the resulting strategy will encompass corporate requirements and policies. Staff will continue to inform WMPSC and PWC of project progress.

Respectfully submitted and signed by

_____

Jennifer Mazurek
Program Manager, Policy, Planning and Engagement

Subject: Dain City Sewage Pumping Station Forcemain Emergency Replacement

Report to: Public Works Committee

Report date: Tuesday, July 14, 2020

Recommendations

1. That Report PW 10-2020 **BE RECEIVED** for information on the project status and consultant procurement for emergency replacement of the Dain City Sewage Pump Station Forcemain.

Key Facts

- The purpose of this report is to provide an update on the project status and consultant procurement for contract administration and inspection of the Dain City Sewage Pump Station Forcemain.
- The Dain City Sewage Pump Station Forcemain, which carries flow from the Dain City Sewage Pumping Station to the Ontario Road Sewage Pumping Station was nearing its life expectancy and scheduled to be assessed for replacement by 2030. However, it is now in need of critical replacement (refer to Council Report PW 42-2019 for additional background information).
- Kerry T. Howe Engineering Limited (KTH) is performing design services for all phases of the emergency forcemain replacement (see Appendix 1 for project phasing). The forcemain replacement is being designed and constructed in Phases in order to expedite total replacement.
- Legal implications associated with this report have been included in Confidential PWC-C 21-2020.

Timeline

- **April 16, 2018**: During a rain event, several basements in Dain City experienced flooding.
- **April/May 2018**: City staff investigated the situation and found large quantities of a buildup throughout the local sewage collection system. Niagara Region staff investigated the forcemain in an effort to assess the cause of the issue and maintain and improve flows.
- **May 6, 2018**: Dain city forcemain was found to have a break near Humberstone Road.

- **May 2018**: Niagara Region Staff engaged KTH Engineering to provide services related to assessing a new route for replacement of the forcemain and the associated design work.
- **June 2018**: Staff continued to look for issues and found the internal pump station piping to be full of residue to the point of severe restriction. It was found that the pumps were not the issue and that the forcemain was restricted.
- **Summer 2018:** Local gravity sewers in Dain City were cleaned by the City of Welland.
- **August 2018:** Niagara Region staff received draft report from the City of Welland (Authored by GM Blueplan) identifying Niagara Region as responsible for the Dain City flooding event in April 2018.
- **October 2018:** New alignment for the replacement forcemain was chosen along Canal Bank Street.
- **November 2018:** Niagara Region staff provided Welland staff with evidence that the flooding in Dain City was not Niagara Region's responsibility.
- **January 1, 2019**: The Dain City forcemain was found to be completely plugged. This necessitated contracting tanker trucks to haul sewage directly to the Welland Wastewater Treatment Plant (WWTP). Sewage was hauled by truck during the repair work from January 1 to February 26, 2019.
- **January to February 2019**: Staff hired V. Gibbons Contracting to assist in locating the blockage, perform cleaning of the forcemain (unsuccessful) and make temporary repairs as necessary. Several unsuccessful attempts were made to get the pump station and existing forcemain back in service. Staff decided the most efficient way to reinstate service was to construct a temporary forcemain section to bypass the area where breaks and plugging of forcemain were discovered. A temporary forcemain (Phase 1 in Appendix 1), from the pump station to approximately 150 meters north of Forks Road was installed in an effort to bypass the known blockage. This temporary forcemain included both an inground section and a large section of aboveground forcemain through the local park and treed area. The majority of this work was funded from the 2019 Operating Budget at a cost in excess of $1.2M.
- **April 25, 2019:** The Dain City forcemain was found to have another break. Staff, with the assistance of V. Gibbons Contracting Ltd. replaced approximately 100 meters of forcemain in order to complete the repair.
- **August 2019 to January 2020**: **Phase 2** of the permanent Forcemain replacement was completed from the Dain City Sewage Pump Station to the existing main north of Forks Road, eliminating the temporary main constructed during Phase 1.
- **February 2020:** Substantial deposits were found again in the local Dain City gravity sanitary sewer system**; approximately 2 years after the cleaning was completed by the City in 2018** (see attached Appendix 2).

- **March 2020**: Local gravity sewers in Dain City were cleaned again by the City of Welland. Niagara Region staff and City of Welland staff continue to investigate the source of the deposits that are causing the blockage in the forcemain. Both Niagara Region and City staff are continuing to monitor the situation. (Please see Confidential report PWC-C 21-2020)
- **April 2020**: Phase 3 of the forcemain replacement was tendered and is currently being awarded. (See attached Appendix 1 for Phase 3 location). **Phase 3** will install a new forcemain section from Forks Road/Logan Ave north along Canal Bank to the Canal Bank Bridge.

Next Steps:

- **June 2020:** City of Welland is scheduled to re-CCTV the local Dain City sewers.
- **July 2020**: Phase 4 of the forcemain construction crossing Canal Bank Bridge and east along Townline Road is scheduled to be tendered in July 2020 with construction completion by April 2021.
- **September 2020:** Forecast date for tender of **Phase 5**. Construction completion forecast for entire project and commissioning of new forcemain is June, 2021.

Financial Considerations

The total project capital budget for the forcemain replacement is $11,524,999 with $5,086,779 expended and committed as at May 28, 2020. Appendix 3 provides the financial forecast of the project.

Currently, KTH is performing the design work for all phases of the project for a total amount of $357,073 (including 1.76% non-recoverable HST). KTH was engaged to perform the design work in accordance with the provisions in Sections 17 and 18 of the Procurement By-law 02-2016 in July of 2018. KTH was also engaged to perform contract administration and inspection (CA&I) and soil remediation for Phases 1 and 2 of the project in the amount of $162,898 (including 1.76% non-recoverable HST) in accordance with Section 18 of the Procurement By-law 02-2016, as amended February 28, 2019. Having the design engineer also perform the CA&I results in less risk and duplication of efforts due to the familiarity with the design (discussed further in the Analysis section).

As requested by staff, KTH provided a proposal for providing CA&I services for the remaining three construction phases at an estimated cost of $316,957 (including 1.76% non-recoverable HST). In accordance with Section 18, “Single Source” of the Procurement By-law 02-2016, as amended February 28, 2019, staff has authority to

engage a vendor with an estimated cost under $1,000,000 if reasoning is justified. Accordingly, KTH has been engaged to provide CA&I services for the remaining three construction phases. This cost can be accommodated within the project budget and would bring the total amount of work on this project for KTH to $836,928 (including 1.76% non-recoverable HST).

Analysis

Staff are proceeding with tendering of the remaining construction phases and have engaged the design engineer to provide CA&I services through these phases.

The remaining forcemain replacement, being designed by KTH, was identified to have complex and differing approval processes, requiring different sets of approvals:

i. a rail crossing;
ii. crossing of local area municipality water, sewer and storm infrastructure;
iii. a bridge crossing;
iv. a trenchless crossing of MTO property; and
v. a trenchless component in the Humberstone Road right-of-way .

Given the varying approval requirements expected for the forcemain replacement and the size of the overall project, staff chose to split the replacement into four separate Phases (Phases 2 to 5). This allows for construction of the replacement to start when the design of each phase is completed, while working toward completion of subsequent design phases and approval processes. This will result in the overall forcemain being in operation months earlier than if it was tendered as one construction project.

The forcemain replacement is being designed and constructed in the following Phases (see attached Appendix 1):

i. Phase 1: Temporary overland Forcemain (FM) - **Completed**
ii. Phase 2: Logan Avenue (eliminating the temporary FM section) – **Completed**
iii. Phase 3: Canal Bank Road– **Awarded**
iv. Phase 4: Canal Bank Road Bridge and intersection. - **Design Completion Scheduled for June/2020 with Tender in July/2020.**
v. Phase 5: Humberstone Road and Southworth Street - **Design Completion Scheduled for Sept/2020 with Tender in late September/2020.**

The City of Welland has recently made a request for Cost Sharing with Phase 5 of the replacement with the intention of replacing their infrastructure on Southworth Street. Staff will work with the City to progress the necessary agreements.

It is advantageous to Niagara Region to have the design engineer, KTH, also perform CA&I services during construction. The following points relate to the specific project considerations when choosing a consultant for the remaining CA&I :

- The project complexities, require the CA&I consultant to have detailed technical knowledge of the design in order to make appropriate decisions during construction:
    - Phase 3 has a rail crossing and crosses local area municipality water, sewer and storm infrastructure.
    - Phase 4 has a bridge crossing and a trenchless crossing of MTO property.
    - Phase 5 has a trenchless component and a large gravity main section through the local street, which contains many other utilities.
- A CA&I consultant needs to be completely familiar with the project requirements, the design documents, the local infrastructure and the stakeholders involved.
- Given the complexity of the projects, the design consultant and their structural subconsultant, in addition to the CA&I consultant, would need to answer Requests for Information (RFIs), review shop drawings and to deal with any unforeseen issues requiring changes to the design.
- Niagara Region staff would require significantly more time to coordinate two (2) consultants working on the same project.
- There would be an increase in cost to create as-built drawings for the work with 2 consultants.
- Overall commissioning and start-up of the completed forcemain will occur after Phase 5 is completed. This commissioning process needs to have a common Contact Administrator involved in each of the Phases.

KTH has extensive knowledge of not only the Dain City Sewage Pumping Station and Forcemain, and also other related Niagara Region facilities in the area such as the Ontario Road Sewage Pumping and the local gravity sewer system feeding it. The Dain City forcemain outlets to that gravity sewer system. KTH provided CA&I services for Phase 1 and 2 of construction.

The project stakeholders include the Ministry of Environment, Conservation and Parks (MECP), the Ministry of Transportation (MTO), the Niagara Peninsula Conservation Authority (NPCA), the City of Welland and the local Dain City residents. Continued

communication and collaboration amongst these stakeholders will be essential throughout the remainder of the project including construction and commissioning of the entire forcemain resulting from the individual project phases. KTH is already working with the MECP, the MTO, the NPCA, the City of Welland and the local Dain City residents regarding portions of the work and these communications and contacts will prove paramount during construction.

KTH's familiarity with the entire service area, the stakeholders involved and the emergency work completed to date will allow them to expedite this assignment without having to expend additional time acquiring the knowledge of Niagara Region and City of Welland's systems. KTH is familiar with the criticality and associated risks of this overall project.

The nature and complexity of the CA&I services required meet two of the requirements for single source purchases as defined in Niagara Region's Procurement By-law, namely:

(i) Compatibility of a Purchase with existing equipment, product standards, facilities or service is a paramount consideration;

(iii) An absence of competition for technical reasons and the Goods and/or Services can only be supplied by a particular Supplier;

In order to increase efficiency and reduce risks and costs, staff is proceeding with KTH providing CA&I services for all phases of the construction.

Alternatives Reviewed

Given the imminent need to effectively address the significant risks associated with the potential for reoccurrence of basement flooding for residential areas tributary to the pump station and the potential for future spills, this procurement method was selected. Staff weighed the schedule impacts associated with alternative procurement methods versus the potential liability to Niagara Region of the likelihood and consequence of failure of this critical piece of infrastructure and chose to expedite the project through sole source assignment. The costs presented are considered to be reasonable in view of current market prices and in view of the considerable liabilities associated with future potential failures. This procurement demonstrated to area stakeholders that Niagara Region acted quickly and efficiently to mitigate the issues with respect to this forcemain.

Relationship to Council Strategic Priorities

This information is related to the Responsible Growth and Infrastructure Planning strategic priority since the forcemain replacement will ensure reliable operations of the infrastructure within the Niagara region.

Other Pertinent Reports

PW 42-2019 Construction Contract: Dain City Sewage Pumping Forcemain Replacement (July 9, 2019)

PWC-C 21-2020 Update Regarding Investigation of Source Material causing Flooding in Dain City Sewer System (July 14, 2020)

Prepared by:
Richard Gabel, P.Eng.
Senior Project Manager
Public Works

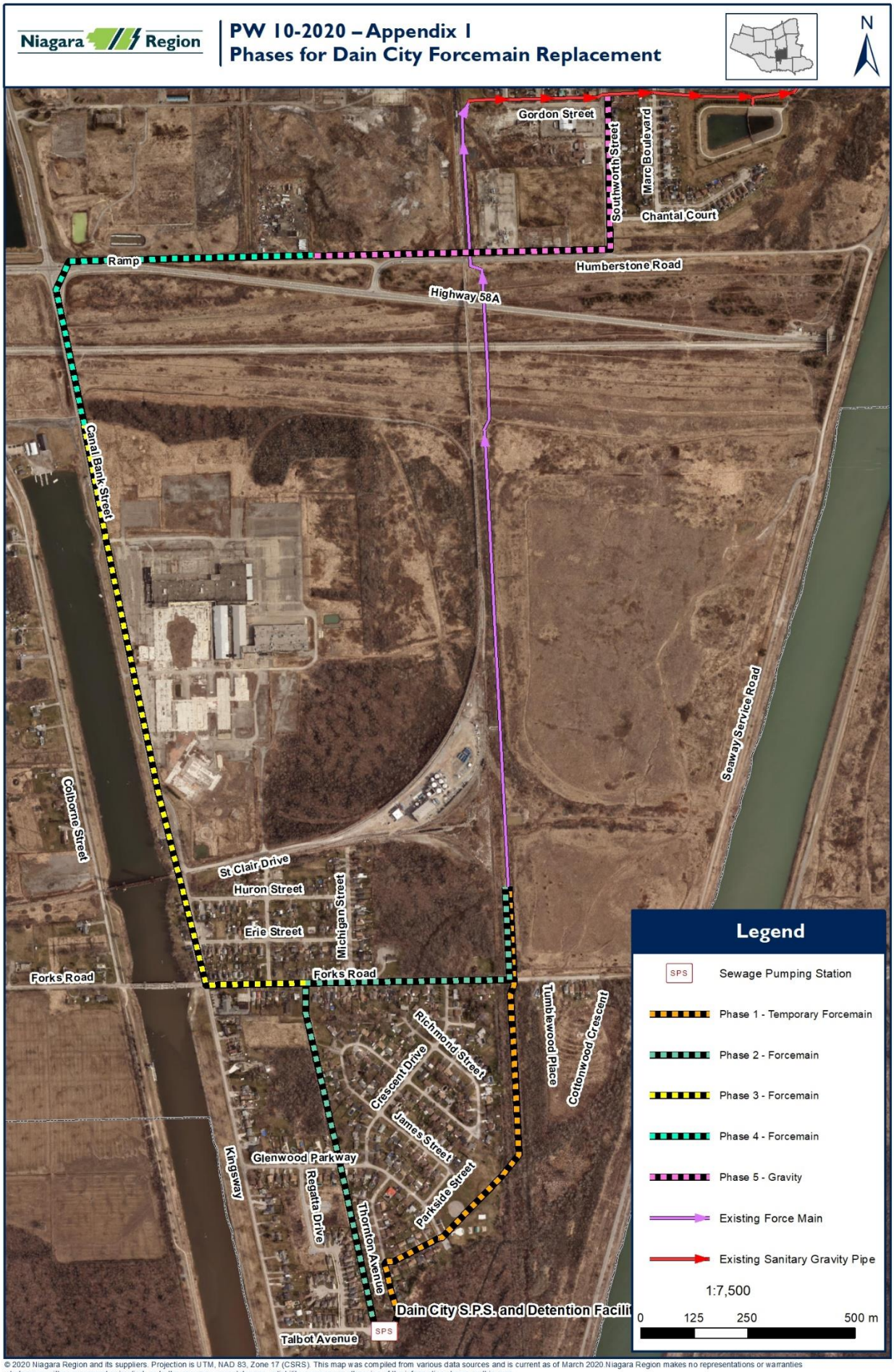
Recommended by:
Bruce Zvaniga, P.Eng.
Commissioner of Public Works (Interim)
Public Works Department

Submitted by:
Ron Tripp, P.Eng.
Acting Chief Administrative Officer

This report was prepared in consultation with Tony Cimino, C.E.T., AD W-WW Engineering; Jason Oatley, Manager, WW Quality & Compliance; Pamela Hamilton, Program Financial Specialist W-WW, and reviewed by Joseph Tonellato, P.Eng., Director W-WW Services.

Appendices

Appendix 1	Phases for Dain City Forcemain Replacement
Appendix 2	Dain City Gravity Sewers
Appendix 3	Total Estimated Project Cost



© 2020 Niagara Region and its suppliers. Projection is UTM, NAD 83, Zone 17 (CSRS). This map was compiled from various data sources and is current as of March 2020.Niagara Region makes no representations or warranties whatsoever, either expressed or implied, as to the accuracy, completeness, reliability, currency or otherwise of the information shown on this map.

Picture 1: Huron Street Sewer after Cleaning – mid 2018

Picture 2: Huron Street Sewer - February 2020

Picture 3: Michigan Street sewer in February 2020

Picture 4: Dain City Sewage Pump Station – Piping replaced during Phase 2 of Forcemain replacement

PW10-2020 APPENDIX 3
Total Estimated Project Cost
Contract Award

Dain City Forcemain Replacement

	Council Approved Budget	Budget Increase/ Reallocation	Revised Council Approved Budget	Expended & Committed as of 5/28/20	Forecast	Budget Remaining
	(A)	(B)	(C) = (A) + (B)	(D)	(E)	(F) = (C)-(D)-(E)
Total Estimated Project Cost (20000881)*						
(a) Construction	9,854,999	(716,768)	9,138,231	4,418,107	4,720,124	-
(b) Project Contingency	1,100,000		1,100,000	-	1,100,000	-
(c) Consulting Engineering Services (Design, Contract Administration, & Inspection)**	220,000	716,768	936,768	619,811	316,957	-
(d) Project Management & Internal Costs	350,000		350,000	48,861	301,139	-
Total Estimated Project Cost	**11,524,999**	**(0)**	**11,524,999**	**5,086,779**	**6,438,219**	**-**

*All costs include 1.76% non-refundable HST

** Total services for the Dain City Forcemain Replacement project provided by Kerry T Howe will total $836,928 including non-recoverable HST

Subject: Contract 2014-T-114 (RN14-14) NOTL Wastewater Treatment Plant and Contract 2014-T-113 (RN14-13) Lakeshore Road, Garrison Village and William Street Pumping Station Upgrades and Linear Works – Project Status Update

Report to: Public Works Committee

Report date: Tuesday, July 14, 2020

Recommendations

1. That Report PW 31-2020 **BE RECEIVED** for information.

Key Facts

- The purpose of this report is to provide a status update on the new Wastewater Treatment Plant (WWTP), Contract 2014-T-114 (RN14-14), as well as the Pumping Station Upgrades and Linear Works project, Contract 2014-T-113 (RN-1413) in the Town of Niagara-on-the-Lake (NOTL).
- The sewage flows from the existing plant were redirected to the new NOTL Wastewater Treatment plant on June 25th, 2019. The new plant has been in operation and treating sewage since that time.
- All three pumping stations, Lakeshore Road, Garrison Village and William Street, are fully operational and have been sending flows to the new plant since June 25, 2019.
- Varcon Construction Corporation was awarded Contract 2014-T-113 (RN14-13) as per PW 67-2014. The project commencement date was June 20, 2014. The completion date specified in the contract was December 12, 2015. This project was deemed to be substantially completed on January 31, 2017.
- Varcon Construction Corporation was awarded Contract 2014-T-114 (RN 14-14) as per PW 100-2014. The project commencement date was December 9, 2014. The completion date specified in the contract was December 31, 2016. Construction is complete. Substantial completion was obtained on January 17, 2020.
- CSD 29-2020 Confidential Report Update Regarding NOTL WWTP, NOTL SPS and Welland WWTP Upgrades contains confidential legal advice regarding litigation regarding NOTL Wastewater Treatment Plant upgrades.

Financial Considerations

The total project expenditures and funding sources to date are shown in the Total Project Budget Summary in Appendix 1. As outlined in the chart, there is an overall approved budget of $51,179,573 across the two projects (10SW0807 / 10SW1407). There is no anticipated surplus of funding associated with this project.

For Contracts 2014-T-114 (RN14-14) and 2014-T-113 (RN14-13), there has been $40,955,079 expended & committed to Varcon Construction Corporation as of June 24, 2020. This amount includes holdbacks pursuant to the *Construction Act*.

At the time of writing this report, liquidated damages associated with the Varcon contract for this project total $2,097,000. The liquidated damages have yet to be formally assessed as ongoing discussions continue between Regional staff and Varcon surrounding satisfying terms for this project.

Niagara Region partnered with the Federal and Provincial governments for funding to complete this project. Each level of government has contributed, or agreed to contribute, up to $14,333,333 in project costs, for a total of $28,666,666 in upper tier funding. This represents two thirds (2/3) of the original construction budget of $43,000,000 for the NOTL WWTP.

Analysis

Background

The Northeast Area Wastewater Study identified the need for an upgraded or expanded wastewater treatment plant (WWTP) for the Town of Niagara-on-the-Lake as the existing plant was anticipated to reach capacity in 2017. The Town of Niagara-on-the-Lake Wastewater Servicing Municipal Schedule ‘C’ Class EA evaluated alternatives that would increase capacity and enhance wastewater services for the residents of Town of Niagara-on-the-Lake. It also looked at addressing wastewater flows occurring during wet weather events and operating issues (e.g. odour) at the existing WWTP.

Report PWC-C 19-2015, previously received by Committee, provided an overall project description and delineated the four distinct phases / contracts required for the execution of the project. Cole Engineering Group was retained in 2013 as the design Consultant for the design and contract administration of the project under 2012-RFP-57. Cole’s

assignment was increased three times to cover additional efforts due to the project delay.

A public tender process was initiated in 2014 for Contract 2014-T-113 (RN14-13) and a total of seven bids were received. The lowest bid of $7,460,092 (including 13% HST) was submitted by Varcon Construction Corporation. The next lowest was submitted by V. Gibbons Contracting and was valued at $7,473,312.40 (including HST).

A contingency amount of $1,110,824 was added to Varcon's contract to cover unforeseen construction costs due to the complexity of the project. With this contingency in place the revised contract amount totaled $8,715,322 (including 13% HST). Varcon Construction Corporation was awarded Contract 2014-T-113 (RN14-13) as per PW 67-2014, dated June 3, 2014. The project commencement date was June 20, 2014. This project was deemed to be substantially completed on January 31, 2017.

A public tender process was also initiated in 2014 for Contract 2014-T-114 (RN14-14) and a total of six bids were received, with the lowest bid being $36,062,679 (including 13% HST). The next lowest was submitted by Graham Construction and Engineering LP and was valued at $37,775,900 (including 13% HST).

Varcon Construction Corporation (Varcon) was awarded Contract 2014-T-114 (RN14-14) as per PW 100-2014, dated November 6, 2014. The project commencement date was December 9, 2014. The completion date specified in the contract was December 31, 2016. Substantial completion was obtained on January 17, 2020

Water and Wastewater Engineering staff have been providing a higher than normal amount of resources throughout the project in order to manage the contract. Legal Services are also engaged and are investing time, effort and resources on this project.

The Ministry of Environment Conservation and Parks (MECP) local office as well as approvals branch in Toronto were engaged during the design process to obtain the Environmental Compliance Approval (ECA). The MECP Local Office has been kept aware of the progress to date.

Project Status (RN14-13) Pumping Station Upgrades and Linear Works

All three pumping stations, Lakeshore Road, Garrison Village and William Street, are fully operational and have been sending flows to the new plant since June 25, 2019.

The pumping station project was deemed to be substantially completed on January 31, 2017. At that time, there were a few minor deficiencies, some outstanding work, and an extra installation to be completed.

By early 2018, these works were completed, deficiencies rectified and contract completion was achieved on March 19, 2018.

Project Status (RN14-14) NOTL Wastewater Treatment Plant

The sewage flows from the existing plant were redirected to the new plant on June 25, 2019 commencing the 30 day commissioning timeline. The plant has been in operation and treating sewage since that time. As of February 2020 the plant was meeting compliance and was deemed to be running very efficiently by Operations staff and as a result, the effluent was redirected to Lake Ontario. Coordination for the decommissioning of the existing plant is ongoing.

Due to some critical deficiencies substantial completion was delayed. A few of the concerns that delayed the project from substantial completion were:

- Digester Roof Sewage Leak
- Digester Pumps Overheating
- Chemical Pump Failures
- Cementitious Coating
- Waste Gas Burner changes due to TSSA requirements

These items have since been rectified and the project was deemed substantially complete on January 17, 2020. Deficiencies to resolve outstanding work still remain to be completed, along with some maintenance/warranty issues which are being coordinated through the consultant. Currently the total value of deficiencies amounts to just under $80,000 as of June 24, 2020. The outstanding contract work is worth approximatley $135,000 and includes items such as sodding, demobilization, air vapor barrier membrane, fibreglass reinforced plastic siding, soffits and flashing, and the following four outstanding change orders.

- CO #12 LEED Consulting Services
- CO #27 LEED Subcontractor Services
- CO #107 Gate Motors
- CO #187 Waste Gas Burner Changes

During the course of this project, from design to commissioning, other additional works were identified that were not necessary to complete as part of this contract. These were noted and categorized for possible implementation in the future.

Alternatives Reviewed

No specific alternatives have been presented at this time. This report has been prepared as an update for the construction contract. Several challenges have been faced through the course the project. Staff will continue to work with the design Consultant and the General Contractor to complete all outstanding deficiencies in accordance with the terms of the contracts.

Relationship to Council Strategic Priorities

This recommendation is related to the Fostering Growth strategic priority since the planned rehabilitation will ensure reliable infrastructure to support growth and economic development within the Niagara Region.

Other Pertinent Reports

PW 67-2014 Award of Tender 2014-T-113 (Contract RN 14-13) Lakeshore Road, Garrison Village and William Street Sewage Pumping Stations Upgrade & Linear Works in the Town of Niagara-on-the-Lake

PW 69-2014 General, Mechanical and Electrical Contractor Pre-Qualification for Construction of the New Niagara-on-the-Lake Wastewater Treatment Plant in the Town of Niagara-on-the-Lake

PW 93-2014 Status of the Construction of Niagara-on-the-Lake Wastewater Treatment Plant project in the Town of Niagara-on-the-Lake

PW 100-2014 Award of Tender 2014-T-114 (Contract RN 14-14) Niagara-on-the-Lake Wastewater Treatment Plant in the Town of Niagara-on-the-Lake

PWC-C 19-2015 Status update on the Construction of the new Niagara-on-the-Lake Wastewater Treatment Plant and related linear infrastructure in the Town of Niagara-on-the-Lake

PW 47-2016 2017 Wastewater Operating Budget Program Change Niagara-on-the-Lake Wastewater Treatment Plant

PW 16-2017 Contract 2014-T-114 (RN 14-14) Niagara-on-the-Lake Wastewater Treatment Plant and Contract 2014-T-113 (RN 14-13) Lakeshore Road, Garrison Village and William Street Pumping Station Upgrades and Linear Works – Project Status Report

PW 17-2017 ***Confidential Report*** A Matter of Litigation or Potential Litigation, Including Matters Before Administrative Tribunals, Affecting the Municipality – Contract 2015-T-109 (RN 15-09) – Welland WWTP Phase I Upgrades – Project Status Report

PWC-C 19-2017 ***Confidential Memo*** A Matter involving Litigation or Potential Litigation against the Niagara Region – Contract 2014-T-114 (RN 14-14) – Niagara-on-the-Lake Wastewater Treatment Plant

PW 33-2017 Contract 2014-T-114 (RN 14-14) Niagara-on-the-Lake Wastewater Treatment Plant and Contract 2014-T-113 (RN 14-13) Lakeshore Road, Garrison Village and William Street Pumping Station Upgrades and Linear Works

PW 7-2018 Budget Adjustment and Status Update for Contract 2014-T-114 (RN 14-14) Niagara-on-the-Lake Wastewater Treatment Plant and Contract 2014-T-113 (RN 14-13) Lakeshore Road, Garrison Village and William Street Pumping Station Upgrades and Linear Works

PW 5-2019 Gross Budget Adjustment and Status Update for Contract 2014-T-114 (RN 14-14) Niagara-on-the-Lake Wastewater Treatment Plant

CSD 29-2020 ***Confidential Report*** Update Regarding NOTL WWTP, NOTL SPS and Welland WWTP Upgrades

Prepared by:
Jamie Anderson, C.E.T.
Project Manager – W-WW Engineering
Public Works Department

Recommended by:
Bruce Zvaniga, P.Eng.
Commissioner of Public Works (Interim)
Public Works Department

Submitted by:
Ron Tripp, P.Eng.
Acting Chief Administrative Officer

This report was prepared in consultation with Pamela Hamilton, Program Financial Specialist W-WW, and reviewed by Tony Cimino, Associate Director W-WW and Joseph Tonellato, P.Eng., Director W-WW.

Appendices

Appendix 1 Total Estimated Project Cost

PW 31 - 2020 APPENDIX 1

TOTAL ESTIMATED PROJECT COST

Contract 2014-T-113 (RN 14-13) Lakeshore Road, Garrison Village and William Street Pumping Station Upgrades and Linear Works &
Contract 2014-T-114 (RN 14-14) Niagara-on-the-Lake Wastewater Treatment Plant

	Total Council Approved Budget	Budget Reallocation	Revised Project Budget	Expended & Committed as of June 24, 2020 **	Forecast	Budget Remaining
	(A)	(B)	(C) = (A) + (B)	(D)	(E)	(F)= (C)-(D)-(E)
Total Estimated Project Cost (10SW0807 & 10SW1407) *						
(a) Construction (includes contract contingency)	40,934,538	20,541	40,955,079	40,955,079		-
(b) Project Contingency	173,183	(20,541)	152,643		152,643	-
(c) Consulting Engineering Services (Design, Contract Administration, & Inspection)	2,491,284	207,949	2,699,233	2,699,233	-	-
(d) Project Management & Internal Costs	465,264		465,264	446,923	18,342	-
(e) Other Project Costs	7,115,304	(207,949)	6,907,355	6,537,475	369,879	-
Total Estimated Project Cost	**51,179,573**	**-**	**51,179,573**	**50,638,709**	**540,863**	**-**
Project Funding Sources						
Regional Reserves & Debt (includes Federal Gas Tax funding)	(16,364,708)		(16,364,708)	(16,364,708)		-
Development Charges	(6,049,278)		(6,049,278)	(5,968,605)	17,434	(98,107)
Provincial Grants	(14,333,333)		(14,333,333)	(14,430,000)		96,667
Federal Grants	(14,333,334)		(14,333,334)	(12,984,002)	(1,349,332)	-
Other Costing Sharing / External	(98,920)		(98,920)	(100,359)		1,440
	(51,179,573)	**-**	**(51,179,573)**	(49,847,675)	(1,331,898)	-

* All costs above include the non-refundable 1.76% portion of HST.
** Includes holdbacks

Subject: Status Update for Contract 2015-T-109 (RN 15-09) Welland Wastewater Treatment Plant, Phase I

Report to: Public Works Committee

Report date: Tuesday, July 14, 2020

Recommendations

1. That this Report, PW-32-2020, **BE RECEIVED** for information.

Key Facts

- The purpose of this report is to provide an update to the Committee on the project progress. As indicated in a previous report (February 20, 2018, PW 6-2018), the Region has agreed to a contract extension to August 17, 2018.
- A revised construction schedule was submitted by Varcon on February 19th, 2020. This schedule was incomplete and has not been approved by the Region.
- To date, Varcon has failed to submit an acceptable revised construction schedule and cites difficulties with scheduling subcontractors as the reason.
- The Region has not accepted Varcon's reasons for not submitting an acceptable schedule and this has been reported to Varcon through Cole Engineering.
- Staff continue to have concerns regarding the timely completion of this project. Varcon continues to fall behind on some of the major components of the construction project and this is reflected in their inability to provide a clear contract completion date.
- Due to this further delay, Region W&WW Staff, Cole (the Region's consultant) and Region's Corporate Services and Legal staff have had to spend significant additional time and effort on this project.
- CSD 29-2020 Confidential Report Update Regarding NOTL WWTP, NOTL SPS and Welland WWTP Upgrades contains confidential legal advice regarding litigation regarding Welland Wastewater Treatment Plant upgrades.

Financial Considerations

The total project expenditures and revenues to date are shown in the Total Estimated Project Cost Summary in Appendix 1. As outlined in the chart, there is an overall approved budget of $21,821,204. Depending on the outcome of current discussions

with Cole Engineering, an additional budget request may follow in a later report cycle to facilitate Cole's further fee extension request and completion of the project.

The Region continues to assess Liquidated Damages at approximately $44,000 per month ($2,000/working day). As of Payment Certificate to June 15, 2020, Varcon has been assessed $920,000 in liquidated damages.

Analysis

A construction progress update was provided in the previous report (PW 11-2019, February 11, 2019). Due to the many ongoing challenges with Varcon, including scheduling, construction sequencing, subcontractor liens and working with the contractor in an attempt to improve cooperation with their subcontractors, construction has been moving at much slower rate since fall of 2019.

Niagara Region's staff continue to be involved in the inspection and coordination of work.

Construction Progress to date:

1. Lift Station Wet Well Side - 70% complete; Dry Well Side - 25% complete
2. Administration Building - 98% complete
3. Screen Building and Grit System - 90% complete
4. Primary tanks and Gallery - 80% complete (Scum system not tested)
5. Secondary Building and Final Clarifier - 90% complete
6. Aeration Tanks - 90% complete
7. Chemical Storage Facility - 95% complete
8. Chlorine Building - 95% complete
9. Maintenance Building - 90% complete
10. Digester Building – 90% complete
11. Electrical Substation - 98% complete

12. Civil Works - 90% complete

Although construction is progressing, Varcon has not met their schedule obligations of the August 17, 2018 completion date nor their own scheduled completion date of September 24, 2018. Varcon's continued reluctance to provide the adequate work forces along with poor relations with their subcontractors has impacted their progress. Varcon has continuously failed to submit a workable schedule and staff feel that the most realistic completion date is now later than December 31, 2020. Niagara Region staff, as well as Cole, continue to press Varcon toward commissioning and substantial completion. Varcon has been advised of default for not delivering a workable schedule on February 10th, 2020 and June 12th, 2020.

As previously indicated, Varcon has, and is being, assessed Liquidated Damages, as stipulated in the contract, for every working day since August 17, 2018.

Water and Wastewater Engineering staff have been providing a significantly higher than normal amount of resources throughout the project in order to manage the contract. Corporate Services is also providing a significant amount time on additional contract and project payments as well as lien claims. Legal Services are engaged as a result of the construction liens filed and are investing significant time, effort and resources on this project.

At this time, there have been 141 change orders issued for the construction contract. These change orders total just under $383,000 of the $1.07 million (excluding non-refundable HST) in contingency available under the construction contract**.**

Alternatives Reviewed

No specific alternatives have been presented at this time. This report has been prepared as an update for the construction contract. Several challenges have been faced through the course the project.

Relationship to Council Strategic Priorities

This project is related to the Fostering Growth strategic priority since the planned upgrades will ensure reliable infrastructure to support growth and economic development within the Niagara Region

Other Pertinent Reports

PW 06-2018, February 20, 2018, Budget Increase Request

PW 56-2015, October 13, 2015, Award of Contract 2015-T-109 (RN 15-09) Welland Wastewater Treatment Plant Upgrades, in the City of Welland

Confidential PW 17-2017, March 21, 2017, A Matter of Litigation or Potential Litigation, Including Matters Before Administrative Tribunals, Affecting the Municipality – Contract No. 2015-T-109 (RN 15-09) Welland WWTP Phase I Upgrades – Project Status Report

PW 35-2017, September 5, 2017, Welland Wastewater Treatment Plant, Phase I Upgrades

PW 11-2019, Budget Adjustment and Status Update for Contract 2015-T-109 (RN 15-09) Welland Wastewater Treatment Plant, Phase I

CSD 29-2020 ***Confidential Report*** Update Regarding NOTL WWTP, NOTL SPS and Welland WWTP Upgrades

Prepared by:
Richard Gabel, P.Eng.
Senior Project Manager
Water and Wastewater Services

Recommended by:
Bruce Zvaniga, P.Eng.
Commissioner of Public Works (Interim)
Public Works Department

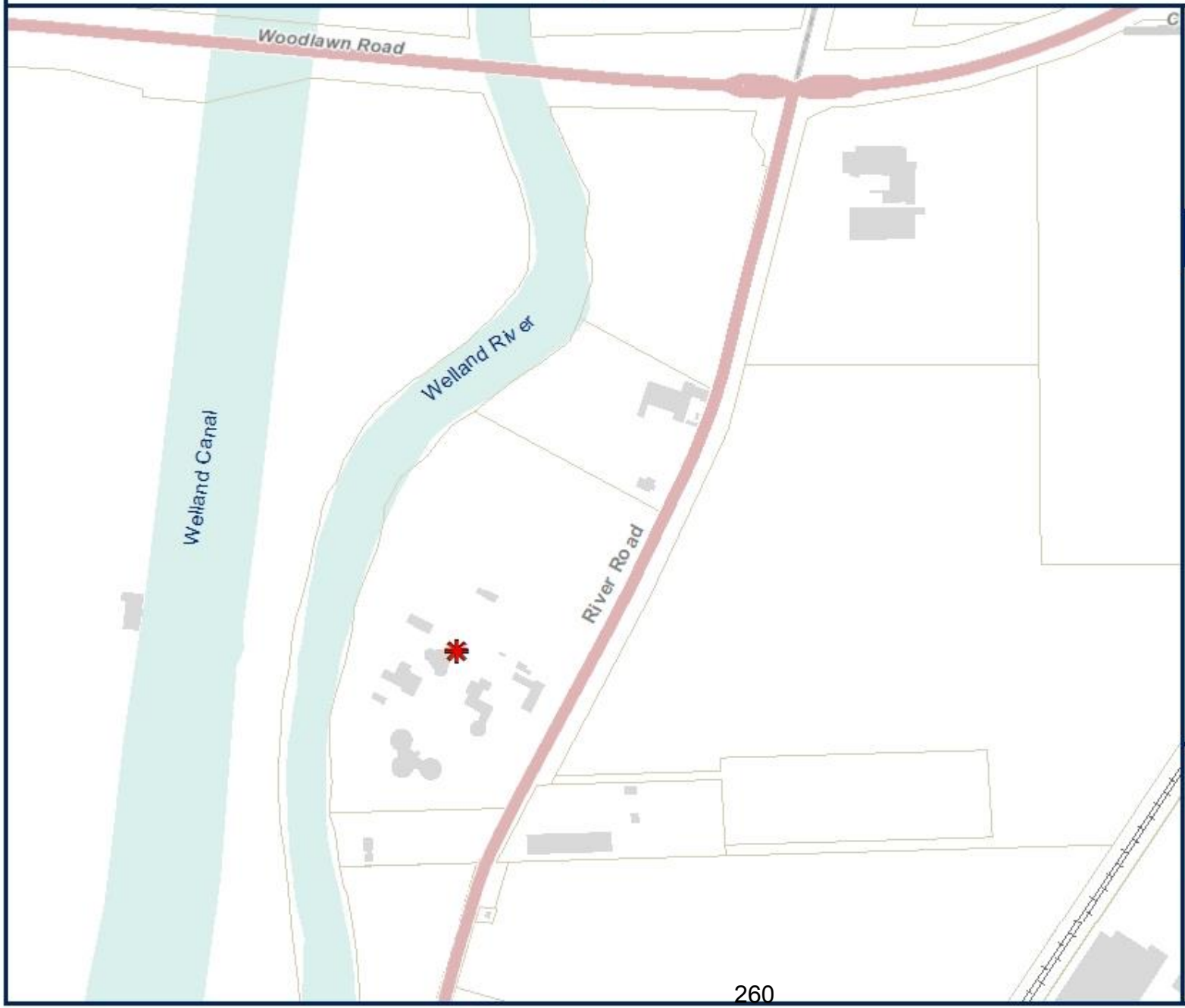
Submitted by:
Ron Tripp, P.Eng.
Acting Chief Administrative Officer

This report was prepared in consultation with Pamela Hamilton Program Financial Specialist W-WW, and reviewed by Tony Cimino, Associate Director W-WW and Joseph Tonellato, P.Eng., Director W-WW.

Appendices

Welland WWTP Phase 1 Upgrade

PW 32-2020 Appendix 1



Legend

Project Extent

0 50 100 200 m

© 2018 Niagara Region and its suppliers.
Projection is UTM, NAD 83, Zone 17 (CSRS).

This map was compiled from various data sources and is current as of June, 2020.

Niagara Region makes no representations or warranties whatsoever, either expressed or implied, as to the accuracy, completeness, reliability, currency or otherwise of the information shown on this map.

PW 32-2020 - Appendix 2
TOTAL ESTIMATED PROJECT COST

Contract 2015-T-109 (RN 15-09) Welland Wastewater Treatment Plant Upgrade, Phase 1

	Total Council Approved Budget	Budget Reallocation	Revised Project Budget	Expended & Committed as of June 24, 2020 **	Forecast	Budget Remaining
	(A)	(B)	(C) =(A)+(B)	(D)	(E)	(F) = (C)-(D)-(E)
Total Estimated Project Cost (10SW0902) *						
(a) Construction (includes contract contingency)	17,839,546	35	17,839,581	17,839,581	-	-
(b) Project Contingency	230,159	(35)	230,124	192,799	37,325	-
(c) Consulting Engineering Services (Design, Contract Administration, & Inspection)	2,508,492	43,410	2,551,902	2,551,902	-	-
(d) Project Management & Internal Costs	225,000	113,713	338,713	338,713	-	-
(e) Other Project Costs	1,018,007	(157,123)	860,884	743,806	117,078	-
Total Estimated Project Cost	**21,821,204**	**-**	**21,821,204**	**21,666,801**	**154,403**	**-**
Project Funding Sources						
Regional Reserves & Debt	(20,321,204)		(20,321,204)	(20,321,204)		-
Gas Tax Funding	(1,500,000)		(1,500,000)	(1,500,000)		-
	(21,821,204)	**-**	**(21,821,204)**	**(21,821,204)**	**-**	**-**

* All costs above include the non-refundable 1.76% portion of HST.
** Includes holdbacks