THE REGIONAL MUNICIPALITY OF NIAGARA
PUBLIC WORKS COMMITTEE
FINAL AGENDA

PWC 5-2020

Tuesday, June 16, 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

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Pages

1. CALL TO ORDER

2. DISCLOSURES OF PECUNIARY INTEREST

3. PRESENTATIONS

4. DELEGATIONS

5. ITEMS FOR CONSIDERATION

5.3 PW 24-2020
Award of Tender 2020-T-6 Area Winter Maintenance

This item has been removed from the agenda and will be brought to the Public Works Committee meeting being held on July 14, 2020.

6. CONSENT ITEMS FOR INFORMATION

7. OTHER BUSINESS

8. CLOSED SESSION

8.1 Confidential PW 17-2020
A Matter of Commercial Information, which if disclosed could reasonably be expected to prejudice significantly the competitive position or interfere significantly with the contractual or other negotiations of a person, group of persons, or organization, under s. 239(2) of the Municipal Act, 2001 - Procurement Process for Material Recycling Facility (MRF) Opportunity Review – Phase 4

A confidential presentation will precede the discussion of this item.

9. BUSINESS ARISING FROM CLOSED SESSION ITEMS

10. NEXT MEETING

The next meeting will be held on Tuesday, July 14, 2020, at 9:30 a.m. in the Council Chamber, Regional Headquarters.

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).

Update on Transition of the Residential Blue Box Program to Full Producer Responsibility

Public Works Committee
PW 23-2020

June 16, 2020

Jennifer Mazurek, Waste Management Program Manager

Update on Transition of the Residential Blue Box Program to Full Producer Responsibility

Public Works Committee

June 16, 2020

Background

- Ontario is shifting to a Full Producer Responsibility Model for the residential Blue Box Program

- Timelines specific to new Blue Box Regulation:
  - **2019 - 2020 – Draft Regulations (Current phase)**
  - 2021 – Approval of Regulations
  - 2021 - 2022 – Stakeholders organize and prepare for Producer Responsibility
  - 2023 - 2025 – Producers take full responsibility from communities

- Concurrent Wind-up for Existing Blue Box Program:
  - **2020 – Stewardship Ontario develops plan for transition and submits to RPRA (Current phase)**
  - 2020 – RPRA approves plan by Dec 31
  - 2021 – 2025 – SO implements plan and each community continues to be funded until transition to EPR complete, with all communities complete by the end of 2025

Regulations

MECP will address the following in the new Blue Box regulation:

1. Definition and scope of designated materials;
2. Collection and accessibility requirements;
3. Management requirements that producers must meet; and
4. Transition approach – criteria to select which communities will transition from the current Blue Box program to the EPR framework under the RRCEA in each of 2023-2025.

AMO Request

AMO has requested a Council resolution, passed by June 30, 2020, directed to AMO and MECP that specifies:

1. Council's preferred date to transition based on exiting service provision (between January 1, 2023 and December 31, 2025);
2. Rationale for transition date;
3. Whether Council is interested in potentially continuing to provide services (e.g. contract management, collection, haulage processing services etc.) or not; and,
4. Key contacts if there are any follow-up questions.

Recommendations

1. Proposed Transition Date

January 1, 2023

- Recommendation for this early date is based on anticipated cost savings for residents, compared to current process under which Niagara Region is responsible for 50% of net costs
- It is estimated that taxpayers will unnecessarily incur an annual expense of approximately $8,175,000 for each year Niagara Region does not transition
- Curbside Collection and Haulage contracts include option for early removal of residential Blue Box collection (compensation for contractors is based on a formula)

2. Niagara Region's Role

Provision of Processing Services on Behalf of Producers

- Primary factor influencing decision to bid on processing services:
  -Timing and outcome of the MRF opportunity review

Provision of Collection and Haulage Services on Behalf of Producers

- Niagara Region will bid on collection and haulage services if commercially acceptable terms are available
- Primary factors influencing final decision to bid on collection and haulage services:
  -Full payment by producers
  -Reasonable and quantitative measures for standards and requirements related to collection and haulage

2. Niagara Region's Role Cont'd

Servicing Additional Property Types

- Continued provision of service to IC&I properties, select Multi-Residential properties and public spaces depends primarily on cost
- If Niagara Region continues to provide residential Blue Box collection, the IC&I properties will be part of the integrated collection system – otherwise producers must agree to provide the service
- Separate regulations related to IC&I properties will also impact how this service is provided longer-term
- The residential Blue Box regulation is expected to include Multi-Residential properties, but the full scope of properties encompassed, and timing for commencement, will be determined by the regulation

2. Niagara Region's Role Cont'd

Service for Non-Obligated Materials

- Niagara Region would be solely responsible for costs related to collection, haulage and processing of materials not defined in the regulation
- Removal of currently accepted materials may generate confusion for residents but it may be difficult to find a processor for non-obligated material

Service at Depots

- Potential costs related to depot reconfiguration requirements
- Residential convenience maintained
- May help reduce illegal dumping

3. Final Considerations

- Regulations
  - -Not yet finalized
  - -Niagara Region will continue to advocate for regulations that support best-practices
- During transition (January 1, 2023 – December 31, 2025) producers are obligated to maintain existing service levels in Niagara Region
- Post-transition (i.e. starting January 1, 2026) Niagara Region will have no operational program control over:
  - -Collection frequency
  - -Container type
  - -Implementation of single versus dual stream
- Mitigating risks

Questions?

Subject: Blue Box Program Transition to Full Producer Responsibility

Report to: Public Works Committee

Report date: Tuesday, June 16, 2020

Recommendations

1. That the Clerk **BE AUTHORIZED** to respond to the Association of Municipalities of Ontario's request that municipal governments pass a resolution to provide a preferred date to transition the residential Blue Box program to full producer responsibility, if provided the opportunity to self-determine (between January 1, 2023 and December 31, 2025), with the following:

    a) Niagara Region's preferred date to transition the residential Blue Box program to full producer responsibility is as early as possible in the transition period, which is on January 1, 2023, subject to cost benefit analysis when the Blue Box regulation is finalized.

    b) Niagara Region expresses interest in providing curbside and depot Blue Box collection and haulage services on behalf of producers, subject to mutually agreeable commercial terms, including service duration, beginning on January 1, 2023.

    c) Niagara Region anticipates completion of the Material Recovery Facility (MRF) Phase 4 Opportunity Review in late 2020, which will inform how or if the MRF asset will be potentially divested and Niagara Region's potential role in processing services.

2. That the draft resolution as outlined in Appendix 1 **BE APPROVED** and sent to Association of the Municipalities of Ontario and the Ministry of the Environment, Conservation and Parks.

Key Facts

- The purpose of this report is to seek Council's approval to provide the preferred date of January 1, 2023 to the Association of the Municipalities of Ontario (AMO) and the Ministry of the Environment, Conservation and Parks (MECP) for Niagara Region's

transition to full producer responsibility for the residential Blue Box Program, under the Resource Recovery and Circular Economy Act (RRCEA).

- Niagara Region is not obligated to transition on January 1, 2023, nor is it guaranteed that this preferred date for transition will be secured, as the final Blue Box regulation has not been released. Niagara Region's proposed transition date will be revisited upon release of the draft regulation and again with release of the final regulation.
- After transition, municipalities will no longer have financial or operational control of the residential Blue Box Program and producers (brand holders or first importers of any paper, packaging, or packaging-like product managed through the Blue Box Program) will be accountable for all costs associated with collection, haulage and processing of the material. However, producers may be interested in having municipalities provide residential Blue Box collection and haulage services on their behalf, as part of their integrated collection systems, under contract and subject to agreement on the commercial terms (e.g. detailed service requirements and acceptable payment provisions). These discussions are expected to occur once the Blue Box regulation is finalized.
- The Blue Box regulation will define a timeframe for transition, ensure a common collection system, transition municipal assets, standardize materials accepted in the Blue Box, identify eligible sources, set effective targets and promote increased diversion from the landfill.

Financial Considerations

Cost-Benefit Related to Transition Timing

Stewardship Ontario (SO) is a not-for profit organization funded and governed by industries that are the brand owners, first importers or franchisors of products and packaging material, including those managed through the residential Blue Box Program. Under the current Blue Box Program, the municipal sector and SO each pay 50% of net residential Blue Box-related costs; however, Niagara Region's payment from SO has exceeded the 50% threshold over the last four years based on the funding formula which reflects good program performance.

The 50% payment structure would continue to be applied during the residential Blue Box Program transition period if a municipality has not yet transitioned. However, it is anticipated that the payment formula will not include an allowance for increased reimbursement over that threshold.

In 2019, Niagara Region received Blue Box program funding of $3,711,276, which was 69% of net costs (based on the 2017 program) and in 2020, $4,380,000 in funding was budgeted due to lower recycling end market revenue (in the 2018 program), which increased the net program costs. In addition to poor recycling end market conditions, the primary factors which would cause the net program costs to increase are the contract costs for collection and processing, which continue to increase over time.

Using the 2019 net residential program (collection, haulage and processing) costs of $10,240,495, as submitted to Resource Productivity and Recovery Authority (RPRA), as a point of reference (see Table 1 for a breakdown of costs), for every year that Niagara Region does not transition, taxpayers would unnecessarily incur an estimated annual expense of approximately $5,120,000 based on the 50% funding structure for the existing residential Blue Box program. However, the increased curbside collection costs under the new contracts beginning October 2020 will result in higher net program costs than reported in 2019, and the increased burden on the taxpayer, based on the existing funding structure, is estimated at an additional $3,075,000, for a total of $8,195,000 annually.

A breakdown of 2018 residential program costs, approved by RPRA, and 2019 costs, which have been submitted but are not yet approved by RPRA, are included in Table 1 below.

Table 1 – 2018 and 2019 Residential Blue Box Program Costs

Blue Box Program Cost Component	**2018 tonnes/$**	**2019 tonnes/$**
Reported Residential Marketed Tonnes	35,855 tonnes	34,912 tonnes
Residential Collection Costs ($)	$7,309,763	$7,888,776
Residential Processing Costs ($)	$4,338,376	$4,601,199
Residential Depot/Transfer Costs ($)	$349,152	$340,203
Residential Promotion & Education Costs ($)	$190,014	$208,710
Interest on Municipal Capital[1] ($)	$176,114	$187,465
Administration Costs ($)	$479,563	$512,853
Administration Factor[2]	3.9%	3.9%
Residential Gross Costs Including Interest on Municipal Capital and Administration ($)	$12,842,982	$13,739,206
Total Gross Revenue ($)	$4,901,152	$3,498,711
Total Net Costs[3] ($)	$7,941,830	$10,240,495

Notes:

1. Interest on municipal capital debt is calculated as follows:

    - For capital expenditures with an amortization period of seven years or more which were commissioned:

- In or after 2004, the average of the prime interest rate for the year in which the capital was commissioned will be utilized as the factor to calculate interest.
- Prior to 2004, the average of the prime interest rate less 1¼% for the year in which the capital was commissioned will be utilized as the factor to calculate interest, reflecting that it was generally funded as an opportunity cost in the past.

2. Administration costs are calculated as follows:

    - 3% of reported contracted costs
    - 5% of reported municipal costs

3. Net cost includes supply chain costs, commodity revenues, and promotion and education (P&E), regulatory, market development and program management costs.

The net cost for the non-residential portion of the Blue Box program, which would continue to be the direct responsibility of Niagara Region after transition, will be calculated and reported on at a future date.

Cost-Benefit Related to Provision of Collection and Haulage Services on Behalf of Producers

It is expected that producers will be interested in having municipalities provide Blue Box services on their behalf, should mutually agreeable terms be negotiated. These discussions would start once the Blue Box regulation is finalized (currently scheduled for early 2021). It is recommended that Niagara Region engage in discussions with producers to continue collection as part of the integrated collection system. This would be subject to Niagara Region's expectations that there would be:

- 100% payment by producers; and
- Reasonable and quantitative measures for standards and requirements related to collection and haulage would be applied and overseen by Resource Productivity and Recovery Authority (RPRA) as an independent entity.

Collection of any non-obligated materials (i.e. those not covered under the regulation) would be at full cost to Niagara Region. It is expected that non-residential sources will be excluded from the program. The regulation may also lead to potential removal of one or more materials that Niagara Region residents are accustomed to putting in the Blue Box, as our current program is comprehensive and covers a wider variety of material than some of the comparator municipalities.

The estimated $8,195,000 in savings as noted above, may be somewhat offset by costs for exiting the component of the collection contracts related to the residential Blue Box Program, if Niagara Region does not provide collection and haulage service on behalf of the producers. Additionally, it should be noted that even if municipalities provide collection and haulage service under contract to the producers, the full 100% of these costs may not be covered, subject to the payment formula developed. This is due to the fact that existing contracts may not reflect the new service requirements, standards and other factors on which the payments by the producers will be determined.

Niagara Region's new waste collection and haulage contracts commence October 19, 2020 and have an end date of March 5, 2028. Collection contracts were awarded in 2019 to GFL Environmental Inc. (GFL) and Miller Waste Systems Inc. (Miller). The new contracts include escape clauses related to early termination of the Blue Box collection and associated haulage due to changes in legislation/regulation.

If Niagara Region does not provide residential Blue Box collection and haulage under contract to the producers, costs may be incurred for winding down the Blue Box-related portion of the work, including the value of stranded capital assets, such as collection vehicles, with the caveat that Miller and GFL must make commercially reasonable efforts to re-deploy to other contracts or sell at fair market value the capital assets. A formula was designed and included in the contracts to calculate the maximum compensation payable by Niagara Region:

> Maximum Compensation Payable = (Year 1 contract cost x 7 years x 10% capital component) x percentage of total contract terminated x (Years remaining in contract term 1 / Total years of contract term 1)

Per this formula, it is estimated that the maximum one-time compensation payable to GFL based on the January 1, 2023 transition date is $2,743,217 and the maximum compensation payable to Miller is $ 4,278,867, for a total potential payment of $7,022,084. Based on the savings from transitioning identified above using the 2019 program costs and adjusted for the new collection contract costs, this compensation payment would be offset within the first year of transition with the removal of 50% of the net program expenditures from the Niagara Region taxpayer burden. For comparison, a transition date of January 1, 2024 would result in an estimated maximum compensation payment of $5,664,530, and transition as of January 1, 2025 would be $4,306,977. Table 2 below shows the estimated net savings to the Niagara Region in year one, if transition occurs January 1, 2023.

Table 2 – Net Savings to Niagara Region upon Transition in Year 1

Net Residential Blue Box Program Costs (2019)	$10,240,495
Increased Recycling Collection Contract Costs	$6,150,000
Total Estimated Residential Blue Box Program Costs	*$16,390,495*
Annual savings to Niagara Region - share of net costs (based on current 50% funding formula)	$8,195,248
Maximum compensation payable to curbside collection contractors - partial early contract termination (January 1, 2023 transition date)	$7,022,084
Estimated Net Savings to Niagara Region (Year 1)	*$1,173,164*

Cost-Benefit Related to Provision of Processing Services on Behalf of Producers

Niagara Region currently owns and operates (through Niagara Recycling, a not-for-profit third party) a Material Recovery Facility (MRF) in Niagara Falls. A review related to the preferred MRF ownership structure is currently underway, with a recommendation report to be presented to Public Works Committee in closed session as Confidential PW 17-2020. This review consists of an assessment, which will be based on actual market considerations, to determine the best future opportunity for the MRF.

The required notification and termination periods in Niagara Region's key recycling processing contract agreements are as follows:

1. Niagara Recycling, for the processing and marketing of recyclables until Niagara Region fully transitions to full producer responsibility or proceeds with a direction based on the outcome of the MRF Opportunity Review, with provision for six (6) month notification for early termination;
2. Haldimand County, for the processing of their recyclables until March 2021 with a 1 year option to extend to March 5, 2022 and a six (6) month cancellation that can be applied by either party;
3. Region of Waterloo, for the processing of their fibre material with contract expiry occurring on the date that Waterloo transitions to full producer responsibility or until the end of Waterloo's existing collection contract (March 2024), whichever comes first. Although there is no explicit cancellation provision, termination could apply with notification, or the contract could be reassigned with permission.

If Niagara Region divests of the MRF, the successful proponent will be required to assume the processing of the current material being processed at the Niagara Region

MRF, unless Waterloo and Haldimand, or any of the smaller commercial customers, redirect their recyclables to another facility. Depending on timing, producers may also be responsible for processing this material.

Completion of the MRF Opportunity Review is required for Niagara Region to finalize decisions related to the processing of Blue Box materials under full producer responsibility.

Additional Costs Related to Blue Box Transition

Regardless of whether or not Niagara Region chooses to and is successful in obtaining a residential collection and haulage contract on behalf of producers, it is suggested that Niagara Region continue to service the IC&I sector, subject to a review of net costs, and re-evaluate provision to this sector in the next contract. Existing staffing, processing and other costs related to the IC&I service will be assessed prior to formulating a final recommendation.

If Niagara Region chooses not to bid on the residential collection and haulage contract or is unsuccessful in securing the contract, one option is to consider payment to the producers to continue service for the IC&I properties. More detailed information about provision of services to those properties outside the regulation is included in the Analysis section below. Similar to the analysis needed to determine if a bid of collection and haulage of residential Blue Box material is worthwhile, an evaluation will be needed to determine how much Niagara Region will pay to service these IC&I properties.

If Niagara Region retains curbside collection, depot locations should also be retained as part of a comprehensive program. In the event that Niagara Region does not manage a curbside program, it is recommended that depots continue to be operated for an interim/transition period and then re-evaluated for the longer term, based on results of a cost benefit analysis and other factors such as customer convenience. The portion of depot costs associated with both the residential Blue Box program amounted to $349,152 in 2018 and $340,203 in 2019.

In summary, it is financially beneficial for Niagara Region taxpayers to transition to full producer responsibility as early as possible, subject to any final cost benefit analysis to be completed once the Blue Box regulation provides detail on the payment formula. The analysis will include a refinement to the calculations for the GFL and Miller payments if it is determined that compensation to the collection contractors will be required.

Analysis

Background

Under the RRCEA the Province is shifting to a full producer responsibility framework for products, packaging, and packaging-like products, making producers and brand holders accountable for recovering resources and reducing waste associated with products. The Waste Diversion Transition Act, 2016 (WDTA) allows for the products and packaging currently managed under existing waste diversion programs to be transitioned to the new full producer responsibility framework. The RPRA was created to support the transition to a circular economy and waste-free Ontario through oversight of existing waste diversion programs, including the Blue Box Program, and the transition of recycling programs to full producer responsibility models per the RRCEA. The RPRA will be responsible for oversight and enforcement of the residential Blue Box regulation, ensuring that expected outcomes are met by producers.

Considerations Related to Transition Timing

In order to support development of the regulation associated with the framework, and to begin planning for transition, AMO has requested that municipalities with residential Blue Box programs notify AMO and MECP of both preferred transition date and of intent to consider provision of collection, haulage, and/or processing of Blue Box materials on behalf of producers after transition (see Appendix 2). It is preferable for municipalities to self-identify their preferred date of transition because locally specific concerns, such as local priorities and evaluation of system costs, can be considered. It is possible that Niagara Region would not be one of the first municipalities to transition under a provincially mandated model as Niagara Region's collection and haulage contracts have expiry dates in 2028.

It is important to note the transition date identified in this report is not a guaranteed transition date for Niagara Region, nor is Niagara Region obligated to proceed with the indicated date. The information is being collected from all municipalities simply to gauge the level of interest in transition for each quarter and year between January 1, 2023 and December 31, 2025. This will help stakeholders to propose a transition schedule based on preferred municipal dates. In the event that more than one-third of municipalities indicate a desire to transition in the same year, MECP will use criteria, not yet finalized but currently in development through consultation with stakeholders, to resolve conflicts and determine transition order. This will ensure a smooth and seamless transition.

If Niagara Region was mandated to transition later in the transition period (e.g. in 2024 or 2025), one small advantage is that Niagara Region could benefit from the experiences of those municipalities that transitioned earlier in the process. This includes preparation for potential issues relating to reporting, promotion and education (P&E), resident confusion, etc. However, there is a negative financial impact, in that Niagara Region taxpayers will continue to pay for approximately 50% of the residential Blue Box Program each year until the transition occurs.

Considerations Related to Provision of Collection and Haulage Services on Behalf of Producers

In addition to the financial factors outlined above, important factors influencing Niagara Region's decision to provide collection and haulage service on behalf of producers are:

- Definition of service areas by producers, i.e. the service area may not align with Niagara Region's current collection boundaries;
- Length of contract required by producers, i.e. length of the contract may not align with Niagara Region's existing collection and haulage contracts, upon which the bid would be based;
- Possibility of dealing with multiple producers, leading to increased administration requirements;
- Reducing confusion for residents, i.e. residents dealing with multiple agencies for collection issues (Niagara Region for garbage and organics, and a separate agency or agencies, on behalf of producers);
- Responsibility to residents in the event that service standard changes cause a reduction in collection convenience or increased enforcement at the curb (to achieve a lower residue rate);
- Definition of clear service standards and expectations, acceptable residue rates, and how targets will be measured; and
- Potential for a fragmented collection system related to P&E and customer service.

Considerations Related to Provision of Processing Services on Behalf of Producers

Timing and outcome of the MRF Opportunity Review, outlined above, will be the primary factor influencing Niagara Region's decision to bid on processing contracts. Additional current considerations include the following:

1. The definition of service areas by producers to accommodate larger market sizes will be an important factor influencing the ability of Niagara Region to effectively bid against the private sector for provision of processing services. In addition to tonnage capacity throughput limitations based on the current state of the infrastructure, a service area that is not a reasonable haulage distance to the MRF location will not support continued operation of the MRF by Niagara Region.

2. Clear requirements for standards, such as residue rates, and how these will be measured would be required for protection of Niagara Region in the event a contract is secured. Alternatively, the performance standards set by producers may not be reasonably achieved based on current infrastructure.

Additional Considerations Related to Blue Box Transition

Servicing additional property types

Niagara Region currently services a number of property types which may not be immediately included in the regulation. While the current level of service must be maintained by producers until the end of the transition period on December 31, 2025, the producers are not obligated to include service to certain properties, including IC&I, select Multi-Residential (MR) properties (those not already receiving service as of a certain date yet to be specified) and public spaces during this time period. After December 31, 2025, the intent is that service will gradually be expanded to include these MR and public spaces. For IC&I properties, the province is proposing an update to different regulations specific to these properties at a future date, as yet unspecified. Should Niagara Region continue to collect from IC&I properties not serviced during or after the transition period, producers may have little incentive to expand programming to encompass these properties and municipalities will continue to bear the costs. These costs include existing staffing, P&E, processing and other expenditures for this portion of the service. On the other hand, elimination of this part of the Blue Box program, until provincially mandated service is available, would be a reduction in service to the IC&I sector in Niagara Region.

As noted above, cost benefit analysis must be completed and the decision to service these properties may hinge on Niagara Region's decision to bid on collection and haulage. In the event that Niagara Region secures a collection and haulage contract, collection at IC&I properties may be a viable option. In the event that Niagara Region needs to pay a producer, there is the potential that the cost may be disproportionately high. Ultimately, the final regulation will inform Niagara Region's position with respect to servicing additional property types.

Niagara Region will continue to advocate for continued and expanded service to MR properties and public spaces already serviced during the transition period of 2023-2025, along with service to the smaller IC&I properties who utilize Niagara Region's Blue Box program.

Servicing for non-obligated materials

Niagara Region will be solely responsible for costs related to collection, haulage and processing of materials not obligated under the regulation. Niagara Region would also be responsible for producing extra P&E for the locally accepted materials (versus the provincial standard). Furthermore, Niagara Region may not be able to find a processor for non-obligated material. On the other hand, removal of material from Niagara Region's Blue Box stream may generate confusion for residents and propagate a

perceived reduction in service levels. Niagara Region's diversion rate could also be incrementally impacted by a change in materials collected.

Niagara Region will continue to advocate for a comprehensive list of obligated materials both during the transition period and after.

Service at depots

In the event that Niagara Region is not paid by producers to operate the Blue Box portion of depots, Council may still choose to continue with the service for community benefit, mainly resident convenience and to minimize illegal dumping. Additional enforcement may be required to ensure contamination rates enforced by producers are met, and depot reconfiguration may be required based on producer requirements. These existing depots are integrated with the current landfill and public drop-off depot infrastructure.

Final considerations

As noted multiple times throughout this document, the Blue Box regulation is not yet finalized. After full transition of all municipalities by January 1, 2026, Niagara Region will have no operational program control in determining collection frequency, container type, or implementation of a single versus dual stream system. Until the transition period is complete on December 31, 2025 producers will be obligated to maintain the same level of service currently provided in Niagara Region – weekly collection of Blue Box materials through our dual stream process. Starting on January 1, 2026, producers will be paying for the entire system across the province and will have the final say in how the system is operated. Results must be guaranteed (i.e. establishing a common collection system, collection of consistent materials across the province, meeting prescribed management targets for materials, etc.) but how this is achieved will be entirely up to producers. For example, lightweight, bulky materials such as Styrofoam could be redirected from the curbside program to a depot system or deposit return may be implemented for additional items.

Throughout the consultation process with stakeholders, Niagara Region has continually advocated for weekly collection as this achieves the highest diversion and lowest residue rates, and we will continue to promote that position in our responses to the province, but ultimately the final regulation will be up to the province. Through local by-laws (e.g. restricting weight of trucks on our roads) Niagara Region will have some limited ability to protect the interests of residents. Should Niagara Region successfully bid on collection and haulage, the decision to continue that function may need to be revisited for the post-transition period, commencing January 1, 2026 or when the existing contracts with GFL and Miller expire.

Niagara Region will work to mitigate risks associated with the transitioned program regardless of Council's final decision on the MRF and whether to bid on the collection and haulage contract. For example, staff will monitor rates of obligated material entering the garbage stream after transition. To facilitate this, Niagara Region will be completing audits after the switch to every other week garbage collection occurs on October 19, 2020, and after the transition to full producer responsibility. This will allow us to verify if we are seeing increases in rates of obligated materials entering the garbage stream, etc.

Alternatives Reviewed

Considerations Related to a Later Transition Date

In previous comments to the province, in the response to the Modernizing Blue Box Stakeholder consultation for the Special Advisor's report and in previous consultations on the amended Blue Box Program (that ultimately did not pass but which informed the currently proposed transition methodology and plan), Niagara Region has advocated that payment of net verified costs (actual municipal costs) from SO should be increased to 75% in year one, increasing annually until transition is complete. Municipalities receiving payment would be subject to SO criteria that verifies program effectiveness. Past comments from Niagara Region have stressed that this is more equitable to those municipalities that cannot realize savings by transitioning earlier in the process, and who will continue to be accountable for 50% of net costs until the transition date that could be as late as December 31, 2025.

In the event that the regulation recognizes this proposed strategy, Niagara Region may realize reduced savings by exiting our collection and haulage contracts early and find that it is, in fact, preferable for customer service reasons and due to equivalent (or near equivalent costs based on reimbursement) to exit collection and haulage further along in the transition period (e.g. late in 2025). It is, however, unlikely that this proposed strategy will be accepted by producers as they will not want to increase costs in un-transitioned municipalities beyond the 50% they are already paying, while developing and implementing programs in other municipalities, for which they have full responsibility for all costs. As such, until cost-benefit analysis can be completed based on the final regulation, an early transition date is recommended.

Declining to Transition

Municipalities cannot decline the option to transition and still continue to receive the 50% funding of net programming costs from an external source indefinitely. SO is developing a wind-up plan that will include direction for management of any funds remaining at the end of the transition period. There is no requirement for SO to continue paying municipalities for Blue Box programs after the transition period ends on December 31, 2025. In fact, SO will cease to exist at that date, as per the Minister's

Direction letter from August 15, 2019 (Appendix 3). The regulation is not expected to include a requirement for producers to pay municipalities to operate any residential Blue Box program after 2025, although as previously noted there will likely be an opportunity for municipalities to provide Blue Box related services on behalf of producers. Any programming offered by Niagara Region that is not offered through commercially accepted terms between producers and Niagara Region, would be at full cost to Niagara Region and as such, declining to transition is not a viable option.

Relationship to Council Strategic Priorities

This report supports Council's Strategic Priority of Responsible Growth and Infrastructure Planning.

Other Pertinent Reports

- WMPSC-9-2019 A Made-in-Ontario Environment Plan
- WMPSC 32-2019 Modernizing Blue Box Program
- WMPSC-C 2-2020 Update on Provincial Initiatives for Extended Producer Responsibility

Prepared by:
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Program Manager, Policy, Planning & Engagement
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 Lydia Torbicki, Manager, Waste Policy and Planning, and reviewed by Sara Mota, Program Financial Specialist, Brian Wilson, Legal Counsel and Catherine Habermebl, Director, Waste Management Services.

Appendices

Appendix 1	Proposed Regional Municipality of Niagara Council Resolution
Appendix 2	Request from AMO
Appendix 3	Minister’s Direction Letter to SO

WHEREAS the amount of single-use plastics leaking into our lakes, rivers, waterways is a growing area of public concern;

WHEREAS reducing the waste we generate and reincorporating valuable resources from our waste stream into new goods can reduce greenhouse gases (GHG) significantly;

WHEREAS the transition to full producer responsibility for packaging, paper and paper products is critical to reducing waste, improving recycling and driving better economic and environmental outcomes;

WHEREAS the move to a circular economy is a global movement, and that the transition of Blue Box programs would go a long way toward this outcome;

WHEREAS The Regional Municipality of Niagara is supportive of a timely, seamless and successful transition of Blue Box programs to full financial and operational responsibility by producers of packaging, paper and paper products; and

WHEREAS the Association of Municipalities of Ontario has requested municipal governments with Blue Box programs to provide an indication of the best date to transition our Blue Box program to full producer responsibility;

NOW THEREFORE BE IT RESOLVED:

That The Regional Municipality of Niagara **PREFERS** the date to transition the residential Blue Box program to full producer responsibility to be as early as possible in the transition period, which is on January 1, 2023, subject to final cost benefit analysis when the Blue Box regulation is finalized based on the following rationale:

Maximizing the estimated cost savings for taxpayers of The Regional Municipality of Niagara based on preliminary cost-benefit analysis considering:

- Opt-out clauses that are included in collection and haulage contracts and the estimated termination costs;
- Estimated costs for the residential portion of the Blue Box program in each of 2023, 2024, and 2025; and
- Estimated funding from Stewardship Ontario in each of 2023, 2024, and 2025.

That The Regional Municipality of Niagara **EXPRESSES** interest in providing curbside and depot Blue Box collection and haulage services on behalf of producers, subject to mutually agreeable commercial terms, including service duration, beginning on January 1, 2023.

That The Regional Municipality of Niagara **ANTICIPATES** completion of the Material Recovery Facility (MRF) Phase 4 Opportunity Review in late 2020, which will inform how or if the MRF asset will be potentially divested and The Regional Municipality of Niagara's potential role in processing services.

and

That this resolution, **BE SENT** to the Association of the Municipalities of Ontario and the Ministry of the Environment, Conservation and Parks.

From: AMO President
Subject: Call for Action to Pass a Resolution about Transition of the Blue Box to Full Producer Responsibility
Date: December 18, 2019 6:38:38 PM
Attachments: Attachment 1 - Background on Transition to Full Producer Responsibility 2019-12-18.pdf
Attachment 2 - Example Resolution on Transition to Full Producer Responsibility 2019-12-18.pdf

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Dear Mayor/Head of Council:

RE: Call for Action to Pass a Resolution about Transition of the Blue Box to Full Producer Responsibility

I would ask your Council to pass a resolution outlining your municipal government's preferred date to transition your Blue Box program to full producer responsibility if provided the opportunity to self-determine (between January 1, 2023 and December 31, 2025). While the Province has not yet determined what mechanism will be used to choose when municipalities will transition, AMO believes your Councils are in the best position to decide when the best time to transition your Blue Box program is based on your specific circumstances (e.g. assets, contracts, integrated waste management system).

AMO is asking that a Council resolution be passed by June 30, 2020, be directed to AMO and the Ontario Ministry of Environment Conservation and Parks, that specifies:

1. Your Council's preferred date to transition based on exiting service provision (between January 1, 2023, and December 31, 2025);
2. Rationale for transition date;
3. Whether your municipal government is interested in potentially continuing to provide services (e.g. contract management, collection, haulage processing services etc.) or not; and,
4. Key contacts if there are any follow-up questions.

NOTE: Your Council's stated preference may not be the final determination of your transition date, nor are you obligated in any way by the date that is specified. Please read the rationale for self-determination (**Attachment 1**), and the example resolution (**Attachment 2**) for more details.

Thank you for your attention and assistance in this matter. If you have any questions or require further information, please contact Dave Gordon, Senior Advisor, at 416 389 4160 or dgordon@amo.on.ca or Amber Crawford, Policy Advisor, at 416 971 9856 extension 353 or acrawford@amo.on.ca.

Sincerely,

Jamie McGarvey
AMO President
Mayor of Parry Sound

Attachment 1: Background on Transition to Full Producer Responsibility
Attachment 2: Example Resolution on Transition to Full Producer Responsibility

Ministry of the Environment, Conservation and Parks

Office of the Minister

777 Bay Street, 5th Floor
Toronto ON M7A 1N3
Tel.: 416-314-6790

Ministère de l'Environnement, de la Protection de la nature et des Parcs

Bureau du ministre

777, rue Bay, 5e étage
Toronto (Ontario) M7A 1N3
Tél. : 416.314.6790

August 15, 2019

Mr. John Coyne
Chair
Stewardship Ontario
1 St Clair Ave. West, 7th Floor
Toronto, ON M4V 1K6

Dear Mr. Coyne:

The Blue Box program has been providing Ontarians with a convenient option for collecting and recycling printed paper and packaging for many years. In recent years, it has become apparent that the growing challenges in delivering and funding the program must be addressed. After hearing from many interested parties, I believe the time has come to modernize and improve Ontario's Blue Box services by transitioning from the existing program that provides industry funding to reimburse a portion of municipalities' costs to a full producer responsibility model where industry will be responsible for both funding and operations. The transition to producer responsibility will ensure Ontarians' experience and access to existing Blue Box services will not be negatively impacted and that there are province-wide services available, including for Northern, rural and Indigenous communities.

As a necessary complementary step to transitioning to a producer responsibility model, pursuant to Section 14 of the Waste Diversion Transition Act, 2016 (WDTA) I am directing Stewardship Ontario (SO), to develop a plan in respect of the funding program for blue box materials under the WDTA (the SO Program) and for SO itself. SO must submit the plan to the Resource Productivity and Recovery Authority (the Authority) for approval no later than June 30, 2020.

This direction will begin the process by which Ontario will implement a modern, producer-operated system that will provide consistent province-wide recovery of Blue Box materials under the Resource Recovery and Circular Economy Act, 2016, and ensure there is no disruption to Blue Box services.

The development of the plan must be conducted in accordance with this direction as well as the provisions of the WDTA and its regulations, including O. Reg. 357/17.

I am directing that the plan describe a mechanism for determining the steward fees necessary to provide for payments to municipalities and First Nation communities until the time they transfer responsibility for providing Blue Box services to producers. The plan will establish criteria for a three year period in which municipalities and First Nation communities will no longer be eligible to receive funding under the SO Program, starting on January 1, 2023 and ending on December 31, 2025, which is the date that SO Program will end and the new producer responsibility framework will be fully implemented.

It is in the public interest that the plan is consistent with the following principles:

Demonstrate transparent communications and meaningful consultation

- Parties affected by the transition should be consulted and have opportunities for meaningful engagement during the development and implementation of the plan.
- The public, Indigenous peoples and affected stakeholders, including stewards, municipalities and service providers (e.g. collectors, haulers, processors, recycled product manufacturers) will receive transparent and clear communications from SO on a regular basis during development and implementation of the plan.

Support competition and prevent conflict of interest

- The plan shall support competition in, and not adversely affect, Ontario's current and future marketplace for the collection and recovery of paper products and packaging. The plan shall not provide for unfair or preferential treatment of the public or any affected parties, or barrier to competition during or following the transition of the program.
- SO shall take all necessary steps to ensure there is no real, potential or apparent conflict of interest when developing and implementing the plan.
- SO's sharing of data and information to parties other than the Resource Productivity and Recovery Authority (the Authority) must be done through a fair, open and transparent process that does not result in preferential treatment of one person or group over another or release of any confidential information.

Demonstrate Fairness to Stewards and Protect Consumers

- The assets, liabilities, rights and obligations of SO related to the SO Program must be dealt with in a fair, open and transparent process in accordance with applicable law.
- All monies held in trust by SO related to the SO Program shall be treated appropriately in accordance with the WDTA and its regulations.

Maintain Program Performance

- There shall be no disruption in payments made by SO to a municipality or First Nation community under the SO Program until the time when that municipality or

First Nation community is no longer eligible to receive funding based on criteria established in the plan.

- Ontarians' access to and experience with the Blue Box program shall not be negatively impacted. It is my expectation that, while allowing for natural growth of Blue Box services to new residential development or redevelopment, municipalities and First Nation communities shall not reduce or expand existing levels of Blue Box services that are eligible for funding under the SO Program.

An addendum to this letter provides specific direction related to the details that SO must include in its plan for the SO Program and for SO.

The implementation of the plan shall begin on the date on which the Authority approves the plan. It is my expectation that the Authority will approve the plan no later than December 31, 2020.

It is expected that SO will engage and work cooperatively with the Authority in implementing any policy direction issued to the Authority pursuant to Section 29 of the *Resource Recovery and Circular Economy Act, 2016* (RRCEA). This includes ensuring that real, potential or apparent conflict of interest concerns have been addressed prior to and during the development of the plan.

If it is in the public interest to do so, I will provide further direction or clarification at a later date related to the matters set out in this direction.

Lastly, SO shall make publicly available on SO's website this direction letter, as well as the complementary policy direction letter issued to the Authority.

Sincerely,

Jeff Yurek
Minister

c: Mr. Serge Imbrogno, Deputy Minister, Ministry of the Environment, Conservation and Parks
Ms. Glenda Gies, Chair, Resource Productivity and Recovery Authority

Addendum to the Minister's Direction Letter for the Blue Box Waste Diversion Program and Stewardship Ontario

Stewardship Ontario (SO) is directed to develop a plan for the funding program for blue box materials (the SO Program) under the Waste Diversion Transition Act, 2016 (WDTA) and for SO itself that includes the following:

- A description of the designated wastes that are covered in the Blue Box program.
- A description of how the SO Program will be operated while the plan is being implemented, acknowledging the following:
    - The funding for municipalities and First Nation communities to participate in the SO Program shall end over a three-year period between January 1, 2023 and December 31, 2025.
    - SO's role in transferring payments to a municipality or First Nation community under the SO Program shall end on the date that obligated producers have assumed full responsibility for the collection and management of blue box materials from that municipality or First Nations community.
    - The plan shall recognize, and be responsive to, the fact that a future regulation under the *Resource Recovery and Circular Economy Act, 2016* will set the criteria and process by which municipalities and First Nation communities will transfer to full producer responsibility.
    - The calculation of the funds due to be paid to each municipality and First Nation community under the SO Program shall be proportional to the number of months in a calendar year in which the municipality or First Nation community remains under the SO Program.
    - The Continuous Improvement Fund shall receive no additional contributions and shall end as soon as practical prior to December 31, 2025.
- A proposed timeline according to which key aspects of the plan will be implemented.
- A description of and a proposal for dealing with the assets, liabilities, rights and obligations of SO in relation to the SO Program including:
    - All monies held intrust by SO related to the SO Program pursuant to Section 35 of the WDTA.
    - An approach that outlines how SO will deal with any information technology systems related to the SO Program to ensure fair and equitable access to all users, as an alternative to disposing of these assets for fair market value.
    - Any other assets of SO related to the SO Program, including, and without limitation, any intellectual property, physical assets or real property.

    - Any liabilities incurred by SO during the development and implementation of the SO Program and anticipated to be incurred during the development and implementation of the plan.
    - A detailed account of anticipated costs arising from the plan, and a detailed account of how SO will finance these costs.
    - A detailed account of how SO proposes to equitably apportion its assets, liabilities, rights and obligations among stewards of Blue Box materials.
    - The plan shall set out a proposal to deal with any residual funds after the SO Program has ended and SO has finished its final financial reconciliations for the program and organization.
- A description of all data and information that is within SO's custody or control and that is related to the operation of the SO Program since the Minister's program request letter of September 23, 2002, and a proposal for transferring all data and information to the Resource Productivity and Recovery Authority (the Authority), including:
    - The process for transferring all the data and information to the Authority within any timeframes specified by the Authority.
    - The data and information that is to be transferred to the Authority, including, but not limited to:
        - A list of all registered stewards, including their business addresses and contact information; the nature of each steward's designation under the WDTA (e.g. whether designated because the steward is a brand holder, a first importer, or other person); the type and amount of Blue Box materials supplied by the steward into the Ontario marketplace; and,
        - Other additional data and information requested by the Authority.
    - Data and information related to the SO Program that is in SO's custody or control shall not be for sale.
- A proposal for identifying confidential or personal data and information and indicating how such data and information will be supplied in confidence when transferring it to the Authority, which will assist the Authority in determining its treatment of such data and information based on applicable law and policies.
- Demonstration and documentation that any party currently having access to SO data and information only retain data that is equivalent to the information that will be shared through a fair, open and transparent process
- The procedures that SO is putting in place to ensure there is no real, potential or apparent conflict of interest in respect of the plan's development, contents or implementation. Without limiting the scope of these procedures, the plan should address:
    - Any real, potential or apparent conflict of interest in respect to SO's relationship with the Canadian Stewardship Services Alliance (CSSA)

    - Any necessary steps to ensure that the CSSA does not receive preferential treatment over other potential market participants in respect of Blue Box resource recovery markets that may be created under the RRCEA.
- A description of changes to the SO Program that are anticipated to be necessary to implement the plan.

I am further directing that the plan include the following:

- A detailed report of SO's communications with affected parties and the public during the development of the plan.
- A detailed proposal for a communications plan for all affected parties and the public during the implementation of the plan, if approved, including:
    - The process by which SO will provide information to the affected parties and the public on a regular basis.
    - A description of the key steps that will be taken related to the plan and show how affected parties and the public will be affected by the transition.
- A detailed report of how SO has met the consultation requirements of subsection 14(13) of the WDTA during the development of the plan, including:
    - A list of the stewards, municipalities, Indigenous peoples, service providers and other affected parties that were consulted during the development of the plan.
    - A summary of comments received by SO from affected parties.
    - A report of how the comments were considered by SO in the development of the plan.

Subject: Award of Contract 2020-T-18 DeCew Falls WTP Plant 3 Upgrades Contract 1

Report to: Public Works Committee

Report date: Tuesday, June 16, 2020

Recommendations

1. Contract 2020-T-18 DeCew Falls WTP Plant 3 Upgrades Contract 1 in the City of St Catharines **BE AWARDED** to Kenaidan Contracting Ltd. at their bid price of $11,889,430.60 (including 13% HST).
2. That the original Contract amount of $955,572.07 (including 13% HST) awarded to Associated Engineering Ltd. **BE INCREASED** by $251,727.84 (including 13% HST), for a total revised Contract of $1,207,299.91 (including 13% HST) for DeCew Falls WTP Plant 3 Upgrades for the provision of Contract Administration and Inspection Services for DeCew Falls WTP Plant 3 Upgrades Contract 1.

Key Facts

- The purpose of this report is to seek Council's approval for the award of Contract 2020-T-18 DeCew Falls WTP Plant 3 Upgrades Contract 1 to Kenaidan Contracting Ltd. at their bid price of $10,521,620.00 (excluding 13% HST) and to seek Council's approval for the increase in the original contract amount of $845,639.00 (excluding 13% HST) awarded to Associated Engineering for DeCew Falls WTP Plant 3 Upgrades by $222,768.00 (excluding 13% HST) for a total revised Contract of $1,068,407.00 (excluding 13% HST).
- Schedule B of the Niagara Region Procurement By-law 02-2016 as amended February 28, 2019 requires Council approval for all tender awards in excess of $5,000,000 (Recommendation 1) and for any Single Source award where the increase puts the total award value over $1,000,000 (Recommendation 2).
- Proposed works include rehabilitation of flocculation and settling tanks, filtration system upgrades, miscellaneous process upgrades, power supply & distribution system and process control & SCADA system upgrades including process control panels to support the process upgrades.
- Construction is scheduled from July 2020 to October 2021 with a substantial completion date of September 13, 2021 and a contract completion date of October 11, 2021.

- Four (4) General Contractors were Prequalified in a competitive public pre-qualification process (2019-RFPQ-176) were invited to bid on 2020-T-18 DeCew Falls WTP Plant 3 Upgrades Contract 1.
- On March 18, 2020, Niagara Region initiated a competitive public tender process (2020-T-18), to solicit bids from those prequalified companies to complete for these works. The tender closed on May 14, 2020 and three (3) bid submissions were received and opened with the lowest compliant bid being received from Kenaidan Contracting Ltd. in the amount of $10,521,620.00 (excluding 13% HST).
- As part of a competitive bid process (2016-RFP-61), Associated Engineering Ltd. was awarded the contract to provide engineering services for the upgrades of DeCew Falls WTP Plant 3. Associated Engineering has provided revised fees for Contract Administration and Inspection services based on the current construction requirements as well as a scope change request for additional design efforts requested by Niagara Region for a total addition of $222,768.00 (excluding 13% HST).

Financial Considerations

Project 20000185 DeCew Falls WTP Plant 3 Upgrades has a previously approved capital budget of $22,250,000 with $997,794 of actual and committed expenses as of May 12, 2020 as detailed in Appendix 1 – Total Estimated Project Cost.

Due to funding limitations, this project has been split into two distinct construction contracts.

Contract 1 includes rehabilitation of flocculation and settling tanks, filtration system upgrades, miscellaneous process upgrades, power supply & distribution system and process control & SCADA system upgrades for a total estimated cost of $15,013,905 which can be accommodated within the current budget. This includes an increase to Associated Engineering fees as outlined below, and the award of Contract 1 to Kenaidan Contracting Ltd.

In 2022, Contract 2 of the project is expected to take place, which includes construction of a new building superstructure above the flocculation and settling tanks with three new stairwells, architectural finishes, concrete repair works within the existing structure, new lighting, electrical and HVAC for a total estimated cost of $22,236,095. From the current budget, $7,236,095 will be utilized for Contract 2. The remaining funds will be requested as part of the 2022 capital budget in the amount of $15,000,000. The total estimated cost for both contracts is $37,250,000.

Associated Engineering (Ont.) Limited was retained by Niagara Region through a competitive bidding process, 2016-RFP-61, to complete detailed design, tendering, contract administration and inspection services. The current contract value for the work is $860,522 (including 1.76% non-recoverable HST).

During the design phase, development of the construction sequence and schedule resulted in an increase in the expected construction duration from a 10-month period, as stipulated in 2019-RFP-61, to a 14-month construction period for Contract 1. Also, Niagara Region authorized a nominal amount of additional engineering work to add operator accessibility improvements to the design, to split the design into two separate contracts, and to proceed with Contract 1 tender.

The increased construction duration and the added scope of work resulted in a required increase to Associated Engineering's fees to a total value of $1,087,211 (including 1.76% non-recoverable HST).

The additional engineering fees associated with the increase in construction duration is an extension of the work that was originally competitively bid. The fees now reflect the length of construction necessary to complete Contract 1 and the support and oversight required from the consultant based on the projects complexity.

Analysis

The DeCew Falls Water Treatment Plant (WTP) is the largest WTP in the Niagara Region and serves approximately 181,000 people. The WTP service area includes the City of St. Catharines, the City of Thorold (excluding Port Robinson), the Town of Niagara-on-the-Lake, and the Town of Lincoln (Vineland/ Jordan). The DeCew Falls WTP consist of three conventional water treatment plants (Plant 1, 2 and 3). Plant 3, shown on key plan in Appendix 3, was constructed in 1975 and includes three filters to raise the plant capacity from 145.5 ML/d to 227 ML/d.

DeCew Falls WTP Plant 3 has been in continuous use since construction in 1975 without any major upgrades or renewals. The existing filters and process equipment have reached the end of their service life and require upgrades. In addition to the process equipment upgrades, a Structural Condition Assessment identified visible structural cracking on the filter bridge. In 2016, a DeCew Falls WTP Plant 3 Condition and Process Assessment was completed. The Assessment recommended various rehabilitation requirements as well as process improvements. Currently, Plant 3 represents challenges

for operations and maintenance staff with respect to limited access and poor visibility of flocculation and settling tanks from hatches located on the existing flat roof.

Plant 3 requires sustainability improvements to the existing process equipment. Plant 3 project upgrades will also include the addition of a building superstructure with outside wall extensions and a peaked metal roofing system. These works will open up the existing flat concrete/membrane roof top structure to allow safe access and visibility to all process tanks to improve operations, maintenance, and ultimately water quality produced from the plant. Providing safe, reliable drinking water is a key objective of Niagara Region.

The following is the scope of work for Contract 1 of this project:

- Removal and disposal of existing filter media and underdrains in the three filters in Plant 3 and installation of new underdrains and filter media;
- Structural rehabilitation works within the Filters and Operating Gallery;
- Installation of a new air blower and associated air scour piping to the filters;
- Piping and instrumentation improvements in the Filter Pipe Gallery;
- Installation of a new jet-mixing system for improved coagulant mixing;
- Replacement of the equalization tank unwatering pumps with new;
- Installation of four (4) new sludge collection systems in the two (2) settling tanks;
- Replacement of existing sludge pumps and associated piping and instrumentation with new;
- Installation of new HMI panels, PLC and SCADA upgrades;

The following is the scope of work for Contract 2 of this project:

- Removal of existing roof slab and construction of new floor slab with openings above the flocculation and settling tanks;
- Construction of a new building superstructure above the flocculation and settling tanks and filter building;
- Construction of three new stairwells for access to the new building super structure;
- Removal and disposal of existing architectural cladding and installation of new architectural panels;
- Concrete repair works within the existing concrete structure;
- New lighting, electrical and HVAC for the new building superstructure area.

Associated Engineering was retained by Niagara Region through 2016-RFP-61 to complete the detailed design, tendering and contract administration and inspection

services. Associated Engineering has provided revised fees for Contract Administration and Inspection services based on the current construction requirements as well as a scope change request for additional design efforts requested by Niagara Region. The Request for Proposal (2016-RFP-61) stipulated a 10-month construction period. Through design development, which included detailing the construction sequence, complexity and schedule, the estimated construction duration for Contract 1 has been set to 14 months. During the final stages of design, Niagara Region identified staff accessibility concerns with an existing exterior chamber hatch and chemical room entrance both located alongside DeCew Falls WTP Plant 3 building. Access improvements were added to Associated Engineering's design scope of work. The DeCew Falls WTP Plant 3 Upgrades project was split into two construction contracts. Associated Engineering was requested to modify their design drawing set and contract documents by splitting the scope into two tender packages to accommodate the two construction contracts.

In accordance with Niagara Region Procurement By-law 02-2016 as amended on February 28, 2019 and under the guidance of the Region's Procurement Department, Niagara Region initiated a competitive public tender process (2020-T-18), on March 18, 2020 to solicit bids from those prequalified companies to complete these works. The tender closed on May 14, 2020 and three (3) bid submissions were received and opened with the lowest compliant bid being received from Kenaidan Contracting Ltd. in the amount of $10,521,620.00 (excluding 13% HST including).

Niagara Region's Procurement Department has reviewed and checked all opened tenders to confirm they included acknowledgement of the correct number of Addenda and requisite Bid Security (tender deposit) and Surety (Agreement to Bond).

A summary of the bid submissions is included in Appendix 2.

Contract award requires resources from Legal Services and Corporate Services in order to execute the required contract documents and amending agreement. Water and Wastewater 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

1. Proceed with the Contract Award and Proceed with Contract Amount Increase – This alternative would enable staff to proceed with contract award to Kenaidan

Contracting Ltd. to construct DeCew Falls WTP Plant 3 Contract 1 upgrades and to proceed with contract amount increase to Associated Engineering Ltd. to meet the Niagara Region's objective of providing safe and reliable drinking water. The project will provide a sustainability upgrade to the existing process equipment, prolong the service life of the existing Plant 3 structure with functional upgrades, reduce energy consumption from obsolete equipment and improve the plant operation performance and water quality.

2. Do Nothing –This alternative does not adequately address the safe and reliable supply of potable drinking water to the communities as sustaining demand and meeting provincial compliance would be as risk.

Staff recommend Alternative 1 to proceed with contract award to Kenaidan Contracting Ltd. and contract amount increase to Associated Engineering Ltd.

Relationship to Council Strategic Priorities

This recommendation is related to the Responsible Growth and Infrastructure Planning, Objective 3.3: Maintaining Existing Infrastructure. Through asset management planning, the DeCew Falls WTP Plant 3 upgrades project is required to ensure sustainable investments in the infrastructure needed to provide safe and reliable potable water to residents and businesses.

Other Pertinent Reports

Not applicable.

Prepared by:
Lindsay Jones, P.Eng. PMP
Senior 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 Tony Cimino, C.E.T., Associate Director, W-WW Engineering; and Pamela Hamilton, Program Financial Specialist W-WW, and reviewed by Joseph Tonellato, P.Eng, Director W-WW and Dan Ane, Manager, Program Financial Support.

Appendices

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

PW27 - 2020 APPENDIX 1
Total Estimated Project Cost
Contract Award

Contract 2020-T-18 - DeCew Falls WTP Plant 3 Upgrades Phase 1

	Council Approved Budget	Budget Increase/ Reallocation	Revised Council Approved Budget	Expended & Committed as of 5/12/20	Contract Award/ Forecast	Budget Remaining
	(A)	(B)	(C) = (A) + (B)	(D)	(E)	(F) = (C)-(D)-(E)
Total Estimated Project Cost (20000185)*						
(a) Construction (includes contract contingency)**	18,000,000	(18,000,000)	-			-
Contract 1 Construction		10,706,801	10,706,801		10,706,801	-
Contract 2 Construction***		7,236,095	7,236,095		7,236,095	-
(b) Project Contingency	2,612,500		2,612,500		2,612,500	-
(c) Consulting Engineering Services (Design, Contract Administration, & Inspection)	1,125,000	(1,125,000)	-			-
Geotech, Peer Review, DSS		94,894	94,894	94,894		-
Design and Contract Administration & Inspection		1,087,211	1,087,211	860,524	226,687	-
(d) Project Management & Internal Costs	512,500		512,500	42,376	470,124	-
Total Estimated Project Cost	**22,250,000.00**	**(0)**	**22,250,000**	**997,794**	**21,252,206**	**-**

*All costs include 1.76% non-refundable HST

** Total Construction Contract 1 Award is equal to i) $10,521,620 before tax; ii) $10,706,801 including 1.76% non-refundable HST; iii) $11,889,431 including 13% HST

*** Additional funds for Contract 2 in the amount of $15,000,000 will be requested as part of the 2022 capital budget

PW 27-2020 Appendix 2 – Summary of Bids (2020-T-18)

Vendor	Total Tender Price (excluding HST)
Kenaidan Contracting Ltd.	$ 10,521,620.00
ROMAG Contracting Ltd.	$ 10,600,600.00
North America Construction Ltd.	$ 10,708,300.00

Appendix 3 - Key Plan DeCew Falls WTP

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

Memorandum

PWC-C 20-2020

Subject: COVID-19 Response and Business Continuity in Public Works
Date: June 16, 2020
To: Public Works Committee
From: Bruce Zvaniga, P.Eng., Commissioner of Public Works (Interim)

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 May 29, 42 Public Works staff are actively re-deployed in other departments (EMS, LTC, etc) delivering essential services.

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 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
- 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 barriers in vehicles requiring two employees.
- 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 facilities to accommodate couriers and sewage haulers.
- Face shields and half mask respirators are being used for additional protection for staff where certain activities do not allow for proper social 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.

Operational Outlook

1 month

- Development of an on-line virtual Niagara Children's Water Festival

3 months

- Implementing phased W-WW Pandemic Recovery 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.

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.

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 are 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

Effective June 1, curbside collection of large household items / bulk goods will resume for single-family homes and apartments with six units or less. Residents could begin scheduling collection on May 27. Restrictions on the number of daily bookings will be in place for the month of June to better manage volumes. The disposal fee at landfill sites/public drop off depots has been reinstated for these items.

Curbside Battery Collection

Battery collection originally scheduled for April 20-24 has been postponed until further notice.

Compost Giveaway

Compost giveaway originally scheduled for May 4-9 has been postponed until further notice.

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

- Staff will assess the viability of resuming with other programs and services that were suspended temporarily such as compost give-away days, curbside battery collection and outreach activities.
- 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.
- 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
- Hourly service (60 minutes) on Routes 22, 25, 50, 55, 60, 65, 70 & 75
- Routes 40 and 45 were eliminated as of May 4

Passengers are currently only permitted to board using the rear door of the buses to maintain physical separation with the driver (as is the case across the province) which includes no interactions with the fare boxes.

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.

Service/Operational Changes

"Rear door boarding" policy enacted on NRT (unless a wheelchair ramp deployment was required to utilize the front door). This was enacted as of March 23 to limit driver contact and respect physical distancing. This temporary measure of no interaction with the farebox has remained in place across all of Niagara's municipal providers and all transit operators in Ontario. As per provincial accessibility legislation (AODA), fares are therefore also not being collected on NST.

The IMT Working Group is currently exploring plexi-glass type bio-barriers to better protect bus operators, which would then allow for reinstatement of front door boarding and thus revenue collection, to resume. Through the IMTWG coordination, Niagara’s transit providers are targeting a full implementation of these driver barriers across the entire fleet by the end of June 2020. This would allow for a July reintroduction of front door boarding with reintroduction of fare collection thereafter.

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 will be reviewing ridership data in order to determine whether additional service reductions are viable. As the provincial guidelines only recently changed to allow for non-essential trips, it is premature to attempt to draw accurate ridership projections. Thus the service levels for the month of June will remain the same as the were in May and any changes would likely begin Monday, July 6 in order to give the local transit service providers time to make the necessary operational changes to staff complements, schedules, etc. As rider demand is beginning to rebound, it is unlikely that additional service reductions will be feasible while maintaining social distancing targets.
- Resumption of fare collection (boarding through the front door, reinstating interaction with the farebox) is being considered as soon as July 1, 2020 as the driver protection barriers are being implemented on transit vehicles across Niagara.
- The IMTWG is awaiting a detailed set of provincial guidelines which is expected imminently, which could affect the capacity allowed on transit vehicles. At present, 40’ conventional buses are restricted to 10 rider capacity to comply with provincial guidelines. Revised guidelines could allow for additional capacity on buses and the reduction in any “extras” or “shadow buses” that are currently being deployed to meet rising transit demand.
- Niagara Region Staff continues to work with its service provider Via Mobility to develop the service and communications plan for NRT OnDemand deployment in West Niagara. While a starting date in September is desirable, it is dependent on the timelines of the vehicle manufacturers. More concrete information should be available in the coming weeks with an update to Council.

- Working 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.

3 months

- Front door boarding/revenue collection should be back in full effect throughout this period.
- The communications plan for NRT OnDemand will be in effect during this timeframe. This will involve staff from both Niagara Region, our local area municipal partners in West Niagara, and Via Mobility being present in the communities of the service area to promote the new service.
- 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.

6 months

- 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.

Respectfully submitted and signed by,

Bruce Zvaniga, P.Eng.
Commissioner of Public Works (Interim)

Curbside Collection Changes Communications Campaign

Public Works Committee
PWC-C 14-2020

June 16, 2020

John Armstrong, Armstrong Strategy Group

CURBSIDE COLLECTION CHANGES

Communications Strategy

COMMUNICATIONS CAMPAIGN OBJECTIVES

- Build public awareness of the upcoming service collection changes, starting October 19, 2020 and understanding for why they are happening
- Encourage an increase in participation in diversion programs

COMMUNICATIONS CAMPAIGN OBJECTIVES CONTINUED

- Educate the public on how to participate in programs.
- Provide information on how to access tools available to facilitate participation, including the online collection calendar and mobile app.
- Educate residents about illegal dumping and proper disposal methods. Encourage reporting of illegal dumping and raise awareness of the Region's reward program.

KEY COMPONENTS OF THE CAMPAIGN

A multi-tier approach to meeting the objectives.

- New branding and graphics
- New messaging including: a slogan, key message platform, sub-messages and hashtags
- Media plan that includes social media
- Diverse communications tactics to reach all stakeholder audiences

COMMUNICATIONS STRATEGY - RATIONALE, APPROACH AND METHODOLOGY

- The messaging is intended to be inclusive and to diminish the feeling that residents are being forced to fulfill behaviour change.
- The tone positions the Region and residents as partners and encourages them to help.
- Messaging will also address the ICI sector to emphasize that business and industry are also being asked to “do their share.”
- Messaging will address education and clarification of misconceptions, such as the perception that organics break down in landfills.

TARGET AUDIENCES

- Homeowners
- Landlords
- Renters/Tenants
- Small business owners
- Other businesses
- Employers and industries
- Farmers
- BIAs
- Industry associations
- Students and youth
- Teachers and educators
- Municipality councils and staff
- Environmental groups
- Public institutions
- Churches
- Community Groups
- Chambers of Commerce

SLOGAN – BOX IT. BIN IT. SORT IT.

- This slogan uses the repetitive “X it, Y it, Z it” pattern in order to create a rhythmic effect that takes hold in the memory. Paired with simple and clear graphics, it is crafted to be the sort of slogan that can be repeated and remembered easily. It emphasizes the curbside aspect of the changes.
- This slogan will inform all aspects of the campaign
- It also works for an ongoing campaign beyond the change period.

KEY MESSAGE PLATFORM

1. CHANGES ARE COMING
2. IT'S WORTH THE EFFORT
3. WE ALL NEED TO DO OUR SHARE

KEY MESSAGES – CHANGES ARE COMING

- This message comprises the educational component of the campaign: the master theme for informative messages such as the date of the new contract, the substance of the changes.
- Some sample sub-messages:
  - Starting October 19, your garbage will be picked up every other week. Blue and Grey Boxes and Green Bin will continue to be picked up weekly.
  - Changes are coming. Starting October 19, there will be no curbside pickup of scrap metal or white goods (such as stoves, refrigerators, dishwashers).
  - Many of the items placed at the curb can either be recycled or composted. That's why we're still picking up your Blue and Grey Boxes and Green Bin weekly.

SAMPLE SOCIAL MEDIA GRAPHIC AND MESSAGE

CHANGES ARE COMING.

October 19, 2020

KEY MESSAGES - IT'S WORTH THE EFFORT

- Changes will require residents to go through the process of getting a Green Bin and disposing of recyclables properly. This message emphasizes the importance of a Green Bin and disposing of organics through a recoverable stream.
- Some sample sub-messages:
  - It's worth the effort to do more to protect the environment and reduce our impact on climate change. Do your part by filling your Green Bin!
  - Most of what you throw away could actually be recycled in the Blue Box, Grey Box or Green Bin. It's worth the effort.
  - We find a market for your recyclables to be turned into useful products. Did you know detergent bottles can be turned into patio furniture and that Styrofoam can be turned into crown moulding? It's worth the effort.

We can do more to protect the environment and reduce our impact on climate change. You can do your part by filling your Blue / Grey Box and Green Bin.

IT'S WORTH THE EFFORT.

KEY MESSAGES – WE ALL NEED TO DO OUR SHARE

- This message conveys multiple priorities: that not only residents, but also businesses, have a part to play in promoting waste diversion; and that the effort put into this change requires uptake and effort.
- This message incorporates a rationale that emphasizes Niagara Region will avoid costs through sustainability; particularly through approaches such as reducing use of landfills and thus future landfill maintenance and costs of decommissioning and management.
- Some sample sub-messages:
  - The more we compost, the less waste will decay in landfills and break down into harmful methane. We all need to do our share.
  - Waste diversion means recycling more and sending less to landfills. We all need to do our share to achieve our waste diversion target of 65%.
  - Do your share to keep Niagara clean by reporting illegal dumping.

Homeowners in Niagara are recycling more than the provincial average. Businesses need to do their share, too.

WE ALL NEED TO DO OUR SHARE.

PHASING

Phase 1: May to September 20, 2020. **The Pre-Change Campaign**.

- This phase of the campaign will focus on educating the public about the changes, what it will mean for particular groups in Niagara and why the changes are being made. It will also lay out the rationale for the changes.

Phase 2: September 21 – October 19, 2020. **The Build-Up.**

- This phase will consist of a ramp-up to the change period, with messaging informing residents of the changes and pushing more firmly on the need to get on board with the changes, pick up a Green Bin or otherwise embrace more diversion and the bi-weekly pickup.

Phase 3: October 20 onward. **The Launch and Post-Launch.**

- This phase of the campaign will feature stronger messages presenting an expectation of compliance. It will feature greater emphasis on anti-illegal dumping messages, while at the same time also promoting the changes and rationale.

NEW COMMUNICATION MATERIALS

1. Strategic Plan Document
2. New slogan
3. New visual branding
4. New truck wraps – current and new fleet
5. Postcard to key stakeholder groups
6. Letters to key stakeholder groups
7. Script of answers to frequently asked questions
8. New website subsection
9. New Collection Guide
10. Informational materials for schools
11. Social media messages
12. Social media shareables
13. Paid social media
14. Informational videos for social media
15. Public service announcements
16. Programmatic digital web advertising
17. Print media advertisements
18. Media releases
19. E-blasts
20. Graphics for the new app
21. Videos with Niagara mayors
22. Animated Graphics
23. Ramp-up period media materials
24. Launch media conference materials
25. Media appearance backdrops
26. Final report

CORE BRANDING AND VISUAL

BOX IT. BIN IT. SORT IT.

Changes are coming to your waste pick-up.

Starting October 19, your waste will be picked up every other week.
Your Blue/Grey Box and Green Bin will still be picked up every week.

We are making these changes to keep re-usable materials out of landfills - to save our valuable natural resources, save our climate and save money for future generations.

WE ALL NEED TO DO OUR SHARE. IT'S WORTH THE EFFORT!

#boxbinsort

Niagara Region

SECONDARY BRANDING AND VISUAL ALTERNATIVE

BOX IT. BIN IT. SORT IT.

Changes are coming to your waste pick-up.

Starting October 19, your waste will be picked up every other week.
Your Blue/Grey Box and Green Bin will still be picked up every week.

We are making these changes to keep re-usable materials out of landfills - to save our valuable natural resources, save our climate and save money for future generations.

WE ALL NEED TO DO OUR SHARE. IT'S WORTH THE EFFORT!

#boxbinsort

Niagara Region

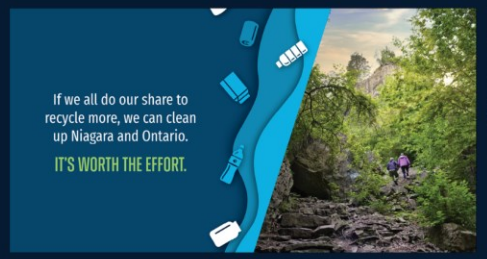
APPLIED BRANDING EXAMPLES - PRINT

POSTCARD

TRUCK WRAPS

APPLIED BRANDING EXAMPLES - DIGITAL

MAIN CAMPAIGN MESSAGES (SAMPLES)



SECONDARY CAMPAIGN MESSAGES (SAMPLES)

ILLEGAL DUMPING

BUSINESS FOCUS

THANK YOU

This strategy and communications roll-out has been prepared by the teams at Niagara Region Waste Management and the Armstrong Strategy Group/Loud+Clear.

APPENDIX

TACTICS Phase 1 Pre-Change Campaign

Timing	Tactic
June	Media launch
June to September	Social media ad campaign
June to October	Engagement with ICI stakeholders – presentations for, and meetings with this group facilitated through Chambers and BIAs
June	Website subsection - Content written will help residents understand the changes that are coming, information on how to effectively use their Green Bin, and facts that will serve as a script for CSRs. Development of an info graphic to show what materials go into what box / bin and a separate section for business owners to navigate what exact changes are taking place in their DBA will also be developed.
June 22	Postcard and letters to key stakeholder groups - pertinent information about the October 19 changes is being designed, printed and distributed to all residents in households and units of under 6. Content also includes the Waste Info Line number and website where people can seek more information. Letters to be sent to ICI and other stakeholders that can be customized to inform the different stakeholders of details pertaining directly to the changes they will experience. In addition, a flyer to be sent along with the letter can be posted or shared internally that has general information about changes.

TACTICS Phase 1 Pre-Change Campaign Continued

Timing	Tactic
July	Branded vehicle wraps unveiling
May / June	New info for Waste Info Line Script of answers to frequently asked questions about the coming changes for use by CSRs on Region hotlines and information lines. These answers can be repurposed for other educational materials produced by the department.
June	Support / Promotion for new App
August to November	Video series - Animated Graphics – Social Media: A professional animator will develop a series of videos that use graphics and illustrations from the campaign's brand to educate people on: recycling better, how to use a Green Bin, why it's important to sort smart, common things that are put in the garbage but could be recycled etc.
Mid September	Youth participation: grades 1-8 (COVID-19 modified)

TACTICS Phase 2 The Build-up

Timing	Tactic
August	Outreach to Local Area Municipalities – through presentations, postcard drops, releases, social media
Mid-September	New Collection Guide – A redesigned Collection Guide reflecting changes as of October 19. Some content from previous iterations will be repurposed while new messaging and design will be applied.
Mid-September	Informational materials for schools – Modifying a print piece that NRWM typically sends to the Niagara school boards, new creative will outline the upcoming changes and further educate youth on how to use their Green Bin at home. To be distributed digitally.
Mid-September	E-blasts – prepared content for Region or municipal eblasts that outline changes and offer advice, tips and contact information.

TACTICS Phase 2 The Build-up Continued

Timing	Tactic
Late September	Media conference Print media campaign
September 21 onward	Informational videos for social media – A mix of filmed, animated and organically filmed via cellphone; videos will be produced to share on social media that highlight the October changes but also facts on sorting recyclable materials, tips on how to reuse items and reduce food waste etc. Videos with leaders in the public e.g. Niagara Police Chief, talking about the importance of recycling and “we’re all in this together.”
September	Public service announcements – Produce informative videos that promote the date of collection service changes and direct people to the niagararegion.ca/waste URL as well as promote the new app and digital calendar download for collection days. To be distributed on social media but also given to YourTV and CHCH* for broadcast. (*Potential cost $) Could produce a spoken PSA to distribute to local radio stations as well.

TACTICS Phase 3 Launch/Post-launch

Timing	Tactic
October 19 to November 2	War-room comms team
October 19 & 20	Videos with Niagara mayors – Coordinate and assist in filming videos (cell phone) for social media of Niagara mayors participating in putting things at the curb, encouraging their residents of their municipalities to take part, discouraging illegal dumping and showing “we’re all in this together.” Mayor would post to their handle and tag Niagara Region, to share.
October 19	Waste Reduction Week media-op
October 20 onward	Anti-dumping campaign
November	Final Report and Presentations

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

MEMORANDUM **PWC-C 14-2020**

Subject: Overview of the Communications Strategy and Public Education Campaign for the Collection Service Level Changes

Date: Tuesday, June 16, 2020

To: Public Works Committee

From: Susan McPetrie, Waste Management Services Advisor

The purpose of this memorandum is to provide an overview of the public education campaign that has been developed to promote and raise awareness of the collection service level changes that will occur with the commencement of the new waste collection contracts on October 19, 2020 (see Appendix A). Campaign implementation begins in June and will continue until November 2020. After completion of the campaign, program maintenance and support will occur as part of the annual divisional social marketing and outreach strategy.

Campaign Objectives

As outlined in WMPSC-C 21-2020, Niagara Region has engaged the services of Armstrong Strategy Group (ASG), through a competitive RFP process, to develop and deliver a comprehensive and multi-faceted public education campaign that will build public knowledge and understanding of the service level changes that were approved by Council on October 17, 2019 (PW 61-2019). The key objectives of the campaign are to:

- Advise residents and businesses of when changes start and how their waste collection services will be affected;
- Increase participation in Regional diversion programs, including addressing current barriers and educating on proper preparation of materials;
- Provide information on how to access tools available to facilitate participation, including obtaining a Green Bin, applying for waste exemptions, such as weekly diaper collection, and accessing the new online collection calendar and mobile app;

- Educate residents about illegal dumping and proper disposal methods, including encouragement of the reporting of illegal dumping and raising awareness of the Region's reward program for reporting.

Implementation Phases

The campaign has been designed with three implementation phases:

Phase 1: The Pre-Change Campaign – June to September 20, 2020

The focus of this phase is on educating the public about the upcoming changes, how they will impact different sectors in Niagara and why the changes are being made.

Phase 2: The Build-Up - September 21 to October 19, 2020

This phase will consist of a ramp-up in outreach and communication activities in the month before the waste collection changes begin. In addition to providing information on the changes, messaging will encourage residents to pick up a Green Bin, download the collection calendar mobile app currently in development, and get on board with every-other-week garbage collection and waste diversion practices.

Phase 3: The Launch and Post-Launch - October 20 – November

The final phase of the campaign will feature messages focusing on compliance and illegal dumping, while at the same time recognizing and expressing appreciation to residents and businesses that have embraced and adapted to the changes.

Outreach and Engagement Tactics

As part of the communications strategy, ASG has identified diverse tactics for engaging with a broad range of target audiences throughout Niagara Region. The following list includes examples of key communications tactics that will be employed:

- Postcards to low density residential properties;
- Letters to multi-residential properties and businesses;
- Social media campaign;
- Campaign webpage on Niagara Region's website;
- Engagement with business sector through webinars, video meetings;
- New vehicle wrap with campaign messaging on waste collection vehicles;

- Media releases, media conferences and a Waste Reduction Week photo-op;
- Video series on topics including tips to reduce waste and using the Green Bin;
- Public service announcements;
- Dedicated message e-blast to Niagara Chamber of Commerce;
- Engagement with Local Area Municipality councils and staff;
- Newspaper advertising;
- Journalist ride-along of collection process, facility tours;
- Illegal dumping awareness campaign; and
- On-going monitoring and response to public inquiries and feedback through social media, the Waste Info-Line and Niagara Region's website.

The onset of the Novel Coronavirus (COVID-19) presents a challenge to carrying out the type of in-person engagement activities that would typically play a key role in public outreach. With closures, physical distancing requirements, and event cancellations, the communications strategy has been adapted to shift emphasis to activities that do not require person-to-person contact. As an example of an adjusted tactic, unstaffed booths can be set-up with pop-up banners and take-away postcards at businesses that are open (i.e. grocery stores, garden centres, etc.), rather than scheduling Waste Management interns to attend local community activities. ASG and Waste Management staff will continue to look for opportunities for engagement as they arise with the evolving COVID-19 situation.

Key Messages

There are three (3) key messages that will be used throughout the campaign. These overarching messages can also be customized into sub-messages for use with specific audiences and applications.

1. Changes are coming.

This message comprises the educational component of the campaign. This theme is connected to messages providing information including the date of the new contract, the substance of the changes, the rationale behind them and how Niagara Region's residential and business sectors will be affected.

Examples of sub-messages are:

- Starting October 19, your garbage will be collected every-other-week. Blue and Grey Boxes and the Green Bin will continue to be collected weekly.

- Changes are coming. Starting October 19, there will be no curbside collection of scrap metal or white goods (such as stoves, refrigerators, dishwashers).

2. It's worth the effort.

This message acknowledges that the changes may require effort on the part of residents and businesses to sort and dispose of materials properly, while emphasizing the value of this effort. It will draw on the rationale for the changes, including the benefits and best practices to support and encourage participation.

Examples of sub-messages are:

- Niagara has one of the most comprehensive recycling programs in the province. Help us make it even better! It's worth the effort.
- Properly preparing and sorting your waste means more of it can be recycled or composted. It's worth the effort.

3. We all need to do our share.

This message has multiple purposes. First, it conveys that residents and businesses have a part to play in promoting waste diversion. Secondly, it positively conveys that the effort put into this change will require have a beneficial effect.

Examples of sub-messages are:

- You can do your share to deal with food waste by putting yours in the Green Bin.
- Homeowners in Niagara are recycling more than the provincial average. Businesses need to do their part, too. We all need to do our share.
- Every bit of effort helps reduce climate change. We all need to do our share.

Slogan and Branding

ASG has designed a new slogan and branding for the campaign that has the flexibility and longevity to be used and adapted beyond the launch of the new collection contract. The new slogan "Box it. Bin it. Sort it." promotes diversion and ties in with the new visual branding, which includes a graphic of a recycling container with the three curbside diversion streams represented (see Appendix B for sample). The new slogan and branding unify the campaign messaging and materials, and will help raise public awareness that collection services are changing.

Campaign Conclusion

Despite the challenges posed by the timing of this campaign during a pandemic, all efforts are being taken to deliver an extensive and robust public education campaign, which ensures that residents and business are well-informed of the service level changes that will begin on October 19, 2020.

At the conclusion of the campaign, ASG will provide a report to Niagara Region that will assess the effectiveness of the campaign and provide recommendations for ongoing communication. This material will be presented to the Waste Management Planning Steering Committee by the end of 2020.

Additional Efforts to Support Residents

Concurrent with the public education campaign, Niagara Region staff are working with Recollect Systems Inc. to release an online collection calendar and mobile app. The online calendar will be integrated directly into Niagara Region's existing Waste Management web page. Residents will be able to search for an address and view an online calendar with easily recognizable graphics to quickly identify collection day for each material stream. The calendar can be printed, viewed on-line, or even embedded into a users' personal calendar.

Significant new features for residents include:

- Access to collection day and other information through the voice assistant on Amazon Alexa on all enabled devices; and
- Ability to sign up to receive a customized reminder to set-out waste material, via text, email or phone call, at a set time each week.

The mobile app and calendar also function as an additional communication tool by staff. Residents who sign up for reminders or who access the calendar on-line will see targeted educational messaging. For example, Niagara Region can design brief, focused messages to be included during specific campaigns (e.g. related to illegal dumping). In the case of delayed collection (e.g. due to weather related issues), residents living in the affected neighbourhood(s) who have signed up for the service will receive notification about the delays, as well as updated set-out instructions if applicable. It is anticipated that the ability for Regional staff to send this targeted messaging will reduce the need to call the Waste Info Line, especially during time periods with extra set-out, such as Branch and Leaf and Yard Waste weeks.

The mobile app and calendar are scheduled for release in July and will be promoted as part of the overall campaign by ASG.

Respectfully submitted and signed by

_____

Susan McPetrie
Waste Management Services Advisor

Appendices

Appendix A Summary of Waste Management Service Level Changes

Appendix B Sample of New Branding

Appendix A – Summary of Waste Management Service Level Changes

The current curbside collection contracts with Emterra and Canadian Waste Management Inc. end on October 18, 2020. Starting October 19, 2020, the Region will have two (2) new collection contractors, GFL Environmental Inc. and Miller Waste Systems, each servicing a separate collection zone.

The following base collection services will be implemented:

1. Change from weekly to every-other-week collection for garbage only for all sectors outside Designated Business Areas (DBAs). Current garbage container (i.e. bag/can) limits will double for all sectors.
2. Weekly collection of recyclables and organics
3. Weekly collection of yard waste year round, and branches collected 4 times in the spring and the fall.
4. Weekly collection of diapers and waste generated due to medical issues
5. Change the weekly garbage container limits (bags/cans) for Industrial, Commercial and Institutional (IC&I) and Mixed-Use (MU) properties located inside DBAs from seven (7) containers to four (4) containers per property.
6. Change the garbage container limit for MU properties located outside DBAs from six (6) containers per property collected weekly to eight (8) containers per property, collected every-other-week.
7. Discontinuation of collection of appliances and scrap metal at Low Density Residential (LDR) properties.
8. Establishment of a four-item limit per residential unit, per collection, for bulky goods (i.e. large household items) at LDR properties.

Enhanced level of services have been confirmed by each local area municipality.

Appendix B – Sample of New Branding

BOX IT. BIN IT. SORT IT.

CREATIVE MATERIALS - SHOWCASE OF BRANDING

Subject: Niagara Escarpment Crossing Update

Report to: Public Works Committee

Report date: Tuesday, June 16, 2020

Recommendations

1. That this report **BE RECEIVED** for information.

Key Facts

- At the July 9, 2019 Public Works Committee Meeting (Item 7.2), Niagara Regional Council requested an update on the Environmental Assessment (EA) for Regional Road 14 (Bartlett Avenue), in the Town of Grimsby also known as the Niagara Escarpment Crossing EA.
- Niagara Regional Council Strategic Plan identifies facilitating the movement of people and goods as objective 3.4 of the Responsible Growth and Infrastructure Planning priority.
- The Niagara Region Transportation Master Plan (TMP), approved by Regional Council July 2017, recommended the long-term transportation infrastructure requirement for implementing a new Niagara Escarpment Crossing (NEC) transportation corridor.
- In 2018, Transportation Services retained the services of an Environmental Assessment consultant to provide guidance related to alternate EA processes that could be used to plan the Niagara Escarpment Crossing including: Municipal Class EA and Individual EA (IEA) processes.
- The Consultant IEA alternative process review and subsequent meeting with Ministry of Environment, Conservation and Parks (MECP) staff (2018) indicated that an IEA is the best process for projects like the Niagara Escarpment Crossing that have potentially a large environmental impact, property acquisition and high potential for stakeholder concerns.
- In 2019, Transportation Services completed the Niagara Escarpment Crossings Traffic Operations Study that identified short-term operational and safety recommendations and the requirement for a new Niagara Escarpment Crossing.
- The 2020 approved budget available for this project is $2.5M and Transportation Services plans initiating the IEA Terms of Reference Study Q1/Q2 2021.
- The IEA process for a new Niagara Escarpment Crossing can take upwards of 3 years to obtain MECP approval which includes approved IEA Terms of Reference

(approximate 1-year time line) and the preparation of the EA Report (approximate 2-year timeline).

- The planning, EA approval, detailed design, property acquisition, funding, and construction activities required for implementing a new Niagara Escarpment Crossing transportation corridor is a complex undertaking that can take upwards of ten years.

Financial Considerations

The Niagara Region Transportation Master Plan (TMP), as approved by Council in 2017, provides the direction, policies and infrastructure improvements to address planned future growth and increasing travel demands to move people and goods within and through the Region to the 2041 planning period.

The TMP implementation strategy includes undertaking the Planning and Environmental Assessment studies associated with major transportation infrastructure projects including the Niagara Escarpment Crossing.

The 2017 Capital Cost estimate for the Niagara Escarpment Crossing (Bartlett Avenue Extension to Mud Street) identified in the 2017 Development Charges Bylaw (DCB) is $38.7M which represents a one-third contribution by Niagara Region with the remaining Capital Costs to be funded by Federal and Provincial funding programs. The 2017 DCB identified approximately 85% of these project costs as eligible for development charge funding.

The initial estimated total project Capital Cost of approximately $116M remains as the basis of the current DCB. However, due to additional information regarding archeological / indigenous peoples' impacts within the corridor study area, the overall project Capital Cost is estimated at approximately $150M. The EA process will confirm the transportation system need, preliminary design, and refined construction cost estimates that can be incorporated into AMO and ROMA presentations and briefings with the Minister of Transportation Ontario.

As mentioned in the key facts section of the report, $2.5M is currently available of prior approved Capital Budget to undertake a detailed EA for the Niagara Escarpment Crossing Project.

The implementation of identified TMP strategies/projects and the associated EA approval process, public and stakeholder consultation, property acquisition, and financial planning associated with major transportation infrastructure programs can take

upwards of ten years prior to implementation. Therefore, Niagara Region has initiated a work plan with prior approved budgets to start the planning and approval process in Q3 2020 to meet the following objectives:

- Provide the transportation services to address the forecast increase in population and employment by 2041;
- Confirm and protect transportation corridor location;
- Refined Capital Costs for financial planning of Capital Budgets and Development Charges;
- Implementing Council Strategic Priority – Facilitating the Movement of People and Goods;
- Complementing Economic Development Strategies that require efficient transportation infrastructure for Trade, Employment, and Tourist initiatives; and,
- Developing partnerships with Federal and Provincial Agencies for planning, funding, and constructing major transportation infrastructure.

Limiting or deferring approved work plan related to the Niagara Escarpment Crossing impacts delivery of Council Strategic Priorities, Economic Development Strategies, and Funding Strategies.

Currently, the estimated construction costs associated with completing the Niagara Escarpment Crossing project are not included in the Niagara Region 9-year capital forecast, as completion of the project is dependent on external funding support from Federal and Provincial programs.

Analysis

The Transportation Master Plan included substantial public consultation to establish a strategic vision for Niagara Region transportation including:

- Integrating transportation and land use;
- Maintain and improve the efficiency of the goods movement network;
- Develop a realistic and innovative blueprint for implementation; and
- Support economic development.

Along with forecasted population and employment growth of 36% and 31% respectively, travel by motorized vehicles is anticipated to grow by 55%, reaching more than 10 million vehicle-km daily in 2041. Future growth and increasing demands to move people

and goods within and through the region will intensify the need for a safe, connected and sustainable road network. Strategies and initiatives to influence how, how much, when, where, and why people travel and technologies to maximize the capacity of the existing transportation system work hand-in-hand with proposed capacity improvements.

A number of transportation system constraints exist along the major Provincial and Regional corridors that traverse Niagara, and at key locations, such as the crossings of the Niagara Escarpment and Welland Canal. Therefore, a program of strategic network capacity improvements is required to meet the needs of Niagara Region residents and businesses. The recommended TMP 2041 Road Network identified the Niagara Escarpment Crossing as a critical transportation corridor providing new transportation system capacity within Niagara Region.

The following discussion provides an overview of existing issues, planning and supporting studies related to a new Niagara Escarpment Crossing transportation corridor.

- Existing Regional Road crossings of the Niagara Escarpment in west Niagara Region include:
    - RR12 – Mountain Road - Grimsby
    - RR18 – Mountain Street – Beamsville
    - RR24 – Victoria Avenue – Vineland
- Truck volumes, driver behaviour and travel routes across the Niagara Escarpment have resulted in safety and operational concerns raised by the public and Municipal Councils.

- In response to the safety and operation concerns, Niagara Region has undertaken and been a participant of the following planning studies related to a new Niagara Escarpment Crossing transportation corridor:

    - 1997 – Niagara Crossing Study
        - Park Road Corridor noted as preferred route for new Niagara Escarpment Crossing
    - 2011 – 2016 Niagara Crossing Environmental Assessment Study

- Recommended Extension of Bartlett Avenue / Park Road Corridor to Mud Street

- 2017 – Niagara Region Transportation Master Plan
  - Reaffirmed the need for a new Niagara Escarpment Crossing
- 2019 - Niagara Escarpment Crossings Traffic Operations and Safety Study
  - Long-term recommendation for a new Niagara Escarpment Crossing
- 2019 – Town of Lincoln Transportation Master Plan
  - Long-term recommendation for a Niagara Escarpment Crossing (Park Rd. – Bartlett Avenue-QEW)
- 2020 – Greater Horseshoe Transportation Study (ongoing)
  - Assessing the need for additional transportation infrastructure in Niagara Region to accommodate movement of people and goods. Niagara Region staff, as part of study consultation phase, has provided the Ministry of Transportation with TMP 2041 network recommendations including the Niagara Escarpment Crossing transportation corridor.

- The assessment of opportunities to improve the existing safety and operational concerns and future needs of efficient movement of people and goods have identified the need for a new Niagara Escarpment Crossing transportation corridor.
  - The 2016 Niagara Crossing Environmental Assessment Study confirmed the need and corridor limits that would be included in undertaking the next phase of the Environmental Assessment process.
  - The 2017 TMP incorporated the proposed Park Road Corridor as the location of the new Niagara Escarpment Crossing.
  - The 2019 Niagara Escarpment Crossings Traffic Operations and Safety Study identified the long-term requirement for a new Niagara Escarpment Crossing
- In 2018, Transportation Services retained the services of an Environmental Assessment consultant to provide guidance related to alternate EA processes related to planning the new Niagara Escarpment Crossing. This review identified the advantages, disadvantage and risks of applying the Municipal Class EA and Individual EA processes. A summary of this review follows:

- The Municipal Class EA is the most appropriate EA process for planning projects that deal with reconstruction or widening of existing linear paved facilities not used for the same purpose / road capacity and construction of new roadways that do not have potentially large environmental impacts and/or high potential for stakeholder concerns. The Municipal Class EA process allows public and stakeholders the opportunity to submit a Part II Order to MECP regarding the EA process undertaken. The Part II Order process requires mediation of issues prior to MECP approval that can be time consuming with significant costs.

- The Individual EA (IEA) process is the most appropriate process for projects that have a potentially large environmental impact, potential for significant property acquisition and Stakeholder concerns. The Individual EA process goes through a formal government review and approval process that includes MECP approval for the Study Terms of Reference. The MECP approved Study Terms of Reference may have specific conditions and monitoring requirements that will be included during the detailed design and construction phases. The IEA follows a formal government review process, and does not provide for a Part II Order process.

- In 2018, Regional Staff met with Ministry of Environment, Conservation and Parks (MECP) to discuss alternate EA processes to address the complexities of planning for a Niagara Escarpment Crossing. MECP staff indicated that both EA processes could be applied to the Niagara Escarpment Crossing project. However, the IEA process is the best process for projects like the Niagara Escarpment Crossing that have potentially large environmental impact, property acquisition and high potential for stakeholder concerns.

Alternatives Reviewed

Do-Nothing

- This alternative does not meet the objectives of the Transportation Master Plan or the 2019-2022 Council Strategy Implementation Plan.

Defer the Environmental Assessment Process

- Impacts of deferring the Environmental Assessment Process include:
  - Risk of no Funding Partnerships / Programs
  - Increased Costs - Public and Municipality Community / Land Use / Property

- Restricted Financial Planning - Capital Works Budgeting / Development Charges
- Limiting Goods Movement Strategies / Economic Development Programs
- Not meeting Council Strategic Priority – Responsible Growth and Infrastructure Planning
    - Facilitating the Movement of People and Goods

Proceed with Environmental Process

- Benefits of proceeding with Environmental Assessment Process include addressing concerns for:
    - Improved safety for residential areas and downtowns
    - Improved transportation system redundancy
    - Alternate transportation route access to International Border Crossing
    - Connecting Smithville to Grimsby GO Station and QEW corridor
    - Improved efficiency of Commercial Vehicle logistics
    - Enhanced Financial Planning - Capital Budget and Development Charges

Relationship to Council Strategic Priorities

The implementation of the Niagara Escarpment Crossing corridor will provide efficient movement of people and goods within the Niagara Region transportation system that has redundancy and is resilient to future needs.

A planned and implemented efficient transportation system supports the Council's 2019-2022 Strategic Priority - Responsible Growth and Infrastructure Planning:

- Facilitating Movement of People and Goods

Other Pertinent Reports

TSC-C 3-2017, May 30, 2017, Niagara Region Transportation Master Plan

PW 27-2016, May 10, 2016, Niagara Escarpment Crossing Transportation Study

Prepared by:
Jack Thompson
Transportation Strategic Projects Lead
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: Carolyn Ryall, Director Transportation Services; Jordan Frost, Manager Transportation Planning; Brian McMahon, Program Financial Specialist; and Dan Ane, Manager, Program Financial Support.

Appendices

Appendix 1 Niagara Escarpment Crossings Traffic Operations and Safety Study

Niagara Escarpment Crossings Traffic Operations and Safety Study

Final Report
TPB186103

Prepared for:

Niagara Region
1815 Sir Isaac Brock Way, Thorold, ON

2/19/2019

Wood Environment & Infrastructure Solutions
a Division of Wood Canada Limited
3450 Harvester Road, Suite 100, Burlington, ON
www.woodplc.com

2/19/2019

Ms. Carolyn Ryall
Director, Transportation Engineering
Niagara Region
1815 Sir Isaac Brock Way
Thorold, Ontario
L2V 4T7

Dear Ms. Ryall,

Thank you for the opportunity to undertake this study. We understand that the crossings of the Niagara Escarpment in the Niagara Region are a requirement for access for residents and business. Residents expect these crossings to be available but also be safe for use by all road users. The businesses in the Niagara Region rely on these crossings for local deliveries and access to longer distance markets. The balance for quality of life for residents and economic viability for the businesses is a delicate balance when examining these Escarpment crossings.

Longer term we appreciate that the Region has been pursuing several new infrastructure initiatives including the NGHTA Corridor with the Ministry of Transportation Ontario, the Niagara Trade Corridor with the Federal Government, and a new escarpment crossing within the Niagara Region that provides access for goods to a provincial freeway facility. All of these initiatives have been discussed and studied for many years, yet no real infrastructure changes have occurred despite a common understanding that some or all of these longer-term initiatives are required.

In the interim, the Region continues to have operational concerns raised regarding these escarpment crossings. Many operational improvements have been considered and implemented in an attempt to address these concerns. However, the majority of these operational improvements have been perceived to only have limited impact and a more fulsome evaluation of potential interim solutions is required. This study was undertaken to evaluate the impacts of previous operational improvements implemented and an evaluation of more extensive policy and operational improvements for implementation.

Sincerely,

Wood Environment & Infrastructure Solutions
a Division of Wood Canada Limited

Lachlan Fraser, MPIA
Transportation Planner

Reviewed by:

John McGill, P.Eng., PTOE, RSP
Principal, Transportation Planning

MK/JMCG/LF

Niagara Escarpment Crossings Traffic Operations and Safety Study

Final Report
TPB186103

Prepared for:

Niagara Region
1815 Sir Isaac Brock Way, Thorold, ON

Prepared by:

Wood Environment & Infrastructure Solutions
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3450 Harvester Road, Suite 100, Burlington, ON

2/19/2019

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Executive Summary

Niagara Region has been actively increasing its traffic operations and controls across the Niagara Escarpment while developing strategies to improve the roadway designs for the north-south crossings. In an effort to ensure these strategies were supportable by evidence-based studies, Niagara Region undertook this Niagara Escarpment Crossings Traffic Operations and Safety Study.
The study area included four (4) of the key escarpment crossings in the west end of the Niagara Region including:

- Victoria Avenue (RR 24) between King Street (RR 81) and Fly Road;
- Mountain Street (RR 18) – Lincoln;
- Mountain Road (RR 12) – Grimsby; and
- Main Street-King Street – Grimsby.

There have been many concerns raised regarding the real and perceived safety of these escarpment crossings and of particular concern is the operations of trucks and goods movement across the escarpment. To ensure that there is a clear understanding of the existing traffic operations on the study area roadways, a significant amount of data was collected including a review of previously assembled data from sources such as the Niagara Escarpment Crossing Master Plan (2013) and from the Niagara Region's traffic databases. Additional field work was conducted for this study that updated traffic counts with and without schools in operation, video records of traffic operations across the study area crossings, and a limited number of consultation meetings with the local municipal staff.

Improvement plans were developed based on the study's assembled data and were sorted into five (5) separate categories:

- Operational and Design;
- Education;
- Network and Policy;
- Emerging Technologies; and
- Other Considerations.

These improvement plan options were evaluated based on several criteria and the resulting recommendations were once more sorted according to the appropriate time frame for implementation:

- Short Term Improvements
  - Consistent signs and markings on all crossings;
  - Implement traffic calming where appropriate;
  - Improved truck warning signage;
  - Lower speed limits;
  - Identify a preferred truck route;
  - Increased enforcement, either police presence or electronic enforcement;
  - Complete streets designs consistent with Niagara Region policies;
  - Continue to collaborate with local municipalities.

- Medium Term Improvements
    - Finalize the new escarpment study EA;
    - Create a Goods Movement Committee or Council;
    - Introduce minor design improvements on crossings; and
    - Develop a Niagara Region policy on electronic enforcement strategies such as red light cameras and speed enforcement.

- Long Term Improvements
    - Continue to pursue a Trade Corridor between Niagara Region and the City of Hamilton across the top of the Niagara Escarpment;
    - Strategic acquisitions of property at key locations such as the south-west quadrant of Mountain Street (RR 18)/King Street (RR 81) to facilitate the safer movement of heavy vehicles.

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1.0 Introduction

Wood has been retained on behalf of Niagara Region for the provision of consulting services to complete an Escarpment Traffic Operations and Safety Study that focusses on the movement of goods across the escarpment to ensure that these goods movements are being carried out in a safely and in a manner that is consistent with the expectations of the surrounding communities. There have been several previous studies undertaken that examine the movement of goods across the escarpment and this study is not intended to replicate those studies, but rather build upon their findings and recommendations.

1.1 Study Area

The study area includes four specific locations/roads that either cross the escarpment or abut the escarpment. Each of the study locations should be considered unique in terms of their surroundings and geometry. However, they are all subject to a similar problem in that heavy vehicles frequently use these locations to cross the escarpment, either as a point of origin or destination. Given the shared problem, each location is not necessarily independent of the other locations, and any solutions proposed to solve a problem at one location may have a flow on effect at one, or more, of the other locations. The four locations to be investigated in this study include:

- Victoria Avenue (RR 24) between King St. (RR 81) and Fly Rd.
- Mountain Street (RR 18) (Beamsville)
- Mountain Road (RR 12) (Grimsby)
- Main/King St. (RR 81) (Grimsby-Vineland)

The locations are described in detail below.

1.1.1 Victoria Avenue (RR 24) between King St. (RR 81) and Fly Rd.

Victoria Avenue (RR24) connects the QEW in the north, and Chambers Corners in the south where it intersects Highway 3. Victoria Avenue is a four-lane road and transitions to two lane road south of Fly Road. The intersection of Fly Road and Victoria Avenue adjoins an aggregate quarry with an entrance and exit on both Fly Road and Victoria Avenue. The abutting land uses are primarily residential or commercial throughout. It has a posted speed limit of 50km/hr within the study area.

1.1.2 Mountain Street (RR 18) (Beamsville)

Mountain Street (RR18) between King St. (RR81) and Fly Rd. (RR73) connects Beamsville with Lincoln on the escarpment and provides a relatively direct route for vehicles travelling along the escarpment to access the QEW to the north.

Mountain St. is primarily a two-lane road and features steep grades, a variety of land uses including residential, educational, and places of worship, and also provides some active transportation facilities (sidewalks/on road cycle lanes). It has a posted speed limit of 50km/hr within the study area.

1.1.3 Mountain Road (RR 12) (Grimsby)

Mountain Road (RR12) connects Fly Rd. (RR73) to Elm St. and Main St. (RR81) in Grimsby. It is a two-lane road that cuts into the escarpment and follows a curved route along the escarpment rather than the other typically linear escarpment crossings. There are far fewer access points to any development along this section of Mountain Road given the steep grade and obvious associated constraints. It has a posted speed limit of 50km/hr within the study area.

1.1.4 Main St. / King St. (RR 81) (Grimsby-Vineland)

Main Street East / King Street (RR81) links Vineland with Grimsby and continues further west to Hamilton (Hwy. 8). It is primarily a two-lane road with occasional centre turning lanes to assist traffic movement. Main/King St. runs along the bottom of the escarpment and is a significant east-west connection for residents and heavy vehicles in the local area. It has a posted speed limit of 50km/hr within the study area.

1.2 Background

The escarpment crossings in Niagara Region serve several purposes and provides access across the escarpment for many road users such as passenger vehicles, trucks, pedestrians and cyclists. It is not uncommon to see children using the road right of way on sidewalks that are directly adjacent to the roadway that accommodates gravel trucks. This mix of uses, combined with the extreme gradients that these roads have to accommodate result in many complaints and concerns. These include:

- Volume of trucks
- Type of trucks
- Vehicle speeds
- Noise, vibration and air quality impacts
- Road geometry
- Intersection operations
- Signage, markings, and traffic control operations.

Figure 1 below illustrates where the key areas of concern are located.

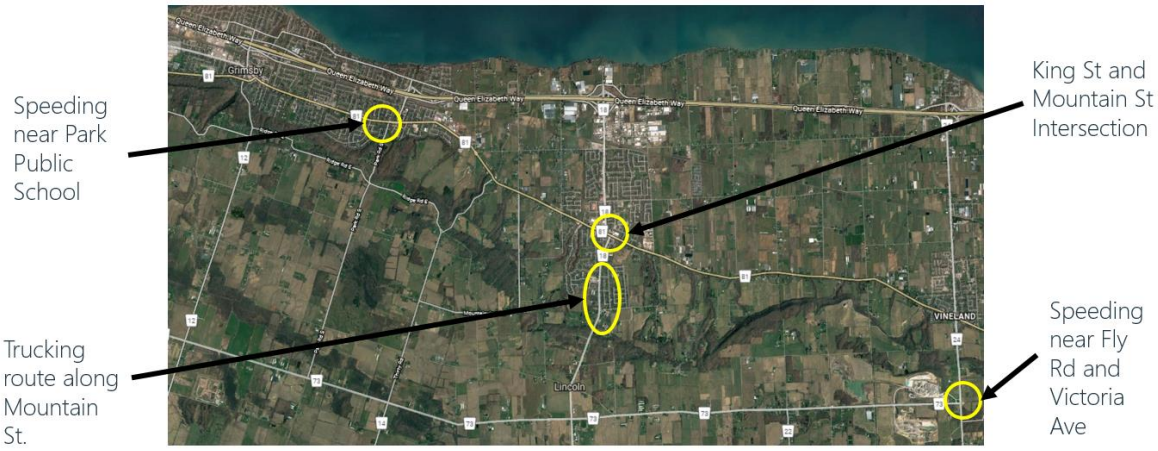


Figure 1: Focus Areas and Relevant Concerns

As such, a wide ranging and high-level analysis of the study area is required to better understand the factors that contribute to the problems as either a whole, or as individual components.

1.3 Trucking

Since the focus of this study is to examine the operations of trucks across the escarpment, it is important to recognize that trucking is a key economic contributor to the Niagara Region. The Regional Roads are presently available to all truck types throughout the year. There are presently no truck restrictions and as a result, there are many differing types of trucks that can be observed using these Regional Roads, including:

- Dump Trucks
- Cement Trucks
- Tractor-Trailers
- Dump Trucks with pups

These trucks carry goods that include: gravel from the nearby gravel pits, farm products, office supplies, and general commercial products. Trucks also return from making deliveries and these 'empty-load' trucks present additional challenges. An illustration of vehicles from Geometric Design Guide for Canadian Roads by Transport Association of Canada (TAC)-June 2017 is provided below for better understanding.

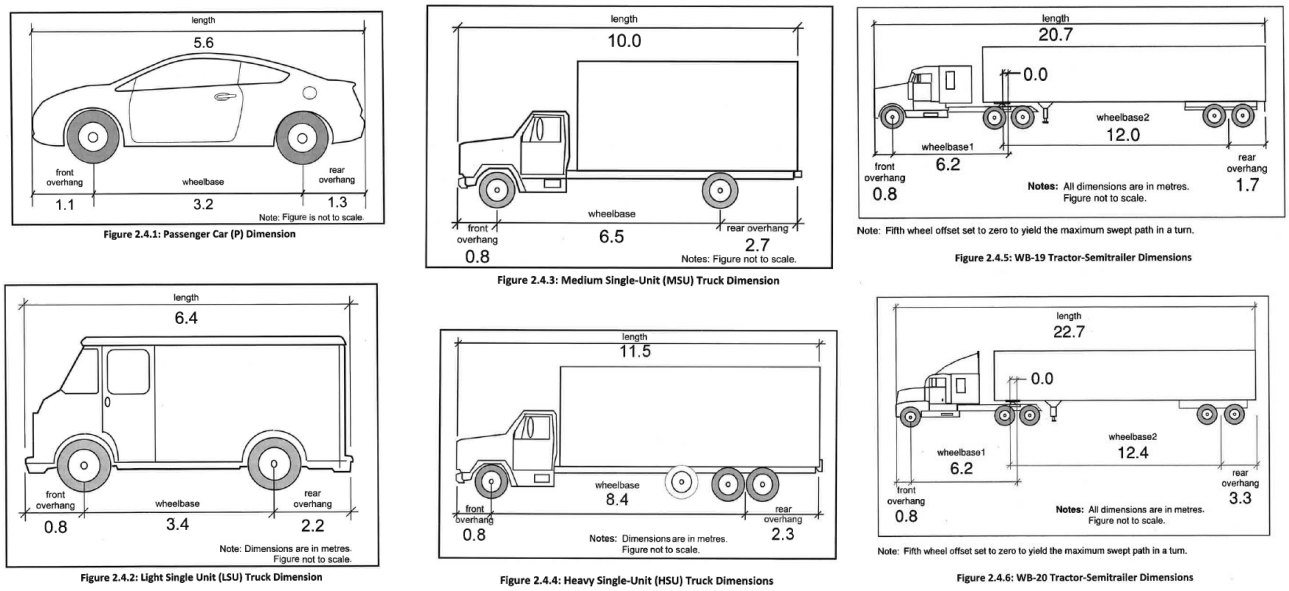


Figure 2: Design Vehicles and Related Dimensions

2.0 Data Assembly

There have been a number of previous traffic operations studies conducted in the Grimsby-Lincoln-Vineland area, which includes the current study area. These historical studies have created an adequate baseline to assist future studies with respect to data collection and recommended improvements. A summary of the most recent/significant studies can be found below.

2.1 Niagara Escarpment Crossing Study – Transportation Study Report – Hatch Mott MacDonald & Paradigm (2013)

The report prepared by Hatch Mott Macdonald (HMM) was commissioned to consider the need for a new or improved truck crossing of the escarpment and utilizes a variety of data collection methods to help assist their understanding and knowledge of the area. The data collected includes base traffic, topographical, environmental, and planning data, supplemented by traffic counts and roadside surveys.

The results of the traffic data and modelling analysis indicate that since 1997, truck volumes have increased on some routes and decreased on others. The main north – south crossings of the escarpment that carry significant truck volumes are Victoria Avenue (RR24) in Vineland, Mountain Road (RR12) in Grimsby and Mountain Street (RR18) in Beamsville.

Furthermore, approximately 48% of truck drivers indicated that they would not change their route, even if a new or improved route was provided. The study concluded that if a new or improved crossing suitable for trucks was provided there would still be a significant number of trucks using the existing crossings.

The study also found that all of the existing crossings have geometric features that make them unsuitable for use as truck routes. Steep grades were found to be the main constraining factor for truck movement. In addition, all of the routes have incompatibilities for continued movement of trucks such as the intrusion of trucks into residential areas and into areas of high pedestrian or cyclist activity.

Based on these findings and conclusions, the Project Team formulated the following Problem Statement to update the one contained in the 1997 study:

Significant local and through truck volumes are travelling on steep grades through communities, mixing with pedestrian and cyclist traffic, or passing incompatible land uses.

It was concluded that the preferred solution is to provide improved traffic management for truck movements using the existing crossings in the short term; and consideration of a new crossing in the longer term as a way of redirecting some of the truck traffic away from the urban areas. If impact from a new crossing is found to be unacceptable, further consideration can be given to improving the Park Road – Bartlett Avenue corridor to accommodate trucks. On the basis of these findings, it was recommended to Regional Council that since a single solution was not apparent and that a combination of solutions that involved both new and improved existing crossings, as well as improved traffic management would be required, a Master Plan approach be adopted to complete the study.

2.2 Niagara Commercial Vehicle Survey – Traffic Count & Vehicle Classification Summary – IBI Group (2013)

The report prepared by IBI Group was conducted as part of the Ontario Commercial Vehicle Survey (CVS) to serve as a supplemental document that will assist Niagara Region in understanding commercial vehicle movements within the Niagara area. IBI collected data at nine separate locations within Niagara Region, as seen below in Figure 2.

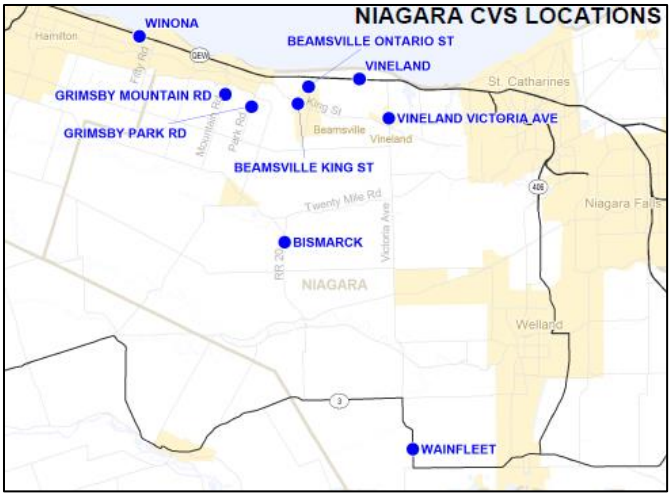


Figure 3: Niagara CVS Locations - IBI Group

Three-hour manual counts were conducted during the ATR classification count period. These manual counts provide very valuable information about the mix of large passenger vehicles – RVs and automobiles/light trucks with trailers – in the traffic mix, vehicles that any type of ATR equipment has difficulty distinguishing from commercial vehicles. A comparison between manual count data and corresponding ATR count data was used to inform the process of categorizing original vehicle classifications from the raw data into standard groupings for analysis: passenger vehicles, single-unit trucks, and multi-unit trucks.

The final traffic profiles generally show balanced passenger vehicle volumes by direction at each location, but some imbalance of truck volumes, which may be due to trucks diverting around the Victoria truck inspection station, which intercepts westbound trucks on the QEW. The QEW sites were found to still carry far more vehicles of all types than any of the other locations combined.

3.0 Data Collection and Field Observations

Following the summary of available material, it has been identified that there are gaps in the necessary components of data that are required to provide a complete and comprehensive assessment of the traffic operations and safety study. As a result, the following required data and associated data collection programs are outlined below.

Required Data	Data Collection Process
Turning Movement Counts at key intersections	Niagara Region provided most recent data
Volume and Speed Profiles at key locations	Engage traffic data collection specialist
Up to date video and photo materials	Engage Videographer to conduct field visits
Complaints Register	Request from Niagara Region
Crash/Collision information within the study area	Request from Niagara Region
Road Improvement & Construction Plans	Request from Niagara Region
Recent significant development applications	Request from Niagara Region

3.1 Turning Movement Counts

Turning movement counts were provided for the following intersections:

- King St. (RR81) and Ontario St. (RR18), Beamsville;
- King St. (RR81) and Mountain St. (RR18), Beamsville; and
- Victoria Ave. (RR24) and King St. (RR81), Vineland.

The provided data was collected at different intervals (Beamsville – Oct. 2016, Vineland – June 2017) and breaks down the intersection movements by both direction and classification (bike/car/truck). This information assists in verifying vehicle volumes and can provide some low-level indication of preferred trucking routes.

3.2 Volume and Speed Profiles

Volume and speed profiles were provided for the following locations:

- Main St. (RR81) west of Park Rd. South, Grimsby;
- Mountain Rd. (RR12) north of Ridge Rd., Grimsby;
- Mountain St. (RR18) south of Hillside Dr., Beamsville; and
- Victoria Ave. (RR24) north of Moyer Rd., Vineland.

The data was collected from August 1st, 2018 till August 8th, 2018 and breaks down the profile by direction, volume, vehicle length, and speed. Heavy vehicles are defined as vehicles 8.0m in length or over. Further analysis was completed by Niagara Region to provide the average speed of each vehicle classification at each of the above locations, as the initial data sorted vehicles separately by either speed or by classification, rather than by both.

3.3 Video and Photographic Observations

The videographer was requested to complete the following tasks:

- Video imagery for RR12, RR18, and RR24 in both directions, preferably following heavy vehicles;
- Aerial footage of three intersections of RR81 with RR12, RR18, and RR24;
- Aerial footage of RR12, RR18, and RR24.

This assists in providing a more thorough understanding of the challenges and problems in the area and may highlight some points of concern previously unknown to the Region staff or the project team. It also contributes towards a developing database of evidence regarding truck driver behaviour.

3.4 Complaints Register

The Region had initially indicated a register of the complaints received by local residents and/or business in the area could be made available, but only verbal information was shared in order to identify potential problem spots within the study area.

3.5 Collision Reports

Crash/collision records were requested for the following locations within the study area:

- Victoria Avenue (RR24);
- Mountain Street (RR18);
- Mountain Road (RR12);
- King Street (RR81);
- Ontario Street (RR18); and
- Fly Road (RR73).

The collision reports were provided for the past five years within the study area.

3.6 Road Improvement and Construction Plan

A list of the planned road improvements and construction dates that were scheduled for the short term was provided to assist in coordinating the traffic data collection program. This ensured that the collected data is unimpeded by any potential construction impacts on travel demand or travel patterns.

3.7 Review of Recent Significant Development Applications

The Region provided basic information for any development applications that met the below criteria:

1. Applications that are:

   a) Plans of subdivision/condominium; or

   b) Buildings greater than three storeys; or

   c) Commercial buildings larger than 100,000sqft; and

   d) Have been approved/constructed over the last 18 months in Beamsville or Grimsby.

2. Any other major buildings that recently completed construction over the past six months that could have increased heavy vehicle traffic in the area;
3. Recent or planned gravel pit expansions or significant farming expansions along the escarpment.

4.0 Traffic Operations and Safety Findings

The collected data provided insight into a variety of the problems to be addressed as part of this study. This section will discuss the collected data as it relates to each of the issues presented earlier in this report (Section 1.2).

4.1 Trucking – Volume, Behaviour, and Travel Routes

Truck volumes, behaviour, and the routes they take to traverse the escarpment have been the source of a number of complaints and are the primary focus of this study. To better understand current trucking volumes and the routes they take, the traffic data collected in September of 2018 was assessed in conjunction with the Origin-Destination survey conducted in 2013, and previous traffic volume data also collected in 2013. Trucking behaviour was primarily observed through video and photo evidence.

4.1.1 Volume

As seen in Table 1 below, a comparison of traffic volumes from 2013 to 2018 reveals a number of useful statistics. Most notably, that RR12 and RR24 carry the bulk of heavy vehicle trips both up and down the escarpment, whilst RR18 is currently only used for approximately 15% of all heavy vehicle trips within the study area.

Table 1: Weekly Traffic Volume Comparison (2013 vs. 2018)

Location	Direction	2013		2018		% Change		
		Passenger Vehicles	Heavy Vehicles	Passenger Vehicles	Heavy Vehicles	Passenger Vehicles	Heavy Vehicles	Total
Mountain Road (RR12)	NB	25766	1453	22861	1673	-11.27%	15.14%	-9.86%
	SB	26234	1185	23827	2210	-9.18%	86.50%	-5.04%
Mountain Street (RR18)	NB	12995	1135	13243	647	1.91%	-43.00%	-1.70%
	SB	13482	781	12626	825	-6.35%	5.63%	-5.69%
Victoria Avenue (RR24)	NB	29197	2209	32644	2099	11.81%	-4.98%	10.63%
	SB	28589	2885	30921	1994	8.16%	-30.88%	4.58%

Furthermore, heavy vehicle trips at each location within the study area make up, on average, 6.37% of total trips in each direction, well within acceptable limits (approx. 10%) for Regional Roads. This would indicate that the mixture of heavy vehicles as a total percentage of all vehicle trips is not unusually high, particularly on RR18, where heavy vehicles make up 4.7-6.1% of all vehicle trips.

In addition, the ability to compare the data from 2018 with the previously collected data in 2013 further reveals a change in the distribution of heavy vehicle trips across the observed locations within the study area. Whilst the number of heavy vehicle trips are down on RR24 (both in actual volume and as a percentage of all trips), RR12 has seen a significant increase in south-bound heavy vehicle trips. RR18 has also seen a significant drop in north-bound heavy vehicle trips during this time period.

Finally, when reviewing past development applications and combining this with a comparison of historical and current aerial imagery, it is not significantly apparent that local development projects have contributed to heavy vehicle trip generation. Although it should be noted, there are currently two projects

along the RR18 corridor in Beamsville that are likely to produce some heavy vehicle trips now and in the near future. It is noted that the heavy vehicle trips are within the acceptable limits for the area, mostly located on RR12 and RR24, and have increased on RR12 whilst declined on RR18.

4.1.2 Behaviour

Truck driver behaviour has been cited as a disruptive and dangerous presence in the received complaints. It is often difficult to build a complete picture of truck driver behaviour as the observation period is a limited window, and may not provide a comprehensive representation of each individual truck that travels through the study area. It should be noted however, that this does not indicate that unobserved trucks behave poorly or otherwise.

Truck behaviour was observed using footage provided by a third-party videographer. Generally, truck behaviour was observed to be appropriate and there were little-to-no instances where truck drivers behaved in a manner that endangered nearby vehicles, cyclists, or pedestrians. It is clear however, that given the constraints in road geometry, interactions between cyclists, pedestrians, and trucks are likely to occur and be perceived as dangerous or uncomfortable (see Figure 3 below). Truck driving behaviour also includes speed of the vehicle, and is discussed in Section 4.2 below.

Figure 4: Collage of Perceived Danger

In the collage above, the oversize load vehicle is stopped on the shoulder as it waits for a break in oncoming traffic to make a left hand turn into a construction site. Each of the other images have been included to help build a picture as to why heavy vehicles may be perceived as a problem in the study area. They are often travelling along constrained routes near to pedestrians or cyclists, or may be significantly oversized and this may be perceived as a danger or threat to other vehicles or pedestrians. Ultimately the observed heavy vehicles did not indicate any pattern of poor behaviour.

4.1.3 Travel Routes

As identified in Section 4.1.1 above, it has been observed that heavy vehicle trips along the escarpment are within the expected levels for a Regional Road and are distributed mostly on RR12 and RR24. However, individual turning movement counts conducted in 2016 were provided by Niagara Region to further assist the assessment of heavy vehicle movements.

Turning movement counts (8hr period) at the intersections of Victoria Avenue (RR24) and King Street (RR81), Ontario Street (RR18) and King Street (RR81), and at Mountain Street (RR18) and King Street (RR81), provide a small sample size to superficially review the travel routes of heavy vehicles as they reach the bottom of the escarpment.

The data provided by the Region has been summarized and is shown in the below graphic (Figure 4). A few conclusions can be drawn from the full dataset, which was collected in October 2016 and June 2017. Firstly, heavy vehicles using Victoria Avenue to traverse the escarpment typically remain on Victoria Avenue when they reach the intersection at King Street, 64% of north-bound trips continue along Victoria Avenue, and 82% of south-bound trips also stay on Victoria Avenue. Secondly, heavy vehicles tend to turn/continue west when arriving at the intersection of King Street and Mountain Street (RR18), and those trucks coming from the west, tend to favour turning south and heading up the escarpment. Finally, heavy vehicles at the intersection of Ontario Street and King Street also favour turning/continuing east-bound on King Street, whilst Ontario Street is the preferred route of choice (marginally) for heavy vehicles coming from the east.

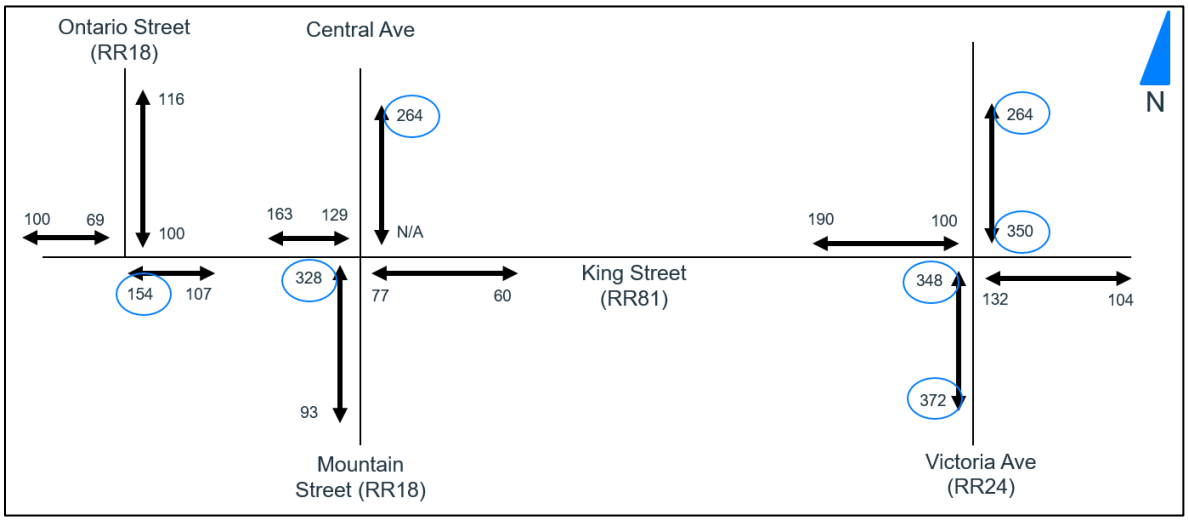


Figure 5: 8 Hour Movement Counts (In-Out) for Heavy Vehicles

When viewed as a whole, the turning movement counts indicate that the Mountain Street-to-Ontario Street is the favoured route for heavy vehicles using RR18, and that Victoria Avenue attracts and retains heavy vehicle trips. In addition to the turning movement counts, the previously completed studies conducted origin-destination surveys as part of their data collection program, and these were reviewed to provide further insight into heavy vehicle travel patterns within the study area.

A survey station was located on Mountain Road (RR12) and of the 518 heavy vehicles surveyed, most of the trips through this station originated in West Lincoln (137 trips), Hamilton-Wentworth Regional Municipality (94 trips), and Grimsby (58 trips). St. Catharines, Port Colborne and the GTA also contributed a combined 78 trip origins. The most common destinations for heavy vehicles at this station were for Grimsby (123 trips) followed by Hamilton-Wentworth Regional Municipality (114 trips) and West Lincoln (106 trips). Halton Region and Peel Region attracted another combined 69 heavy vehicle trip destinations.

Mountain Street (RR18) also featured a survey station, and most of the 261 total heavy vehicle trips surveyed originated in Lincoln (94 trips), West Lincoln (36 trips), and Hamilton-Wentworth Regional Municipality (24 trips). With respect to destinations, the highest number of trips were destined for Lincoln (92 trips), St. Catharines (35 trips) and West Lincoln (19 trips).

Victoria Avenue (RR24) was an additional location surveyed, and of the 798 total heavy vehicle trips, most trips originated in Lincoln (114 trips), Hamilton-Wentworth Regional Municipality (87 trips), and St. Catharines (73 trips). Whilst the highest number of trips were destined for Lincoln (177 trips), Hamilton-Wentworth Regional Municipality (81 trips) and St. Catharines (75 trips).

These stations were part of a wider network of survey stations that further extrapolates the patterns seen at the above-mentioned stations. Heavy vehicle trips from Grimsby, Lincoln, West Lincoln, and Hamilton-Wentworth Region account for around 43% of all origin locations, and just over 50% of all destination locations, making the four locations a significant source and attraction of heavy vehicle trips within the same area.

Furthermore, the significance of local heavy vehicle trips is established when looking at heavy vehicle trip distribution between these four locations. Table 2 below details the percentage breakdown of trips between the four locations, and shows that of all the origin trips from each location, around 60% of heavy vehicle trips from each origin point are destined for one of the four locations (including same origin-destination trips).

Table 2: Percentage of Origin Trip Distribution

Origins	Total Origin Trips	Destinations				Total
		Grimsby	Lincoln	West Lincoln	Hamilton Region	
Grimsby	157	31.85%	8.92%	22.29%	1.27%	64.33%
Lincoln	312	9.29%	37.18%	10.26%	6.73%	63.46%
West Lincoln	390	10.51%	13.33%	22.82%	12.82%	59.49%
Hamilton Region	347	4.90%	10.37%	17.00%	27.67%	59.94%

To confirm the implications of local heavy vehicle trips, Table 3 below details the breakdown of how significant the local trips are, when viewed as a percentage of all trips finishing at each location.

Table 3: Percentage of Local Trips to Each Destination

Destinations	Total Destination Trips	Origins				Total
		Grimsby	Lincoln	West Lincoln	Hamilton Region	
Grimsby	227	22.03%	12.78%	18.06%	7.49%	60.35%
Lincoln	400	3.50%	29.00%	13.00%	9.00%	54.50%
West Lincoln	417	8.39%	7.67%	21.34%	14.15%	51.56%
Hamilton Region	340	0.59%	6.18%	14.71%	28.24%	49.71%

A significant portion of heavy vehicles trips are made between the four key locations within/around the study area, and further still with regards to same Origin-Destination trips.

4.2 Vehicle Speeds

To ensure future decisions related to this study can be based on the most complete information available, speed data was collected to ensure that this component and the potential impact it may or may not have on the various complaints received can be better understood.

Speed profiles were collected as described in Section 3.2, and the raw data is presented below in Table 4, and the summarized data in Table 5. Each of the locations are subject to a posted speed limit of 50km/hr.

Table 4: Location Speed Profiles

Location	Direction	Vehicles per Speed Bracket (km/hr)										
		0-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95-99
Mountain Road (RR12)	**NB**	17074	6007	1148	224	53	17	7	4	0	0	0
	SB	25447	491	64	18	6	5	3	3	0	0	0
Mountain Street (RR18)	**NB**	1436	3021	3142	2827	1834	930	432	185	83	0	0
	SB	1289	2885	2732	2845	1859	992	463	255	131	0	0
Victoria Avenue (RR24)	**NB**	4842	8227	7544	5744	4168	2225	1120	461	239	90	83
	SB	3357	4748	7605	7617	5334	2607	974	406	155	63	49
Main Street E (RR81)	**EB**	6908	13539	10306	6747	2839	1204	555	219	125	0	0
	WB	5362	10660	9824	6798	3522	1212	442	157	73	0	0

Table 5: Summarized Speed Profiles

Speed	Direction	% Exceeding Speed			
		Under	<10km/hr	10-20km/hr	>20km/hr
Mountain Road (RR12)	NB	69.59%	29.16%	1.20%	0.114%
	SB	97.73%	2.13%	0.11%	0.042%
Mountain Street (RR18)	NB	10.34%	44.37%	40.25%	11.735%
	SB	9.58%	41.76%	42.35%	13.687%
Victoria Avenue (RR24)	NB	13.94%	45.39%	34.93%	12.141%
	SB	10.20%	37.53%	47.27%	12.924%
Main Street E (RR81)	EB	16.28%	56.18%	25.42%	4.955%
	WB	14.09%	53.83%	30.31%	4.951%

The summarized data was grouped into four categories to assist in the review of data. These categories represent a variety of different 'mindsets' when it comes to speeding, as many individuals have varying levels of respect for a strict speed limit. Some people strictly adhere to them, others are comfortable with exceeding the limit marginally (less than 10km/hr over), whilst there are some individuals who are either unaware of the speed limit or disregard the limit and travel 10-20km/hr over or in excess of 20km/hr over the limit. By separating the data into these categories, decision makers can see the wider picture of the clearly evident, and significant, problem with speeding at the above locations (other than Mountain Road RR12).

The recorded speed profiles at both Mountain Road (RR12) and Victoria Avenue (RR24) are somewhat expected, given the geometry of each road (explored below in Section 4.3), as Mountain Road is a tight, two-lane, curved/windy road, and is not conducive to high speeds, whilst Victoria Avenue is a wide, four-lane, straight road, and is much more favourable for travelling at higher speeds.

In contrast, the speed profile collected for Mountain Street (RR18) is not what would typically be expected of a two-lane road in this area. Although this escarpment crossing is a common travel route for many vehicles, it is apparent that the posted speed limit is almost completely ignored (approx. 10% of all trips on RR18 are under the posted limit).

In addition, the excessive speeding recorded on Victoria Avenue is also of particular concern. Over the one-week data collection period, there were 285 instances of vehicles travelling more than 40km/hr over the posted speed limit. It would be expected or presumed that these particular cases would occur during the night, however there is still a reasonable portion that occur during the day (7AM-6PM).

Furthermore, the speed profiles recorded at Main Street East (RR81) in Grimsby indicate that although there are 53-56% of trips falling in the range of 50-60km/hr, there is a comparably more limited ability for vehicles to reach the excessive speeds seen at other locations.

In summary, the four locations where speed profiles were recorded shed light on a variety of problems, mostly indicating a need for speed reducing/limiting solutions at three of the four locations.

4.3 Road Geometry, Signage, Markings and Traffic Control

The previous studies completed provided a comprehensive review of the various roads within the study area. The prior studies are reviewed, compared to recent observations, and further assessed in this section as they pertain to the current study area.

Table 6 below provides a summary of the road geometry review from the 2013 Niagara Escarpment Crossing study prepared by HMM.

Table 6: Summary of Road Geometry (2013)

Characteristic	RR12 (Grimsby Mountain Road)	RR 18 (Beamsville Ontario Street/Mountain Street)	RR 24 (Vineland Victoria Avenue)
Lane Configuration	2 lanes	2 lanes	4 lanes - north of Moyer Road & 3 lanes - 2 SB, 1NB south of Moyer Road.
Lane Widths	Approximately 3.5 m	Approximately 3.5 m	Approximately 3.5 m
Shoulder Widths	East side - sidewalk from north to ridge Rd. ~ 1.5 m, then ~1 m paved shoulder. Raised curb all thru. West side - paved shoulder, ~ 1 m. Rolled curb all thru	Approximately 1-1.5 m paved shoulders. 1.5m sidewalk starts north of Edelheim Rd on the east side. Crossing has approximately 1-2 m shoulder width	North of Moyer Rd. approximately 1.5 m sidewalk on east side, no shoulder on west side. Raised curb all thru South of Moyer Rd. approximately 1 m gravel shoulder on both east and west side. Rolled curb all thru
Grade (Max)	Approximately 6-7 % main incline at curves. Approximately 4-5 % straightaways.	Approximately 4-6 %	Approximately 4-6 % on the straightway
Horizontal/Vertical Curve Radii	1. North-most (South to East)curve approximately = 125 m 2. Second (East to South-East) curve = 250 m 3. South-most (South-East to South) curve = 180 m	1. Main curve @ Hillside Dr = 700 m	1. Straight, no turns
Lateral Clearance	Approximately 1-4 m clearance at crossing. 0.5 m to hydro poles on north end near Elm Street and northmost curve.	Approximately 1.5-5 m. 2 m clearance at crossing. Major Hydropoles Approximately 3-5 m on west side.	Approximately 2-5 m from edge of pavement.
Pavement Condition	Good - some cracking present	Good at Crossing. As you reach school area and intersection with King St to the north, the pavement becomes poor with many cracks.	Fair - many cracks filled with filler.
Intersection Control	1. Elm St @ Mountain: Signalized 2. Ridge Rd W.@ Mountain: Stop Control	1. King St @ Mountain: Signalized 2. Philp Rd @ Mountain: Stop Control	1. King St @ Victoria: Signalized 2. Fly Rd@ Victoria: Stop Control
Intersection Configuration	Intersections are stop controlled with right-of-way to Mountain St.	Edelheim Rd @ mid crossing, stop controlled with shared left, thru, right turn movement.	N/A

Advance Warning Signs	1. NB @ top of hill. Over-sized stop sign with red flasher. 2. NB just before Elm St. Flashing intersection ahead sign.	1. NB @ top of downhill portion. Truck use low gear with yellow flasher.	1. NB @ top of downhill portion. Truck use low gear, with yellow flasher. 2. NB @ bottom of downhill portion approaching intersection at King St. Intersection prepare to stop ahead warning, two yellow flashers.
Adjacent Land Use	Residential on north approach of crossing. As travel continues south to Ridge Rd. the residential use is predominantly on east side to Ridge Rd. West/East side has steep slope up/down escarpment. Major Hydro poles on west side, cross to east side @ Ridge Rd. W. Church on east side across from Ridge Rd W.	Residential use north of Hillside Dr. with school zone for school located on west side across from George St. Sparse residential use south of Hillside Dr. Retirement apartments/condos at Edelheim Rd and just north of Edelheim Rd on the east side with 3 residential properties across from Edelheim Rd on the west side. Agricultural use (winery/farm) across from Kinsmen Dr. on west side. Major Hydro Poles on west side north of Philp Rd.	Residential use north of Moyer Rd with very long driveways. Residential house on east side across from Moyer, close to curb. Agricultural (winery) on west side south of Moyer. Municipal water station at top of hill on east side. Major Hydro Poles on west side north of Moyer, and switch over to east side south of Moyer
Dwelling Set-Back	Approximately 10 m where housing is present.	No Dwelling at crossing. Greater than 10 m where housing is present.	Dwelling across from Moyer Road, on the east side is approximately 10 m or less from edge of pavement.
QEW Connection	Direct access approximately 1km north through Christie Street and highway ramp accesses	Access to north, through Ontario Street. Approximately 4.5km away. Must turn on King Street to get to Ontario Street.	Direct access approximately 4.5 km north along Victoria Avenue
Speed Limit	50 km/h, with 40 km/h speed reductions at bends	50 km/h with 80km/h south of Leonard Cres.	50 km/h

Given the above table is based on information collected in 2013, the table was reviewed and compared to recent observations. There are some, but a fairly limited number of changes to report on. Most notably, Mountain Street (RR18) has been improved and now features a partially complete cycle lane, additional flexi-barriers outside the school, and a repaired pavement near the King St. intersection.

Ultimately, a review of the existing conditions indicates that Victoria Avenue is the best suited route for heavy vehicle traffic as it provides additional lanes, large setbacks, and the surrounding land uses are considered to be more compatible with heavy vehicle traffic. Mountain Road (RR12) and Mountain Street (RR18) are both narrow corridors with either incompatible adjacent land uses, or constrained by either the road alignment or gradient, resulting in a less than ideal route for heavy vehicle traffic. Unfortunately, as both RR12 and RR18 are still completely traversable by heavy vehicles, and the apparently minor concerns regarding road geometry do not affect driver route choices, heavy vehicles continue to operate along each of the three crossings.

4.4 Intersection Operations

Given the conclusions drawn from the heavy vehicle travel patterns in Section 4.1.3, it is evident that the intersections at Ontario St. (RR18) and King St. (RR81), and at Mountain St. (RR18) and King St. (RR81), are likely to cause some vehicle conflicts given the close proximity of the two intersections. These two intersections have also been the source of pedestrian complaints, as some heavy vehicles are unable to complete a turning movement in the provided space and will occasionally 'roll-over' the curb. Based on the various complaints, and the likelihood of turning conflicts, aerial imagery was collected on site to further examine the intersection and assist in recommending a solution.

As seen below in Figure 5, when two tractor-trailer heavy vehicles attempt a manoeuvre whereby one vehicle turns west from Mountain Street, and the other turns south on to Mountain Street, there is a potential for the vehicles to conflict. Neither vehicle in the below image can complete their respective manoeuvre without assistance from the other driver. In this particular case, there is a vehicle parked illegally on King Street (circled in red), which is impeding the turning path of the west-bound vehicle.

Figure 6: Turning Conflict at Mountain St. and King St., Beamsville

However, even in the absence of illegally parked vehicles, some heavy vehicles (particularly those with one or more trailers) have difficulty making the right hand turn from King St. to Mountain St. (RR18) (see Figure 6 below). The vehicle in the image has 'rolled-over' the curb while making a right hand turn on to Mountain St. (RR18), and it is clear that this is not a rare instance, given the obvious presence of tire tracks across the pedestrian standing area. This is a noticeable area of concern, as there is already a limited

amount of space available for pedestrians to stand while waiting to cross either Mountain St. or King St., and for a heavy vehicle to mount the curb while pedestrians wait in this area, creates a potentially dangerous situation for pedestrians. It is evident that some changes need to be made at this intersection, either by physical realignment or making operational changes.

Figure 7: Turning Difficulties at Mountain St. and King St., Beamsville

Similar problems also exist at the intersection of Ontario St. and King St., where heavy vehicles (particularly those with one or more trailers) have some difficulty completing a turn without assistance from other vehicles. In Figure 7 below, a tractor-trailer is turning north from King St. on to Ontario St., and although the turning path does not significantly cross over the oncoming turning lane, had the nearest vehicle not provided additional space to accommodate the heavy vehicle, there would have likely been a conflict.

Figure 8: Intersection Conflicts at Ontario St. and King St., Beamsville

However, even with the provision of an additional buffer from the passenger vehicle, this is likely an uncomfortable scenario for both drivers. This is further confirmed in Figure 8 below, where the black pickup truck is stopped while waiting for the heavy vehicle to complete its turn on to Ontario St.

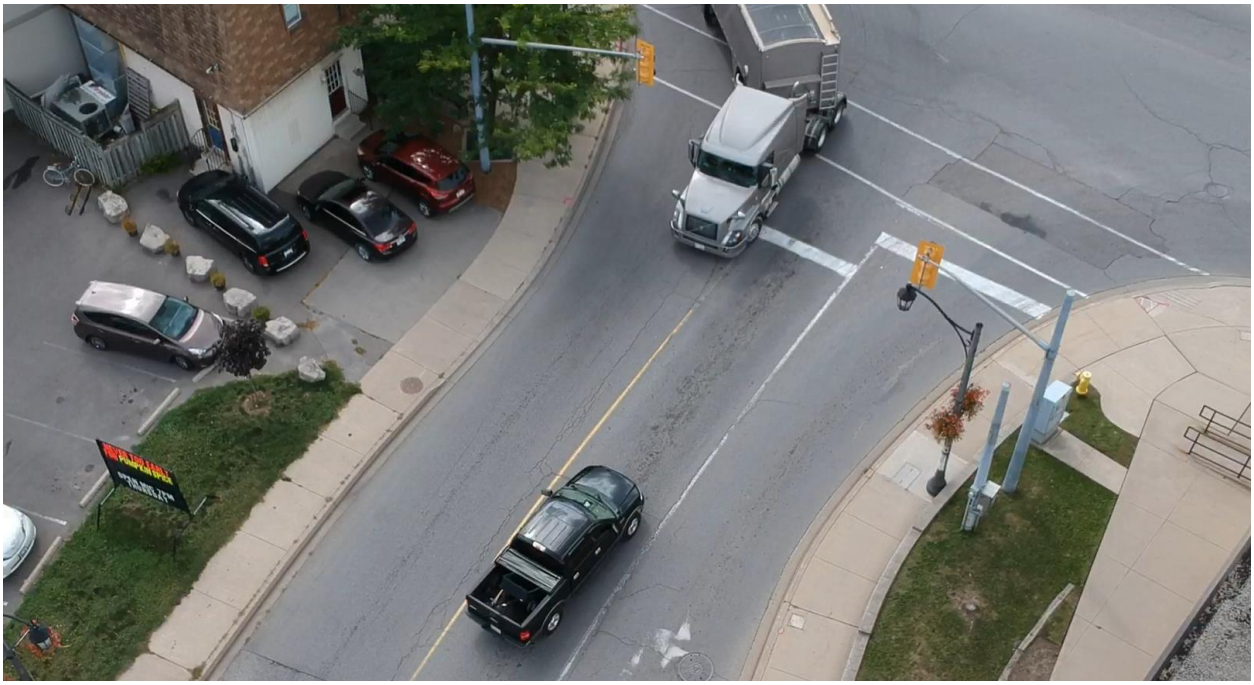


Figure 9: Turning Conflict at Ontario St. and King St., Beamsville

Ultimately, the movement of heavy vehicles through this corridor along RR18, combined with the difficulties presented by the two intersects, results in a situation where both pedestrians and vehicles are at risk of causing or being involved in a minor or major incident. Given that this corridor along King St. is considered to be 'downtown' Beamsville, there are aspirations to transform this area in to a highly walkable and desirable place for pedestrians, and the intersection designs and vehicle movements are likely to conflict with these aspirations.

4.5 Summary of Findings

Based on the previously available information from past studies, and the newly collected data and observations, there are a number of conclusions to be drawn. This includes:

- Heavy vehicle volumes are within the acceptable range for this area;
- Mountain Road (RR12) and Victoria Avenue (RR24) carry the majority of heavy vehicle traffic, while Mountain Street (RR18) sees far fewer trips;
- Heavy vehicle driver behaviour was observed to be appropriate;
- Origin-Destination Surveys revealed local trips are a significant contributor to heavy vehicle traffic in the area;
- Speeding and excessive speeding is a concerning problem at three of the four data collection points;
- Road geometry is inconsistent and varies both across each of the crossings and along the length of Mountain Street (RR18);

- The intersection of Mountain Street (RR18) and King Street (RR81) in Beamsville has the potential to lead to a variety of traffic conflicts where heavy vehicles are required to make tight turns; and
- Road signage and markings within the study area were observed to be under-maintained and inconsistent for each of the three escarpment crossings within the study area.

5.0 Improvement Options and Evaluation

The crossings of the Niagara Escarpment have been examined on several occasions and by many transportation specialists. As evidenced by fact that Niagara Region and the local municipalities have implemented many of the previous improvement recommendations, and many of their own, this listing of improvement options was intended to challenge the status quo and bring forward new and unique improvement plans that may not have been considered in the past. These improvement plans will be evaluated and assessed for their likely impacts and acceptability for implementation. For the purposes of this study, the various improvement plan options have been categorized into five (5) separate categories, being:

- Operational and Design
- Education
- Network and Policy
- Emerging Technologies
- Other Considerations

5.1 Operational and Design Options

For these options, the four (4) road sections that have been identified for consideration will be addressed individually.

5.1.1 Victoria Ave. (RR 24)

From an operational perspective, Victoria Ave. is the most attractive of the road sections studied that could accommodate trucking across the escarpment. However, there are some issues that could be addressed through operational improvements that could include: traffic calming, increased enforcement, improved signage and markings, and reduced speed limits. Each of these operational improvements are all options that the Region has previously considered and assessed.

With respect to the geometrics of this crossing, there exist a few non-standard design features that are in place in recognition of these unique geometrics. For example, at the intersection of Victoria Ave. and King St., the southbound lanes transition from a single through lane on the north-side approach to two departure lanes on the south approach. This results in a slightly offset alignment of the through lanes through the intersection which may cause some confusion. However, the justification for this misalignment is a result of the introduction of a truck climbing lane going southbound across the escarpment from King St. to Fly Rd.

Another unusual arrangement is the extended left-turn lane for northbound traffic approaching the intersection of King St. This extended left-turn lane has been introduced such that traffic can better align themselves where a vertical curve in Victoria Ave. restricts visibility of the queues at the intersection. Our study attempted to revisit the restriping options that could be considered for the purpose of introducing a centre left turn lane in one option, and the introduction of a cycle lane in another. These restriping options can be reviewed in **Appendix A**. These restriping options were not considered viable options as Victoria Ave. is best suited for trucking operations and the current striping is considered a better option for safety reasons when considering its purpose.

Table 7 below summarizes the evaluations of these options and the recommendations to carry any options forward for further consideration.

Table 7: Victoria Avenue (RR24)

OPERATIONAL/DESIGN OPTIONS	Effectiveness	Time Frame	Capital Cost	Operational Cost	Policy Changes	Infrastructure Planning	Comments
Traffic Calming	Reduced Speeding	Short	Low	No	No	Low	Do Not Carry Forward
Enforcement	Reduced Speeding	Short	Low	Police	No	No	**Carry Forward**
Signage/Markings	Improved Behaviour	Short	Low	No	No	Low	**Carry Forward**
Reduced Speed Limit	Reduced Speeding	Short	Low	No	No	Low	Do Not Carry Forward
Restriping	Improved Access	Medium	Medium	Maintenance	No	EA Required	Do Not Carry Forward
Realign Intersection	Improved Operations	Medium	Medium	Maintenance	No	EA Required	Do Not Carry Forward

5.1.2 Mountain St. (RR 18)

The Mountain Street provides a north-south connection within the study area. It comprises both rural and urban cross-sections with challenging road geometrics. Most concerning is north of Leonard Crescent, where existing road gradient is steep and advisory warning signs are in place to alert drivers. This section also provides urbanized geometrics with concrete curb and gutter and dedicated bike lanes on both sides. Several inconsistent design elements are observed within this road section. For instance, a sidewalk is only provided on the east side of the roadway, with wider boulevard south of Hillside Drive, whereas the offset between sidewalk and the roadway becomes narrower immediately north of Hillside Drive.

South of Cassandra Drive, sidewalks are provided on both sides up to King Street. Approximately 120m north of Elizabeth Street all the way to King Street, the sidewalks on both sides are provided adjacent to concrete curb within residential area, with a narrow concrete killstrip only on the east side. Similar inconsistency is observed with bike lanes along Mountain Street. The bike lanes are marked as dedicated lanes south of Hillside Drive and carried as a paved shoulder with varying width immediately north of Hillside Drive intersection without having proper signage. With inconsistences in road geometrics, a consistent pavement markings and lane designations could potentially provide a similarity throughout the corridor. This measure should be considered as a medium-term improvement when more information for planned development for adjacent land is available. If the traffic demand warrants, road improvements such as widening could be further investigated undertaking Class Environmental Assessment process.

In terms of traffic operations, the Mountain Street (RR18) sees an overall reduction in heavy vehicle demand within five years and sees lesser trips when compared to Mountain Road (RR12) and Victoria Avenue (RR24) which carry majority of heavy vehicle traffic within the study area. It is observed that speeding is a real concern along Mountain Street, where the majority of vehicles are observed exceeding the posted speed limit (50km/hr). On a broader scale this could potentially be a result of reduction in heavy vehicle traffic along the corridor, providing opportunity for passenger vehicles to drive faster without being impeded by slow moving heavies. No evidence of heavy vehicles exceeding speed limits were found during site visits and normal driving behavior of heavy vehicle drivers was observed. However, recent speed profile indicates speeding is a real issue which suggest implementation of traffic calming measures along the corridor supplemented by enforcement. Evaluations of options discussed above and

potential recommendations to carry any options forward for further consideration are summarized in **Table 8** below.

Table 8: Mountain Street (RR18)

OPERATIONAL/DESIGN OPTIONS	Effectiveness	Time Frame	Capital Cost	Operational Cost	Policy Changes	Infrastructure Planning	Comments
Traffic Calming	Reduced Speeding	Short	Low	No	No	Low	**Carry Forward**
Enforcement	Reduced Speeding	Short	Low	Police	No	No	**Carry Forward**
Restriping	Improved Operations	Medium	Medium	Maintenance	No	EA Required	**Carry Forward**
North Lane routing	Improved Operations	Medium	Medium	No	No	EA + Upgrade to RR	Investigate Further
Widening	Improved Operations	Medium	Medium	No	No	EA Required	Investigate Further
Active Transport Striping	Increased AT Participation	Short	Low	Low	No	EA Required	**Carry Forward**
Signage/Markings	Improved Behaviour	Short	Low	No	No	Low	**Carry Forward**
Parking Restrictions	Improved Operations	Short	Low	Existing	No	No	**Carry Forward**

5.1.3 Mountain Rd. (RR 12)

Similar to the parallel running Mountain Street, the Mountain Road also posses challenging road geometrics such as steep gradient and restricted sightlines at horizontal curves. Immediately north of Ridge Road West, the advisory warning sign for steep gradient are in place. The corridor is provided with asphalt sidewalk adjacent to road with standard concrete curb and gutter on east side, and a paved shoulder on with mountable concrete curb and gutter is available on west side. An electronic advisory speed check is also in place with flashing speed limit. At sharp horizontal curve between Oak Street and Elm Street, the speed is reduced to 40km/hr. Signage and Markings where found deficient or inconsistent could be addressed in short term to enhance traffic safety. One of potential location is the intersection of Oak Street at Mountain Road. The Oak Street is a single westbound right turn lane with stop control intersecting at Mountain Road with sharp entry radius on a horizontal curve. This creates a situation where drivers on either road have limited sightlines. Adequate warning signs should be provided to alert drivers of oncoming traffic.

Another potential area of improvement is just south of Elm Tree Road where the posted speed limit changes from 70km/hr to 50km/hr (heading north) and vice versa within 200m distance. Based on the speed profile, a vast majority of drivers are obeying speed limits while 29% travelled less than 10km/hr above posted limit. Traffic Calming measure such as electronic speed check is advised to be monitored on regular basis along with enforcement.

Significant increase in heavy traffic demand has been noted while comparing 2013 and 2018 traffic data, however heavy vehicles still represent less then 10% of total traffic. Considering low traffic demand, existing geometric constraints and limited Right-of-Way, neither restriping nor road widening is deemed warranted at this time of the study. Parking Restrictions are found on both sides of roadway under existing condition and should be maintained in future. Evaluations of options discussed above and potential recommendations to carry any options forward for further consideration are summarized in **Table 9** below.

Table 9: Mountain Road (RR12)

OPERATIONAL/DESIGN OPTIONS	Effectiveness	Time Frame	Capital Cost	Operational Cost	Policy Changes	Infrastructure Planning	Comments
Traffic Calming	Reduced Speeding	Short	Low	No	No	Low	**Carry Forward**
Enforcement	Reduced Speeding	Short	Low	Police	No	No	**Carry Forward**
Signage	Improved Behaviour	Short	Low	No	No	Low	**Carry Forward**
Parking Restrictions	Improved Operations	Short	Low	Existing	No	No	**Carry Forward**

5.1.4 Main St./King St. (RR 81)

The section of Main Street/King Street between Grimsby and Vineland is primarily a 2-lane road having diversified rural and urban cross sections. This includes provision of sidewalk as active transportation facility, a single lane roundabout as traffic calming measure, efficient traffic operations and aesthetic feature, a central two-way left turn lane at certain locations. Majority of adjacent fronting properties are agricultural lands, while medium density residential developments are present at major crossing streets such as but not limited to Victoria Avenue, Mountain Street, Ontario Street, and Mountain Road.

For the purpose of this study, more focus to King Street was given at section between Mountain Street and Ontario Street. This short section represents challenges with respect to heavy vehicle maneuvers. The benefit of an Ontario Street interchange at QEW provides a convenient access to all traffic including heavy vehicles heading south and vice versa. However, the disconnect between Ontario Street and Mountain Street is linked by short section of King Street, which portrays serious issues related to heavy vehicles which are forced to make tight turns at the intersections. These issues have been observed during site visits and documented using aerial videography as part of this study. To overcome this problem, a few alternative routing options via North Lane were developed to provide truck by-pass, are described in later section of this report. As previously mentioned, the intersection of Mountain Street (RR18) and King Street (RR81) in Beamsville has the potential to lead to a variety of traffic conflicts where heavy vehicles are required to make tight turns.

Along Main/King Street, excessive speeding has been observed as a valid concern and traffic calming measures such as a reduced speed limit should be considered along with enforcement. In general, it will likely be enforcement that plays a vital role in speed reduction when implemented on regular basis.

Since the cross section along the corridor varies significantly, options for geometric improvements such as road widening, provision of dedicated bike lanes, and restriping are not suggested at this time. Warrants for such improvements are dependent on planned future developments and should be monitored on regular basis. However, the Region is advised to ensure signage and markings are consistent and meet current design standards. Evaluations of options discussed above and potential recommendations to carry any options forward for further consideration are summarized in **Table 10** below.

Table 10: Main St. E./King St. (RR81)

OPERATIONAL/ DESIGN OPTIONS	Effectiveness	Time Frame	Capital Cost	Operational Cost	Policy Changes	Infrastructure Planning	Comments
Traffic Calming	Reduced Speeding	Short	Low	No	No	Low	**Carry Forward**
Enforcement	Reduced Speeding	Short	Low	Police	No	No	**Carry Forward**
Complete Streets	Improved Behaviour/ Increased AT	Medium	Medium	Maintenance	No	EA Required	**Carry Forward**
Signage	Improved Behaviour	Short	Low	No	No	Low	**Carry Forward**
Reduced Speed Limit	Reduced Speeding	Short	Low	No	No	Low	Do not implement without increased enforcement

5.2 Education

The local communities that rely on the escarpment for its economic livelihood, and those that reside adjacent to these escarpment crossings all have a vested interest in how these crossings perform. Regular communications with this local community may be a useful way to discuss Regional initiatives, local operating concerns, development opportunities, and investment plans.

At present, there many ways in which the Region reaches out to its communities. These include the Niagara Region web site, Twitter feeds, and Facebook updates. These can clearly be used to share information regarding goods movement in the Region. For the most part, this could get the message out to the community, but not a great method to create a meaningful dialogue with the community. Even so, these tools presently exist, and the Region should be encouraged to send out messages regarding goods movement across the escarpment using these social media tools. In addition, a regular newsletter on goods movement could be considered as an additional tool for communicating with the community, but this may be best developed and distributed by the local municipalities.

There are many commercial entities that operate transportation services across the region. These could be categorized in many ways, but could include:

- Business Improvement Areas (BIAs)
- Agricultural communities
- Quarry and Landfill Operators
- Other Commercial Entities.

Coordinating the operations and initiatives of these entities could be very beneficial for both these operators and the Region. Presently there are a few forums for goods movement discussions including:

- Niagara Region Agricultural Policy and Action Committee: This committee includes membership from the Ontario Federation of Agriculture, Niagara South Federation of Agriculture, and West Niagara Agricultural Society. This committee meets only a few times per year and focuses on policy issues and issues that may affect the agriculture industry in Niagara.
- Niagara Region Transportation Steering Committee: This committee meets on a regular basis and reports to the Public Works Standing Committee. Its focus is on strategic initiatives that presently include initiatives such as the Transportation Master Plan, the NGTA, the GO expansion program, Mobility Hubs, and Intermunicipal Transit.

- Regional Niagara Active Transportation Subcommittee: This subcommittee meets regularly and has a very active membership that has promoted active transportation in such a way that several infrastructure, policy, and operational improvements have been initiated in the Region.
- Downtown Beamsville Business Improvement Area (or Downtown Bench BIA): This BIA is focussed on the commercial entities in Beamsville with concerns related to King St. from Ontario St. to Academy St.
- Humberstone Landfill Site Public Liaison Committee and the Niagara Road 12 Landfill Site Citizens Liaison Committee: Both of these committees are now defunct but illustrates the concept of creating a forum for both the public, the government, and the commercial operators to meet and discuss common issues.

Since Goods Movement is a vital component of a community's economic viability, other municipal governments have established Standing Committees, or Subcommittees, to regularly discuss Goods Movement within their municipality. A good example is Peel Region that has embraced the concept that goods movement is important to their community. They have established the Peel Goods Movement Task Force whose mandate is to:

- develop a common vision for goods movement in the Peel area
- provide a forum to bring together key public and private sector stakeholders to guide future improvements to the goods movement system
- facilitate the exchange of information and to develop common messages on issues affecting goods movement; to monitor, review and provide input and feedback to regional, provincial and federal initiatives related to goods movement
- develop an action plan, with the required partnerships, for the implementation of short, medium and long-term improvements to the goods movement network in Peel.

Establishing an ongoing forum to discuss goods movement in Niagara may be extremely beneficial for the Region. It could embrace all of the entities mentioned above including the BIAs, the Agricultural industries, the Quarries and Landfill operators, and other commercial operators. Formalizing this as an Advisory Committee or Subcommittee reporting through Public Works Standing Committee should be considered. To implement, its creation would require support from Regional Council and would require a staff member to be responsible for writing terms of reference, establishing membership, and creating ongoing agendas and meeting minutes.

Table 11 below summarizes the education and communications considerations and evaluations resulting from this study.

Table 11: Education and Communications Options

EDUCATION & COMMUNICATIONS	Effectiveness	Time Frame	Capital Cost	Operational Cost	Policy Changes	Infrastructure Planning	Comments
Newsletters	Improved Behaviour	Short	No	Staff Assignment	Work with local municipalities	No	**Carry Forward with Local Municipalities**
Advisory Committees	Ongoing Communications	Medium	No	Staff Assignment	Council Support and Terms of Reference	No	**Carry Forward**
Social Media Blasts	Ongoing Communications	Short	No	Staff Assignment		No	Ongoing
BIAs	Raised Awareness	Medium	No	Staff Assignment		No	With Advisory Committee
Agricultural Associations	Ongoing Communications	Medium	No	Staff Assignment		No	With Advisory Committee
Quarries	Ongoing Communications	Medium	No	Staff Assignment		No	With Advisory Committee
Commercial Entities	Ongoing Communications	Medium	No	Staff Assignment		No	With Advisory Committee

5.3 Network and Policy

Niagara Region's recently approved Transportation Master Plan (TMP) includes a chapter on Goods Movement. It states, "Improving the movement of goods through and within the Region is vital to Niagara's economic development." Always a key consideration for the movement of goods is ready access to freeway facilities that connect industry with markets. In Niagara, the only freeway facility is the QEW which runs along the east and north portions of the region. However, due to the Niagara Escarpment's exaggerated geographic features, it becomes a significant barrier for QEW access.

Acknowledging that trucking across the Niagara Escarpment is not desirable, but at present a necessity, the Region has included several recommendations in their TMP as noted in Figure 9 below.

25	Work with MTO to identify a short-term solution to provide network redundancy through an alternate Provincial route parallel to the QEW that can accommodate longer-distance, inter-regional travel and goods movement, including a Role and Function study of Hwy 20/Regional Road 20 and a study to address the Smithville Bypass.
26	Advocate and work with MTO for capacity improvements to accommodate inter-regional and international travel demand, including: widening of QEW, implementing the NGTA East corridor and extension of Highway 406; and building a new Niagara-Hamilton trade corridor.
27	Undertake and/or complete EA for Niagara Escarpment Crossing and South Niagara East-West Arterial Road,

Figure 10: Niagara Region Transportation Master Plan Action Items

The Niagara to GTA corridor has been the subject of several studies and at present is not an active project for the province. Nonetheless the need for a new trade corridor that is an alternative to the QEW is clear (see Action Item #26 above). A Niagara-Hamilton Trade Corridor that connects Niagara Region at Highway 406 to the City of Hamilton in the vicinity of the Hamilton International Airport/Highway 403 would address the demands of moving goods across and through the Niagara Region and significantly reduce the need for trucking to cross the Niagara Escarpment. It is our understanding that the Region is actively pursuing support from other municipalities, the provincial government, and the federal government.

While a new trade corridor is being pursued, the Region has also recommended that they work with the province to identify a short-term solution for the need for another east-west route that creates network redundancy and an alternate route to the QEW (see Action Item #25 above). The recommendation from the TMP is for the Province and the Region undertake a Regional Road 20/Highway 20 Role and Function Study. This study would define the role and corridor opportunities that are possible for crossing Niagara above the Niagara Escarpment. Figure 10 below is taken from the TMP (Map 7) illustrates some opportunities for the Interim Trade Corridor and a possible implementation strategy.

As far back as 1997, an Escarpment Crossing (EA) Study was initiated as Phases 1 and 2 of the EA process. That study was guided by the following problem statement:

"Significant local and through truck volumes are travelling on steep grades through communities, mixing with pedestrian and cyclist traffic, or passing incompatible land uses."

In 2016, the Regional Council approved funding for the Phases 3 and 4 of the EA process for the Escarpment Crossing Study. The recommendations included discussions regarding short-term improvements (many of which have been implemented), medium-term improvements, and long-term improvements. These recommendations culminate in a recommendation for a new escarpment crossing corridor that would be designed to readily accept trucking demands across the escarpment. These recommendations are considered very valid and should be pursued at the Region's earliest convenience.

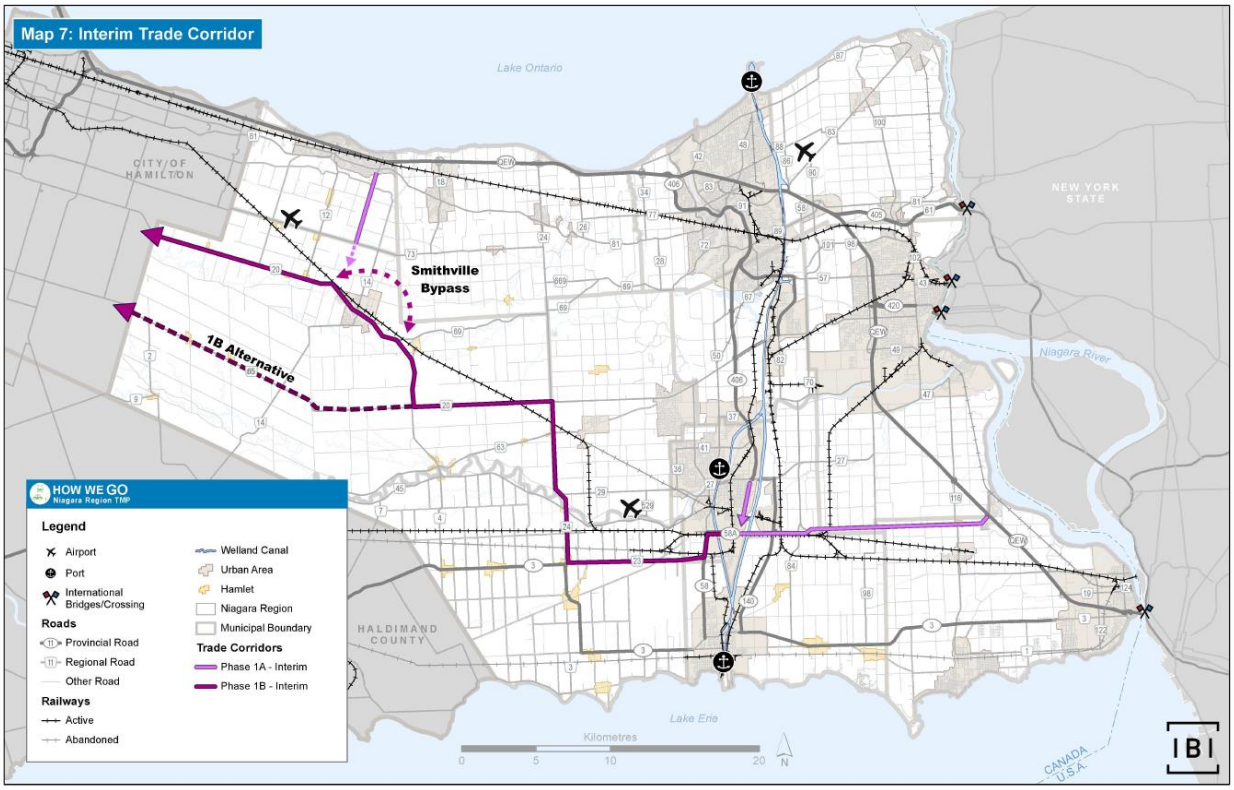


Figure 11: Interim Trade Corridor (TMP Map 7)

An existing alternative to crossing the escarpment in Niagara is to utilize the Fly Road/Mud Street corridor which would connect Victoria Ave. in the east to the Red Hill Parkway/Lincoln Alexander in the west. Our study examined the travel time and distance associated with each route as noted in Figure 11 below.

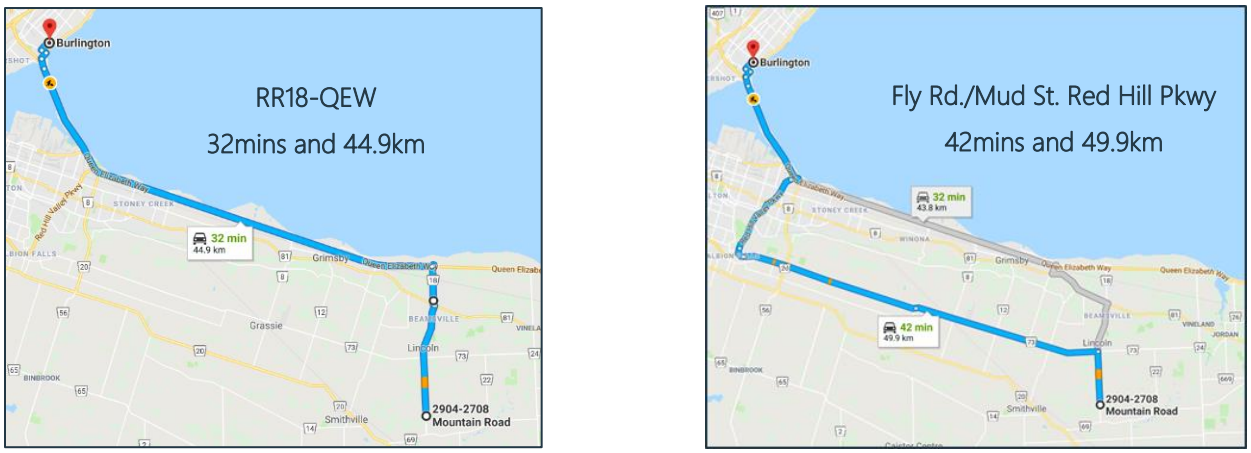


Figure 12: Fly Road/Mud Street Travel Time Comparison

This route change would require restricting truck movements across the escarpment, which is not desirable as many trucks still have origins or destinations that would require access to the escarpment crossings, it creates a longer travel time and distance for trucking, and it sends more trucks through some residential communities along that route that already have traffic calming treatments. In addition, there would be significant costs to upgrade this corridor to accommodate trucking as a preferred route and cooperation with the City of Hamilton to use Mud St. and the Red Hill/Lincoln Alexander Parkway. Due to these concerns, the Region is better served focusing on the Interim Trade Corridor initiative as noted above.

In Hamilton, the City undertook a Goods Movement Master Plan. Within it they examined in detail the possibility of creating time of day restrictions and "specified users" classification. Both of these initiatives are achievable by implementing a local by-law. However, the City does not endorse either of these due to the onerous requirement to enforce and the inequitable treatment that it imposes on certain road users. Based on these considerations, this study does not recommend that the Region implement either.

These network and policy options are summarized and evaluated in Table 12 below:

Table 12: Network and Policy Options

NETWORK AND POLICY	Effectiveness	Time Frame	Capital Cost	Operational Cost	Policy Changes	Infrastructure Planning	Comments
New Trade Corridor	Reduced cross-escarpment trucking to local deliveries only	Very Long	Very High	No	Supports TMP	Individual EA and funding	**Requires external support**
New Escarpment Crossing	Reduced cross-escarpment trucking to local deliveries only	Long	Very High	No	Supports Area Master Plan	EA Phases 3 & 4 and funding	**Initiate Phases 3 and 4 of the EA process.**
Fly/Mud Alternate Goods Route	Reduced cross-escarpment trucking	Medium	Low	Low	Defined Trucking Routes	No	Do not carry forward
Time of Day Restrictions	Limits cross-escarpment trucking	Short	Low	Enforcement	Bylaw	No	Do not carry forward
Specified User Permits	Limits cross escarpment trucking	Short	Low	Enforcement and Staffing	Bylaw	No	Do not carry forward

5.4 Emerging Technologies

As stated in the Region's TMP, "There are several emerging technologies that will play both a supportive and disruptive role in goods movement and manufacturing sectors. These technologies present opportunities to improve the efficiency of goods movement and potentially reduce the demand for transporting goods on Region's road network."

5.4.1 Autonomous and Connected Vehicles

The freight and logistics industries are poised to be one of the early adopters of autonomous and connected vehicle technologies. Driverless truck technology is advancing rapidly and could provide substantial benefits to freight companies and efficiencies for the road network. They include:

- Driverless and connected trucking will significantly eliminate human error and drastically improve road vehicle safety and reduce delays caused by accidents
- Driverless trucks have the potential to allow for overnight driving and faster long-haul delivery times as driver rest periods will not be required
- Driverless and connected trucks would improve fuel efficiency and increase vehicle throughput by decreasing following distances and increasing traffic density

In 2016, Ontario launched a ten-year pilot program to allow the testing of automated vehicles on Ontario's roads. In response to advances in Automated vehicle (AV) technology, the program was updated on January 1, 2019 to allow for the testing and sale of more innovative technologies. At present, only Level 3 driverless vehicles are permitted. Level 3 is defined below by the Society of Automotive Engineers (SAE) International:

"Level 3 - Conditional Automation: *The vehicle becomes a co-pilot. The vehicle manages most safety-critical driving functions, but the driver must be ready to take control of the vehicle at all times."*

According to the Region's TMP, the Region has the opportunity to lay the groundwork for allowing these vehicles to effectively operate in Niagara Region through strategic initiatives and policy. This includes fostering the testing of these vehicles and maintaining the Region's infrastructure, such as pavement markings and signage, at a level that ensures the effective operation of these vehicles. To ensure readiness for these technologies, the Region should monitor technology advances and the introduction of regulations to allow for these technologies as they may have positive impacts for the reduction of trucking across the escarpment.

5.4.2 Commercial Drone Delivery

Although rail and marine transportation networks are possible alternatives for goods movement, they are not realistic options for goods movement across the escarpment. However, commercial drone delivery is becoming a reality with recent technology and regulation pilot studies being undertaken. Drone delivery has the potential to alleviate demand on the road network and potentially reduce the number of delivery trucks on the road. As seen in other regions in Canada, Niagara Region can prepare itself to be a testbed for these technologies to take advantage of the opportunities that this technology can provide.

5.4.3 Incentives

As with truck use restrictions, financial incentives are intended to encourage freight operators to shift truck traffic off specific roadways that have either congestion or safety issues, to more desirable routes. Any financial incentives provided must also recognize that the companies where the freight originates, or is received, must also benefit financial from any route shift, or time shift. The manner in which financial

incentives could be created is if a business case were developed that illustrated the cost trade-offs that could be achieved. Ideally, such a business case would create a scenario where the private sectors companies would undertake this program themselves with minor assistance from the public sector. If the private companies cannot be convinced that there is a financial benefit that would result in voluntarily adjusting their delivery routes, or if they cannot convince all companies to participate, then this private sector financial incentive program would not achieve desired results.

Another approach to incentivizing the freight industry to adjust their delivery routes could be an incentive program operated by the public sector. However, this would require a significant effort to establish the program administration and enforcement required for such a program. This program would require the public sector to establish the financial incentives that could be offered to freight operators that might cover many costs such as additional workers, longer trucking delivery times, increased maintenance costs, and possibly increased overtime labour costs.

There have been a few attempts to create financial incentive programs for the freight industries, but most have been associated with special events such as the Olympics, PanAm Games, and other like events. These special events typically have a defined time frame when implemented and the financial benefits accrued for the private business comes from reduced delivery times from avoiding congestion routes or time periods.

Due to the limited known benefits of a financial incentive program and recognizing the significant administrative effort that would be required to establish such a program, this program is not recommended for consideration in Niagara.

5.4.4 Electronic Enforcement

Electronic enforcement is becoming more prevalent in the transportation industry. It can eliminate the need for costly police enforcement at sites where there are operating issues. They can operate 24 hours a day if desired and generate fees that offset costs. One downfall of electronic enforcement is that there is a privacy issue in Ontario which restricts the identification of drivers and passengers of vehicles. As a result, it is the owner of the vehicle that gets impacted by improper driver behaviour rather than the actual driver committing the offense. As a result, many owners simply add the costs of electronic enforcement fees to the operating costs of their business.

In Ontario, there are three electronic enforcement programs available. One of these programs is the Red Light Camera Program which many Ontario municipalities participate in. However, red light violations are not the focus of this study and as a result, the Red Light Camera Program is not considered further.

- Automated Speed Enforcement (ASE): Photo radar was introduced to the Province of Ontario in the early 1990s for application on the provincial highways. However, it was subsequently scrapped when the government of the day changed. Recently, the City of Toronto has initiated a pilot program to introduce photo radar in Community Safety Zones which are typically implemented around schools. In this instance, normal speed fines would be doubled and the tickets mailed to the owner of the vehicle, who may not be the offending driver. Demerit points and licence suspension mandated by the Highway Traffic Act for drivers caught speeding would not apply.

  There are many requirements that will need to be considered prior to this ASE program get approved by the province and expanded to other municipalities. Cameras must take photographs of the offending vehicle which are then collected and reviewed at a central processing centre. This centre will be similar to the Red Light Camera Processing Centre operated by the City of Toronto, and supported financially by other participating municipalities. Trained officers must review every

picture to verify vehicle information and ensure the vehicle is in violation. Tickets are then mailed to the vehicle owner, regardless of who was driving the vehicle.

As this ASE program is presently a pilot program being run by the City of Toronto, it would be prudent for the Region to monitor the progress of this pilot such that should it be approved as a permanent program, and available to other municipalities, it could be a valuable tool in reducing speeding on their roadways.

- Road Tolls: In 1998 the Ministry of Transportation, Ontario introduced the Highway 407 Act which allowed the collection of tolls on the Highway 407 only. In February, 2017, the Ministry expanded the toll program to include the newly constructed Highway 412 which connected Highway 407 to Highway 401 in Durham Region. There has been no other program established that would permit local or regional municipalities to introduce a road tolling program.

  There are several examples of other municipalities in the United States that have introduced tolling programs. Although most of these toll programs were established to offset public sector maintenance or roadway expansion costs, some of these were established in an effort to reroute trucking operations away from these tolled roads. Most research shows that the trucking industry does try to avoid tolls if possible, but that is highly dependent on the rate of the tolling and how that tolling is collected. Establishing a toll rate that is fair to all road users, yet affects a trucking route diversion, would be a challenging exercise.

  As the Province of Ontario does not presently allow the collection of tolls on municipal roadways, this program is not available to Niagara Region. However, should the Province consider a change in the future, then the Region could reconsider its position with respect to tolls across the escarpment roadways and what purpose would the tolls be collected for.

5.5 Other Considerations

In a study progress meeting, a discussion ensued with respect to the Town of Lincoln Transportation Master Plan which is presently underway. A meeting with the Town staff focussed our discussions on the possible treatments at the intersection of Mountain St. (RR 18) at King St. (RR 81) and a proposed truck routing scenario.

5.5.1 Mountain St. (RR 18) at King St. (RR 81) Intersection

Video evidence has shown that large trucking vehicles have significant difficulty making turns at this intersection both southbound and northbound destinations of the escarpment. The eastbound to southbound right turn results in a significant number of large trucks overtracking the pedestrian waiting area of the sidewalk. In the northbound direction, illegally parked vehicles block large truck turning areas resulting in unnecessary on-road adjustments by the larger trucking vehicles to avoid colliding with these parked vehicles.

Several alternatives were considered to alleviate the trucking operations at this intersection including:

- Purchase the building/property on the south-west corner when available to reconstruct the intersection with improved turning radii;
- Install Bollards at south-west corner to provide safety to pedestrian waiting to cross and restrict larger vehicles driving over the curb and sidewalk platform;
- Restripe the south leg of the intersection to eliminate any possible use of the gore area by left-turning vehicles mistakenly considering it an exclusive left-turn. Many of the large trucks making

the eastbound to southbound right turn need to overrun that gore area to avoid overtracking on the pedestrian sidewalk; and

- Further restrict curbside parking on the north side of King St. just west of this intersection.

5.5.2 North Lane

North Lane in the Town of Lincoln has been examined on several occasions for its proposed use. At present it is primarily an access road to parking behind the commercial businesses along King St. It runs as a two-way operation and a connection between Ontario St. and Central Ave. Central Ave. north of the Mountain St. (RR 18) at King St. (RR 81) intersection is a one-way roadway running northbound only.

As one of the main concerns with trucking operations in the Town of Lincoln is the use of a short section of King St. between Mountain St. and Ontario St. by the trucking community. They use this section because it is presently the only direct route connection between the escarpment crossing of Mountain St. and the QEW.

Although North Lane is local access road with significant commercial potential for the local businesses in terms of parking and café style sitting facilities, it has a wide right-of-way. For the purpose of this study, it was examined to determine if it could be utilized as a bypass of King St. and a proposed trucking route. Turning templates and turn lanes were proposed to confirm that large trucks could negotiate North Lane as a possible truck route. These plans are shown in **Appendix B**.

Although the plans show that large trucks could negotiate North Lane as a trucking route, and modifying a portion of Central Ave. to accommodate two-way traffic between King St. and North Lane, our study has determined that the use of a local roadway as a large truck bypass route would not be in keeping with the intended use of a local roadway. Significant infrastructure improvements would be required along Ontario St. and at Central Ave. to implement this change, not to mention the significant amount of signing required to ensure large trucks are aware of this bypass. Although North Lane could be a truck bypass route between Mountain St. and the QEW, it would not solve the issue of large trucks coming from other directions other than the north. These large trucks would still have issues negotiating the Mountain St. and King St. intersection.

In conclusion, it was determined that the use of North Lane as a possible truck bypass route is not feasible nor recommended.

5.5.3 Proposed Truck Routing

Recognizing that the short stretch of King St. between Ontario St. and Mountain St. is not ideal for trucking operations due to its urban setting and abutting commercial establishments, the Town is considering proposing a preferred truck route connecting the QEW to Mountain St. The route would include Ontario St. at the QEW ramps, the South Service Rd. between Ontario St. and Bartlett Rd., Bartlett Rd. between the South Service Rd. and King St., and King St. between Bartlett Rd. and Mountain St. This route is illustrated in Figure 12 below:

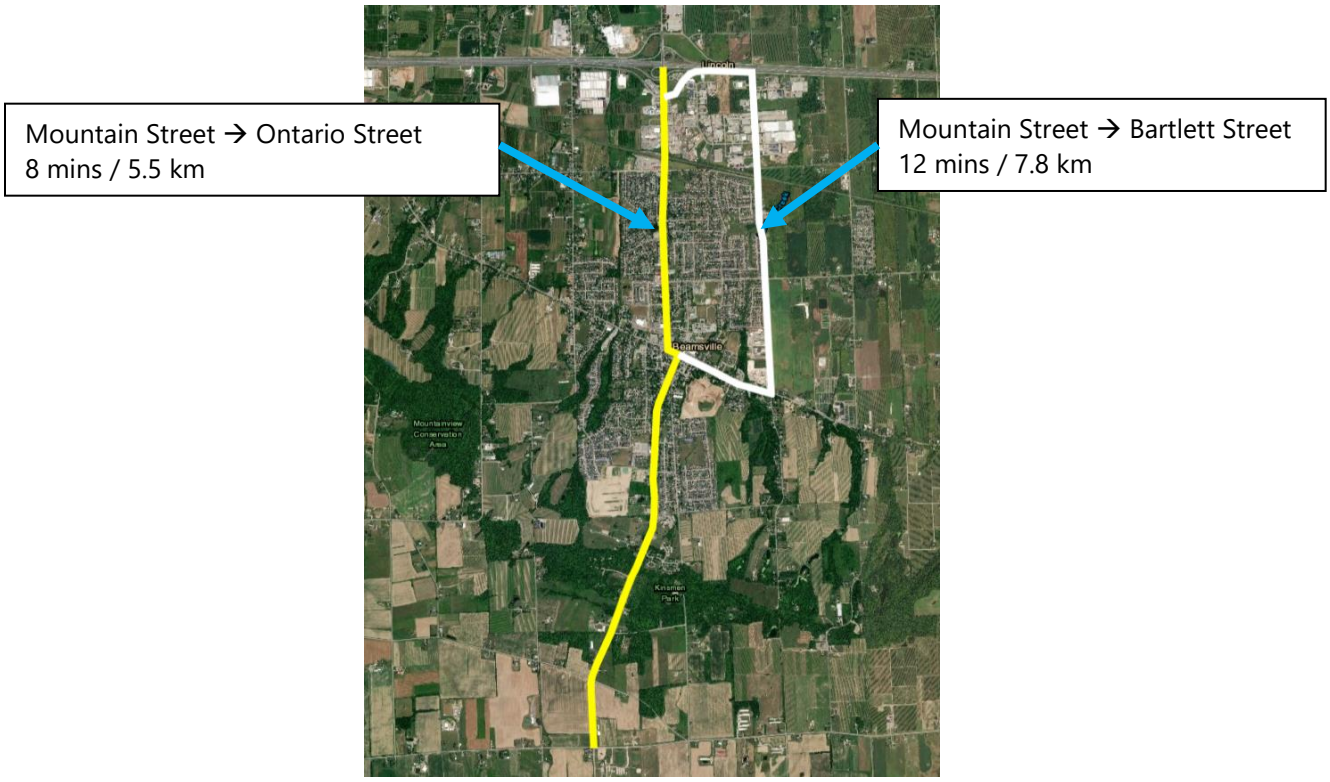


Figure 13: Town of Lincoln Possible Truck Route Option

This proposed truck route would not restrict trucks from continuing along Ontario St. and King St., but would instead be a voluntary preferred trucking route following some infrastructure improvements along that route. Although the route is approximately 2.3km. longer than the Ontario St. to King St. route, it may be more desirable as it avoids difficult operational issues for trucks, and avoids possible congested areas in the urban section of King St.

As this truck route proposal is being considered as part of the Town of Lincoln Transportation Master Plan, the Region should be an active participant in the consideration of this route as a realistic option for reducing the instances of truck problems at the intersection of King St. and Mountain St.

6.0 Recommended Improvement Plan

Based on the variety of potential causes listed in the previous section, a desktop preliminary research task was undertaken to explore a number of solutions. These improvements could potential be implemented in three stages and categorized accordingly into short, medium and long-term solutions given their level of complexity, funds availability, degree of public and business owner engagement, planned future developments, support to/from neighbouring municipalities and regions. These solutions are summarized as follows:

6.1 Short-Term:

The short-term represent relatively low-cost solution that could be implemented fairly quickly, such as:

- **Consistent Signs and markings on all crossings** should be provided where found deficient to elevate existing conditions to current standards.
- **Traffic Calming** measures should be provided within residential areas for traffic safety including pedestrians and cyclist.
- **Additional Truck Route Signing** similar to '*Preferred Truck Route*' sign at top of Mountain RR 18 to be provided. This effort will guide truck drivers to choosing alternative routes and potentially distribute heavy vehicle demand evenly within the study area.
- **Lower Speed Limit for Trucks where existing road gradient is greater than 6%** as allowed by Highway Traffic Act (shown below) to be carried as a pilot study at one location and monitored. The study should document before and after conditions to understand if permanent implementation of speed reduction is worth considering.

Rate on grade
(6.1) The council of a municipality may by by-law,

(a) designate a portion of a highway under its jurisdiction that includes a grade of 6 per cent or higher; and

(b) prescribe for any class or classes of motor vehicles a rate of speed, when travelling down grade on that portion of the highway, that is 10 or 20 kilometres per hour lower than the rate of speed otherwise prescribed under subsection (1) or (2) for that portion of highway, but not lower than 40 kilometres per hour. 2002, c. 18, Sched. P, s. 29 (3-5).

Same
(6.2) The portion of a highway designated under clause (6.1) (a) shall not include more than 500 metres on either side of the portion of the highway where the grade is 6 per cent or higher. 2002, c. 18, Sched. P, s. 29 (3).

- **Preferred truck route** using Bartlett Road (Town of Lincoln) could be established in view of Town of Lincoln Transportation Master Plan. Work to be collaborated with Town to determine viability.

- **Additional Enforcement** should be considered on a regular basis for effectiveness. It can be supplemented with many solutions identified under short-term implementation program, such as traffic calming, preferred truck route, lower speed limits.

- **Complete Streets Treatment** for King between Mountain Street and Ontario Street could be considered to deter trucks movement within this section.

- **Continue to collaborate with local municipalities** as they develop their transportation master plans and other improvement plans.

6.2 Medium-Term:

The following medium-term solutions represents options with mid-range capital investment having moderate operational and maintenance cost:

- **New Escarpment Crossing** will provide and additional alternative route, which could provide relief on major corridors within the study limits. If and When a new crossing is implemented, education to road user would be of prime importance and key to success. A Class Environmental Assessment undertaking for Phase 3 and 4 could be initiated for new crossing.

- **Goods Movement Standing Committee** will require dedicated staff to oversee operation and logistic matters on a continuous basis. The allocation of man power and resources will not only develop and review implementation strategy, but it will also be helpful in monitoring benefits provided through improvements.

- **Infrastructure improvements on existing crossings** would potentially enhance traffic safety and driving experience, which could result in traffic diversion to available alternative routes. This may include but not limited to providing active transportation facilities for consistency and continuity, resurfacing where pavement shows visible sign of deterioration, improved road geometrics.

- **Monitor Electronic Enforcement Advances** such as Tolling, Photo Radar may prove to be an efficient way of deterring heavy vehicle traffic off residential areas and utilizing alternative routes. However, this solution should be considered in conjunction with enforcement.

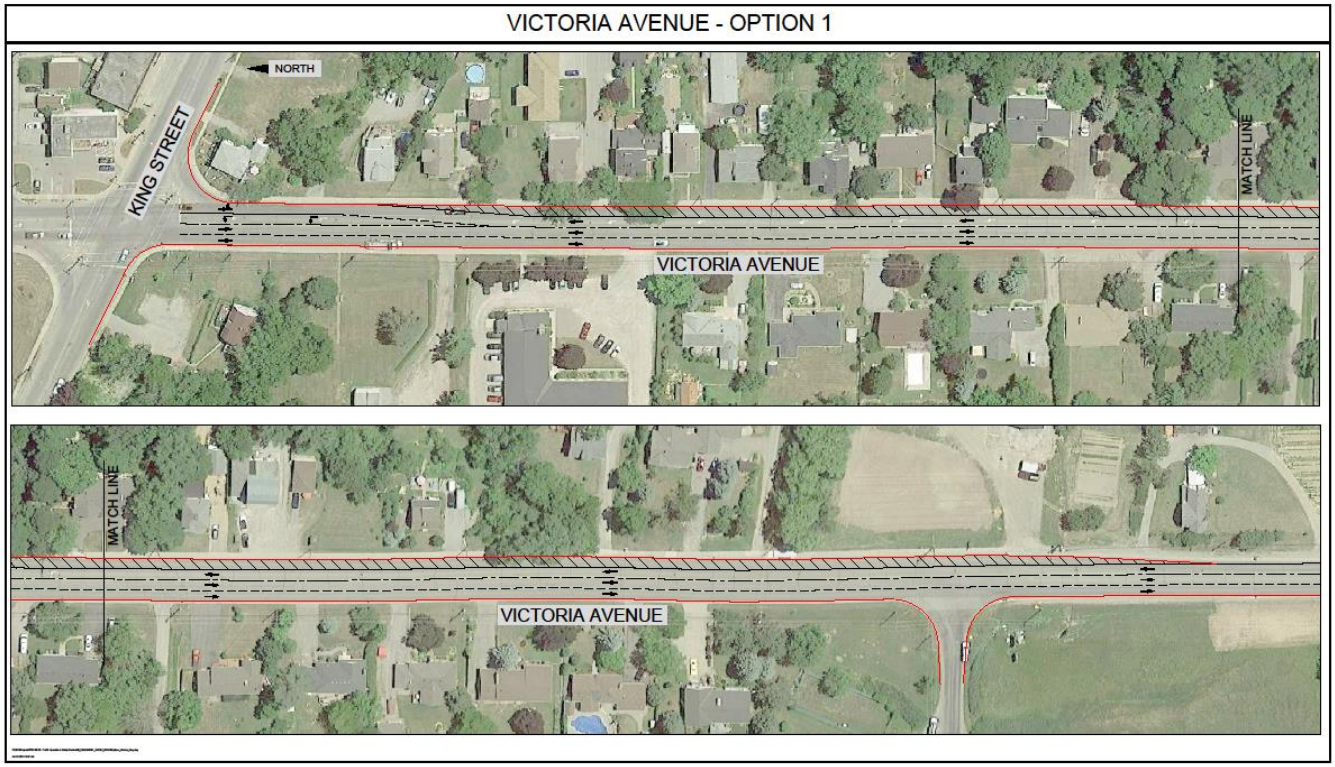
6.3 Long-Term:

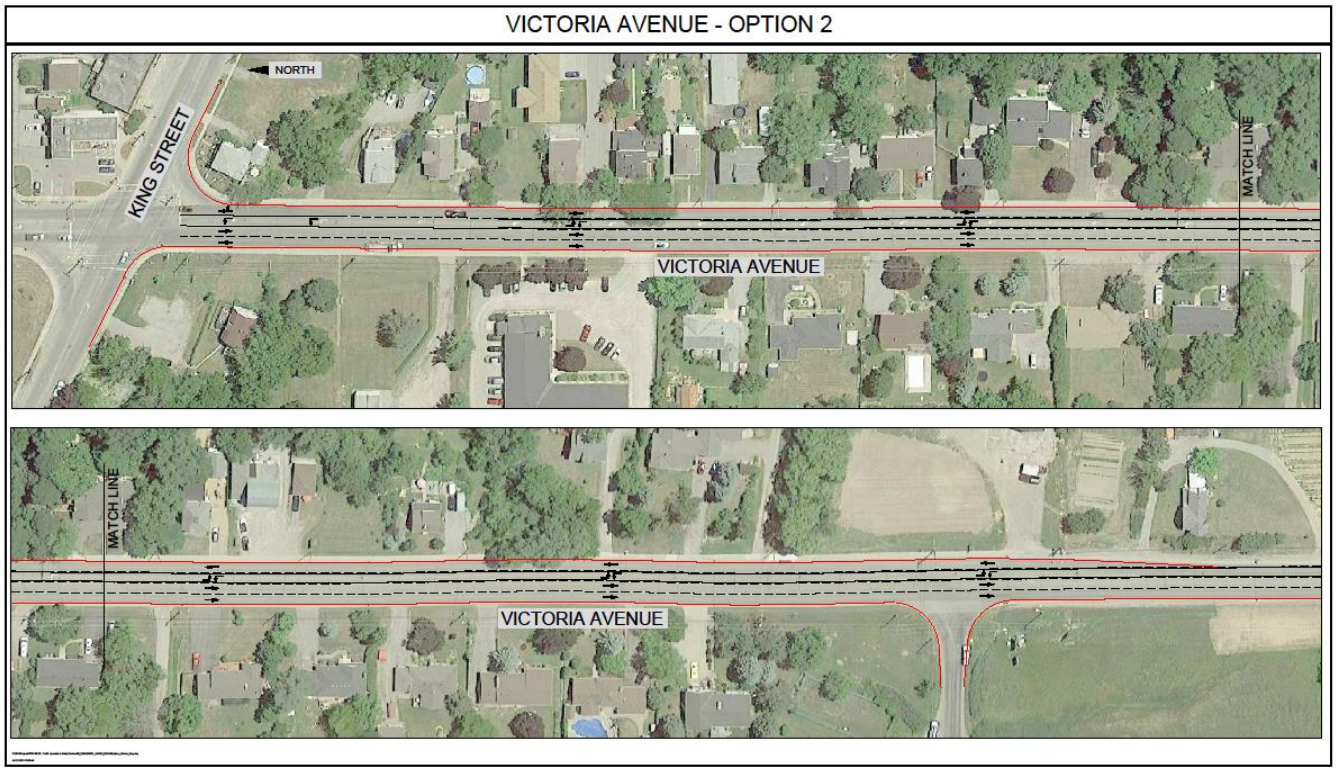
The long-term solution for goods movement is a Trade Corridor between Niagara and Hamilton across the escarpment. This will require tremendous effort to gather a consensus amongst municipalities, Regions and stakeholders to fund, implement and maintain. Where this long-term solution will provide greater connectivity, it is also subject to major capital investment, environmental assessment, property acquisitions, design and build challenges.

Furthermore, strategic property acquisition should be considered where required, especially at south-west quadrant of Mountain Street (RR18) / King Street (RR81) intersection to facilitate safer and wider turning of heavy vehicles.

Appendix A

Appendix A: Victoria Ave. (RR 24) Restriping Options





VICTORIA AVENUE - OPTION 3

VICTORIA AVENUE - OPTION 4

Appendix B

Appendix B: North Lane Design Options

NORTHBOUND TRUCKS - OPTION 1

NORTHBOUND TRUCKS - OPTION 2

SOUTHBOUND TRUCKS - OPTION 1

SOUTHBOUND TRUCKS - OPTION 2

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

MEMORANDUM **PWC-C 15-2020**

Subject: Livingston Avenue Extension Environmental Assessment

Date: June 16, 2020

To: Public Works Committee

From: Jack Thompson, Transportation Strategic Projects Lead

Purpose of Memorandum

To provide a status update on the Livingston Avenue Extension Municipal Class Environmental Assessment technical and approval process that was initiated to address the need for additional east-west network capacity in the west portion of the Town of Grimsby.

Background

The need for additional east-west network capacity along the Livingston Avenue corridor, in the west portion of the Town of Grimsby, has been identified in transportation studies since the early 1970's:

- 1971 - Town of Grimsby Traffic Study - Recommended Street Plan
- 1995 - Town of Grimsby Transportation Study
- 2017 - Niagara Region Transportation Master Plan

The Town of Grimsby Official Plan (2012) - Section 5.4.7 - Future Road Connections noted in Section 5.4.7.1 that the following road connection is planned:

- Connect Livingston Avenue east of Casablanca Boulevard, to Regional Road No. 81. The proposed intersection configuration would encourage the use of Livingston Avenue and discourage the use of Main Street West. An Environmental Assessment is required for the future Livingston Avenue road extension.

The Grimsby GO Station Draft Secondary Plan (2017) which was approved by Regional Council and Town of Grimsby Council (2018) noted the following discussion on Livingston Avenue (Section 4.3.4 - Planned Road Improvements and Connections):

- Depending on the evolution of traffic patterns in the area, there may be a need to extend Livingston Avenue west of Casablanca Boulevard. The Region has maintained this as an opportunity for improving east-west connectivity and providing relief to the congested South Service Road. The Region should protect for this opportunity in the secondary plan in the event that it is required over the long term. The Region may also need to consider protecting the option for a second access point off of Livingston Avenue. Given the sensitive environment in this area, the road extension would undergo an Environmental Assessment and will be ecologically-designed to minimize impact on the woodlot and its habitat and hydrology.

Environmental Assessment Process (May 2018 – April 2020)

The Casablanca Boulevard and GO Station Access Environmental Assessment (EA) Study was initiated in 2018 to assess the transportation infrastructure requirements to support projected population and employment growth in West Grimsby and to support the planned Grimsby GO Station. The EA was approved in March 2018 without a Part II Order request to the Ministry of Environment, Conservation and Parks (MECP). The approved EA identified transportation infrastructure improvements to the following facilities with construction to start in late 2020/early 2021:

- Casablanca Boulevard (Main Street (RR81) to North Service Road)
- QEW interchange ramp terminals and MUP (Multi-Use Path)
- South Service Road (Industrial Drive to east of Casablanca Boulevard)
- Livingston Avenue (Casablanca Boulevard to west of Emily Street))

Following the approval of the Casablanca Boulevard and GO Station Access Environmental Assessment (EA), the Region continued with undertaking the EA Study for Livingston Avenue from west of Emily Street to Oakes Road North/Main Street West. This EA study represents Phase 2 of the EA approval process to assess the need for additional east-west transportation system capacity in the west portion of the Town of Grimsby to year 2041 and address future congestion on South Service east of Industrial Drive.

The Environmental Assessment Process included:

- Notice of Commencement – Newspaper ads May 31 and June 14, 2018
- Public Information Centre #1 – June 20, 2018
    - Assessment of existing traffic conditions, potential alternative solutions and defining the “Problem Statement”
- Public Information Centre #2 – May 28, 2019
    - Presented the results of traffic, natural heritage, cultural heritage, archaeological heritage, and socio-economic assessments and featured a workshop to discuss the alternative solutions for improving east-west travel capacity and evaluation criteria to evaluate alternative solutions.
- Public Information Centre #3 – January 27, 2020
    - Presented Information on Transportation Issues being addressed; Natural/Cultural/Socio-Economic Impacts; Evaluation of Alternative Solutions; Study Recommendation to Extend Livingston Avenue to Oakes Road/Main Street West and associated alternative design options.
- On-Line Survey - Alternative Design Options - February - March 2020
    - Rural and Urban Road cross-section alternatives
- Environmental Study Report (ESR) Submission to Ministry of Environment, Conservation and Parks (MECP) on April 3, 2020 for 30-day review period

Environmental Assessment Process – Next Steps (May 2020 – July 2020)

The MECP comments on the submitted Livingston Avenue Extension ESR were received on May 14, 2020.

The MECP comments focused on Species at Risk (SARS) directions prior to initiating design and construction activities. The MECP comments are included in ESR – May 2020, Table 9-6 Commitments to Future Work.

Niagara Region filed the ESR for a 45-day public review / comment on May 21, 2020. The EA filing process includes the following steps:

- Notice of Completion Advertisements - 2 circulations (May 21 and May 28, 2020) with Niagara This Week and Niagara News Now
- Notice of Completion posted on Livingston Avenue Extension EA project website

- Livingston Avenue Extension ESR posted on Region's project website
- E-Bulletin to Stakeholders and Agencies regarding ESR 45-day public review / comment period
- Letters to Indigenous Communities regarding Notice of Completion and ESR 45-day public review / comment period

If a Part II Order is received within the 45-day public review period, MECP will be notified and undertake a review of Part II Order issues. At the request of MECP, Regional staff will work with MECP in responding to the Part II Order issues.

If no Part II Order is received by MECP, the project as presented is approved and MECP notified.

Respectfully submitted and signed by

_____

Jack Thompson
Transportation Strategic Projects Lead
Transportation Services

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.*

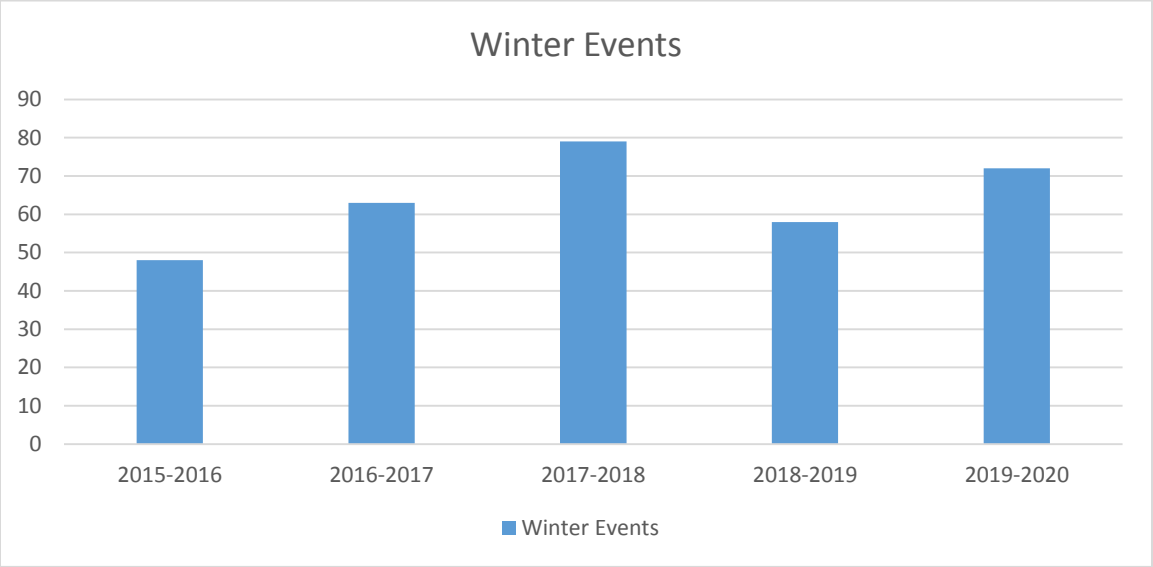
Winter Operations

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

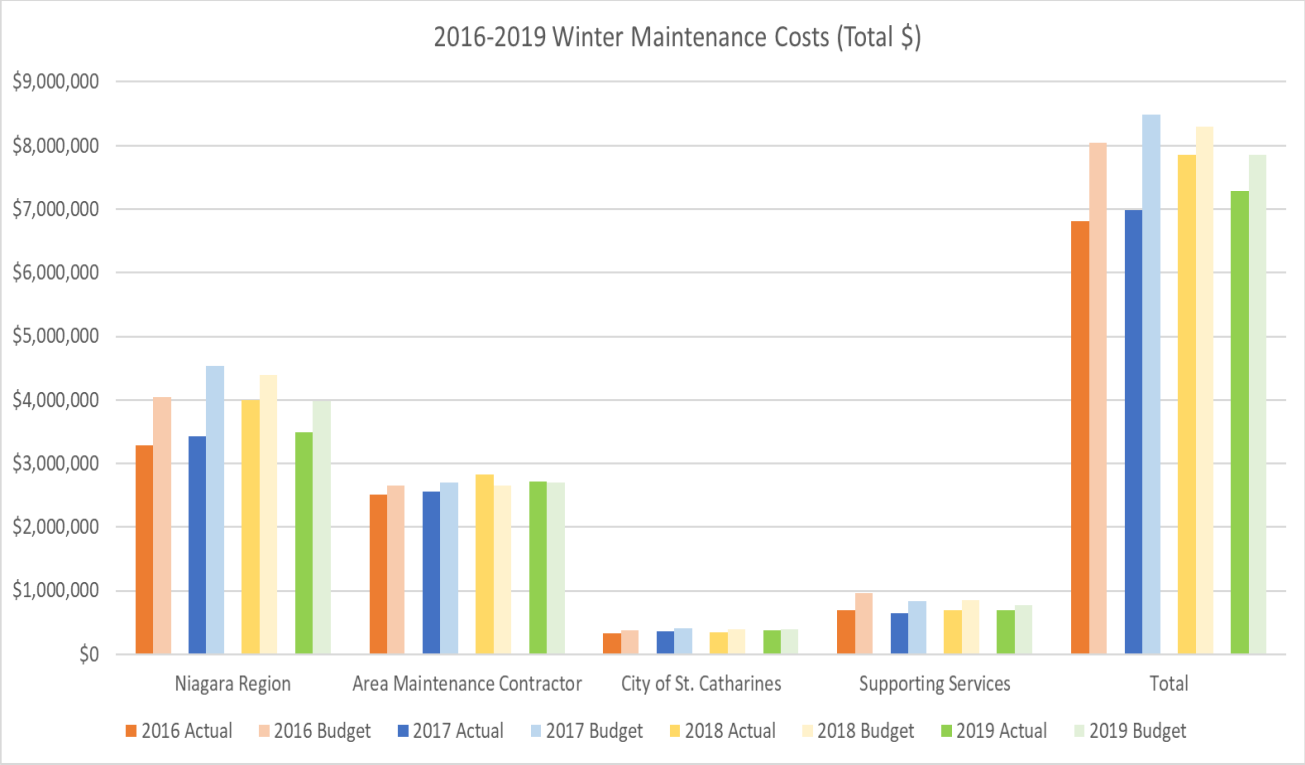


The 2020 operating budget for winter maintenance is $7,999,226, to date (April 2020) the Niagara Region has incurred costs of $3,990,863, including savings of $269,706 on winter materials, $31,022 on equipment including fuel savings, and $99,651 on overtime.

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.

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

Appendix 1
2016-2019 Winter Maintenance Costs
Budget vs Actuals

Niagara Region

Total Lane Km's Maintained	989	989	990	996
Year	2016	2017	2018	2019
Winter Budget	4,037,881	4,533,599	4,399,064	3,977,551
Winter Actual	3,287,709	3,425,507	3,995,834	3,493,415
Budgeted Cost per lane Km	4,083	4,584	4,443	3,994
Actual Cost per Lane Km	3,324	3,464	4,036	3,507

Area Maintenance Contractor

Total Lane Km's Maintained	668	670	674	673
Year	2016	2017	2018	2019
Winter Budget	2,650,000	2,700,000	2,650,000	2,700,000
Winter Actual	2,504,624	2,559,293	2,821,368	2,719,652
Budgeted Cost per lane Km	3,967	4,030	3,932	4,012
Actual Cost per Lane Km	3,749	3,820	4,186	4,041

City of St. Catharines

Total Lane Km's Maintained	125	122	126	126
Year	2016	2017	2018	2019
Winter Budget	381,000	406,000	400,000	400,000
Winter Actual	329,728	353,490	348,617	378,549
Budgeted Cost per lane Km	3,048	3,328	3,175	3,175
Actual Cost per Lane Km	2,638	2,897	2,767	3,004

Supporting Services

Total Lane Km's Maintained	1782	1781	1790	1795
Year	2016	2017	2018	2019
Winter Budget	968,289	842,888	852,498	768,726
Winter Actual	687,276	648,681	686,215	691,618
Budgeted Cost per lane Km	543	473	476	428
Actual Cost per Lane Km	386	364	383	385

Total

Total Lane Km's Maintained	1782	1781	1790	1795
Year	2016	2017	2018	2019
Winter Budget	8,037,170	8,482,487	8,301,562	7,846,277
Winter Actual	6,809,336	6,986,972	7,852,034	7,283,234
Budgeted Cost per lane Km	4,510	4,763	4,638	4,371
Actual Cost per Lane Km	3,821	3,923	4,387	4,058

Public Works
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MEMORANDUM

PWC-C 19-2020

Subject: Regional Road 38 (Martindale Road) Bridge Structure Closure

Date: June 16, 2020

To: Public Works Committee

From: Mike Wilson, Senior Project Manager

The Public Works Committee awarded Tender 2019-T-157, Reconstruction of Regional Road 38 (Martindale Road) from Fourth Avenue to Barton Street, in the City of St. Catharines to Rankin Construction on June 11, 2019. This contract included the reconstruction of Regional Road 38 (Martindale Road) from Barton Street to Fourth Avenue, a new bridge structure over Highway 406 and the rehabilitation of the existing structure over Highway 406. This contract included cost sharing with the Ministry of Transportation (MTO) and the City of St. Catharines.

The contract included the following staging associated with the construction and the rehabilitation of the structures:

- Completion of the new structure over Highway 406, including on road cycling facilities and sidewalk,
- Transfer both vehicular and pedestrian traffic onto the new structure, to allow full closure of the existing structure,
- The rehabilitation of the existing structure,
- Open the existing structure to north bound traffic and the new structure to south bound traffic, including pedestrian and cycling access.

At the onset of construction prior to the pandemic, the Contractor's schedule was being maintained with the tendered construction staging. They had scheduled to complete the new bridge structure in early 2020, then close the existing structure to complete the rehabilitation.

The contract had experienced only minor delays until the COVID pandemic outbreak, where the Contractor now has indicated a significant concern meeting the completion date. The supply of the pre-cast girders has been impacted by the regulations imposed

by the Provincial Government. The full effect of this delay is still unknown. Since the new structure has been significantly delayed, this has impacted the overall project schedule.

The project team has explored many options to allow the construction to proceed as timely as possible and avoid significant delays. The recommendation from staff is to close the existing structure on Regional Road 38 (Martindale Road) over Highway 406 to vehicular traffic, while maintaining pedestrian access before the new structure is operational. This will allow the rehabilitation of the existing structure to proceed while the Contractor continues to work on the supply of girders for new structure, at a slower rate than anticipated, due to the COVID regulations.

The Project team has discussed this option with the City of St. Catharines Fire Services as they have a Fire Station at 149 Martindale Road. Fire Services can make alternate arrangements to access Fourth Ave via alternative routes. Niagara Region staff has also discussed a variety of options with the City of St Catharines staff and have concluded this closure provides the most desirable long term outcome for the public. The closing of the existing structure will have minimal to no financial impact on the project as the items included in the rehabilitation are already accounted for. If the project is delayed into 2021, there may be additional costs to Niagara Region to address these delays, although the extent of these financial impacts as a result of the Pandemic are not yet known.

As part of the review of alternative options, the Project team also reviewed the impact to the travelling public, if the Martindale Road structure rehabilitation is not completed in 2020. If the bridge structure over Highway 406 is not completed and opened in 2020 as originally scheduled, there will be additional coordination and planning required with scheduled construction projects by the MTO (rehabilitation of the Fourth Avenue structure over Highway 406) and Niagara Region (the replacement of the St Paul Street West bridge structure) in 2021. Our intent is to have Martindale Road open to alleviate traffic congestion and reduce the required number of detours in this area in considering the scheduled 2021 construction projects.

If the structures on Martindale Road are not operational by 2021, there will be an increase in traffic congestion and concerns with the Ministry of Labour’s requirements for meeting proper construction project separation and space while completing their planned works. To avoid these impacts, staff recommend closing Martindale Road to vehicular traffic while maintaining pedestrian access for approximately 12-15 weeks to

allow the rehabilitation during this time when the traffic volumes are lower due to the pandemic.

To inform the public of this impact, Niagara Region will place road closure notification signage on Martindale Road prior to the closure to inform the public. Notices will be placed on Niagara Region's website and circulated to the City of St. Catharines. Emergency Services, City and Regional Transit and Waste collection companies will be notified in advance of any closure. The recommended option has been reviewed with the MTO, and they have no objection to this closure. Detour routes will be posted, and Niagara Region will work with the City of St. Catharines on acceptable detour routes. Access to commercial businesses along Fourth Avenue will not be impacted as these businesses have access from Fourth Avenue.

Respectfully submitted and signed by

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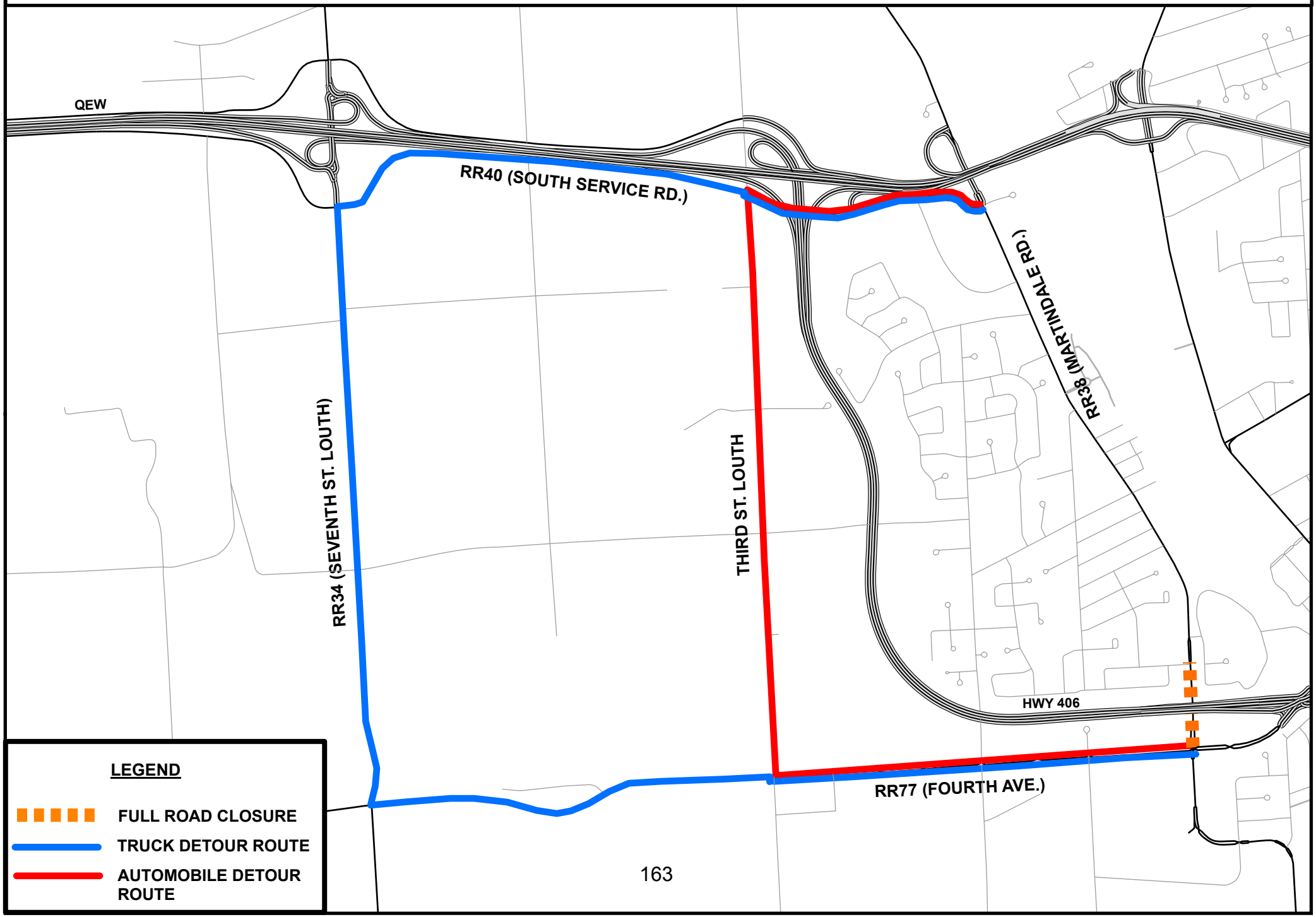
Mike Wilson, A.Sc.T., PMP
Senior Project Manager
Transportation Engineering

Appendices

Appendix 1: Key Map

Niagara Region

RR38 (MARTINDALE ROAD) BRIDGE STRUCTURE CLOSURE
CITY OF ST. CATHARINES



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MEMORANDUM

PWC-C 18-2020

Subject: Procurement Progress Report Liquid Biosolids & Residual Management

Date: June 16, 2020

To: Public Works Committee

From: Bart Menage, Director Procurement & Strategic Acquisitions

As requested at the February 11, 2020 Public Works Committee, Procurement provides the following Progress Report for the Liquid Biosolids & Residuals Management Program.

On May 22, 2020 Procurement Staff, in consultation with Water Wastewater Staff and with the support of the Fairness Commissioner and Subject Matter Expert retained by the Region for this project, posted the Request for Proposal 2020-RFP-60: Liquid Biosolids and Residuals Management Program to Bids and Tenders with a scheduled closing of 2:00 PM on June 23, 2020.

At this project is now an openly posted and active procurement, Niagara Region is in a “blackout period” until such time as the agreement is executed between Niagara Region and the Council approved Proponent. As such, in accordance with section 31(c) of the Procurement By-law. any and all requests for information and/or communications related to this project shall be directed through Procurement to the RFP Contact named in the bid document, This not only protects the integrity and transparency of the process but also ensures the availability of key information including questions-and-answers to all Proponents through the issuance of addenda.

It is Staff’s intention to bring forward a report with a recommendation for the award of this contract to the Public Works Committee scheduled for July 17, 2020.

Respectfully submitted and signed by

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Bart Menage, CSCMP, CRM, C.P.M.
Director, Procurement & Strategic Acquisitions