CITY OF HAMILTON

PUBLIC WORKS DEPARTMENT

Corporate Assets & Strategic Planning

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	December 7, 2015
SUBJECT/REPORT NO:	The Lincoln M. Alexander Parkway (LINC) & Red Hill Valley Parkway (RHVP) Safety Review (PW15091) - (City Wide) (Outstanding Business List Item)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Stephen Cooper, C.E.T., (905) 546-2424, Extension 2558 David Ferguson, C.E.T., (905) 546-2424, Extension 2433 Martin White, C.E.T., (905) 546-2424, Extension 4345
SUBMITTED BY: **SIGNATURE:**	John Mater, C.E.T. Director, Corporate Assets & Strategic Planning Public Works Department

RECOMMENDATION

(a) That the General Manager of Public Works be directed to implement the short-term safety options identified in Report PW15091 as Appendix A and that these options be funded from the Red Light Camera Reserve (112203) and that staff be directed to report back to Public Works Committee on the results;

(b) That the design with request to the medium and long term items in Report PW15091 as Appendix B be deferred pending the outcome of the Transportation Master Plan (TMP) update;

(c) That a request be made to the Hamilton Chief of Police and the Hamilton Police Services Board to undertake regular speed and aggressive driving enforcement on the Lincoln M. Alexander Parkway (LINC) and the Red Hill Valley Parkway (RHVP) and that they be requested to report back to Council annually on the results;

(d) That a copy of Report PW15091be provided to the Joint Stewardship Board of the Red Hill Valley for information.

EXECUTIVE SUMMARY

This report is subsequent to Item 8 of Public Work committee Report 15-007, approved by Council on May 27, 2015, that staff were directed to investigate additional safety measures for the LINC and the RHVP, such as additional guardrails, lighting, lane markings or other means to help prevent further fatalities and serious injuries; and, report to the Public Works Committee with recommendations by December 7, 2015.

Further to this direction staff retained CIMA Canada Inc. to undertake this review and identify options that the City could consider implementing to assist in improving safety on the LINC and the RHVP. A copy of the CIMA reports can be made available at request. Staff recommends that the options identified in Appendix A, Short-Term Safety Options and Estimated Costing for the LINC and the RHVP be approved for implementation and funded from the Red Light Camera Reserve (112203). The estimated total cost (with contingency) to implement these options is $815,000

Staff further recommend that the medium and long term items in Appendix B (Medium and Long Term Safety Options and Estimated Costing for the LINC and the RHVP) be referred to the General Manager of Public Works for review as part of the process for the assessment of expansion of the LINC and the RHVP as part of the City's TMP update.

Staff also recommends that Hamilton Police Services be requested to undertake regular speed and aggressive driving enforcement on the LINC and the RHVP and report back, the results to Council on an annual basis. Public Works staff have initially discussed with the Hamilton Police Service staff. Hamilton Police Service have indicated that additional funding maybe required to increase enforcement in these areas.

Lincoln Alexander Parkway (LINC)

Since the opening of the LINC in 1997 there have been 641 collisions in total. Of the total number of collisions that occurred, 128 (20%) were median related collisions which involved vehicles striking, mounting or crossing the centre median. Between 1997 and 2007, prior to the opening of the RHVP, the LINC averaged approximately 5 median collisions and 55 mainline collisions per year. Between 2008 and 2014 the average has increased to approximately 9.4 median related collisions and 66 mainline collisions per year. It should be noted that 51% of median related collisions were secondary events that occurred as a result of the subject vehicles being involved in other same-direction collisions (rear-end, and sideswipe). In these incidences, the impact from the other vehicles involved caused the subject vehicles to cross the median, mount the median or hit the centre curb or a barrier.

A more detailed review of these collisions identified an issue with Speed Differential between vehicles travelling in Lane 1 (lane closest to centre median island) versus vehicles travelling in Lane 2 or vehicles accessing Lane 2 (on ramps). These collisions occurred in conjunction with "following too close", "improper lane change", and "lost control" event attributes.

The Safety Review assessment also specifically looked at the need and justification for the need of a median barrier. The consultant undertook a barrier warrant analysis and determined that the requirement for a barrier on this type of roadway and varying criteria fell within the Optional section of the warrant.

To address these identified collision patterns, the points below summarize all of the proposed options for potential improvements:

- Install Object Marker Signs on guiderail end treatments
- Install Advance Diagrammatic Sign on Rousseaux on-ramp west of Mohawk Road.
- Install Advance Sign with Advance Right Lane Exits,
- Next Lane Exit or through sign between Hwy 403 and Mohawk Road
- Conduct Speed Study to review variable Parkway Speed Limit Implementation
- Conduct Study to Install Queue End Warning Systems
- Provide Shoulder Rumble Strips along entire length of the LINC
- Shield Rock Cuts between Upper James Street and Upper Wellington Street
- Install Median Barrier System (High Tension Steel Cable)

Red Hill Valley Parkway (RHVP)

Between January 1, 2008 and July 23, 2015 the RHVP has experienced 474 collisions in total, averaging 63 collisions per year. Of the total number of collisions that occurred, 131(28%) were median related collisions which involved vehicles hitting guide rails/concrete barriers, resting on the grass median, or crossing over to the opposite direction (17 total collisions, 13%).

A detailed review of the collision incidents identified that there is a higher number of collisions than would be expected as a result of high vehicle speeds in combination with wet weather conditions. The majority of collision incidents that are occurring are a direct relation to poor driving behaviour.

A detailed review of vehicle speed data identified approximately an average of more than 500 vehicles per day travelling in excess of 140 km/h and an 85^{th} percentile speed of 115 km/h. These speeds are further confirmation of poor driving behaviour that is occurring on the RHVP and in many instances are behaviours that under the Highway Traffic Act would be considered 'stunt driving' and would result in the immediate loss of vehicle and licence. Furthermore, it is apparent, that motorists are treating and operating as if the Parkway was a Provincial Highway. The design of both roadways is appropriate for a Parkway designation and constructed with a design speed of 110 km/h.

As part of this safety analyses, illumination on the RHVP was also reviewed. Although night time collision proportions were not found to be significantly higher than provincial or municipal averages, 174 (37%) of collisions on the RHVP occurred during non-daylight conditions, a lighting warrant was completed utilizing the TAC Lighting Design

manual standards for this type of roadway. The warrant analysis concluded that lighting would be warranted for this type of roadway.

During the design and approvals phase for construction of the RHVP, a Joint Stewardship Board of the Red Hill Valley was created, which included representation from the Haudenosaunee, Six Nations. It was agreed upon at that time that lighting considerations would be restricted to only intersections and on/off ramps. The purpose for this decision was a result of the potential negative impacts to the surrounding Ecosystems.

Given that night time collision proportions were found not to be significantly higher than provincial/ municipal averages and that poor driving behaviour has been identified as a primary concern, staff's recommendation is to not implement any lighting changes at this time. Staff recommends implementation of that short-term options outlined in Appendix 'A' and report back to the Public Works Committee on the results, along with the impacts of regular speed and aggressive driving enforcement in conjunction with Hamilton Police services.

The Safety Review assessment also specifically looked at the need and justification for the need of a median barrier. The consultant undertook a barrier warrant analysis and determined that the requirement for a barrier on this type of roadway and varying criteria was not met and therefore a barrier is not warranted.

To address the identified collision patterns that are occurring, the points below summarizes the proposed options for potential improvements.

- Conduct speed enforcement
- Trim vegetation at on-ramps Queenston Rd. and Barton St. ramps
- Install oversized speed limit signs
- Install "slippery when wet" signs
- Supplement "slippery when wet" signs with rain activated flashing beacons (four signs near King St. and Queenston Rd. Interchanges).
- Install "merge" signs and "bridge ices" signs
- Upgrade guiderail end treatments
- Install, replace or trim vegetation obscuring signs at guiderail end treatments
- Conduct pavement friction testing
- Install speed feedback signs
- Install permanent raised pavement markings (cat's eyes) from Greenhill Ave. to the QEW
- Install high-tension cable guide rail
- Install end to end illumination

Alternatives for Consideration – See Page 7

FINANCIAL – STAFFING – LEGAL IMPLICATIONS

Financial: As previously approved by City Council, all excess Red Light Camera program fine revenues not required to build, operate, manage or maintain existing or future Red Light Camera sites, be allocated to road safety initiatives, as supported by the principles of the Hamilton Strategic Road Safety Program (Re-establishment of the Hamilton Strategic Road Safety Program (PW14090). The Red Light Camera Reserve (112203) can be used for matters related to improving traffic safety, such as the options identified in this report.

Staff recommends that the Red Light Camera Reserve account (112203) be used to fund and implement the options identified in Appendix A the Short-Term Safety Options and Estimated Costing for the LINC and the RHVP. The total estimated costs to implement the short-term options identified in Appendix A are estimated at $652,000. With a recommended 25% contingency, the estimated total is $815,000.

Staffing: No Impacts to current staff levels are identified

Legal: No immediate Policy or Legal impacts are identified in this report.

HISTORICAL BACKGROUND

Public Works Committee Report 13-001, Motion H, I, approved by Council on January 23, 2013, directed staff to review lighting, signage and safety concerns on the Red Hill Valley Parkway in the vicinity of the Mud/Stone Church interchanges, staff retained CIMA+ Consulting to complete an In-service Safety Review.

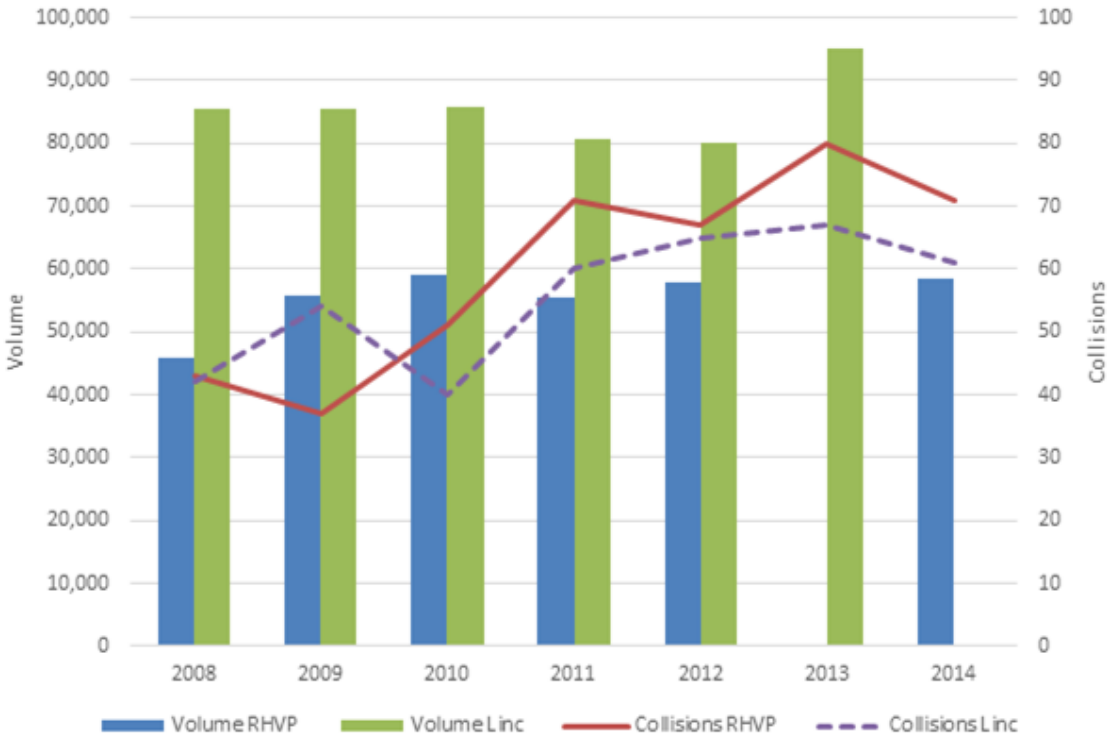
This Safety Review was completed on the section of the (RHVP) between Dartnall Road and Greenhill Avenue.

As reported to Public Works Committee, Information Update, June 15, 2015, numerous changes were completed to improving signage, pavement marking modifications and the installation of permanent raised pavement markings.

Due to a number of severe collisions that occurred on the LINC and the RHVP, staff was directed at the May 21st, 2015 Public Works Committee meeting, to undertake a Safety Review of both the LINC and the RHVP.

Since the LINC opened in 1997 until the opening of the RHVP in late 2007 the LINC primarily served as an intra-city commuter connection. After the opening of the RHVP, the LINC also formed part of a continuous connection from Hwy. 403 and the QEW. The roads now serve both intra-city and inter-city traffic since it forms a connection between Niagara Region and South West Ontario.

Traffic volumes are high and have increased since the initial opening with some hours of the day operating at capacity, specifically during peak hours. Given volumes on the LINC and the RHVP are 75,000+ vehicles per day and increasing, one can expect a certain number of collisions simply based on the higher volumes as summarized in the chart below.



In reviewing and observing both roadways during the Peak Hour Periods (a.m. & p.m.), staff are of the position that both roadways operate at or in close proximity to mainline volume capacity (2000 vehicles/lane/hr). Of the total volume utilizing both roadways, it is estimated that 2.2% is represented by heavy vehicles. This traffic can cause further congestion, particularly on the southbound RHVP as heavy vehicles are unable to reach posted speed limit during heavy volume congestion periods, therefore making the roadways increasingly congested.

Currently, Public Works is updating the City Wide Master TMP which will be completed in 2016. Part of this process is to review the need for additional lanes on both the LINC and RHVP due to the high volumes and congestion at certain times of day. If additional lanes are identified, a Median Barrier would be required.

POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS

No corporate policies will be affected when approving the above recommendations.

RELEVANT CONSULTATION

The following Sections have reviewed this Report and are supportive of the Report's recommendations:

Engineering Services, Public Works
Operations, Public Works
Forestry and Horticulture, Environmental Services, Public Works
Legal Services, City Manager's Office
Hamilton Police Services

ANALYSIS AND RATIONAL FOR RECOMMENDATION

The charts below illustrate the predominant types of collisions that occurred on the LINC and the RHVP between 2008 and 2014. Of the collisions that occurred on the LINC, 295 (76%) were during dry road conditions. Similarly, the RHVP experienced approximately 275 (52%) during clear weather with all the highest collision frequencies located within, on approach to, or leaving horizontal curves regardless of surface conditions. A closer review of the remaining collisions, it identified that the remaining 48% of collisions occurred during inclement weather conditions.

Total LINC Collision Types 2008-2015 (July)	
Type of Collision	Number and Percent Overall
Rear End (Following Too Close)	197 (51%)
Single Motor Vehicle (Lost Control)	88 (23%)
Side Swipe (Improper Lane Change)	75 (19%)
Other	29 (7%)

Total RHVP Collision Types 2008-2015 (July)	
Type of Collision	Number and Percent Overall
Rear End (Following Too Close)	116 (24%)
Single Motor Vehicle (Lost Control)	208 (44%)
Side Swipe (Improper Lane Change)	108 (23%)
Other	42 (9%)

Upon reviewing the detailed analysis of the safety investigation, it has been identified that a number of the identified short and medium term options could be implemented and have an overall positive effect on the collision conditions that are occurring. Staff is proposing to implement the Options identified in Report PW15091 as Appendix A and work in partnership with Hamilton Police Services, to monitor conditions.

Staff recommends that the medium and long term items in Report PW15091 as Appendix B be deferred for review pending the outcome of the assessment of the LINC and the RHVP as part of the City's TMP update.

ALTERNATIVES FOR CONSIDERATION

Council may choose not to approve the recommendations. Council could direct Staff to proceed with the barrier installation now. However, if expansion of the LINC and/or RHVP is identified as part of the City Wide TMP update, the barrier may need to be redesigned to accommodate additional travel lanes. In addition, implementation of a number of the identified short term options may assist in reducing the number of collisions that are occurring and eliminate the need for barrier installation.

ALIGNMENT TO THE 2012 – 2015 STRATEGIC PLAN

Strategic Priority #1 – A Prosperous & Healthy Community

WE enhance our image, economy and well-being by demonstrating that Hamilton is a great place to live, work, play and learn.

Strategic Objective

1.4 Improve the City's transportation system to support multi-modal mobility and encourage inter-regional connections.

1.5 Support the development and implementation of neighbourhood and City wide strategies that will improve the health and well-being of residents.

APPENDICES AND SCHEDULES ATTACHED

Appendix A Short-Term Safety Options and Estimated Costing for the LINC & RHVP

Appendix B Medium and Long Term Safety Options and Estimated Costing for the LINC and the RHVP