




Hamilton

INFORMATION REPORT

TO:	Chair and Members Public Works Committee
COMMITTEE DATE:	June 17, 2020
SUBJECT/REPORT NO:	Red Hill Valley Parkway Resurfacing Project Recap (PW20038) (City Wide)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Gord McGuire (905) 546-2424 Ext. 2439
SUBMITTED BY:	Gord McGuire Director, Engineering Services Public Works Department
SIGNATURE:	

COUNCIL DIRECTION

Not Applicable

INFORMATION

This report is to provide Council a project summary, of the Red Hill Valley Parkway (RHVP) resurfacing project. It will review the communications methods used during the resurfacing, the materials placed including safety upgrades and the asphalt testing protocols. These elements were previously outlined in report PW18008(a) (February 2019) and an Information Update dated April 23,2019 (ENG 19.001).

Last spring, Public Works staff collaborated to deliver a significant resurfacing project on the Red Hill Valley Parkway (RHVP). Over the course of eight weeks between May and July, the RHVP was completely resurfaced between the Queen Elizabeth Way and the Lincoln M. Alexander Parkway.

The parkway was completely closed in one direction at a time during construction. The northbound (downbound) lanes were repaved first beginning on May 21, followed by the southbound (upbound) lanes beginning on June 14, and then the ramps at Mud Street/Stone Church Road (the Upper Red Hill Valley Parkway) beginning on July 11.

OUR Vision: To be the best place to raise a child and age successfully.

OUR Mission: To provide high quality cost conscious public services that contribute to a healthy, safe and prosperous community, in a sustainable manner.

OUR Culture: Collective Ownership, Steadfast Integrity, Courageous Change, Sensational Service, Engaged Empowered Employees.

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The entire project was completed on June 23, 2019. This project was effectively on schedule with only a minor delay due to weather.

The total cost for the resurfacing project was \$12.5 million. The project budget was \$15.0M.

➤ Communications

Two weeks prior to construction on the RHVP, a comprehensive communications plan launched to notify residents about the construction and ensure they knew to expect potential traffic delays or could plan alternate routes for their travel.

The strategy for communicating the impacts of the project was broad and wide-ranging. It included communicating via our website, mobile app, via media outreach, on our Twitter and Instagram channels, with ads in local print publications, radio, online and electronic billboards (particularly around the LINC and RHVP.) We also shared a letter with the Ontario Trucking Association to ask for assistance in communicating about the closure with their members. Finally, we sent a postcard in the mail to all residents in the four wards immediately surrounding the RHVP (4, 5, 6 and 9). These tactics, in addition to ample physical signage, helped to ensure residents were aware of the closure and were prepared for the additional traffic and detours.

All of our communications products directed residents to visit www.hamilton.ca/redhill where additional information about the project was available. There were more than 52,000 visitors to the website since its launch on May 6, 2019. This method of using distributed channels was considered successful and will be used in future projects.

➤ Material Placed

In addition to new high-quality asphalt, the RHVP resurfacing project included the installation of:

- 10 km of new steel beam guide rails
- Bright durable lane markings
- Rumble strips
- Post mounted reflective delineators on straightaways
- Guiderail mounted reflective delineators on curves
- Concrete barrier mounted reflective delineators on curves
- Object and oversize plow marker signage replacement

➤ Asphalt & Performance Testing Results

1. Asphalt Quality Testing

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The RHVP resurfacing was a unique, high volume, short duration project. In order to ensure high quality asphalt was used in the resurfacing of the RHVP, the City supplemented internal staff with an external quality assurance consultant. These teams worked alongside each other during the testing of the asphalt. The sampling process was twice as rigorous than typical City asphalt testing protocols. This was detailed in the Information Update of April 23, 2019.

Asphalt Quality testing included our standard testing protocols:

- Sampling source aggregates, physical characteristics and gradation for compliance
- Conducting a trial batch of the asphalt mixture to test for compliance, with third party verification
- Sampling of asphalt during the paving operations
- Testing for compliance to the mix design (gradation, asphalt cement content and voids)

For this project we extended the testing to include enhanced testing as below:

- Extension of Asphalt Cement testing to include 2 new MTO based tests (Extended BBR and DENT tests)

Results from these tests were overwhelmingly positive with 98% of the samples falling into categories that meet or exceed City requirements, which is excellent for a project of this type.

2. Asphalt Performance Testing and Review

As a reminder, there is no industry or legal standard for friction testing in Ontario, and no industry consensus on the best device or methodology for conducting friction testing.

A summary of the post resurfacing results from the fall 2019 performance testing are attached to this report as Appendix "A" to Report PW20038.

The physical testing was conducted by Applied Research Associates, Inc. (ARA). This testing was performed using a trailer system in accordance with the ASTM Standard E-274. This method generates raw data that can be reviewed to assess the frictional characteristics of the roadway.

CIMA was retained to provide insight into the 2019 post resurfacing data collection collected by ARA, in consideration of their previous assessments of friction dated in February 2019.

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CIMA was asked to review the post resurfacing data in context of the previous CIMA reports and recommendations. Specifically, they were asked 2 questions which are summarized below:

1: In light of the September 2019 RHVP friction data collected by ARA, and the speed limit and enforcement measures recently taken, are any safety measures or monitoring steps on the RHVP recommended to the City?

CIMA's reply is summarized here:

We have reviewed the recommendations in our 2015 and 2018 reports in light of the testing data. Our reports had recommended pavement friction testing. We had also identified countermeasures that targeted elements that interact with pavement friction, specifically speed.

Given that resurfacing was completed in 2019 and the pavement friction values exceed the GDGCR (Transportation Association of Canada Geometric Design Guide for Canadian Roads), we have no changes to our recommendations.

2: In light of the September 2019 RHVP friction data collected by ARA, are any changes needed to the recommendations in the previous CIMA reports to the City regarding safety on the RHVP?

CIMA's reply is summarized here:

The new surface exceeds the friction parameters used in the geometric design of the road. Our previous reports recommended friction testing in the context of the 'old' pavement and we would continue to recommend monitoring of friction values on 'new' pavement going forward to assist in the overall determination of when the infrastructure may approach the end of its lifecycle or require rehabilitation.

3: Summary of testing methodology:

Please note that the numbers generated by ARA use a different testing methodology and are not directly comparable to the Tradewind Scientific friction numbers (captured using a GripTester system) that were shared in February 2019. Friction data would also be expected to vary between different types and ages of asphalt.

The ASTM E-274 test was selected because it is more commonly used than the method used by Tradewind Scientific. Additionally, the Ministry of Transportation

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(MTO) had used an ASTM E-274 type trailer to conduct their friction testing as well.

Both the GripTester and ASTM E-274 methods are considered dynamic tests, that is they both use a trailer mounted system that is towed along the facility at specific speeds. The friction testing methods discussed in the body of report PW18008(a) were considered static tests, that is measure taken of the material surface depths, polished stone values and a pendulum test.

Friction is only one element of the performance of any roadway – road performance is impacted by many different factors. These include things like design and geometry of the curves, grade of the road, signage, lighting and visibility, speed limits, how drivers interact with the roadway and the driving conditions at any given time. The performance testing results should be taken into consideration along with other traffic safety aspects of the roadway.

The City will continue to monitor the safety of the RHVP along with all its roadways.

APPENDICES AND SCHEDULES ATTACHED

Appendix “A” to Report PW20038 - Review of Red Hill Valley Friction Test Results prepared by CIMA (May 2020)