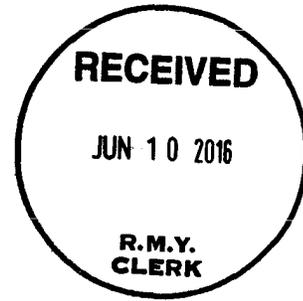




June 6, 2016

Denis Kelly, Regional Clerk  
Regional Municipality of York  
17250 Yonge Street  
Newmarket, Ontario L3Y 6Z1



P17

Dear Mr. Kelly,

**Re: Railway Crossings Grade Separation Prioritization Study - (SRCAO.16.07) - (Item No. 10)**

Richmond Hill Town Council, at its meeting held on May 24, 2016, adopted the following resolution:

- a) That staff report SRCAO.16.07 regarding the Railway Crossings Grade Separation Prioritization Study be received; and,
- b) That Council endorse the railway grade separation priorities as contained in report SRCAO.16.07; and,
- c) That the Regional Municipality of York be advised the Elgin Mills Road East railway grade separation is the top priority for the Town of Richmond Hill; and
- d) That a copy of report SRCAO.16.07 be sent to the Regional Municipality of York, Metrolinx and the Government of Ontario.

Carried

In accordance with Council's directive, please find attached a copy of the staff report.

If you have any questions, please contact the Office of the Clerk at 905-771-8800.

Yours sincerely,

Stephen M.A. Huycke  
Town Clerk

cc: The Honourable Kathleen Wynne, Premier of Ontario  
Bruce McCuaig, President and CEO, Metrolinx







**COMMITTEE OF THE WHOLE**

May 16, 2016

SRCAO.16.07

Office of the Chief Administrative Officer  
Strategic Initiatives Division

**SUBJECT: Railway Crossings Grade Separation Prioritization Study  
(SRCAO.16.07)**

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**PURPOSE:**

The purpose of this report is to update Council on the findings of the Richmond Hill Railway Crossings Grade Separation Prioritization Study.

**RECOMMENDATION(S):**

That the staff report on the Railway Crossings Grade Separation Prioritization Study (SRCAO.16.07) be received for information.

Contact: Daniel Olding, Manager, Grants & Strategic Initiatives, Ext. 5505  
Dan Terziewski, Director, Development Engineering, Ext. 3510

Submitted by:

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Gwen Manderson  
Director, Strategic Initiatives

Submitted by:

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Ana Bassios  
Commissioner of Planning & Regulatory Services

Approved by:



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Neil Garbe  
Chief Administrative Officer

## **BACKGROUND:**

Richmond Hill has a major railway line, known as the Bala Subdivision, running through the Town. In addition to heavy rail traffic on this line, there is a weekday rush hour GO service and Via Rail trains. Considerable growth in vehicular and rail traffic is anticipated into the future, including both freight and commuter transit rail.

There are 15 railway crossings of regional and local roads in Richmond Hill, of which eight are grade separated. Of the remaining seven, the regional road crossing at Elgin Mills Road East and the local road crossing at Weldrick Road East are reportedly experiencing the highest pressures between the rail and road transportation uses.

Grade separation of railway crossings has a number of benefits including increased community safety by reducing the potential for collisions and more efficient use of roadways by reducing congestion on roads as vehicles wait for trains to pass.

There is an opportunity for Town of Richmond Hill to determine its strategic direction for the Town's at-grade railway crossings on regional and local roads and position the Town to maximize external funding to realize priority improvements.

### **Railway Crossings Grade Separation Prioritization Study**

In 2015, Richmond Hill initiated a Railway Crossings Grade Separation Prioritization Study. The purpose of the study was to:

- a) provide a technical overview of railway infrastructure and crossings in Richmond Hill;
- b) recommend and apply technical criteria to determine risk exposure for Richmond Hill's at-grade railway crossings and prioritize these crossings, currently and in the future; and,
- c) undertake preliminary review for crossing locations to identify configuration, opportunities, constraints and order of magnitude costing.

The Prioritization Study provides an introductory screening of the at-grade railway crossings in Richmond Hill so we can determine which crossings to focus on first. Once a priority set of crossings is identified, more detailed studies will need to be carried out on this smaller set of priority crossings to evaluate and prioritize potential improvements in each case.

## Overview

The existing railway line in Richmond Hill is owned by the Canadian National Railway who leases track time to GO transit and Via Rail Canada for passenger service.

The railway corridor within Richmond Hill consists primarily of double tracks with a switch to a third track from approximately 250 meters south of Major Mackenzie Drive East to 78 meters south of Crosby Avenue. There is an additional track that leads to and from the GO Transit layover facility with six storage tracks located south of Bethesda Side Road. GO Transit currently operates two train stations in Richmond Hill, Richmond Hill GO at Major Mackenzie Drive East and Newkirk Road and Langstaff GO, near Highway 7 and Yonge Street.

The seven at-grade road crossings in Richmond Hill are all equipped with flashing lights, bells and gates, while the crossing at Elgin Mills Road East also has cantilever lights.

Richmond Hill's railway infrastructure forms part of CN's main transcontinental route, linking trade centres in Ontario and on the Pacific Coast, and is therefore an integral component of the freight and passenger rail network in Canada and North America. The railway experiences heavy freight traffic, averaging 17 trains per day. It is also part of VIA's Vancouver to Toronto passenger train route with a ridership of 93,810 passengers per week, 5% of VIA's total weekly ridership. Within the Greater Toronto Area, the Richmond Hill corridor is used by GO Transit to provide a weekday commuter train service and as many as 10,000 passengers use the GO trains through one of the two GO stations in Richmond Hill each weekday.

In April 2015 the Government of Ontario announced plans to move forward with the Regional Express Rail initiative, a ten year program designed to improve GO rail service throughout the Greater Toronto and Hamilton Area. Looking forward, the frequency of trains is expected to increase to every 15 minutes during the rush hours along the Richmond Hill corridor and the number of daily commuter trains servicing the Richmond Hill GO Station is forecasted to increase from 12 currently to 31 in 2031. North of the Richmond Hill GO Station, expanded commuter rail service will also see the number of daily commuter trains increase as the Stouffville and Bloomington GO stations come on line. The number of freight trains is not expected to increase substantially, but the length of the trains is anticipated to grow.

## Technical Criteria and Priority Ranking

The study applied two types of technical criteria to Richmond Hill's seven at-grade railway crossings – the Crossing Exposure Index and Risk Exposure Criteria.

The application of the Crossing Exposure Index confirmed that the railway crossings at Elgin Mills Road East and at Weldrick Road East currently exceed the Crossing Exposure Index threshold (Table 1). The Crossing Exposure Index is calculated by multiplying the number of daily trains by the number of daily traffic crossings. In

Canada, Transport Canada, railway and road authorities generally apply a minimum threshold value of 200,000 to consider the grade separation of a grade crossing.

Table 1: Existing and Projected Crossing Exposure Indices

Crossing Location	Existing Crossing	Projected Crossing	Grade Separation	
	Exposure Index	Exposure Index (2031)	Warranted Current	Warranted 2031
Minimum Threshold	200,000	200,000		
Weldrick Road East	274,630	636,259	Yes	Yes
Centre Street East	55,008	205,507	No	Yes
Crosby Avenue	117,000	437,105	No	Yes
Elgin Mills Road East	576,000	1,949,708	Yes	Yes
19 <sup>th</sup> Avenue	64,800	1,255,341	No	Yes
Leslie Street	99,000	503,250	No	Yes
Bethesda Side Road	5,040	18,720	No	No

Looking forward, by 2031, the Crossing Exposure Indices for all crossings with the exception of Bethesda Side Road are expected to exceed 200,000 due to the projected increases in railway and road traffic.

In addition to the Crossing Exposure Index, a series of 14 other criteria were factored into the Town's Risk Exposure evaluation of the different at-grade crossings to rank these crossings. The Risk Exposure Criteria are listed in Table 2.

Table 2: Risk Exposure Criteria

Daily Vehicular Traffic	Road Approach Gradient (0-8 meters)
Daily Train Traffic	Road Approach Gradient (8-18 meters)
Maximum Roadway Speed	Proximity of Intersections or Entrancesways
Potential for Queue Spillback	Collision History
Maximum Train Speed	Train Derailment History
Number of Tracks	School Bus Routes
Sightlines	Transit Routes

The application of the Risk Exposure Criteria showed that Elgin Mills Road East and Weldrick Road East currently have the highest risk exposure index, confirming the priority of these crossings (Table 3).

When future 2031 projected conditions are taken into consideration, the Risk Exposure Scores for all the crossings increased. The regional roads, Elgin Mills Road East and 19th Avenue are anticipated to have the two highest Risk Exposure Scores. Town roads, Weldrick Road East and Crosby Avenue, have the third and fourth highest scores.

Table 3: Existing and Projected Risk Exposure Scores

Location	Current Risk Exposure score	Current Ranking	Projected 2031 Risk Exposure Score	Projected 2031 Ranking
Elgin Mills Road East	55.6	1	74.6	1
Weldrick Road East	42.7	2	57.7	3
Crosby Avenue	41.1	3	55.6	4
19 <sup>th</sup> Avenue	34.1	4	67.6	2
Leslie Street	33.7	5	53.2	5
Centre Street East	30.1	6	44.6	6
Bethesda Side Road	17.0	7	32.0	7

### Preliminary Project Details

The two highest ranked railway crossings, Elgin Mills Road East and Weldrick Road East, currently exceed the Crossing Exposure Index threshold for consideration of grade separation due to the traffic and rail volumes and the increased potential for collisions.

A preliminary project review for the top Regional and top Town at-grade crossings show a preferred configuration of an underpass in each case. The underpass structure tends to be a provide better condition for the community and pedestrians, although there will be a requirement for track closures and longer construction time due to the requirement for construction staging to manage rail and traffic flows.

The potential Elgin Mills Road East crossing has an order of magnitude cost estimate of between \$35 and \$40 million and is anticipated to have only minor land acquisition/impact issues.

The potential Weldrick Road East crossing has an order of magnitude cost estimate of \$35 and \$40 million and has the potential for more significant land acquisition/impact issues.

### Discussion and Next Steps

Currently the Elgin Mills Road East (under York Region's jurisdiction) and Weldrick Road East (under Richmond Hill's jurisdiction) railway crossings should be considered for grade separation. By 2031 the remainder of the railway crossings in Richmond Hill with the exception of Bethesda Side Road are also predicted to be candidates for grade separation.

The future use of CN's railway lines in Richmond Hill is currently being defined and, in all scenarios, will result in significantly more commuter rail traffic. Historically, most grade separations for commuter railway transit have been jointly funded by both railway and municipalities. Metrolinx has indicated that they will be establishing a process for consideration of separations across the network as part of its GO Regional Express Rail

initiative, including those in Richmond Hill. Metrolinx has further indicated that they will be engaging municipalities for feedback and agreement in order to determine joint priorities for grade separations.

There are 185 level crossings where train and vehicle traffic intersect that Metrolinx is considering across the GO system. The availability of funding is one of the key considerations in the projects that move forward.

Richmond Hill is well positioned with the technical information contained in the Railway Crossings Grade Separation Prioritization study to advocate to York Region and Metrolinx that the two priority projects in Richmond Hill be shortlisted in Metrolinx's grade separation program, and that Richmond Hill is willing to be a direct funding partner and leverage existing funding by actively pursuing infrastructure grants for these projects.

#### **FINANCIAL/STAFFING/OTHER IMPLICATIONS:**

Widening and grade separation of Weldrick Road East is currently in the ten year capital forecast with a timeframe of 2018-2021 and a forecasted cost of \$17,480,700.

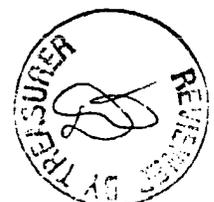
In the 2014 Town-wide Development Charges Study, three railway crossing grade separation projects of existing crossings are identified as increased service needs attributable to anticipated growth from development.

- a) Weldrick Road East Transportation Improvements: Weldrick Road East Road Widening (Yonge St to Bayview Ave incl. CNR Crossing/Grade separation) (EA)
- b) A 2<sup>nd</sup> Grade. Sep/Crossover (incl. 1.17 ha land requirement) at a location to be determined
- c) Bethesda Side/CN Rail – Grade Separation

Grade separation projects within existing urban areas are expensive but there is the potential to realize significant leverage of existing funds such as Development Charges and Other Reserves through a variety of grant programs and cost sharing/apportionment with the railway operator.

#### **RELATIONSHIP TO THE STRATEGIC PLAN:**

Grade separation of railway crossings helps to create stronger connections in Richmond Hill by improving the function of streets and neighbourhoods, and helps to create better choice in Richmond Hill by identifying and preparing for necessary infrastructure projects to support better transportation options. Richmond Hill's strategic plan also gives direction to advocate for other levels of government and agencies to meet our community's needs.



**CONCLUSION:**

Currently two railway crossings in Richmond Hill are potential candidates for grade separation and future commuter rail expansion will put pressure on the remaining crossings. The Railway Crossings Grade Separation Prioritization Study provides information on the strategic direction for the Town's at-grade railway crossings and positions the Town to advocate for external funding for priority projects in Richmond Hill.

