



To: Metrolinx Board of Directors

From: John Jensen, Chief Capital Officer
Greg Percy, Chief Operating Officer
Judy Pfeifer, Chief Communications & Public Affairs Officer

Date: February 17, 2017

Re: **RER Level Crossings Strategy**

Executive Summary

Level Crossings play an important role in the safety of a rail system. Metrolinx is working to ensure that increases in service with GO Regional Express Rail can be accommodated at level crossings safely for passengers, all road users and communities by:

- designing and managing crossings to reduce the risk of incidents and minimize congestion;
- working closely with municipal partners to meet or exceed Transport Canada standards;
- ensuring that the public knows that it is critical to avoid trespassing on active rail corridors and obey all rules;
- maintaining a policy that no new level crossings should be created; and
- grade separating a number of priority level crossings.

To ensure appropriate consideration is being given to level crossings, Metrolinx is taking a multi-pronged approach including: a level crossings plan, safety and education initiatives, grade separations and a long term approach. This report provides an overview of the approach, updates the Board with respect to discussions on grade separations, and outlines the next steps.

Recommendations

It is recommended that the Board of Directors:

Resolved:

THAT, the level crossing strategy as described in the February 17, 2017 Chief Capital Officer and Chief Operating Officer's report to the Board (the "Report") be accepted;

- **AND THAT**, the recommended grade separation projects to include in the RER program as set out below be approved, subject to receiving confirmation of municipal agreement;
- Burloak Drive (Lakeshore West corridor),

- Finch Avenue East (Stouffville corridor),
- Galloway Road (Lakeshore East corridor),
- Kerr Street (Lakeshore West corridor),
- McNaughton Road (Barrie corridor),
- Morningside Avenue (Lakeshore East corridor),
- Rutherford Road (Barrie corridor),
- Scarborough Golf Club Road (Lakeshore East corridor),
- Steeles Avenue East (Stouffville corridor), and
- Wellington Street East (Barrie corridor).

AND THAT, staff are directed to report back to the Board with further analysis related to recently announced new stations and service expansions.

Background

There are 185 level crossings on the GO Transit network where publicly managed roadways intersect at grade with rail traffic. A public grade crossing is where railway tracks intersect with a road that is owned by a public authority, such as a province, municipality or band council, and used by the general public.

In addition, there are 51 private crossings on the network, mostly located on farm properties. A private grade crossing is where railway tracks intersect with a road that is owned and used by private parties, such as farmers, commercial businesses or private individuals.

With the significant growth that has been experienced in the GTHA, road and rail traffic has increased at many level crossings. As GO Regional Express Rail (RER) advances, GO rail services will increase, further adding to the overall volume.

It is a priority of Metrolinx to ensure that all aspects of its operations are safe, including level crossings. Metrolinx currently undertakes a wide range of activities that support the safety at crossing locations, ranging from design and maintenance to education and enforcement.

As Metrolinx has purchased rail corridors over time, extensive and ongoing upgrading of crossings has been carried out. Metrolinx also maintains a policy that no new level crossings should be created on its corridors, and that if a new crossing is required to serve proposed development, it should be constructed as a grade separation.

It should be noted that among the 185 level crossings there are 46 locations on the Milton, Lakeshore West, Kitchener and Richmond Hill corridors, where Metrolinx does not own the corridors and thus is not directly responsible for the rail infrastructure.

Notwithstanding the safe design and operation of level crossings, they do provide an access point to rail corridors where individuals can trespass onto tracks, including individuals in distress. Trespass and safety issues are of concern to Metrolinx, and a number of ongoing initiatives aim to deter these occurrences.

Increases in road and rail traffic at level crossings can result in traffic congestion and concerns regarding safety, and thus generate interest in grade separating a location. In the GO RER Initial Business Case (IBC), an assumption was made regarding the construction of ten to thirteen grade separations across the network, including details

regarding locations. However, it was noted that actual locations and arrangements would be confirmed through further study and discussion with municipal stakeholders. The majority of level crossings on the network remain at-grade.

Analysis

For each level crossing on the network, there are differing circumstances related to configuration, traffic volumes, geography, local perspective, surrounding development and rail operations. There are also a broad range of measures that are deployed to manage level crossings, including the use of gates, lights, bells, signage, road markings and maintenance of sight lines. In all cases, safety of the level crossing is a top priority.

As planning for RER proceeds, there is growing interest with respect to plans for level crossings. There have been inquiries from both municipal representatives and community members regarding the potential for grade separations, as this is seen as providing a solution to the issue of increased traffic volumes.

Grade separation projects however, require significant capital investment and constitute substantial work on the corridor involving track and road diversions, property acquisition and flagging. As such, there is both a fiscal and operational limit to the extent that Metrolinx and its municipal counterparts can advance grade separation projects as part of RER. Furthermore, because grade separations involve the construction of a sizeable bridge or underpass, along with attendant approaches, property takings and potential road and rail reconfiguration, they often have a significant impact on the established surrounding community.

There are many other options that can be deployed to manage crossings and ensure their safe operation. These include enhanced crossing features, road closures, ongoing education and providing pedestrian alternatives.

To ensure appropriate consideration is being given to all level crossings, Metrolinx has developed a multi-pronged approach consisting of the following activities:

- a level crossings plan including enhancements and road closures;
- a safety and education plan to ensure communities are well informed of level crossings;
- construction of recommended grade separations; and
- a long term crossings strategy.

It is important to recognize that for each level crossing there is a corresponding partner authority, Metrolinx is working with its partners to achieve mutually acceptable outcomes.

1. Level Crossings Plan

While the GO RER program will include a limited number of grade separations, most level crossings on the network will remain at-grade. The level crossing plan is designed to consider every at grade crossing on the GO Rail Network in the context of increased road and RER traffic to ensure safety and performance. It consists of four parts:

1.1 Maintaining Existing Processes

As crossings are shared infrastructure, Metrolinx meets regularly with its municipal counterparts to ensure information is being shared and crossings are properly maintained.

Transport Canada (TC) issues regulations that set out minimum requirements for level crossings, which were most recently updated in 2014 along with a seven year timeline for authorities to come into compliance. Metrolinx is working closely with its road authority partners and has initiated a process to ensure all crossings are upgraded where required to meet the new TC regulatory requirements. This work will continue to inform all parties involved and maintain adherence to all standards.

1.2 RER Level Crossing Improvements

The RER program will impact level crossings in two ways:

- the operation of level crossings (e.g. deployment of gates and temporary halt to vehicle traffic) will increase, particularly in core areas of the network with service frequencies of up to 15 minutes in both directions; and
- the expansion of corridor infrastructure such as double tracking, layovers, passing track and related infrastructure will require rebuilding a number of level crossings.

In many locations, particularly along the Barrie and Stouffville corridors, there will be a combination of service level increase and corridor infrastructure expansion.

As planning for RER progresses from the network level to specific projects, detailed consideration of potential improvements for every level crossing location will be required. Measures that may be recommended could include: improved road approaches, improved road markings, enhanced signage, pedestrian gates, cameras, vegetation removal and coordinated traffic signal timing.

To inform this phase of work, Metrolinx will undertake a study that will assess the outcomes of service planning work related to RER and planned corridor infrastructure improvements to arrive at specific recommendations for each level crossing on the network. This work will include a risk assessment for each location.

The initial phase of this work will take approximately six months and a draft plan for crossing improvements is expected in September 2017. The draft plan will be further refined with the addition of final details, cost estimates and a proposed implementation plan by the end of 2017. Input from each municipality will be required to complete this plan.

These recommendations will become the basis for further consultation with municipalities and community members to inform specific plans for each level crossing, which would be subject to agreement.

1.3 Road Closures and Pedestrian alternatives

In some cases, the best option for a level crossing may be closure, such as when traffic volumes are low, when local conditions make grade separation unfeasible, and when there are alternative options for crossing nearby. In some cases, a closure can be accompanied by new grade separated pedestrian crossings such as a bridge or tunnel to maintain community connectivity.

Concerns about road closures include loss of connectivity or road network performance, increased vehicle travel times and impacts arising from the diversion of traffic onto adjacent roads.

As part of the plan for level crossings it is recommended that Metrolinx work with municipalities to consider road closures where there may be a rationale to do so and engage with the communities that may be impacted.

1.4 Private and Farm Crossings

There are 51 private and farm crossings on the GO rail network. These crossings were created to allow farmers or private land owners access to parcels of their property which would be otherwise severed by a rail corridor. Metrolinx purchased rail corridors from freight railways and in doing so inherited the land owners' right to access their property utilizing existing private crossings. With increased GO train speed and frequency, restricted sightlines and changes in the type of vehicles utilizing private crossings, Metrolinx has identified a need to undertake safety risk assessments on all private crossings across the Metrolinx owned portions of the network. The safety risk assessments are planned to be undertaken in 2017.

2. Safety and Education

All level crossings on the GO network are safe, and are maintained in partnership with municipal counterparts to meet or exceed regulatory requirements.

The promotion of safety through education and information has been a longstanding priority for Metrolinx and GO Transit. With a rail network that stretches over 450 route kilometres across a variety of urban, suburban and rural areas, completely preventing public access to rail corridors is not achievable. As service increases, some portions of the network will see rail traffic at frequencies and times of day to which communities are not accustomed. A continued and focused effort will be needed to advise and inform communities about the risks posed by active rail corridors and the importance of abiding by all rules related to trespass and crossings. Metrolinx will do so by leveraging and building upon its existing efforts in this area, including:

2.1 Education and Outreach

Transit Safety regularly conducts community rail safety outreach initiatives across the GO Transit operating area often partnering with police and other community safety advocacy groups. Through formal school presentations, community meetings, public events and other opportunities such as the Children Safety Villages in Peel, York and Durham Regions, thousands of school aged children, parents and educators alike are provided valuable safety tips each year. Outreach efforts are strategically identified through proximity to rail corridors and/or high risk areas. Supporting these efforts is the annual safety marketing campaign using multi-channel avenues such as web-based messaging, social media and mainstream media to advance awareness.

Uniformed Transit Safety corridor patrols also serve as a proactive method to address corridor trespassing and unsafe activity. Joint efforts with local police to address and enforce unsafe driver and pedestrian behaviour are utilized as required.

2.2 ConnexOntario

Metrolinx has partnered with ConnexOntario to place mental health helpline signage at 800 locations including railways stations, crossings, platforms and bridges across the network. ConnexOntario is funded by the Government of Ontario, providing free and confidential services for individuals experiencing problems with alcohol and drugs, mental illness or gambling.

2.3 Municipal and development considerations

Metrolinx will work with municipal planning departments and municipal governments to inform development around level crossings and encourage municipalities to consider rail and traffic patterns when considering development approvals in and around level crossings.

3. Grade Separations

The implementation of RER will improve the speed, frequency, and convenience of the GO Transit rail network. In support of RER, Metrolinx identified the need to consider the separation of a number of publicly-accessible, at-grade road-rail crossings to enhance safety, on time performance, operational flexibility, and reliability.

In the IBC, a provision was made to support approximately ten to thirteen proposed grade separation projects. With 185 level crossings in total on the GO rail network, a process was required for confirming priorities that can be undertaken with available funding.

This report identifies grade separations in support of the RER program. Since the exercise began, there have been subsequent decisions made with regard to further service expansion and new stations. These discussions are outside the scope of this exercise and will require further analysis and a report back to the Board.

3.1 Process for Prioritization

The IBC identified 11 possible grade separations for inclusion in the RER program, subject to confirmation through further analysis and stakeholder input. The 11 project locations were:

Stouffville	Lakeshore East
<i>Finch Avenue East</i>	<i>Scarborough Golf Club Rd</i>
<i>McNicoll Avenue</i>	<i>Morningside Avenue</i>
<i>Steeles Avenue East</i>	<i>Galloway Road</i>
Barrie	Lakeshore West
<i>Rivermede Rd</i>	<i>Kerr Street</i>
<i>Langstaff Rd</i>	<i>Burloak Drive</i>
<i>Rutherford Rd</i>	

Of these 11 locations, four grade separations were announced by the Province of Ontario in 2015 for which planning, design and environmental assessment is already underway.

These four locations are: Scarborough Golf Club Road; Morningside Avenue; Galloway Road; and Burloak Drive. Since these projects are already underway, they were automatically included as confirmed projects in the prioritization exercise.

In order to consider remaining RER projects, Metrolinx staff undertook the following steps:

1. an initial assessment of all level crossings on the network to provide baseline information;
2. an internal review to identify projects that best support RER requirements; and
3. discussions on identified projects with municipalities.

Initial Assessment

The purpose of the initial assessment was to gather baseline information about all 185 level crossings which would help to inform Metrolinx prioritization, as well as assist with long term planning. The assessment was designed to be an input into analysis and further review.

The assessment examined four main criteria (weighting in parentheses):

- usage and existing conditions (60%);
- operations (20%);
- social/environmental considerations (10%); and
- cost/constructability (10%).

Each category contained several sub categories. As safety is a top priority, it is heavily reflected in the analysis through the usage and existing conditions category, which accounted for 60% of the total consideration.

The usage and existing conditions criteria included “exposure index (EI),” a standard measure of traffic volumes commonly used by transportation agencies in crossing assessments related to safety and impacts to road users. The EI is derived by multiplying the average annual daily railway traffic and the average annual daily road traffic at a crossing location. While there is no mandated EI level at which grade separation is required, many agencies consider an EI of 200,000 as indicative of when grade separation should start to be considered.

Additional metrics in the usage and existing conditions category included the physical geometry of the location (e.g. angles and sightlines), accident and collision data, and the presence of adjacent roadways and queuing.

Details relating the full list of criteria can be seen in Appendix 2.

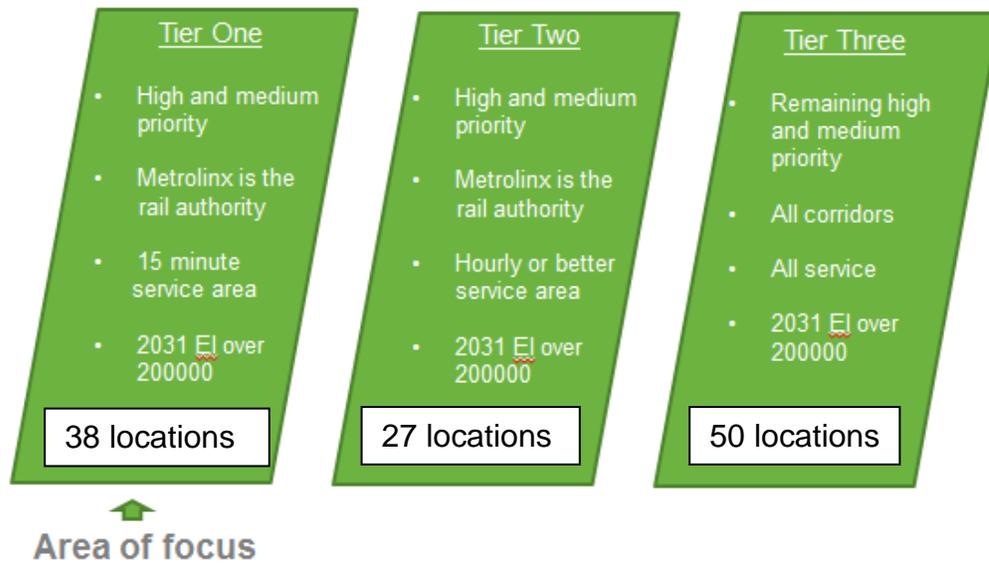
Based on the analysis, each level crossing was given a numerical score, ranging from 74 as the highest to 10 as the lowest. Level crossings were also categorized in terms of priority, based on an approach in which the top 25% of locations were ranked as high priority, the middle 50% were ranked as medium priority, and the bottom 25% were ranked as low priority.

Internal Review

While providing a broad overview of relative priority, the assessment results did not distinguish whether the need for grade separation was of more relevance to road or rail networks. In order to focus on those crossings that would best support the objectives of the RER program, Metrolinx undertook a strategic sorting exercise.

As a starting point, a decision was made to only consider crossing locations that were identified as medium or high priority and featured a projected EI of 200,000 or greater in 2031. This reduced the number of locations under consideration from 185 to 115.

Figure 1



These 115 locations were then further evaluated by considering two key characteristics: whether Metrolinx was the owner of the corridor (and thus responsible for the infrastructure), and whether the projected rail service frequency would reach every 15 minutes, every hour or less.

As shown in Figure 1, 38 of 115 locations are located on Metrolinx owned corridors and within the 15 minute service area. These locations (identified as “Tier 1”) were carried forward for additional consideration. The list of these locations is provided in Table 1.

In order to then identify which among these 38 locations best met RER objectives, a strategic review considered the following additional factors:

- Readiness to proceed (e.g. the existence of an EA approval in place or underway, planning and design, a shared municipal commitment or interest in proceeding. In light of broader RER timelines, readiness helps ensure projects can be completed prior to future RER works such as electrification and track expansion. Each grade separation is a complex capital project that requires foundation construction, road and rail detours, utility relocations, bridge work, grading, flagging and property acquisition. To the extent possible, grade separations should be constructed as early works).
- Station considerations (e.g. in cases where a station undergoing expansion is adjacent to the location, proceeding now allows work to be bundled. It also avoids

significant cost increases that would be incurred were grade separation to occur after the new station is in place as this would have extensive impacts on station and platforms. Proceeding also achieves operational and traffic/pedestrian flow improvements that enhance safety).

- Other considerations (e.g. is the location subject to planning or other considerations that make it premature to advance now; are there constraints or other features that require further study).
- Scoring (e.g. how the location fared among Tier 1 locations in terms of the Metrolinx assessment and EI forecast).

Table 1 – Tier 1 Level Crossings

Barrie (14)

Rutherford Rd.
Wellington St. E.
Wallace Ave.
Castlefield Ave. (TBC)
Langstaff Rd.
Rivermede Rd.
Dufferin St.(York Reg. Rd. 53)
McNaughton Rd.
Kirby Rd.
King Vaughan Rd. (Townline Rd.)
Centre St.
Teston Side Rd.
Engelhard Dr.
Station Rd.

Lakeshore East (5)

Scarborough Golf Club Rd.
Morningside Ave.
Galloway Rd.
Manse Rd.
Poplar Rd.

TBC = To be confirmed pending road volume data from the City

Stouffville (10)

Steeles Ave. East
Kennedy Road S.
Finch Ave.
McNicol Ave.
Danforth Rd.
Huntingwood Dr.
Denison St.
Progress Ave.
Passmore Ave.
Havendale Rd.

Lakeshore West (9)

Burloak Drive
Kerr St
4th Line
Lorne Park Rd
Clarkson Rd.
Ogden Ave.
Stavebank Rd.
Chartwell Rd.
Haig Blvd

Metrolinx also sought to maintain a relative balance of projects among corridors to ensure capacity to carry out work without undue impacts to other construction on the corridor and GO passenger rail operations.

Based on this review, 10 projects were identified to be included in the RER program (including the projects announced by the Province of Ontario in 2015). The full list of 10 RER grade separation projects is provided in Table 2.

Generally, projects being recommended feature the following: EA underway or approved; planning and design underway; municipal support; station proximity to avoid future costs; and higher scores and/or EI projections relative to other locations on the corridor.

Projects not included feature: no current planning, design or approvals in place; lack of station proximity; lower scores or EI relative to other locations on corridor; and/or specific planning or other complex issues.

Table 2 –RER Grade Separation Projects

Corridor	Crossing	Rationale
LSE	Scarborough Golf Club Rd.	EA completed, project announced in 2015
LSE	Morningside Ave.	EA completed, project announced in 2015
LSE	Galloway Rd.	EA completed, project announced in 2015
LSW	Burloak Dr.	EA underway, project announced in 2015
Barrie	Rutherford Rd.	Adjacent to a station, EA completed by York Region, planning underway
Barrie	Wellington St. E	Adjacent to a station, note heritage elements to be considered
Barrie	McNaughton Rd.	Adjacent to a station
Stouffville	Steeles Ave E	EA underway by City of Toronto, adjacent to a station
Stouffville	Finch Ave. E	Adjacent to a planned SmartTrack station, initial planning underway
LSW	Kerr St.	EA completed by Town of Oakville in 2009, planning underway; municipal interest

It is important to note that if a location is not being advanced as part of RER, it will continue to be considered as circumstances and funding permit. There was also one location (Wallace Avenue on the Barrie corridor) which will be effectively grade separated as a result of being captured within the footprint of work related to the Davenport Diamond project.

Municipal Engagement

The 185 level crossings on the GO rail network are located in 32 different municipalities across the region. There are wide variations in the extent to which municipalities are impacted by level crossings, both in terms of number of locations within a jurisdiction and the volume of projected traffic. In many locations, particularly where level crossings fall outside the 15 minute service area, the extent of impact from increased rail service is not as pronounced.

Metrolinx has held discussions over the past year with municipal counterparts where locations have been identified for priority grade separation projects. In many cases these discussions have built on existing work already underway. As the broader RER level crossing strategy including planning for non-grade separated locations and the longer term approach advances, a second phase of engagement to inform and seek input from additional municipalities on level crossings will be launched.

Locations for projects within the City of Toronto were included within the scope of broader transit funding discussions conducted this past year between the Province of Ontario and the City of Toronto and confirmed by City Council on November 8, 2016.

3.2 Cost Share

As shared pieces of infrastructure, it is expected that costs associated with grade separations will be shared between the rail and road authorities.

Under Canadian Transportation Agency guidelines, the agency that requires the grade separation is responsible for 85% of the basic costs. Where there is mutual benefit, parties share costs 50% each. Also by agreement other arrangements are possible.

Metrolinx will continue to work towards cost sharing agreements with municipal partners for each location in a manner in keeping with CTA guidelines.

3.3 Implementation Considerations

Metrolinx staff are working towards a framework for consistent implementation of projects in a manner that supports the overall RER program schedule, aligns with procurement, streamlines process and results in projects that are designed and built in a manner that respects and improves the local environment.

4. Long Term Plan

While a number of priority projects have been identified for inclusion in the RER program, the case for the grade separation of level crossings will not conclude with the current investment. There will remain a number of level crossings of high or medium priority that warrant consideration.

In order to continue making progress towards additional grade separations on the network, a multi-year program of ongoing planning, design and construction beyond RER is recommended, funded by provincial, municipal and federal governments.

As a first step towards this objective, Metrolinx is supportive of working with municipal governments to continue to advance planning and design on additional locations in order to develop the case for an ongoing investment in grade separations.

The benefits of establishing a longer term program include:

- generating more detailed information on level crossings where consideration of grade separation has not yet been initiated;
- ensuring work is advanced so that in the event additional funding becomes available, including federal funding, a pipeline of projects can more quickly proceed; and
- ensuring that progress on grade separating level crossings will continue past RER.

5. Community Relations

For many residents across the region, RER level service represents a significant change to their experience of their personal property and neighbourhoods. As details of local impacts are shared with communities through construction and environmental assessment updates, safety as it relates to increased levels of service has emerged as a network-wide concern. In some instances, the concern is specific to local schools, walking or traffic patterns.

While interests can differ from community to community, there is a consistent call across communities for more information related to plans for ensuring the train service being introduced is safe. Metrolinx will take a proactive approach to communications around safety to provide this information and educate communities continuously in the lead up to full RER service levels being implemented. An approach that involves transparency around crossing information, community involvement in crossing modifications and grade separations and a marketing campaign focussed on rail corridor safety is consistent with other jurisdictions, such as Transport For London, where significant increases in rail services have been made.

5.1 Level Crossings Community Advisory Committee

It is important that Metrolinx plan for level crossings based on needs and impact. To that end, Metrolinx will establish a Community Advisory Committee with representatives from across the region to gather input into the approach for level crossings. The membership, scope and terms of reference for the committee will be developed and could include design, operations and safety/communications.

6. Next Steps

With respect to level crossings, staff will further develop plans for crossing enhancements and incorporate these findings into a municipal consultation to occur over the next year. Components of the exercise will include:

- proposed crossing improvements;
- review of bells and whistles;
- traffic management;
- community engagement;
- road closures; and
- municipal development approvals.

Additional work will be undertaken to initiate similar discussions with private crossing counterparts.

Building on GO Transit's existing efforts related to rail safety, a plan will be developed for enhanced safety and education activities.

A Level Crossings Community Advisory Committee will be established to gather input into the approach for level crossings.

Staff will continue to work with municipal counterparts to design and construct priority grade separations as identified. This work will include EA where required, design, procurement and completion of funding agreements.

Conclusions

With 185 level crossings on the GO Transit network, a comprehensive approach is required to manage projected increases in road and rail traffic that will ensure continued safe operations.

Within the context of the RER business case, Metrolinx will continue to work towards advancing a select number of grade separations as part of construction, with a focus on those projects that support the RER program.

More generally, subject to funding, Metrolinx will plan for future projects by anticipating future grade separations with a program of planning and design.

For both level crossings and grade separations, Metrolinx will work in partnership with municipal and private counterparts to seek input and manage impacts.

Respectfully submitted,

John Jensen
Chief Capital Officer

Greg Percy
Chief Operating Officer

Judy Pfeifer
Chief Communications & Public Affairs Officer

Appendix 1 – Selected assessment results (Tier 1 – 34 locations)

Barrie Corridor

Location	Score	Grade Separation	Comments
Rutherford Rd.	59	Yes	Adjacent to a station, EA completed by York region, planning underway
Wellington St. E.	57	Yes	Adjacent to a station, note heritage elements to be considered
Castlefield Avenue	54		Site features complex geography and property implications; identified for future consideration
McNaughton Rd.	52	Yes	Adjacent to a station
Centre St.	49		Location just north of Wellington where grade separation is already recommended
King Vaughan Rd. (Townline Rd.)	48		Identified for future consideration
Dufferin St.(York Reg. Rd. 53)	46		Identified for future consideration
Rivermede Rd.	46		Identified for future consideration
Teston Side Rd.	46		Identified for future consideration
Wallace Avenue	46		Note: Grade separated as a result of proximity to Davenport Diamond
Station Rd.	45		Identified for future consideration
Langstaff Rd. NM	44		Identified for future consideration
Kirby Rd.	43		Identified for future consideration; new station concept plan includes at-grade crossing
Engelhard Dr.	42		Identified for future consideration

Stouffville Corridor

Location	Score	Grade Separation	Comments
Finch Ave	74	Yes	Adjacent to a planned SmartTrack station, initial planning underway
Steeles Ave East	67	Yes	EA underway by City of Toronto, adjacent to a station
Danforth Road	66		Site is complex and in close proximity to Scarborough junction requiring further analysis; identified for future consideration
Denison St	66		Identified for future consideration
Kennedy Road S.	65		Identified for future consideration
McNicoll Ave	64		Identified for future consideration
Progress Ave	61		Identified for future consideration
Huntingwood Drive	60		Identified for future consideration
Havendale Road	55		Identified for future consideration
Passmore Ave	53		Identified for future consideration

Lakeshore West Corridor

Location	Score	Grade Separation	Comments
Kerr St. Oakville	74	Yes	EA completed by Town of Oakville, planning underway
Lorne Park Rd	63		Identified for future consideration
Ogden Ave.	63		Identified for future consideration
Burloak Drive*	62	Yes	EA underway, project announced in 2015
4th Line	61		Identified for future consideration
Stavebank Rd.	61		Identified for future consideration
Clarkson Rd.	60		Identified for future consideration
Chartwell Rd.	56		Identified for future consideration
Haig Blvd	54		Identified for future consideration

Lakeshore East Corridor

Location	Score	Grade Separation	Comments
Scarborough Golf Club Rd*	65	Yes	EA completed, project announced in 2015
Morningside Ave*	58	Yes	EA completed, project announced in 2015
Galloway Rd*	55	Yes	EA completed, project announced in 2015
Manse Rd.	44		constrained site not recommended for grade separation in assessment
Poplar Rd.	44		Options are under review to leave as a level crossing or construct a non-vehicular grade separation

* Project announced in 2015, not included in current analysis but shown for completeness

Appendix 2 – Weighted Metrics

Significance of Metric			
#	Metric	Overall Weight	Cumulative Weight
1	Future Exposure Index	18.00%	18.00%
2	Existing Exposure Index	12.00%	30.00%
3	Fatalities	11.76%	41.76%
4	Construction	6.75%	48.51%
5	Coordination with Rail Expansion	5.60%	54.11%
6	Sightlines	4.80%	58.91%
7	Skew Angle	4.80%	63.71%
8	GO Passenger Charter Commitments	4.00%	67.71%
9	Air Quality Improvement	3.75%	71.46%
10	Proximity	3.00%	74.46%
11	Queuing	3.00%	77.46%
12	Corridor Ownership	2.40%	79.86%
13	Approach Road Grades	2.40%	82.26%
14	Coordination with Municipal Initiatives	2.00%	84.26%
15	Community Connectivity	2.00%	86.26%
16	Land Use and Development	2.00%	88.26%
17	Number of Maintenance Calls	1.50%	89.76%
18	Visual Improvement	1.50%	91.26%
19	Noise Improvement	1.50%	92.76%
20	Natural Environmental Impacts	1.25%	94.01%
21	Land Acquisition	1.00%	95.01%
22	Distance from Crossing to GO Station	1.00%	96.01%
23	Availability of Alternate Routes	1.00%	97.01%
24	Utility Relocation	0.75%	97.76%
25	Emergency Services	0.70%	98.46%
26	Transit Route	0.40%	98.86%
27	School Bus Route	0.40%	99.26%
28	Dangerous Goods Route	0.30%	99.56%
29	Personal Injury	0.23%	99.79%
30	Heavy Truck Route	0.20%	99.99%
31	Property Damage	0.01%	100.00%
	Total	100.00%	

Public At-Grade Crossings		Updated 25-Feb-2015			
Mile	Crossing Name	Road Authority	Rail Corridor Owned By:	Subdivision	Corridor
Uxbridge Sub					
60.18	Danforth Rd.	City of Toronto	GO Transit	Uxbridge	Stouffville
56.74	Progress Ave.	City of Toronto	GO Transit	Uxbridge	Stouffville
55.16	Havendale Rd.	City of Toronto	GO Transit	Uxbridge	Stouffville
54.88	Huntingwood Dr.	City of Toronto	GO Transit	Uxbridge	Stouffville
54.43	Finch Ave.	City of Toronto	GO Transit	Uxbridge	Stouffville
53.61	McNicoll Ave.	City of Toronto	GO Transit	Uxbridge	Stouffville
53.16	Passmore Ave.	City of Toronto	GO Transit	Uxbridge	Stouffville
52.78	Steeles Ave. E.	City of Toronto	GO Transit	Uxbridge	Stouffville
52.40	Kennedy Rd.S.	Region of York	GO Transit	Uxbridge	Stouffville
51.98	Denison St.	City of Markham	GO Transit	Uxbridge	Stouffville
50.15	Highway #7	Region of York	GO Transit	Uxbridge	Stouffville
49.94	Eureka St.	City of Markham	GO Transit	Uxbridge	Stouffville
49.78	Main St. Unionville	City of Markham	GO Transit	Uxbridge	Stouffville
49.42	Kennedy Rd. N.	Region of York	GO Transit	Uxbridge	Stouffville
48.38	McCowan Rd. (7th Line Rd.)	Region of York	GO Transit	Uxbridge	Stouffville
47.17	Snider Dr.	City of Markham	GO Transit	Uxbridge	Stouffville
46.95	Main St. Markham N. (Hwy 48)	City of Markham	GO Transit	Uxbridge	Stouffville
46.31	16th Ave. (Markham)	Region of York	GO Transit	Uxbridge	Stouffville
45.74	Bur Oak Ave	City of Markham	GO Transit	Uxbridge	Stouffville
45.47	Castlemore Ave.	City of Markham	GO Transit	Uxbridge	Stouffville
44.96	Major Mackenzie Dr. E. (17th Avenue)	Region of York	GO Transit	Uxbridge	Stouffville
44.74	Future Donald Cousens Parkway Ext.	Region of York	GO Transit	Uxbridge	Stouffville
43.46	Elgin Mills Rd. E. (18th Avenue)	City of Markham	GO Transit	Uxbridge	Stouffville
42.35	9th Line (Concord Rd)	Region of York	GO Transit	Uxbridge	Stouffville
42.04	19th Ave	City of Markham	GO Transit	Uxbridge	Stouffville
41.73	Reeves Way Blvd.	Town of Whitchurch Stouffville	GO Transit	Uxbridge	Stouffville
41.17	Hoover Park Drive	Town of Whitchurch Stouffville	GO Transit	Uxbridge	Stouffville
40.72	Main St.	Town of Whitchurch Stouffville	GO Transit	Uxbridge	Stouffville
40.30	Millard Street	Town of Whitchurch Stouffville	GO Transit	Uxbridge	Stouffville
38.95	Bethesda Rd	Town of Whitchurch Stouffville	GO Transit	Uxbridge	Stouffville
38.93	10th Line	Town of Whitchurch	GO Transit	Uxbridge	Stouffville

		Stouffville			
Bala Sub					
4.43	Pottery Rd.	City of Toronto	GO Transit	Bala	Richmond Hill
4.91	Beechwood Road	City of Toronto	GO Transit	Bala	Richmond Hill
16.52	Green Lane	City of Markham	CN	Bala	Richmond Hill
18.15	Langstaff Rd.	City of Markham	CN	Bala	Richmond Hill
20.31	Weldrick Rd. E.	Town of Richmond Hill	CN	Bala	Richmond Hill
21.11	Centre St. E	Town of Richmond Hill	CN	Bala	Richmond Hill
21.48	Crosby Ave	Town of Richmond Hill	CN	Bala	Richmond Hill
22.16	Elgin Mills Rd. E.	Town of Richmond Hill	CN	Bala	Richmond Hill
23.61	19th Ave	City of Markham	CN	Bala	Richmond Hill
25.49	Leslie St	City of Markham	CN	Bala	Richmond Hill
27.30	Bethesda Side Rd	Town of Whitchurch Stouffville	CN	Bala	Richmond Hill
31.00	Slaters Rd.	Town of Whitchurch Stouffville	CN	Bala	Richmond Hill
Newmarket Sub					
4.19	<i>Wallace Avenue</i>	<i>City of Toronto</i>	<i>GO Transit</i>	<i>Newmarket</i>	<i>Barrie</i>
6.89	<i>Castlefield Avenue</i>	<i>City of Toronto</i>	<i>GO Transit</i>	<i>Newmarket</i>	<i>Barrie</i>
10.50	<i>Carl Hall Road</i>	<i>City of Toronto</i>	<i>GO Transit</i>	<i>Newmarket</i>	<i>Barrie</i>
11.90	<i>TTC Bus Route</i>	<i>City of Toronto</i>	<i>GO Transit</i>	<i>Newmarket</i>	<i>Barrie</i>
14.82	<i>Rivermede Rd.</i>	<i>City of Vaughan</i>	<i>GO Transit</i>	<i>Newmarket</i>	<i>Barrie</i>
15.50	<i>Langstaff Rd.</i>	<i>Region of York</i>	<i>GO Transit</i>	<i>Newmarket</i>	<i>Barrie</i>
18.49	<i>McNaughton Rd.</i>	<i>City of Vaughan</i>	<i>GO Transit</i>	<i>Newmarket</i>	<i>Barrie</i>
19.40	<i>Teston Side Rd.</i>	<i>Region of York</i>	<i>GO Transit</i>	<i>Newmarket</i>	<i>Barrie</i>
20.66	<i>Kirby Rd.</i>	<i>City of Vaughan</i>	<i>GO Transit</i>	<i>Newmarket</i>	<i>Barrie</i>
21.99	<i>King Vaughan Rd. (Townline Rd.)</i>	<i>City of Vaughan</i>	<i>GO Transit</i>	<i>Newmarket</i>	<i>Barrie</i>
22.73	<i>Station Rd.</i>	<i>Township of King</i>	<i>GO Transit</i>	<i>Newmarket</i>	<i>Barrie</i>
24.60	<i>Dufferin St. (York Reg. Rd. 53)</i>	<i>Region of York</i>	<i>GO Transit</i>	<i>Newmarket</i>	<i>Barrie</i>
26.10	<i>15th Side road (Bloomington Rd.)</i>	<i>Township of King</i>	<i>GO Transit</i>	<i>Newmarket</i>	<i>Barrie</i>
29.17	<i>Engelhard Dr.</i>	<i>Town of Aurora</i>	<i>GO Transit</i>	<i>Newmarket</i>	<i>Barrie</i>
29.99	<i>Wellington St. E.</i>	<i>Region of York</i>	<i>GO Transit</i>	<i>Newmarket</i>	<i>Barrie</i>
30.04	<i>Centre St.</i>	<i>Town of Aurora</i>	<i>GO Transit</i>	<i>Newmarket</i>	<i>Barrie</i>
31.28	<i>St. John's Side road</i>	<i>Town of Aurora</i>	<i>GO Transit</i>	<i>Newmarket</i>	<i>Barrie</i>
32.75	<i>Mulock Dr.</i>	<i>Region of York</i>	<i>GO Transit</i>	<i>Newmarket</i>	<i>Barrie</i>
33.55	<i>Water St.</i>	<i>Town of Newmarket</i>	<i>GO Transit</i>	<i>Newmarket</i>	<i>Barrie</i>
33.64	<i>Timothy St.</i>	<i>Town of Newmarket</i>	<i>GO Transit</i>	<i>Newmarket</i>	<i>Barrie</i>
34.16	<i>Davis Dr.</i>	<i>Region of York</i>	<i>GO Transit</i>	<i>Newmarket</i>	<i>Barrie</i>
35.61	<i>Green Lane</i>	<i>Region of York</i>	<i>GO Transit</i>	<i>Newmarket</i>	<i>Barrie</i>

36.38	2nd Avenue (Main St.)	Region of York	GO Transit	Newmarket	Barrie
37.65	Chapman St.	Town of E. Gwillimbury	GO Transit	Newmarket	Barrie
37.71	Old Yonge St. (Holland Landing)	Region of York	GO Transit	Newmarket	Barrie
38.43	Bradford St. (York Reg. Rd. 13)	Region of York	GO Transit	Newmarket	Barrie
39.33	Oriole Dr. (River Drive Park)	Town of E. Gwillimbury	GO Transit	Newmarket	Barrie
39.66	Bathurst St. (Townline Rd.)	Region of York	GO Transit	Newmarket	Barrie
40.53	Kalvers St.	Township of King	GO Transit	Newmarket	Barrie
40.93	Toll Rd.	Township of King	GO Transit	Newmarket	Barrie
41.39	Given Rd.	Twp. of E. Gwillimbury	GO Transit	Newmarket	Barrie
41.96	Private Rd. (Wastewater plant)	Ministry of Environment	GO Transit	Newmarket	Barrie
42.26	Industrial Rd.	Twp. of Bradford - W. Gwillimbury	GO Transit	Newmarket	Barrie
43.37	9th Line (Stanlon Creek Rd.)	Twp. of Bradford - W. Gwillimbury	GO Transit	Newmarket	Barrie
44.34	10th Line	Twp. of Bradford - W. Gwillimbury	GO Transit	Newmarket	Barrie
45.37	Coulson's Hill Rd. (11th Line)	Twp. of Bradford - W. Gwillimbury	GO Transit	Newmarket	Barrie
46.29	12th Line (20th Side road)	Twp. of Bradford - W. Gwillimbury	GO Transit	Newmarket	Barrie
47.21	13th Line	Twp. of Bradford - W. Gwillimbury	GO Transit	Newmarket	Barrie
49.05	Gilford St.	Township of Innisfil	GO Transit	Newmarket	Barrie
49.24	1st Line (Shore Acres Dr.)	Township of Innisfil	GO Transit	Newmarket	Barrie
50.12	2nd Line	Township of Innisfil	GO Transit	Newmarket	Barrie
50.99	3rd Line	Township of Innisfil	GO Transit	Newmarket	Barrie
51.89	Killarney Beach Rd. (4th Line)	Township of Innisfil	GO Transit	Newmarket	Barrie
52.82	Belle Aire Beach Rd. (5th Line)	Township of Innisfil	GO Transit	Newmarket	Barrie
54.56	7th Line	Township of Innisfil	GO Transit	Newmarket	Barrie
55.55	Innisfil Beach Rd. (8th Line)	County of Simcoe	GO Transit	Newmarket	Barrie
56.59	9th Line (Innisfil)	Township of Innisfil	GO Transit	Newmarket	Barrie
57.49	Victoria St. E. (10th Line)	Township of Innisfil	GO Transit	Newmarket	Barrie
58.47	Lockhart Rd. (11th Line)	Township of Innisfil	GO Transit	Newmarket	Barrie
59.29	Mapleview Dr. E.	Township of Innisfil	GO Transit	Newmarket	Barrie
61.34	Little Ave.	City of Barrie	GO Transit	Newmarket	Barrie
62.03	Minet's Point Rd.	City of Barrie	GO Transit	Newmarket	Barrie
Oakville Sub					
10.59	Haig Blvd	City of Mississauga	GO Transit	Oakville	Lakeshore West
10.84	Ogden Ave.	City of Mississauga	GO Transit	Oakville	Lakeshore West

11.02	Alexandria Ave	City of Mississauga	GO Transit	Oakville	Lakeshore West
12.02	Revus Ave.	City of Mississauga	GO Transit	Oakville	Lakeshore West
13.11	Stavebank Rd.	City of Mississauga	GO Transit	Oakville	Lakeshore West
15.06	Lorne Park Rd	City of Mississauga	GO Transit	Oakville	Lakeshore West
16.09	Clarkson Rd.	City of Mississauga	GO Transit	Oakville	Lakeshore West
20.56	Chartwell Rd.	Town of Oakville	GO Transit	Oakville	Lakeshore West
23.13	4th Line	Town of Oakville	GO Transit	Oakville	Lakeshore West
26.96	Burloak Drive	Oakville/Burlington	GO Transit	Oakville	Lakeshore West
Grimsby Sub					
43.14	Wellington St.	City of Hamilton	CN	Grimsby	Future Lakeshore West/Niagara Falls Seasonal
42.99	Victoria Ave.	City of Hamilton	CN	Grimsby	Future Lakeshore West/Niagara Falls Seasonal
42.61	Wenworth St.	City of Hamilton	CN	Grimsby	Future Lakeshore West/Niagara Falls Seasonal
42.07	Sherman Ave.	City of Hamilton	CN	Grimsby	Future Lakeshore West/Niagara Falls Seasonal
41.82	Lottridge Ave.	City of Hamilton	CN	Grimsby	Future Lakeshore West/Niagara Falls Seasonal
41.54	Gage Ave.	City of Hamilton	CN	Grimsby	Future Lakeshore West/Niagara Falls Seasonal
41.02	Ottawa St.	City of Hamilton	CN	Grimsby	Future Lakeshore West/Niagara Falls Seasonal
39.50	Parkdale Ave.	City of Hamilton	CN	Grimsby	Future Lakeshore West/Niagara Falls Seasonal
39.04	Woodward Ave.	City of Hamilton	CN	Grimsby	Future Lakeshore West/Niagara Falls Seasonal
38.56	Nash Rd.	City of Hamilton	CN	Grimsby	Future Lakeshore West/Niagara Falls Seasonal
38.31	Kenora Rd.	City of Hamilton	CN	Grimsby	Future Lakeshore West/Niagara Falls Seasonal
36.97	Gray's Rd.	City of Hamilton	CN	Grimsby	Future Lakeshore West/Niagara Falls Seasonal
36.39	Green's Rd.	City of Hamilton	CN	Grimsby	Future Lakeshore West/Niagara Falls Seasonal
35.87	Millen Rd.	City of Hamilton	CN	Grimsby	Future Lakeshore West/Niagara Falls Seasonal
35.32	Dewitt Rd.	City of Hamilton	CN	Grimsby	Future Lakeshore West/Niagara Falls Seasonal

34.29	Jones Rd.	City of Hamilton	CN	Grimsby	Future Lakeshore West/Niagara Falls Seasonal
33.74	Glover Rd.	City of Hamilton	CN	Grimsby	Future Lakeshore West/Niagara Falls Seasonal
33.22	McNeilly Rd.	City of Hamilton	CN	Grimsby	Future Lakeshore West/Niagara Falls Seasonal
32.69	Lewis Rd.	City of Hamilton	CN	Grimsby	Future Lakeshore West/Niagara Falls Seasonal
Weston Sub					
15.27	Scarboro Street (North Alarton St.)	City of Mississauga	GO Transit	Weston	Kitchener
Halton Sub					
14.95	John St.	City of Brampton	CN	Halton	Kitchener
15.53	Mill St.	City of Brampton	CN	Halton	Kitchener
19.17	Mississauga Rd.	City of Brampton	CN	Halton	Kitchener
20.14	5th Line W.	City of Brampton	CN	Halton	Kitchener
21.15	Winston Churchill Blvd.	Region of Peel	CN	Halton	Kitchener
Guelph Sub					
30.83	Trafalgar Road (7th Line)	Region of Halton	GO Transit	Guelph	Kitchener
33.54	4th Line (Halton Hills)	Town of Halton Hills	GO Transit	Guelph	Kitchener
34.25	3rd Line (Halton Hills)	Town of Halton Hills	GO Transit	Guelph	Kitchener
34.57	Private Road (Acton Wastewater Treatment Plant)	Town of Halton Hills	GO Transit	Guelph	Kitchener
35.48	Eastern Avenue	Town of Halton Hills	GO Transit	Guelph	Kitchener
35.69	Mill St. E. (Highway 7)	Town of Halton Hills	GO Transit	Guelph	Kitchener
36.20	Main St. N. (Highway 25)	Region of Halton	GO Transit	Guelph	Kitchener
37.20	Dublin Line	Town of Halton Hills	GO Transit	Guelph	Kitchener
38.21	Region and County Line	Twp. of Nassagaweya/ Twp. of Eramosa	GO Transit	Guelph	Kitchener
39.22	7th Line (Eramosa)	Guelph/Eramosa	GO Transit	Guelph	Kitchener
40.56	Harris Street	Guelph/Eramosa	GO Transit	Guelph	Kitchener
41.30	Main St. (Rockwood)	Wellington County	GO Transit	Guelph	Kitchener
42.19	4th Line Road (Eramosa)	Guelph/Eramosa	GO Transit	Guelph	Kitchener
43.02	3rd Line (Eramosa)	Guelph/Eramosa	GO Transit	Guelph	Kitchener
43.97	County Road 29	Wellington County	GO Transit	Guelph	Kitchener
46.22	Watson Road S	City of Guelph	GO Transit	Guelph	Kitchener
49.09	Dublin Street	City of Guelph	GO Transit	Guelph	Kitchener
49.20	Glasgow Street	City of Guelph	GO Transit	Guelph	Kitchener
49.33	Yorkshire Street	City of Guelph	GO Transit	Guelph	Kitchener
49.54	Edinburgh Street	City of Guelph	GO Transit	Guelph	Kitchener
49.79	Alma Street	City of Guelph	GO Transit	Guelph	Kitchener

52.95	County Road 32	City of Guelph	GO Transit	Guelph	Kitchener
54.06	Speedvale Avenue	City of Guelph	GO Transit	Guelph	Kitchener
54.37	Woolwich/Guelph Townline Rd	City of Guelph	GO Transit	Guelph	Kitchener
57.00	Township Road 72A / Wurster Place	City of Guelph	GO Transit	Guelph	Kitchener
58.39	Woolwich Street	Region of Waterloo	GO Transit	Guelph	Kitchener
59.80	Bingemans Centre Dr	Region of Waterloo	GO Transit	Guelph	Kitchener
62.08	Lancaster St W.	Region of Waterloo	GO Transit	Guelph	Kitchener
62.26	Saint Leger St.	City of Kitchener	GO Transit	Guelph	Kitchener
62.60	Ahrens Street	City of Kitchener	GO Transit	Guelph	Kitchener
62.82	Duke Street	City of Kitchener	GO Transit	Guelph	Kitchener
62.93	Waterloo Street	Region of Waterloo	GO Transit	Guelph	Kitchener
Galt Sub					
12.06	Rische's Lane / Loreland Ave.	City of Mississauga	CP	Galt	Milton
13.10	Stanfield Rd.	City of Mississauga	CP	Galt	Milton
13.62	Haines Rd.	City of Mississauga	CP	Galt	Milton
16.82	Wolfedale Rd.	City of Mississauga	CP	Galt	Milton
17.35	Erindale Station Rd.	City of Mississauga	CP	Galt	Milton
20.12	Queen St. (Mississauga Rd.)	King's Highway (MTO)	CP	Galt	Milton
20.67	Thomas St.	City of Mississauga	CP	Galt	Milton
20.85	Tannery st.	City of Mississauga	CP	Galt	Milton
21.20	Ontario St.	City of Mississauga	CP	Galt	Milton
25.09	10th Line W	City of Mississauga	CP	Galt	Milton
25.87	9th Line W	City of Mississauga	CP	Galt	Milton
28.43	6th Line Rd	Milton	CP	Galt	Milton
29.30	5th Line Rd	Milton	CP	Galt	Milton
Kingston Sub					
321.97	Scarborough Golf Club Rd.	City of Toronto	GO Transit	Kingston	Lakeshore East
320.95	Galloway Rd.	City of Toronto	GO Transit	Kingston	Lakeshore East
320.65	Poplar Rd.	City of Toronto	GO Transit	Kingston	Lakeshore East
320.41	Morningside Ave.	City of Toronto	GO Transit	Kingston	Lakeshore East
319.90	Manse Rd.	City of Toronto	GO Transit	Kingston	Lakeshore East
318.85	Beechgrove Rd.	City of Toronto	GO Transit	Kingston	Lakeshore East
317.22	Chesterton Shores	City of Toronto	GO Transit	Kingston	Lakeshore East
315.95	Rodd Ave. (Rosebank)	Pickering	GO Transit	Kingston	Lakeshore East



METROLINX

An agency of the Government of Ontario

Regional Express Rail (RER) Level Crossing Strategy

John Jensen, Chief Capital Officer

Greg Percy, Chief Operating Officer

Judy Pfeifer, Chief Communications & Public Affairs Officer

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Direction sought

- Accept level crossing strategy including:
 - Review of crossings and plan for improvements.
 - Safety and education initiatives
 - Launch of a region wide Community Advisory Committee on level crossings
 - Approval of grade separation projects subject to municipal agreement
- Report back with further analysis related to recently announced new stations and service expansions.



Direction sought

Recommended grade separation projects are:

- Burloak Drive (Lakeshore West corridor)
- Finch Avenue East (Stouffville corridor)
- Galloway Road (Lakeshore East corridor)
- Kerr Street (Lakeshore West corridor)
- McNaughton Road (Barrie corridor)
- Morningside Avenue (Lakeshore East corridor)
- Rutherford Road (Barrie corridor)
- Scarborough Golf Club Road (Lakeshore East corridor)
- Steeles Avenue East (Stouffville corridor)
- Wellington Street East (Barrie corridor)



The safety of the GO Rail system is of paramount importance

Metrolinx is acting now to ensure that increases in service with GO Regional Express Rail can be accommodated at level crossings safely for passengers, road users and communities by:

- Designing and managing crossings to reduce the risk of incidents and minimize congestion
- Working closely with municipal partners to meet or exceed Transport Canada standards
- Ensuring that everyone knows that it is critical to avoid active rail corridors and obey all rules
- Maintaining a policy that no new level crossings should be created
- Grade separating a number of priority level crossings



RER and Level Crossings

- With 185 public and 51 private and farm level crossings on the GO rail network, this infrastructure will continue to be a significant feature of the network.
- Ongoing growth in vehicle traffic and the introduction of GO RER means crossings will be busier.
 - On some corridors, the shift from peak to all-day service will introduce service at times to which communities are not accustomed
- To ensure appropriate consideration is being given to all level crossings, Metrolinx is taking a multi-pronged approach addressing:
 - Level Crossings Plan
 - Safety and Education
 - Grade Separations
 - Long Term Plan



Level Crossings Plan

- New infrastructure and increased service across the network mean crossings should be reviewed system-wide.
- Measures that could enhance crossing safety include improved road approaches, enhanced signage, pedestrian gates, among others.
- A technical study, to be completed by Fall 2017, is being undertaken to recommend potential improvements at each location.
 - Findings will be discussed with municipal partners and communities
- Metrolinx will also explore with municipal partners the potential in some cases for road closures and grade separated pedestrian alternatives.
- A safety and risk assessment of all private and farm crossings and exploring feasible options to improve, provide alternatives and/or remove is also being undertaken.



Safety and Education

- Metrolinx and GO Transit have a strong record on safety; every incident on our system is of concern, and Metrolinx is committed to doing all it can to prevent them.
- As service increases, Metrolinx will advise and inform communities of the risks posed by active rail corridors and the importance of abiding by all rules related to level crossings and corridors.
- Components will include:
 - Education and outreach, partnering with police and community to present at schools, community events and other locations
 - Uniformed Patrols as a proactive method to address corridor trespassing and unsafe activity
 - Retail and marketing activities including web based and traditional media
 - Partnership with ConnexOntario to place mental health helpline signage at railways stations, crossings, platforms and bridges across the network
- Metrolinx will also work with municipalities to encourage appropriate development and traffic planning around level crossings.



Level Crossings Community Advisory Committee

- It is important that Metrolinx plan for level crossings based on needs and impact.
- Metrolinx will establish a Community Advisory Committee with representatives from across the region to gather input into the approach for level crossings.
- The membership, scope and terms of reference for the committee will be developed in a manner that is aligned with the work of the technical study.
 - Core components could include design, operations and safety/communications



Grade Separations

The GO RER Initial Business Case assumed 10 to 13 level crossings would be grade separated as part of the RER program, and identified 11 locations, subject to further analysis:

Stouffville	Lakeshore East
Finch Avenue East	Scarborough Golf Club Rd
McNicoll Avenue	Morningside Avenue
Steeles Avenue East	Galloway Road
Barrie	Lakeshore West
Rivermede Rd	Kerr Street
Langstaff Rd	Burloak Drive
Rutherford Rd	

source: GO RER Initial Business Case (2015)

http://www.metrolinx.com/en/regionalplanning/projectevaluation/benefitscases/GO_RER_Initial_Business_Case_EN.pdf

Four of the projects identified in the GO RER Initial Business Case were announced by the Province in 2015 and have already been started with planning, design and environmental assessment underway.

- Scarborough Golf Club Road
- Morningside Avenue
- Galloway Road
- Burloak Drive

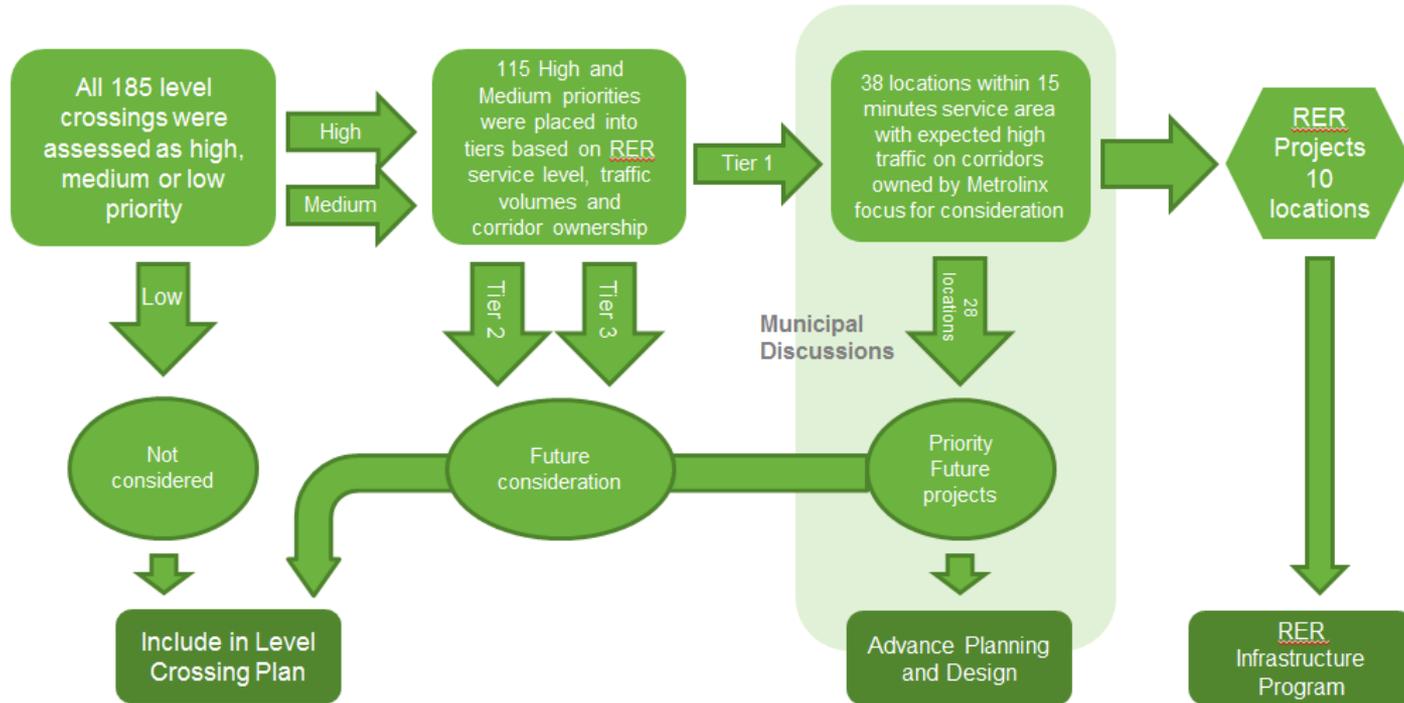


Why Grade Separate?

- Grade separations can enhance safety and improve transportation network performance, operations and reliability.
- However, each grade separation is a complex capital project involving construction, road detours, grading, utility relocations, flagging and property acquisition.
 - Typical capital costs can range from \$25M to \$100M+ depending on features such as whether the project is a road over or under the rail corridor, property requirements and geography
 - Scale and complexity limits capacity to construct multiple projects at one time on a corridor
 - Each project requires agreement with road authority partner



Grade Separations – process to confirm RER projects



Level Crossings – Initial assessment

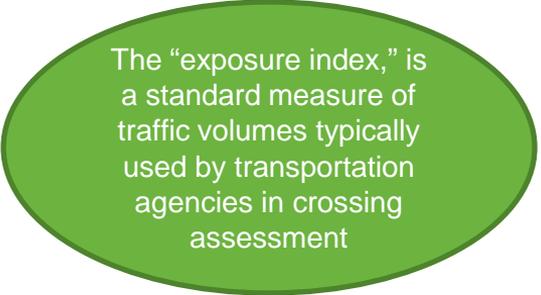
All 185 crossings were assessed based on four criteria which included a number of components including:

Usage and Existing Conditions (60%)

- Exposure Index (traffic and rail volumes)
- Geometry
- Accidents/Collisions
- Adjacent roadways and queuing

Operations (20%)

- GO Service improvements
- Special users (e.g. local transit, emergency services)
- Service reliability
- Station proximity



The “exposure index,” is a standard measure of traffic volumes typically used by transportation agencies in crossing assessment

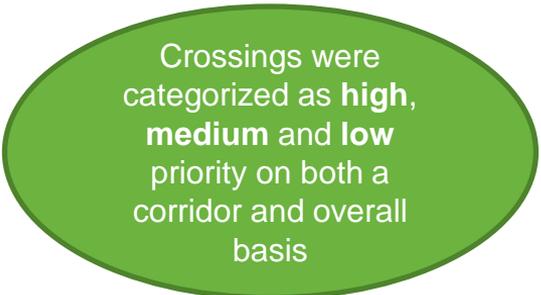
Level Crossings – Initial assessment con't

Social & Environmental (10%)

- Visual improvement
- Noise improvement
- Community connectivity

Cost (10%)

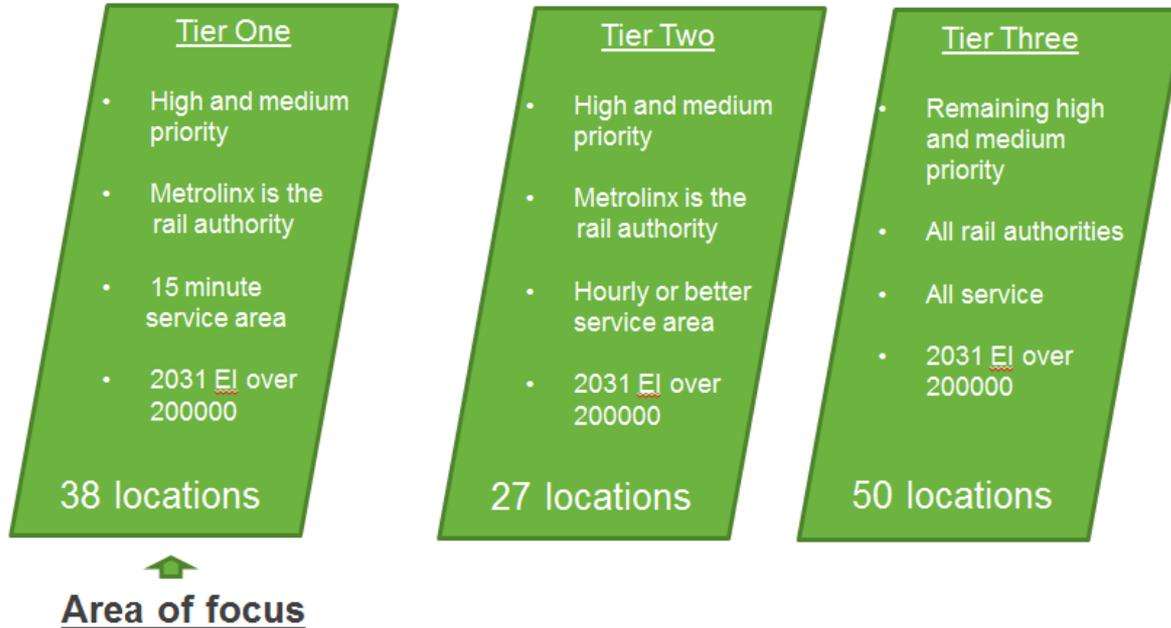
- Construction
- Property
- Maintenance



Crossings were categorized as **high**, **medium** and **low** priority on both a corridor and overall basis

Sorting Review

Among high and medium priority locations, a tiered approach was adopted to inform prioritization and discussions with municipalities



Refining the Results: RER compatibility

- The 38 Tier 1 locations all warrant consideration of grade separation. However, only a limited number of projects can be incorporated into the RER program.
- Four lenses were used to inform project selection for discussion with municipal counterparts:
 - Readiness to proceed e.g. the existence of an EA approval in place or underway
 - Station considerations e.g. adjacent station undergoing expansion
 - Other considerations e.g. is the location subject to planning or other considerations
 - Scoring e.g. how the location fared in the assessment
- Metrolinx also sought to maintain a relative balance of projects among corridors to ensure capacity to carry out work without undue impacts to other construction on corridor and GO Transit passenger service.



Outcomes

Projects recommended feature:

- EA underway or approved
- Planning and design underway
- Past indications or actions of municipal support
- Station proximity
- Higher scores and/or EI projections relative to other locations on corridor

Projects not included for this program feature:

- No current planning, design or approvals in place
- Lack of station proximity
- Lower scores and/or EI projections relative to other locations on corridor
- Specific planning or other complex issues

Locations not being advanced as part of RER will continue to be considered as circumstances and funding permit.



Results – Barrie Corridor

Location	Score	Grade Separation	Comments
Rutherford Rd.	59	Yes	Adjacent to a station, EA completed by York region, planning underway
Wellington St. E.	57	Yes	Adjacent to a station, note heritage elements to be considered
Castlefield Avenue	54		Site features complex geography and property implications; identified for future consideration
McNaughton Rd.	52	Yes	Adjacent to a station
Centre St.	49		Location just north of Wellington where grade separation is already recommended
King Vaughan Rd. (Townline Rd.)	48		identified for future consideration
Dufferin St. (York Reg. Rd. 53)	46		identified for future consideration
Rivermede Rd.	46		identified for future consideration
Teston Side Rd.	46		identified for future consideration
Wallace Avenue	46		Note: Grade separated as a result of proximity to Davenport Diamond
Station Rd.	45		identified for future consideration
Langstaff Rd. NM	44		identified for future consideration
Kirby Rd.	43		Identified for future consideration; new station concept plan includes at-grade crossing
1 Engelhard Dr.	42		identified for future consideration



Results – Stouffville Corridor

Location	Score	Grade Separation	Comments
Finch Ave	74	Yes	Adjacent to a planned SmartTrack station, initial planning underway
Steeles Ave East	67	Yes	EA underway by City of Toronto, adjacent to a station
Danforth Road	66		Site is complex and in close proximity to Scarborough junction requiring further analysis, identified for future consideration
Denison St	66		identified for future consideration
Kennedy Road S.	65		identified for future consideration
McNicoll Ave	64		identified for future consideration
Progress Ave	61		identified for future consideration
Huntingwood Drive	60		identified for future consideration
Havendale Road	55		identified for future consideration
Passmore Ave	53		identified for future consideration



Results – LSW and LSE Corridors

LSW

Location	Score	Grade Separation	Comments
Kerr St. Oakville	74	Yes	EA completed by Town of Oakville, planning underway
Lorne Park Rd	63		identified for future consideration
Ogden Ave.	63		identified for future consideration
Burloak Drive	62	Yes	EA underway, project announced in 2015
4th Line	61		identified for future consideration
Stavebank Rd.	61		identified for future consideration
Clarkson Rd.	60		identified for future consideration
Chartwell Rd.	56		identified for future consideration
Haig Blvd	54		identified for future consideration

LSE

Location	Score	Grade Separation	Comments
Scarborough Golf Club Rd	65	Yes	EA completed, project announced in 2015
Morningside Ave	58	Yes	EA completed, project announced in 2015
Galloway Rd	55	Yes	EA completed, project announced in 2015
Manse Rd.	44		constrained site not recommended in assessment
Poplar Rd.	44		Options are under review to leave as a level crossing or construct a non-vehicular grade separation



RER Projects - Next Steps

- Projects are at varying stages of development, ranging from conceptual design to active procurement.
- Metrolinx will work with municipal counterparts to finalize terms of agreement and manage projects in accordance with RER procurement timelines.
 - Commitments from municipalities to be sought
- Each project will feature:
 - terms to establish basic component of grade separations
 - cost share agreements based on Canadian Transportation Agency (CTA) established guidelines for cost apportionment
 - consistent implementation approach to streamline approvals and ensure delivery within RER timelines;
 - best practices in design
 - community consultation on individual project features and design
- Work to date has not considered impact of new stations and extensions, which will be considered in discussions related to those works and the subject of a report back to Board.

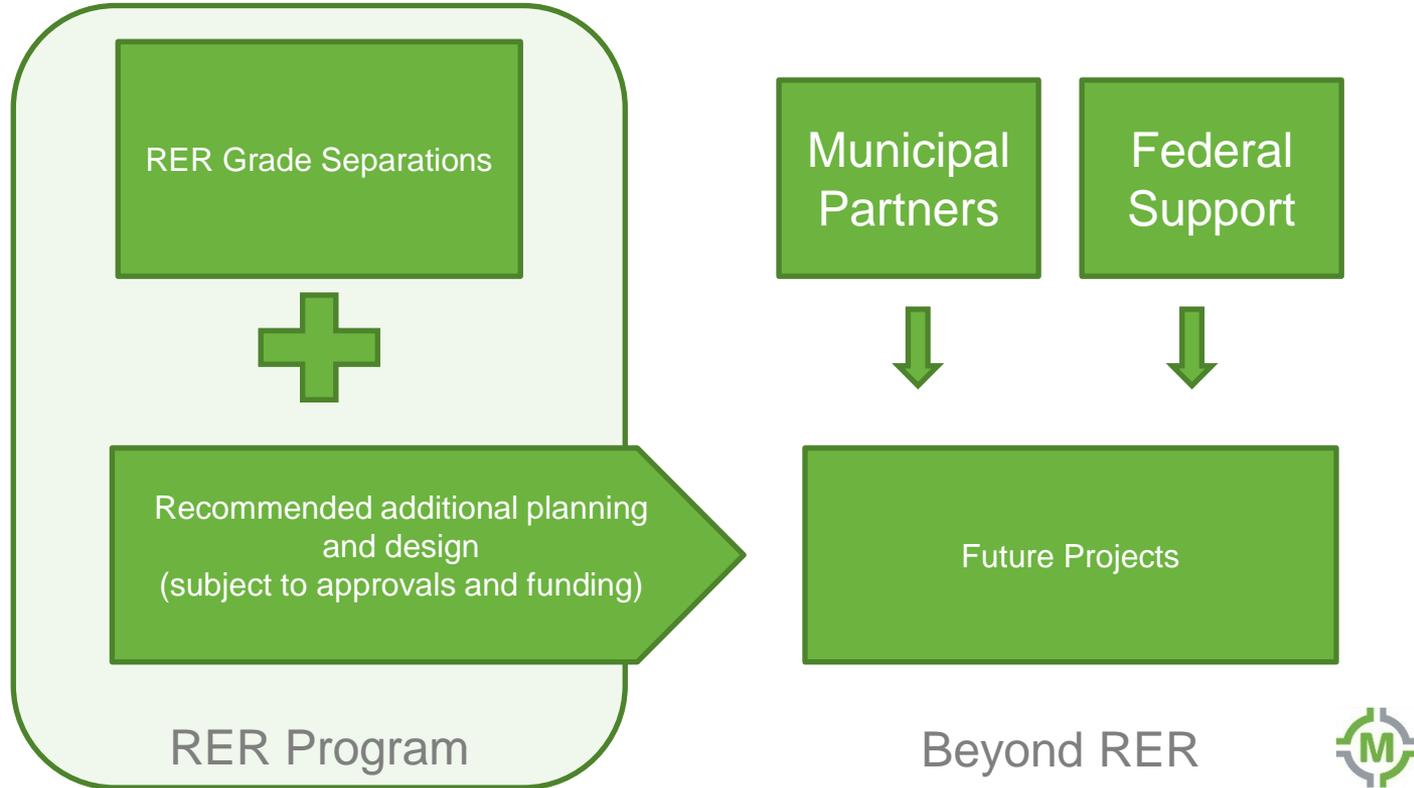


Long Term Plan

Metrolinx will continue to work with municipal counterparts to plan for and advance grade separations where possible.

Metrolinx recommends a longer term plan be considered beyond the current program to move additional projects forward through planning and design, subject to approvals and funding.

This would allow for continued progress on a pipeline of locations not proceeding immediately as part of this RER program.



Next Steps

- Level Crossing Study and Municipal Discussions
- Launch region wide Community Advisory Committee
- Grade Separation Projects:
 - Finalize municipal agreements
 - Complete or initiate Environmental Assessment as required
 - Initiate planning and design on additional locations
- Safety and Education awareness





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