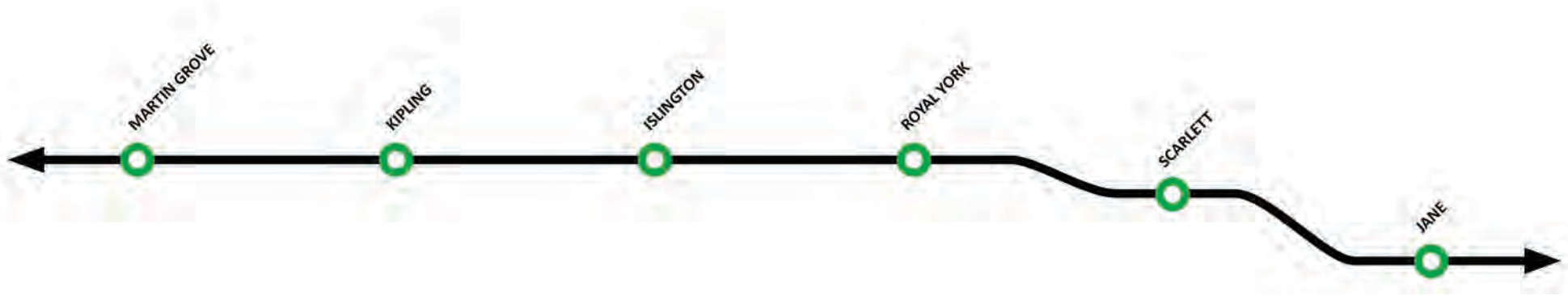
Eglinton West LRT:

Development of Conceptual Grade Separations

STAGE TWO/THREE REPORT



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INTRODUCTION

The Eglinton Crosstown LRT is one of the First-Wave projects of Metrolinx's regional transportation plan. Originally envisioned to extend from Pearson International Airport to Kennedy Station, the funded portion of the line is a 19-kilometre LRT that runs from Kennedy Station to Mount Dennis. This portion of the line is under construction with estimated completion in 2021. The western portion has environmental approval but is unfunded.

The western portion is being advanced as the Eglinton West LRT. It is proposed to extend the Eglinton Crosstown from Mount Dennis to Pearson Airport as part of the City of Toronto's SmartTrack initiative. The extended LRT corridor will help to enhance connectivity from the airport and substantial cluster of adjacent jobs to communities east along Eglinton Avenue and west along the Mississauga Transitway.

A 2010 Environmental Assessment provided an understanding of the impact of the project if built entirely at grade. An initial business case completed in 2016 determined that grade separations should be explored at three key locations to determine potential impacts on traffic and neighbouring properties.

These locations were:

- Jane Street to Scarlett Road (Eglinton Flats)
- Martin Grove Road
- Kipling Avenue

Toronto City Council added two more locations to be studied for potential grade separations:

- Islington Avenue
- Royal York Road

The many pros and cons of potential grade separation options are being considered according to a rigorous evaluation framework. The evaluation framework is divided into three stages: 1) Feasibility 2) Benefits and Costs, and 3) Strategic Values. This report details the findings of Stages 2 and 3 of the evaluation, in which each grade separation was evaluated in isolation of the others based on the City's Rapid Transit Evaluation Framework (RTEF). This included an assessment of travel-time impacts, impacts on the natural environment, and an articulation of implications for the public realm. The process also included public feedback on the grade separation analysis.

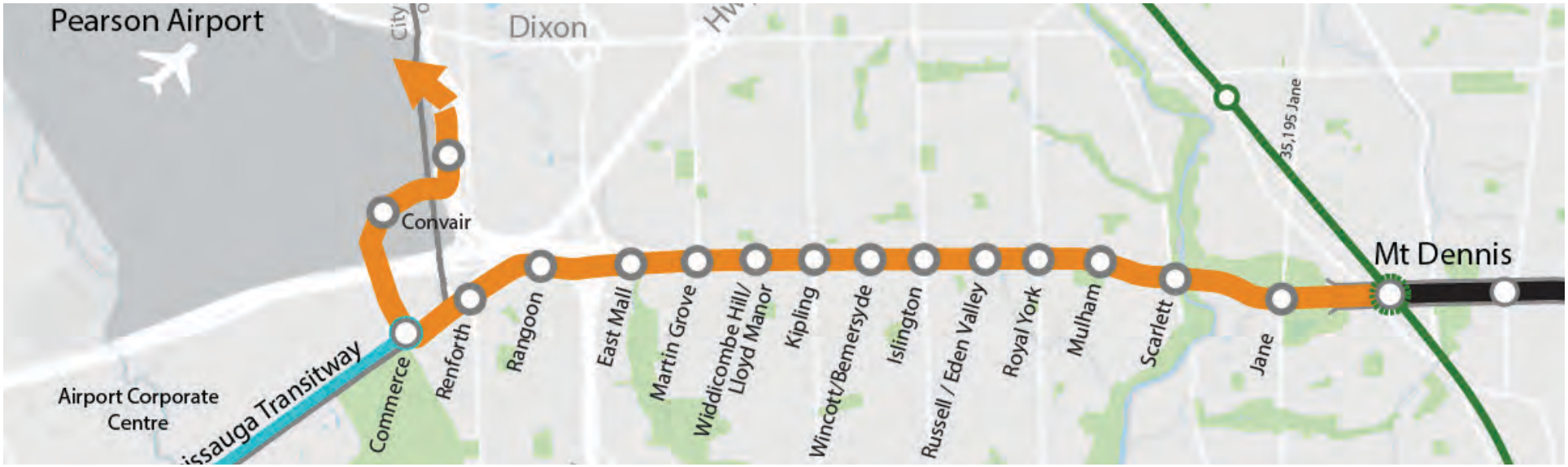


Figure 01: The Eglinton West LRT (in orange) is planned to run from Mt. Dennis to the airport with stops at the labeled locations. Source: Metrolinx, 2016.

STAGE ONE EVALUATION

The preceding report, “Eglinton West LRT: Development of Conceptual Grade Separations: Stage One Report” details the findings of the feasibility analysis for each grade separation. It contains a description of each grade separation location, an overview of key considerations, a summary of the options explored and the identification of a preferred option to be carried forward for further study.

The high-level study and evaluation of potential grade separation concepts in the Stage One Report was used to inform decision-making around the location and configuration of grade separations to ensure that options carried forward for more detailed evaluation delivered the greatest level of cost-benefit from a traffic perspective while responding to the needs of the local community and wider city.

For each preferred option the report provides a high-level overview of the potential impact on existing and planned neighbouring properties, relationship to floodplains, pedestrian/cyclist/bus transfer access, traffic impact, high-level cost estimates and a summary of the pros and cons in relationship to the other options. A description of the options which were not identified to be carried forward including a reasoning behind the decision is contained within the appendix of the Stage One report.

SUMMARY OF STAGE ONE OUTCOMES

The following list is a summary of grade separations advanced from the Stage One evaluation.

JANE STREET	**OPTION 1: ELEVATED / NORTH SIDE / CENTRE PLATFORM**
SCARLETT ROAD	**OPTION 1A*: ELEVATED / NORTH SIDE / CENTRE PLATFORM, ELEVATED CONNECTION TO CENTRELINE WEST OF STOP**
ROYAL YORK ROAD	**OPTION 2: UNDERGROUND / CENTRE OF ROADWAY / SIDE PLATFORMS**
ISLINGTON AVENUE	**OPTION 1: ELEVATED / CENTRE OF ROADWAY / SIDE PLATFORMS**
KIPLING AVENUE	**OPTION 2: UNDERGROUND / CENTRE OF ROADWAY / SIDE PLATFORMS**
MARTIN GROVE ROAD	**OPTION 1: UNDERGROUND / CENTRE OF ROADWAY / SIDE PLATFORMS**

* The grade separation option at Scarlett Road that advanced from Stage One featured a centre platform configuration, on the north side of Eglinton, straddling Scarlett. Following detailed analysis it was discovered that the centre platform created a conflict with a below-grade parking structure west of Scarlett. Due to this, the option studied in Stages 2 & 3 features side platforms.

GENERAL ASSUMPTIONS

PREVIOUS STAGES

The Stage One Report included a number of assumptions that have been carried forward into the Stage Two/Three evaluation.

DESIGN

The design decisions guiding stop development have been based on the design of the Eglinton Crosstown LRT (ECLRT). While not a detailed design, architectural features and stop functionality are intended to match those found on the ECLRT.

ACCESS

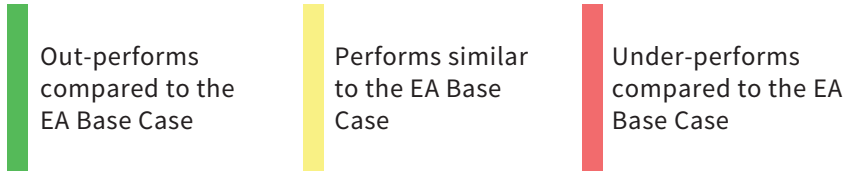
It is assumed that each platform will be accessible by an elevator as well as escalator. The assumption is that there would be typically two elevators to access each stop located on opposite corners of the intersection and a minimum of two entrances and egresses from each platform.

EVALUATION CRITERIA

Each of the grade separations have been evaluated according to the criteria on the following pages. The criteria are grouped according to the themes identified in the City of Toronto's Rapid Transit Evaluation Framework as part of its Feeling Congested initiative. The criteria were also developed with consideration of Metrolinx's Business Case Analysis. Certain criteria may be appropriate under more than one theme.

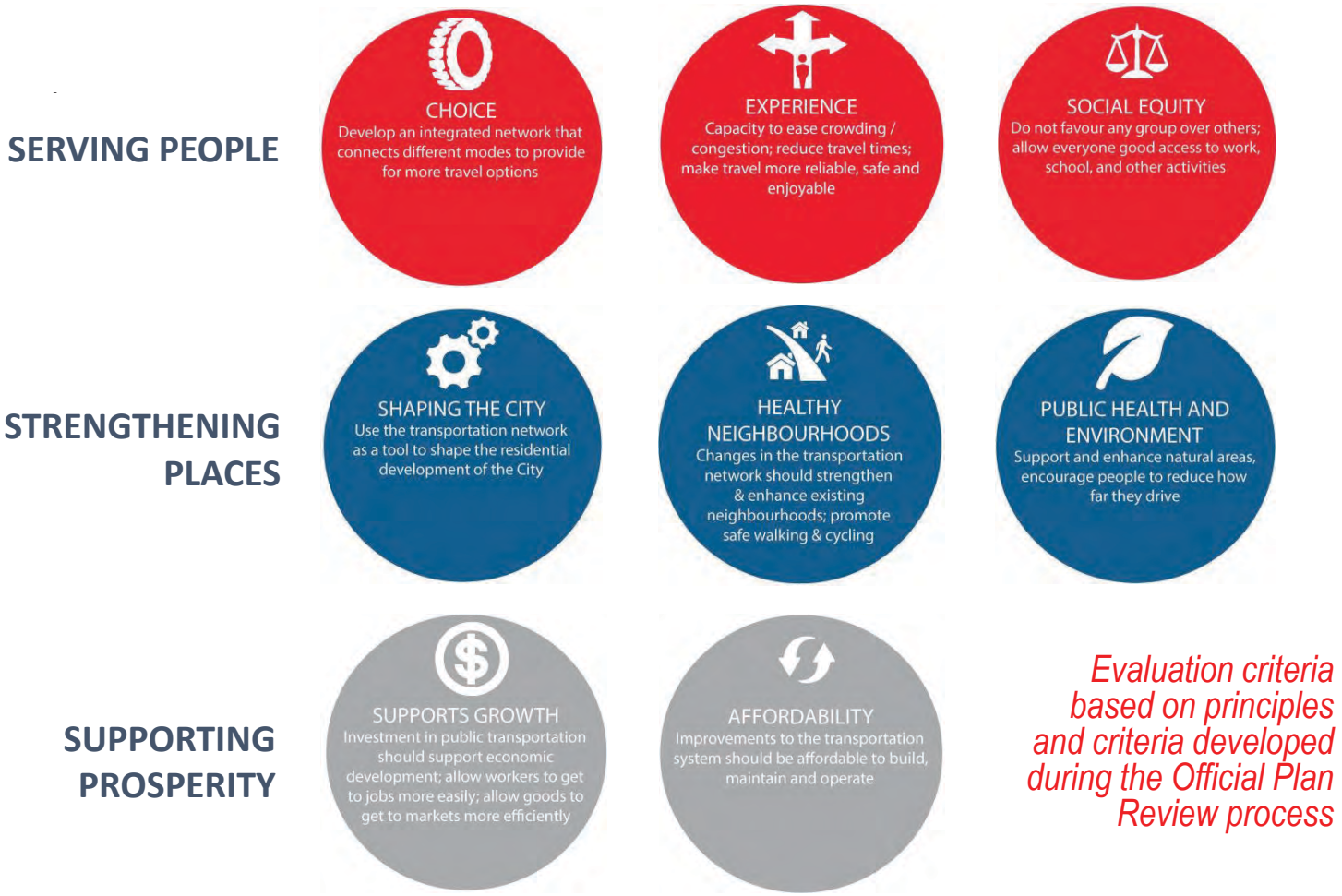
Criteria used in the evaluation are unweighted and instead considered collectively to help provide a full picture that considers the relevant city-building and transportation issues.

For each criterion the grade separation is given a rating of green, yellow, or red to represent its performance in relation to the at-grade option used for the EA Base Case.



RAPID TRANSIT EVALUATION FRAMEWORK

The Rapid Transit Evaluation Framework (RTEF) was developed as part of the transportation component of the City of Toronto Official Plan review process known as “Feeling Congested?” in 2013. It arose out of extensive public consultation by the city and is used as a tool by the City for assessing and prioritizing rapid transit projects. The eight criteria of the RTEF are divided into three overarching principles as illustrated on the following page. This structure was used to organize the criteria in the Stage 3 Evaluation.



Evaluation criteria based on principles and criteria developed during the Official Plan Review process

Figure 02: The City of Toronto’s Rapid Transit Evaluation Framework. Source: City of Toronto, 2013.

STAGE TWO EVALUATION

Stage Two includes a cost-benefit analysis for each of the options advanced from Stage One. It assesses affordability, one of the eight types of criteria in the Rapid Transit Evaluation Framework.

The Stage Two Evaluation assesses the costs of building grade separations against the benefits that they may provide for auto users, LRT users, and bus users. The evaluation was undertaken by Metrolinx in coordination with the City of Toronto, relying on cost estimates and traffic modeling provided by various consultants. The full Benefit & Cost Analysis is detailed in Council Report EX29.1 found at: www.toronto.ca/legdocs/mmis/2017/ex/bgrd/backgroundfile-109250.pdf.

COST ESTIMATES

To evaluate the total cost of each grade separation against the at-grade stops in the approved EA, estimates of construction and maintenance costs for each option were provided. The construction cost estimates were based on the designs shown in the 3D visualizations appended to this report, assuming only the basic elements required for the stop to function. These assumptions included four elevators (two elevators for Jane Street) and two stair cores for each, and a structure consisting of concrete foundations, concrete floor slab, structural steel frame and glass perimeter façade. Cost estimates for excavation and interior finishing details were also included. Costs for non-essential items were not included in the estimates. The full consultant report on cost estimates is available upon request.

Based on the designs, the base capital cost to construct each of the grade separations in 2017 dollars is as follows:

Jane Street	$85 million
Scarlett Road	$113 million
Royal York Road	$232 million
Islington Avenue	$90 million
Kipling Avenue	$274 million
Martin Grove Road	$294 million

BENEFITS

To compare the cost estimates against the anticipated benefits associated with each grade separation, a traffic microsimulation model was employed to determine the time impact for auto users, LRT users, and bus users. The traffic microsimulation model provided travel time estimates for each of the proposed grade separations, as well as the Eglinton LRT running at-grade (referred to as the 'Base case'). Each grade separation was studied in isolation. Changes in travel time for LRT, bus and auto users (relative to the at-grade LRT) were determined and monetized according to the Metrolinx standard value of time. The monetized value of travel time (over the at-grade LRT, and over a 60-year in-service life) represented the Net Benefits of the grade separation in question. To account for uncertainty in forecasting, a range of Net Benefits is presented. The Net Benefits of each grade separation were compared with the associated Net Costs of that grade separation. To account for uncertainty in cost estimation, a range of costs is presented in accordance with cost estimation best practice. The result of this analysis is summarized in Figure 03.

It should be noted that the benefits captured during the modelling process, and in the affordability criteria of this evaluation framework represent only a subset of the total benefits of a grade separation. There exist a number of benefits (and disbenefits) for a grade separation which are not readily quantifiable. For completeness, the qualitative impacts of a grade separation are captured in the other seven criteria of the RTEF (page 7).

FINDINGS

As shown in Figure 03, the expected costs eclipse the expected benefits for all grade separations. While there are travel time benefits of grade separating the LRT for all users (both auto and transit), these monetized benefits are small when compared with the projected costs of grade separating. Kipling Avenue is the only intersection for which there is any overlap between the Net Benefit Range and the Net Cost Range. Overall, none of the grade separations are preferred to at-grade stops by the Stage Two evaluation of affordability criteria.

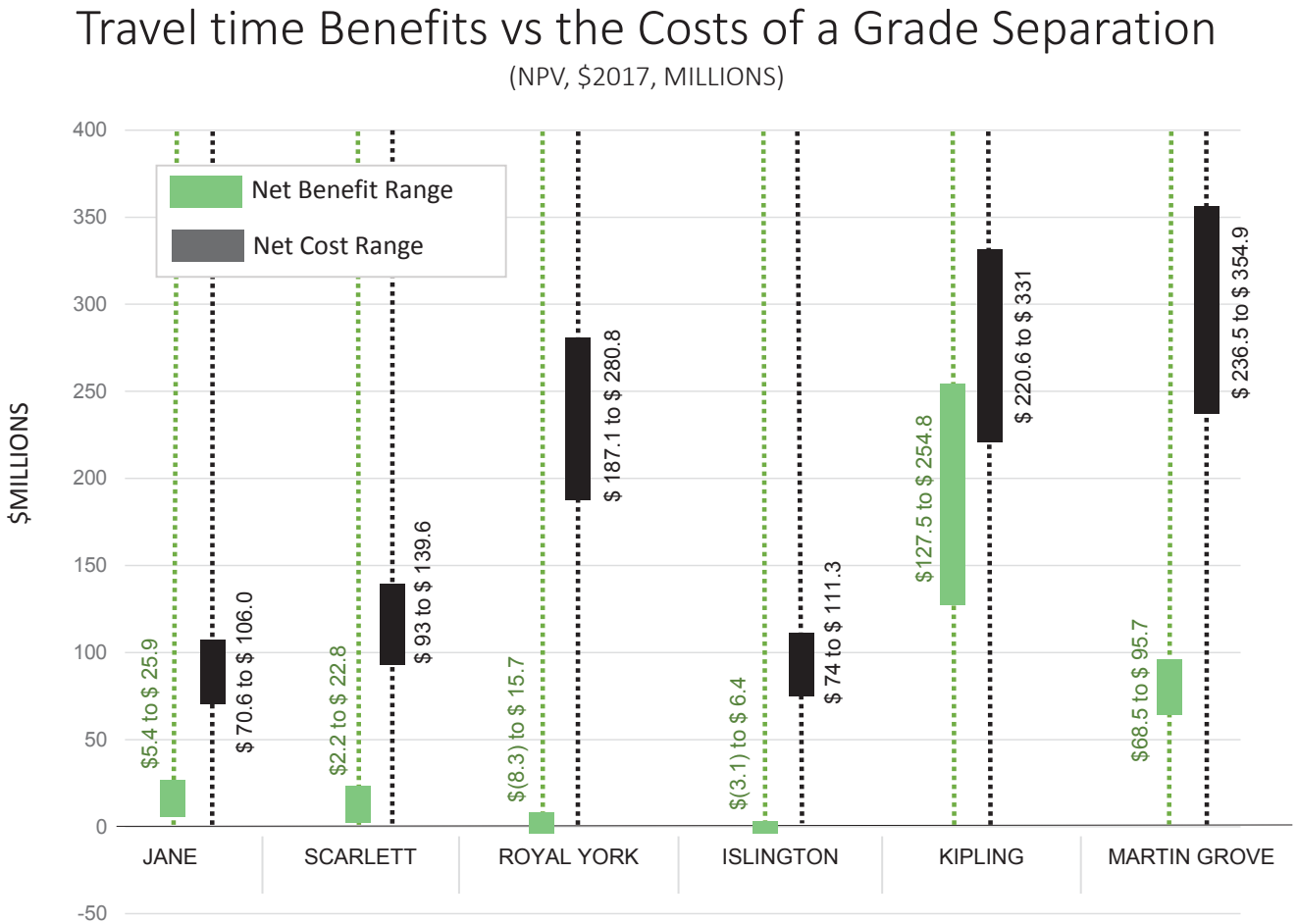


Figure 03: Travel time benefits vs the costs of a grade separation. Source: City of Toronto Council Report EX29.1, 2017.

STAGE THREE EVALUATION CRITERIA

STAGE THREE: SUMMARY EVALUATION OF STRATEGIC VALUES

The third stage of evaluation included an assessment of each option against the EA Base Case. The evaluation was a strategic value assessment organized according to the City of Toronto's Rapid Transit Evaluation Framework themes. Criteria used in the Stage Three evaluation are identified below.

CHOICE

1) Creates Choices For Pedestrians
Measure: A description of the ability for access by pedestrians.

2) Creates Choices For Cyclists
Measure: A description of the ability for access by cyclists.

3) Ability To Connect A Future Jane LRT To The Mt Dennis MSF
Measure: An assessment of whether LRT vehicles on a future Jane LRT can access the Mt. Dennis MSF or not. This criterion only applies to a grade separation at Jane Street.

SOCIAL EQUITY

4) Provides Equal Access To Transit for All Users
Measure: An assessment of the ability of all users to access the stop, regardless of their level of physical mobility.

EXPERIENCE

5) Ease Of Access For All Users
Measure: A consideration of vertical transfers and interruptions to access the stop.
Measure: A description of the access experience for pedestrians, cyclists, and transit transfers.
Measure: A description of the impact on passive way-finding.

6) Shelter From Weather Conditions
Measure: A description of the user experience of wind, precipitation, and temperature variation.

7) Impacts On Auto/Pedestrian Conflicts
Measure: A description of potential vehicle/user collision risks.

8) Impacts On Driver Sightlines
Measure: A description of the degree of impact from the support structure and/or portal on visibility for drivers approaching from all directions.

9) Construction Impacts On Traffic
Measure: A description of the impact on traffic flows for both personal vehicles and public buses, as well as the duration of construction.

10) Impact Of Slopes And Curves On Passenger Comfort
Measure: The degree of change in track elevation.

HEALTHY NEIGHBOURHOODS

11) Impact On The Surrounding Neighbourhood

Measure: A description of the degree of visual intrusion into sightlines from surrounding residential neighbourhoods, taking into account the proximity of adjacent residential neighbourhoods to the stop.

12) Impacts On Streetscaping And The Public Realm

Measure: A description of impacts on public realm and place-making opportunities.

13) Impact On Community Facilities And Services

Measure: Scale of physical impact on adjacent institutions and services
Measure: Distance of institutions and service-providers from the stop

14) Impact On Natural Surveillance

Measure: A description of impacts on natural surveillance as a component of Crime Prevention Through Environmental Design (CPTED) both interior and exterior to the stop.

15) Construction Disruption To The Neighbourhood

Measure: An assessment of construction related issues and impacts, such as proximity to existing neighbourhood, and noise, visual disruption, duration of construction and waste produced.

16) Impacts On Adjacent Properties

Measure: A description of the public and private land required beyond the existing right-of-way.

SHAPING THE CITY

17) Impacts To Future Residential Development Potential

Measure: A description of the impacts to residential development potential.

PUBLIC HEALTH & ENVIRONMENT

18) Impacts On ESAs, Parks, And The Natural Heritage System

Measure: A description and list of impacts to NHS and Environmentally Sensitive Areas, parks, trees or other vegetative elements lost due to proximity/ construction of stop.

19) Impacts On Heritage Or Archaeological Sites

Measure: Identification of any impacts to Heritage Conservation Districts, heritage properties, or potential archaeological areas.

AFFORDABILITY

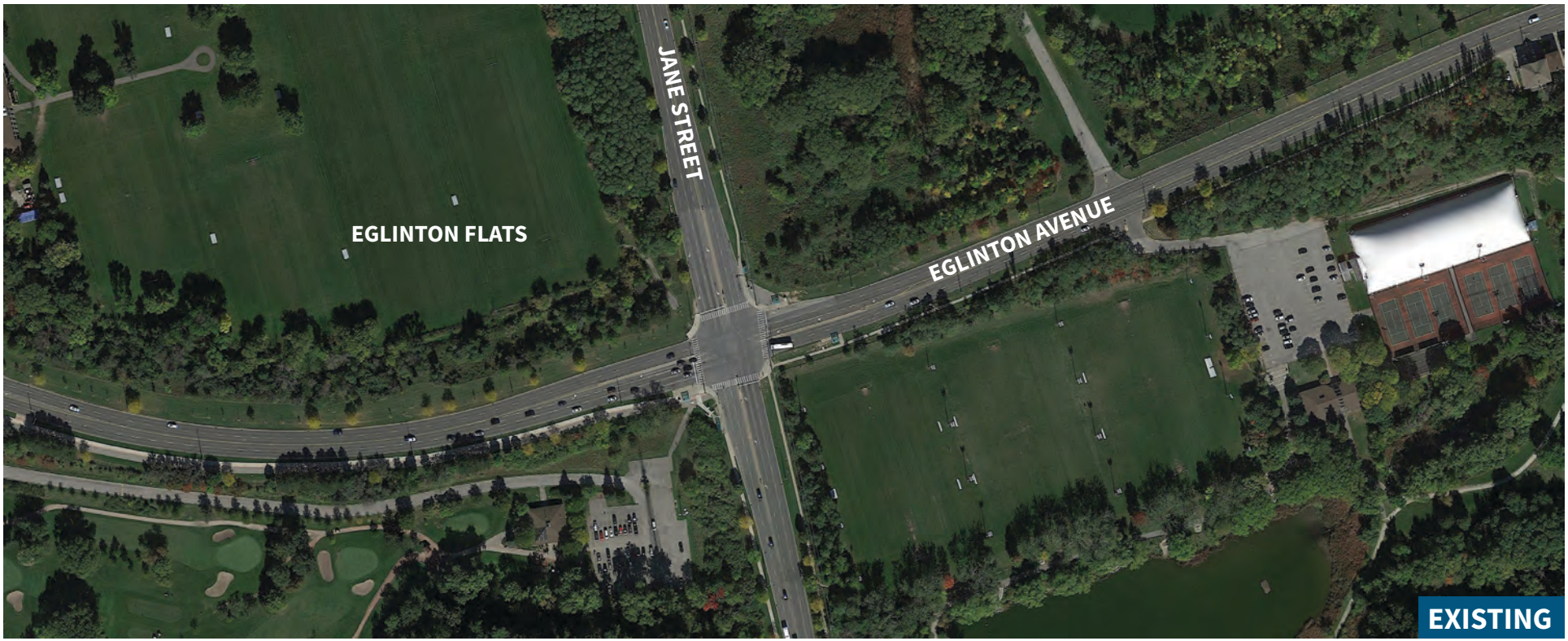
Criteria relating to affordability are included in the Stage Two analysis of Costs & Benefits.

SUPPORTS GROWTH

20) Impacts To Future Employment Development Potential

Measure: A description of employment lands needed to construct the stop.

JANE STREET



Source: Google, 2017.

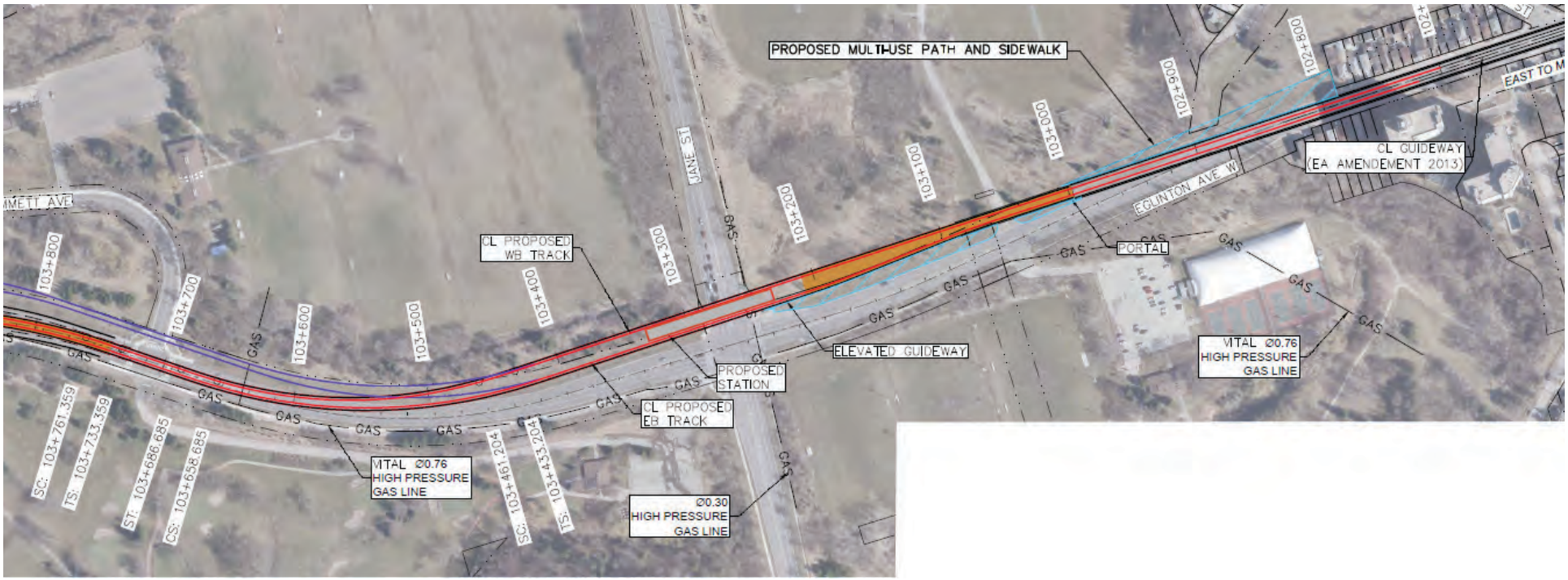
JANE STREET CONTEXT

The Jane/Eglinton intersection is located in the Humber Valley in an area known as Eglinton Flats. The future Crosstown LRT portal is just to the east of the intersection. The location is within the flood plain of the Humber River. Available land is less constrained than at other intersections as all four corners are occupied by green spaces including parks, sports facilities, and a golf course. The City is planning a multi-use pathway and sidewalk along the north side of Eglinton, from just west of Weston Road to Jane where it will cross to the south and connect into the existing multi-use path along Eglinton.

The grade separation studied at Jane/Eglinton is an elevated stop on the north side of Eglinton Avenue, straddling Jane Street. The LRT guideway emerges from the portal north of Eglinton heading west from Mt. Dennis stop (See Figure 04).

JANE STREET

ELEVATED, STRADDLING JANE / NORTH SIDE / CENTRE PLATFORM



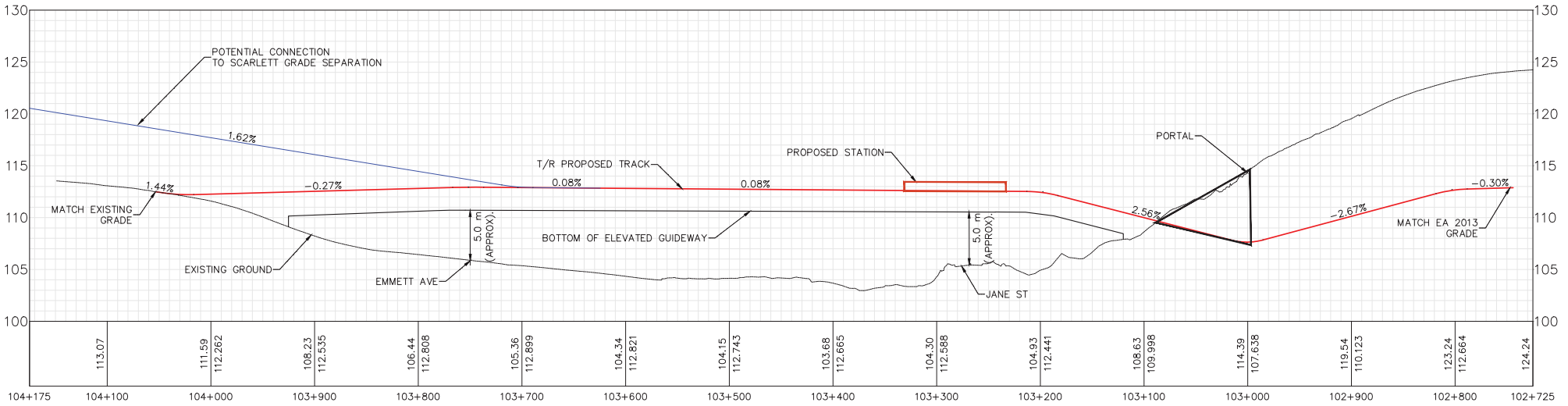


Figure 04: Plan and profile of the grade separation that was studied at Jane/Eglinton.

JANE STREET

COMPARISON OF EVALUATED OPTIONS

Figure 05: Depiction of the base case at-grade stop looking north-east.

Figure 06: Depiction of what the studied grade separation might look like looking north-east.

JANE STREET

COMPARISON OF EVALUATED OPTIONS

Figure 07: Depiction of the base case at-grade stop looking north-east.

Figure 08: Depiction of what the studied grade separation might look like looking north-east.

JANE STREET GRADE SEPARATION

STAGE THREE: SUMMARY EVALUATION OF STRATEGIC VALUES

CHOICE

1) Creates Choices For Pedestrians

Both the grade separation and at-grade option provide direct connections to pedestrian infrastructure. (performs similarly)

2) Creates Choices For Cyclists

Both the grade separation and at-grade option provide direct connections to the multi-use path along the south side of Eglinton to the west and its planned extension along the north side of Eglinton to the east. This is based on the assumption that the stops are designed to support access by cyclists. (performs similarly)

3) Ability To Connect A Future Jane LRT To The Mt Dennis MSF

The elevated option would require significant investment in order to be able to connect Eglinton West LRT with a future Jane LRT. It is not anticipated that LRT vehicles on Jane would utilize the Mt Dennis MSF, but the at-grade option would at least maintain access for the future. (under-performs)

SOCIAL EQUITY

4) Provides Equal Access To Transit for All Users

Both options are fully-accessible. The grade-separated option has two elevators to access the centre platform, greatly reducing the likelihood of the stop losing elevator access and becoming inaccessible. (performs-similarly)

EXPERIENCE

5) Ease Of Access For All Users

There is a similar overall horizontal transfer distance between the options however, ease of access is reduced for disabled users, people with strollers, and cyclists bringing a bike on the grade-separated LRT.

The grade separation offers less ease of access for all users as it requires a vertical transfer to access stop.

Some transit transfers may be more direct in the elevated option as entrances could be placed adjacent to bus stops. Passive way-finding will be relatively simple for the grade separation as both entrances lead to a shared platform. (under-performs)

6) Shelter From Weather Conditions

The elevated stop would likely have increased wind impacts for users waiting at the platform. The entrances to the stop would provide some shelter but this would not extend to the platform. The at-grade option is assumed to have shelter in line with the Eglinton Crosstown LRT (not fully-enclosed or heated). (performs similarly)

7) Impacts On Auto/Pedestrian Conflicts

There is a reduced risk as fewer users would have to cross a street to access the stop as the entrances are located at the sidewalk as opposed to the middle of the roadway in the at-grade option. Though users approaching from the south will have to cross the entire width of Eglinton to access the elevated stop, all users in the at-grade option must cross traffic to access it. (out-performs)

8) Impacts On Driver Sightlines

Either option would be designed to meet visibility standards. While impacts will be minimal, there may be some reduction in sightlines for drivers approaching from the north due to the support structure of the grade separation. (under-performs)

9) Construction Impacts On Traffic

Construction of the elevated structure would result in less disruption to traffic because the work is adjacent to the traffic lanes on Eglinton and can generally be constructed without direct impacts. Construction duration for the elevated structure would be similar to an at-grade option. The complexity of the work for this option is greater, but there would be some time savings expected by a reduction in traffic stages and minimizing interaction with public traffic. (out-performs)

10) Impact Of Slopes And Curves on Passenger Comfort

Both options would be designed to meet the standards for comfortable slopes and curves and their impacts on travel experience would be minimal.

The elevated stop reduces the amount of vertical movement experienced by riders as the intersection is on the valley floor. The at-grade stop would require the LRT to travel lower into the valley with steeper slopes. Horizontal movement would be similar with both options. (performs similarly)

HEALTHY NEIGHBOURHOODS

11) Impact On The Surrounding Neighbourhood
There are no residential neighbourhoods immediately adjacent to the stop that would be impacted. (performs similarly)

12) Impacts On Streetscaping And The Public Realm
In comparison to the at-grade option, the grade separation would have greater impacts on adjacent public space, including increased shadows and a reduced amount of land available for the proposed multi-use path extension. (under-performs)

13) Impact On Community Facilities And Services
Neither option creates significant impacts on community facilities or services. (performs similarly)

14) Impact On Natural Surveillance
The elevated stop would have less natural surveillance than an at-grade stop. (under-performs)

15) Construction Disruption To The Neighbourhood
The grade separation would cause greater disruption to the surrounding neighbourhood during construction due to increased vibration from pile-driving for the support structure. Duration of construction would be similar for both options. (under -performs)

16) Impacts On Adjacent Properties
The elevated option would require more land as it is shifted north of Eglinton. A long strip of land would be required for the area where the LRT is north of Eglinton, including land that appears to be publicly-owned and currently occupied by Eglinton Flats and Fergie Brown Park. (under-performs)

SHAPING THE CITY

17) Impacts To Future Residential Development Potential
Neither option would impact future residential development. (performs similarly)

PUBLIC HEALTH & ENVIRONMENT

18) Impacts On Esas, Parks, And The Natural Heritage System
The grade separation would have greater impacts on Humber River Natural Heritage System, as well as on the surrounding parks. (under-performs)

19) Impacts On Heritage Or Archaeological Sites
Neither option impacts existing heritage properties or areas of archaeological potential. (performs similarly)

SUPPORTS GROWTH

20) Impacts To Future Employment Development Potential
Neither option would significantly impact future employment development. (performs similarly)

SUMMARY
The shared centre platform of the Jane Street grade separation may improve accessibility and convenience compared to the side platforms in the other grade separations. While the elevated option's north-side alignment may result in reduced construction impacts and conflicts between cars and pedestrians, it would have more significant visual impacts, impacts on the surrounding public realm and open space and result in a poorer user experience due to the need for users to change elevations and wait on a platform out of view.

CONCLUSION
Assessed against Strategic Values, a grade separation at Jane Street generally under-performs compared to the at-grade option and is not preferred.

SCARLETT ROAD

Source: Google, 2017.

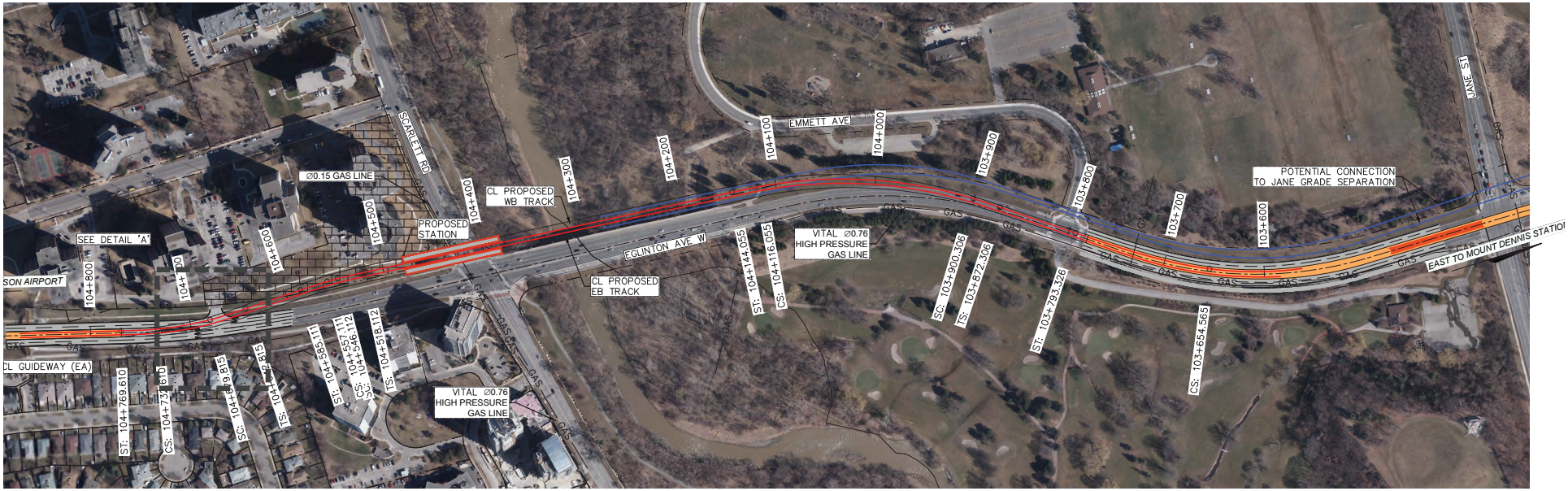
SCARLETT ROAD CONTEXT

The Scarlett/Eglinton intersection is on the west side of the Humber Valley, adjacent to the Humber River Bridge on Eglinton. Existing high density residential buildings are located just west of Scarlett. Existing multi-use paths run along the east side of Scarlett, as well as along the south side of Eglinton.

The grade separation studied at Scarlett/Eglinton is an elevated stop on the north side of Eglinton Avenue, straddling Scarlett Road with side platforms. The LRT remains elevated as it crosses over Eglinton, returning to grade in the centre of the roadway west of the intersection (see Figure 09).

SCARLETT ROAD

ELEVATED, STRADDLING SCARLETT / NORTH SIDE / CENTRE PLATFORM



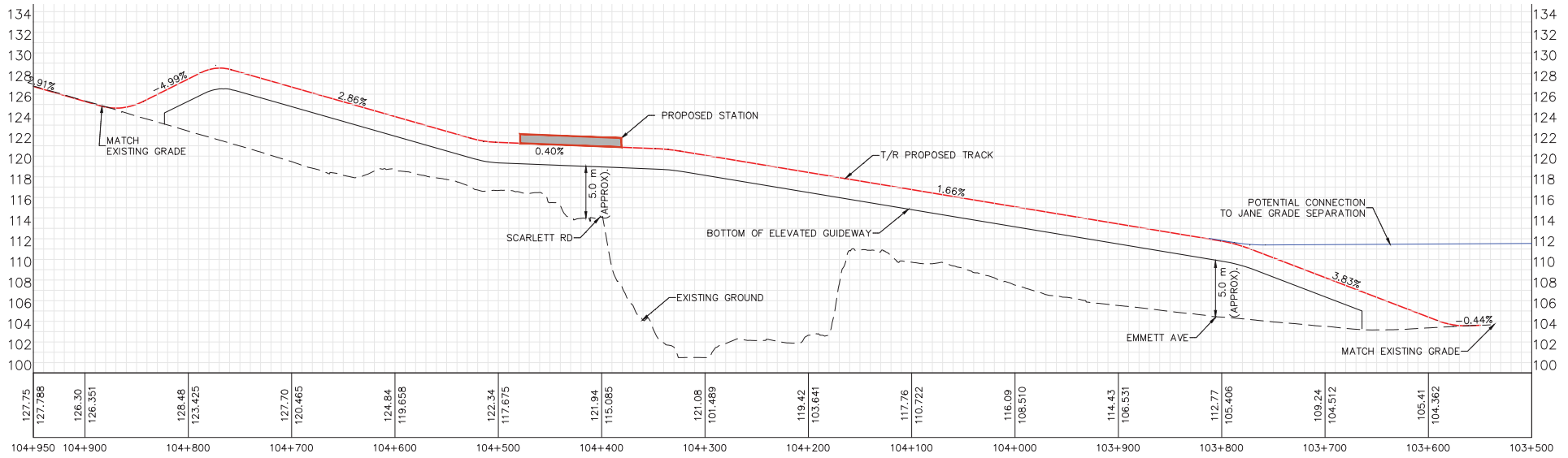


Figure 09: Plan and profile of the grade separation that was studied at Scarlett/Eglinton.

SCARLETT ROAD

COMPARISON OF EVALUATED OPTIONS

Figure 10: Depiction of the at-grade base case stop looking north-west.

Figure 11: Depiction of what the studied grade separation might look like looking north-west.

SCARLETT ROAD

ELEVATED, STRADDLING SCARLETT / NORTH SIDE / CENTRE PLATFORM

Figure 12: Depiction of the at-grade base case stop looking north-west.

Figure 13: Depiction of what the studied grade separation might look like looking north-west.

SCARLETT ROAD GRADE SEPARATION

STAGE THREE: SUMMARY EVALUATION OF STRATEGIC VALUES

CHOICE

1) Creates Choices For Pedestrians

Both the grade separation and at-grade option provide direct connections to pedestrian infrastructure. (performs similarly)

2) Creates Choices For Cyclists

Both the grade separation and at-grade option provide direct connections to the multi-use paths along the south side of Eglinton and along the east side of Scarlett. This is based on the assumption that the stops are designed to support access by cyclists. (performs similarly)

3) Ability To Connect A Future Jane LRT To The Mt Dennis MSF

Not applicable.

SOCIAL EQUITY

4) Provides Equal Access To Transit for All Users

Though both options are fully-accessible, the vertical transfer requirement of the grade separation would render the stop inaccessible for users with disabilities in the event that the elevator is out of service. (under-performs)

EXPERIENCE

5) Ease Of Access For All Users

There is a similar overall horizontal transfer distance between the options. The grade separation offers less ease of access as it requires a vertical transfer to access the stop.

The two platform configuration and assumption of only two elevators means that users requiring an elevator would be required to cross Scarlett if they had to change directions. If one of the elevators is out of service there would be no accessible access to that platform. Some transit transfers may be more direct in the elevated option as entrances could be placed adjacent to bus stops. However, passive way-finding may be less intuitive due to the split platform configuration. Ease of access is reduced for disabled users, people with strollers, and cyclists bringing a bike on the LRT. (under-performs)

6) Shelter From Weather Conditions

The elevated stop would likely have increased wind impacts for users waiting at the platform. The entrances to the stop would provide some shelter but this would not extend to the platforms. The at-grade option is assumed to have shelter in line with the Eglinton Crosstown LRT (not fully-enclosed or heated). (performs similarly)

7) Impacts On Auto/Pedestrian Conflicts

There is a reduced risk as fewer users would have to cross a street to access the stop as the entrances are located at the sidewalk as opposed to the middle of the roadway in the at-grade option. Though users approaching from the south will have to cross the entire width of Eglinton to access the elevated stop, all users in the at-grade option must cross traffic to access it. (out-performs)

8) Impacts On Driver Sightlines

Either option would be designed to meet visibility standards. While impacts will be minimal, there may be some reduction in sightlines for drivers approaching from the north due to the support structure of the grade separation. (under-performs)

9) Construction Impacts On Traffic

Construction of the elevated structure would result in less disruption to traffic because the work is adjacent to the traffic lanes on Eglinton and can generally be constructed without direct impacts. Construction duration for the elevated structure would be similar to an at-grade option. The complexity of the work for this option is greater, but there would be some time savings expected by a reduction in traffic stages and minimizing interaction with public traffic. (out-performs)

10) Impact Of Slopes And Curves On Passenger Comfort

While both options would be designed to meet the standards for comfortable slopes and curves and their impacts on travel experience would be minimal. The impact on travel experience in the elevated option would not be significantly greater than the existing slopes and curves on Eglinton Avenue at this section of the corridor, or the experience of the LRT coming to a halt at each stop. (performs similarly)

HEALTHY NEIGHBOURHOODS

11) Impact On The Surrounding Neighbourhood
The elevated structure would have a major visual impact to the neighbourhood north and south of Eglinton, including adjacent residential towers in close proximity. There is risk of noise impacts along the north side of Eglinton. (under-performs)

12) Impacts On Streetscaping And The Public Realm
The elevated stop would have a high visual impact on the street and adjacent public spaces and generate shadows on lands adjacent to or below the stop. (under-performs)

13) Impact On Community Facilities And Services
Neither option creates significant impacts on community facilities or services. (performs similarly)

14) Impact On Natural Surveillance
The elevated stop would have less natural surveillance than an at-grade stop. (under-performs)

15) Construction Disruption To The Neighbourhood
The grade separation would cause greater disruption to the surrounding neighbourhood during construction due to increased vibration from pile-driving for the support structure and the increased duration of construction. Duration of construction would be similar for both options. (under-performs)

16) Impacts On Adjacent Properties
The elevated option would require more land as it is shifted north of Eglinton. This includes a long strip to accommodate a bridge over the Humber River to the east and over private property on the same parcel as the existing apartment building to the west and its underground garage near the stop. (under-performs)

SHAPING THE CITY

17) Impacts To Future Residential Development Potential
The grade separation may impact the development potential of lands to the north-west of the intersection. (under-performs)

PUBLIC HEALTH & ENVIRONMENT

18) Impacts On Esas, Parks, And The Natural Heritage System
The grade separation would have increased environmental impacts as the support structure is within the Humber River Natural Heritage System, several trees will need to be removed, and part of Scarlett Bridge Parkette will be lost. (under-performs)

19) Impacts On Heritage Or Archaeological Sites
Neither option impacts existing heritage properties or areas of archaeological potential. (performs similarly)

SUPPORTS GROWTH

20) Impacts To Future Employment Development Potential
Neither option would significantly impact future employment development. (performs similarly)

SUMMARY
While the elevated option's north-side alignment may result in reduced construction impacts and conflicts between cars and pedestrians, there would likely be significant impacts on adjacent properties and potential future development. While the need to build a new bridge across the Humber River for the grade separation creates complications, the EA Base Case may also require widening of the existing bridge. The potential impacts on the below-grade garage on the adjacent property, existing parkette, and visual impact of the guideway returning to the centreline by passing over the roadway are major negative impacts.

CONCLUSION
Assessed against Strategic Values, a grade separation at Scarlett Road generally under-performs compared to the at-grade option and is not preferred.

ROYAL YORK ROAD

Source: Google, 2017.

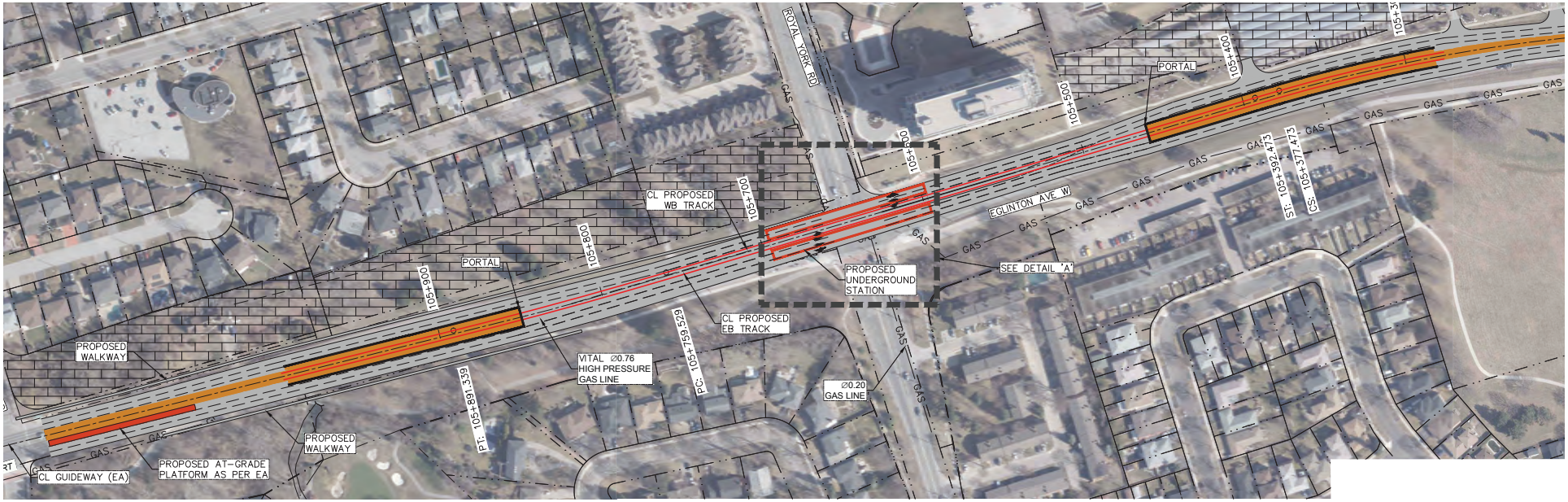
ROYAL YORK ROAD CONTEXT

The intersection of Royal York/Eglinton is surrounded by residential development on all sides, including apartment buildings of 12-15 storeys on the northeast corner. A recent planning application for a high density residential development has been submitted on the “Plant World” property. Mary Reid House sits on the northwest corner of the intersection and is listed on the Heritage Register.

The grade separation studied at Royal York/Eglinton is a below-grade stop in the middle of Eglinton Avenue, with side platforms. There are stop entrances at each corner of the intersection. Main entrance structures would be located kitty-corner to each other and align with existing connecting north-south bus stop locations (see Figure 14).

ROYAL YORK ROAD

UNDERGROUND / CENTRE OF ROADWAY / SIDE PLATFORMS



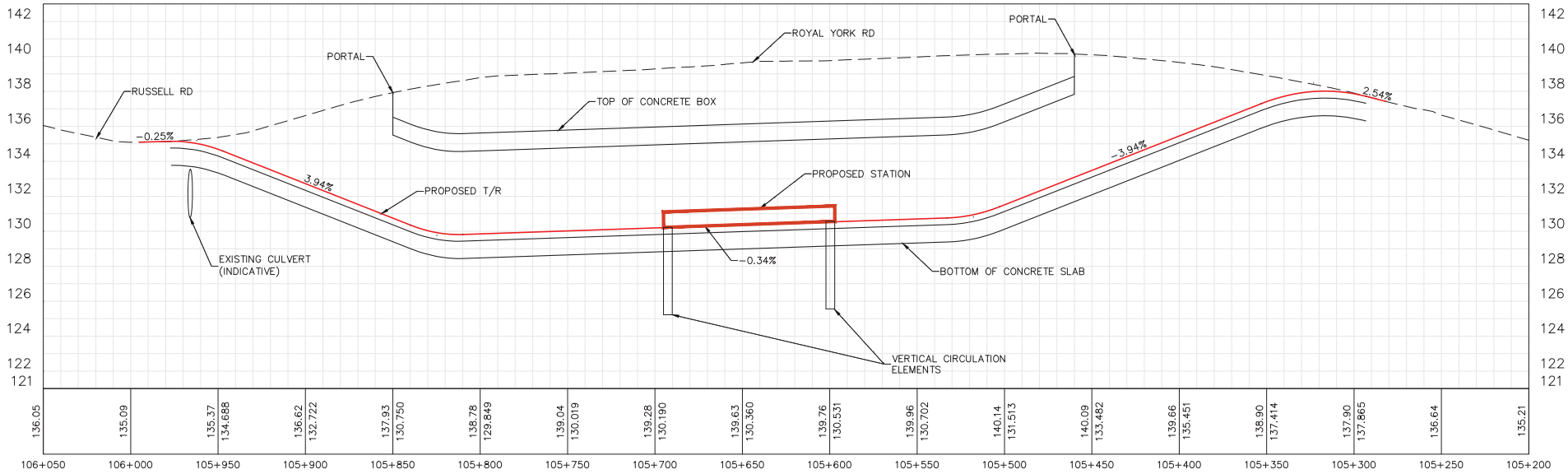


Figure 14: Plan and profile of the grade separation that was studied at Royal York/Eglinton.

ROYAL YORK ROAD

COMPARISON OF EVALUATED OPTIONS

Figure 15: Depiction of the at-grade base case stop looking north-west.

Figure 16: Depiction of what the studied grade separation might look like looking north-west.

ROYAL YORK ROAD

COMPARISON OF EVALUATED OPTIONS

Figure 17: Depiction of the at-grade base case stop looking north-east.

Figure 18: Depiction of what the studied grade separation might look like looking north-east.

ROYAL YORK ROAD GRADE SEPARATION

STAGE THREE: SUMMARY EVALUATION OF STRATEGIC VALUES

CHOICE

1) Creates Choices For Pedestrians

Both the grade separation and at-grade option provide direct connections to pedestrian infrastructure. (performs similarly)

2) Creates Choices For Cyclists

Both the grade separation and at-grade option provide direct access to the multi-use path along the south side of Eglinton. This is based on the assumption that the stops are designed to support access by cyclists. (performs similarly)

3) Ability To Connect A Future Jane LRT To The Mt Dennis MSF

Not applicable.

SOCIAL EQUITY

4) Provides Equal Access To Transit for All Users

Though both options are fully-accessible, the vertical transfer requirement of the grade separation would render the stop inaccessible for users with disabilities in the event that the elevator is out of service. (under-performs)

EXPERIENCE

5) Ease Of Access For All Users

There is a similar overall horizontal transfer distance between the options. The grade separation offers less ease of access as it requires a vertical transfer to access the stop.

The side platform configuration and assumption of only two elevators means that users requiring an elevator would need to cross the street to change directions. If an elevator goes out of service the platform it services would become inaccessible.

The below grade location and split platforms means that wayfinding would be less intuitive for all users.

Ease of access would be reduced for disabled users, people with strollers, and cyclists bringing a bike on the LRT. (under-performs)

6) Shelter From Weather Conditions

The below-grade stop would provide greater shelter from precipitation and likely improved shelter from wind and temperature conditions. The at-grade option is assumed to have shelter in line with the Eglinton Crosstown LRT (not fully-enclosed or heated). (out-performs)

7) Impacts On Auto/Pedestrian Conflicts

There is a reduced risk as fewer users would have to cross a street to access the stop as the entrances are located at the sidewalk as opposed to the middle of the roadway in the at-grade option. Though some users will have to cross the entire width of Eglinton to access the below-grade stop, all users in the at-grade option must cross traffic to access it. (out-performs)

8) Impacts On Driver Sightlines

Either option would be designed to meet visibility standards. The grade separation would allow for better visibility as the stop is located below the roadway and the entrances and portals are set back far enough as to not have an impact. This is in contrast to the at-grade stop in which visibility would be temporarily obstructed for drivers whenever an LRT vehicle was at the stop or pulling through the intersection, and where the shelter and guard rail in the middle of the roadway may impact visibility. (out-performs)

9) Construction Impacts On Traffic

Construction of the underground structure will result in significantly-greater disruption to traffic because the work is located beneath all of the active traffic lanes for all directions. The excavation will need to be completed in stages, and traffic will need to be temporarily routed around the construction areas, extending the construction duration. (under-performs)

10) Impact Of Slopes And Curves On Passenger Comfort

Both options would be designed to meet the standards for comfortable slopes and curves and their impacts on travel experience would be minimal.

The experience would be generally similar for passengers in both options as there is only a slight change in elevation in the grade separation and no horizontal shift. (performs similarly)

HEALTHY NEIGHBOURHOODS

11) Impact On The Surrounding Neighbourhood

The grade separation would have a somewhat increased impact on surrounding areas due to the proximity of entrances, though the residential developments do not front onto the intersection and are slightly offset from the entrances. There would be reduced impacts in the middle of the roadway due to the lack of LRT poles and wires. (performs similarly)

12) Impacts On Streetscaping And The Public Realm

The grade separation entrances create opportunities for place-making at the four corners of the intersection. However, the character of the street may be negatively impacted by the integration of the portal structure. (performs similarly)

13) Impact On Community Facilities And Services

Neither option creates significant impacts on community facilities or services. (performs similarly)

14) Impact On Natural Surveillance

The below-grade stop would have less natural surveillance than an at-grade stop. (under-performs)

15) Construction Disruption To The Neighbourhood

Construction of the grade separation would have a significantly greater impact on the surrounding neighbourhood due to dust from digging, potential utility disruption and noise over a longer period of time. (under-performs)

16) Impacts On Adjacent Properties

The below-grade option would likely require some land outside of the existing ROW for stop entrances. Though there is a reduction in needed road width by setting the LRT underground, the portal structure adds width to the roadway corridor. Overall the impacts are similar with both options but land-taking is more likely with the grade separation. (under-performs)

SHAPING THE CITY

17) Impacts To Future Residential Development Potential

The entrance for the below-grade stop may impact the residential development potential of a parcel at the north-west corner of the intersection, but as this is a heritage-designated property it is not expected to be the site of significant residential intensification. The development potential of other adjacent properties are not impacted, including the large parcels to the east of the intersection. The portal structure will not preclude a future signalized intersection to the east of Royal York. (performs similarly)

PUBLIC HEALTH & ENVIRONMENT

18) Impacts On Esas, Parks, And The Natural Heritage System

More trees would likely be lost to construct entrances in the below-grade option. (under-performs)

19) Impacts On Heritage Or Archaeological Sites

Mary Reid House is a heritage-designated property at 4200 Eglinton Avenue W to the northwest of the intersection, though it is separated from the intersection by 70m of forest and not significantly impacted by either option. While both options may result in impacts there is risk for more impact by development of the below-grade option than the at-grade option. (performs similarly)

SUPPORTS GROWTH

20) Impacts To Future Employment Development Potential

Neither option would significantly impact future employment development. (performs similarly)

SUMMARY

While the below-grade stop would minimize public realm impacts and impacts on driver visibility, the construction impacts from trenching the stop would be greater than those of an at-grade stop while access to the stop would be less intuitive and more challenging.

CONCLUSION

Assessed against Strategic Values, a grade separation at Royal York Road generally under-performs compared to the at-grade option and is not preferred.

ISLINGTON AVENUE

Source: Google, 2017.

ISLINGTON AVENUE CONTEXT

The intersection of Islington/Eglinton is comprised primarily of low-rise residential development. Richview Collegiate Institute is located on the southwest corner and a church occupies the northeast corner of the intersection.

The grade separation studied at Islington/Eglinton is an elevated stop in the centre of Eglinton Avenue, straddling Islington Avenue and making use of side platforms. Elevated walkways lead passengers from the stop platforms to entrances at each corner (see Figure 19).

ISLINGTON AVENUE

ELEVATED, STRADDLING ISLINGTON / CENTRE OF ROADWAY / SIDE PLATFORMS

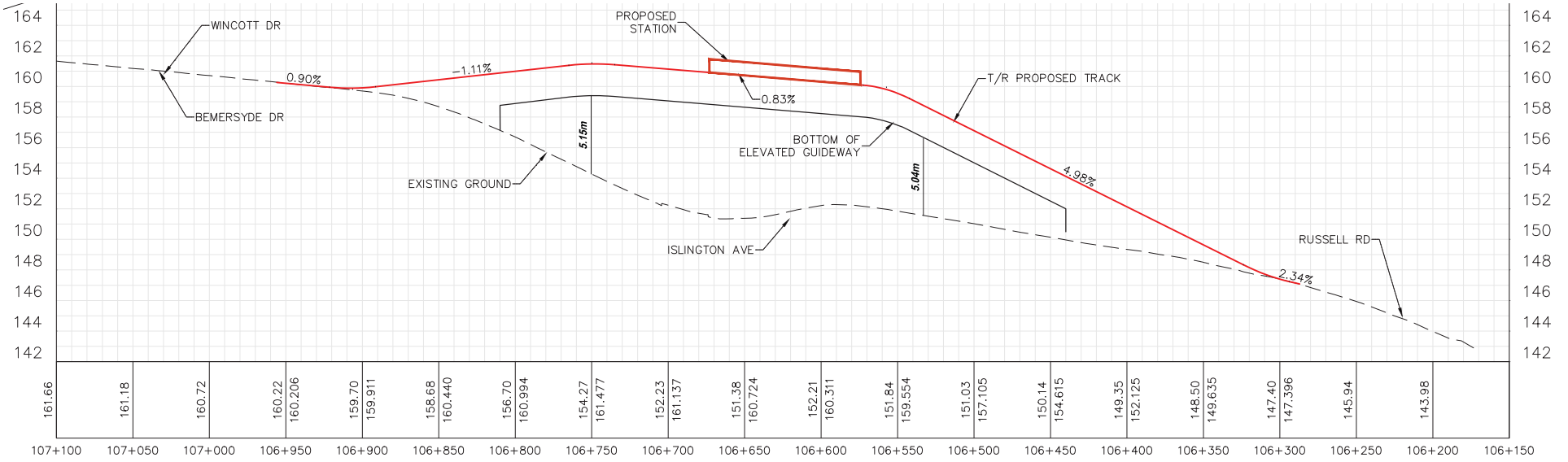


Figure 19: Plan and profile of the grade separation that was studied at Islington/Eglinton.

ISLINGTON AVENUE

COMPARISON OF EVALUATED OPTIONS

Figure 20: Depiction of the base case at-grade stop looking south-west.

Figure 21: Depiction of what the studied grade separation might look like looking south-west.

ISLINGTON AVENUE

COMPARISON OF EVALUATED OPTIONS

Figure 22: Depiction of the base case at-grade stop looking north-west.

Figure 23: Depiction of what the studied grade separation might look like looking north-west.

ISLINGTON AVENUE GRADE SEPARATION

STAGE THREE: SUMMARY EVALUATION OF STRATEGIC VALUES

CHOICE

1) Creates Choices For Pedestrians

Both the grade separation and at-grade option provide direct connections to pedestrian infrastructure. (performs similarly)

2) Creates Choices For Cyclists

Both the grade separation and at-grade option provide direct access to the multi-use path along the south side of Eglinton. This is based on the assumption that the stops are designed to support access by cyclists. (performs similarly)

3) Ability To Connect A Future Jane LRT To The Mt Dennis MSF

Not applicable.

SOCIAL EQUITY

4) Provides Equal Access To Transit for All Users

Though both options are fully-accessible, the vertical transfer requirement of the grade separation would render the stop inaccessible for users with disabilities in the event that the elevator is out of service. (under-performs)

EXPERIENCE

5) Ease Of Access For All Users

There is a similar overall horizontal transfer distance between the options. The grade separation offers less ease of access as it requires a vertical transfer to access the stop.

The side platform configuration and assumption of only two elevators means that users requiring an elevator would need to cross the street to change directions. If an elevator goes out of service the platform it services would become inaccessible.

Passive way-finding may be less intuitive due to the split platform configuration. Ease of access would be reduced for disabled users, people with strollers, and cyclists bringing a bike on the LRT. (under-performs)

6) Shelter From Weather Conditions

The elevated stop would likely have increased wind impacts for users waiting at the platform. The entrances to the stop would provide some shelter but this would not extend to the platforms. The at-grade option is assumed to have shelter in line with the Eglinton Crosstown LRT (not fully-enclosed or heated). (performs similarly)

7) Impacts On Auto/Pedestrian Conflicts

There is a reduced risk as fewer users would have to cross a street to access the stop as the entrances are located at the sidewalk as opposed to the middle of the roadway in the at-grade option. Though some users will have to cross the entire width of Eglinton to access the elevated stop, all users in the at-grade option must cross traffic to access it. (out-performs)

8) Impacts On Driver Sightlines

It should be noted that either option would be safely designed to meet visibility standards. The grade separation would cause some sightline impacts for drivers approaching from all directions due to the support structure and vertical transfers on each corner. (under-performs)

9) Construction Impacts On Traffic

Construction of an elevated structure over the top of the roadway corridor will result in more disruption because the work is located in the centre of the roadway and overhead causing direct impacts on several different levels. Construction would require 1-2 more seasons for the grade separation. (under-performs)

10) Impact Of Slopes And Curves On Passenger Comfort

Both options would be designed to meet the standards for comfortable slopes and curves and their impacts on travel experience would be minimal.

The experience would be generally similar for passengers in both options as there is only a slight change in elevation in the grade separation and no horizontal shift. (performs similarly)

HEALTHY NEIGHBOURHOODS

11) Impact On The Surrounding Neighbourhood
The elevated structure would have a major visual impact on neighbourhoods to the north and south, including the adjacent low-scale residential neighbourhood and Richview Collegiate to the southwest. (under-performs)

12) Impacts On Streetscaping And The Public Realm
The elevated stop would have a high visual impact on the street and adjacent public spaces and generate shadows on lands adjacent to or below the stop. (under-performs)

13) Impact On Community Facilities And Services
The grade separation would have negative visual impacts on Richview Collegiate Institute on the south-west corner of the intersection. (under-performs)

14) Impact On Natural Surveillance
The elevated stop would have less natural surveillance than an at-grade stop. (under-performs)

15) Construction Disruption To The Neighbourhood
The grade separation would cause greater disruption to the surrounding neighbourhood during construction due to increased vibration from pile-driving for the support structure and the increased duration of construction. (under-performs)

16) Impacts On Adjacent Properties
The elevated structure would have increased requirements for land outside of the existing ROW. It would not allow the road to narrow due to the support structure in the median. Beyond the pavement limits at the intersection, the entrances would likely extend beyond the existing ROW on the north side of Eglinton. Beyond the intersection, the transition area along the LRT guideway where it elevates to the stop would add width that would expand the roadway corridor needs slightly. (under-performs)

SHAPING THE CITY

17) Impacts To Future Residential Development Potential
The entrances for the elevated stop may impact the residential development potential of parcels at the north-west and north-east corners of the intersection. (under-performs)

PUBLIC HEALTH & ENVIRONMENT

18) Impacts On Esas, Parks, And The Natural Heritage System
More trees would likely be lost to construct entrances in the elevated option. (under-performs)

19) Impacts On Heritage Or Archaeological Sites
The intersection is an area of archaeological potential. While the support structure for the elevated option pose an increased risk, both options may result in impacts on these potential resources. (performs similarly)

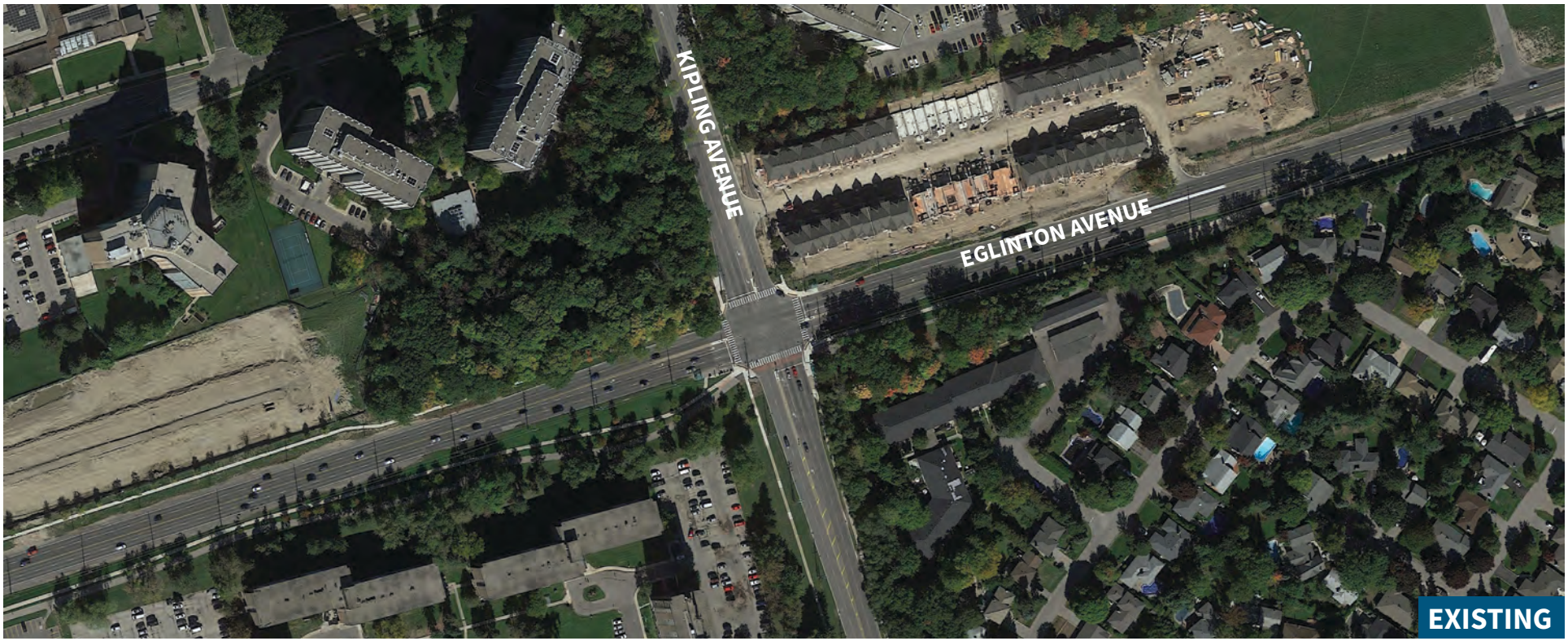
SUPPORTS GROWTH

20) Impacts To Future Employment Development Potential
Neither option would significantly impact future employment development. (performs similarly)

SUMMARY
The elevated stop and connecting walkways have significant negative impacts on the experience of the intersection for most users. This includes the visitor experience to the adjacent Richview Collegiate. The large structure will obscure sight-lines, require Eglinton to be widened, and cast shadow on all corners of the intersection.

CONCLUSION
Assessed against Strategic Values, a grade separation at Islington Avenue significantly under-performs compared to the at-grade option and is not preferred.

KIPLING AVENUE



Source: Google, 2017.

KIPLING AVENUE CONTEXT

The intersection of Kipling/Eglinton has seen recent residential development on the northeast and northwest corners which will limit the space available for a grade separation. The northwest corner of the intersection is a preserved woodlot and the southeast corner has green space maintained as well.

The grade separation studied at Kipling/Eglinton is a below-grade stop in the middle of Eglinton Avenue, with side platforms. There are stop entrances at each corner of the intersection (see Figure 24).

KIPLING AVENUE

UNDERGROUND / CENTRE OF ROADWAY / SIDE PLATFORMS

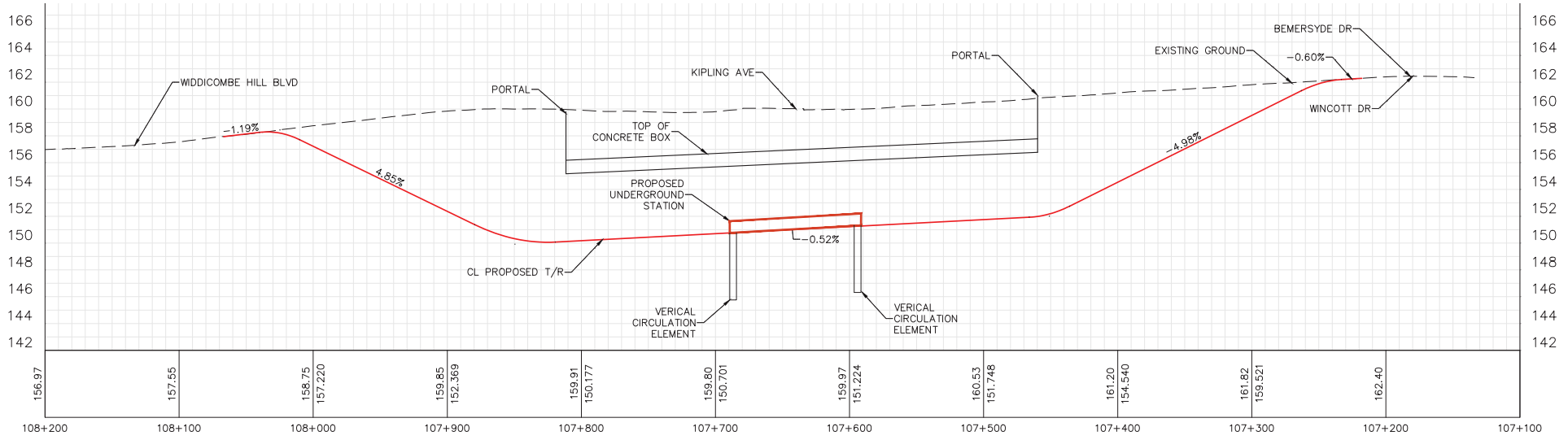


Figure 24: Plan and profile of the grade separation that was studied at Kipling/Eglinton.

KIPLING AVENUE

COMPARISON OF EVALUATED OPTIONS

Figure 25: Depiction of the base case at-grade stop looking north-west.

Figure 26: Depiction of what the studied grade separation might look like looking north-west.

KIPLING AVENUE

COMPARISON OF EVALUATED OPTIONS

Figure 27: Depiction of the base case at-grade stop looking north-east.

Figure 28: Depiction of what the studied grade separation might look like looking north-east.

KIPLING AVENUE GRADE SEPARATION

STAGE THREE: SUMMARY EVALUATION OF STRATEGIC VALUES

CHOICE

1) Creates Choices For Pedestrians

Both the grade separation and at-grade option provide direct connections to pedestrian infrastructure. (performs similarly)

2) Creates Choices For Cyclists

Both the grade separation and at-grade option provide direct access to the multi-use path along the south side of Eglinton. This is based on the assumption that the stops are designed to support access by cyclists. (performs similarly)

3) Ability To Connect A Future Jane LRT To The Mt Dennis MSF

Not applicable.

SOCIAL EQUITY

4) Provides Equal Access To Transit for All Users

Though both options are fully-accessible, the vertical transfer requirement of the grade separation would render the stop inaccessible for users with disabilities in the event that the elevator is out of service. (under-performs)

EXPERIENCE

5) Ease Of Access For All Users

There is a similar overall horizontal transfer distance between the options. The grade separation offers less ease of access as it requires a vertical transfer to access the stop.

The side platform configuration and assumption of only two elevators means that users requiring an elevator would need to cross the street to change directions. If an elevator goes out of service the platform it services would become inaccessible.

The below grade location and split platforms means that wayfinding would be less intuitive for all users,

Ease of access would be reduced for disabled users, people with strollers, and cyclists bringing a bike on the LRT. (under-performs)

6) Shelter From Weather Conditions

The below-grade stop would provide greater shelter from precipitation and likely improved shelter from wind and temperature conditions. The at-grade option is assumed to have shelter in line with the Eglinton Crosstown LRT (not fully-enclosed or heated). (out-performs)

7) Impacts On Auto/Pedestrian Conflicts

There is a reduced risk as fewer users would have to cross a street to access the stop as the entrances are located at the sidewalk as opposed to the middle of the roadway in the at-grade option. Though some users will have to cross the entire width of Eglinton to access the below-grade stop, all users in the at-grade option must cross traffic to access it. (out-performs)

8) Impacts On Driver Sightlines

Either option would be designed to meet visibility standards. The grade separation would allow for better visibility as the stop is located below the roadway and the entrances and portals are set back far enough as to not have an impact. This is in contrast to the at-grade stop in which visibility would be temporarily obstructed for drivers whenever an LRT vehicle was at the stop or pulling through the intersection, and where the shelter and guard rail in the middle of the roadway may impact visibility. (out-performs)

9) Construction Impacts On Traffic

Construction of the underground structure will result in significantly-greater disruption to traffic because the work is located beneath all of the active traffic lanes for all directions. The excavation will need to be completed in stages, and traffic will need to be temporarily routed around the construction areas, extending the construction duration. (under-performs)

10) Impact Of Slopes And Curves On Passenger Comfort

Both options would be designed to meet the standards for comfortable slopes and curves and their impacts on travel experience would be minimal.

The experience would be generally similar for passengers in both options as there is only a slight change in elevation in the grade separation and no horizontal shift. (performs similarly)

HEALTHY NEIGHBOURHOODS

11) Impact On The Surrounding Neighbourhood

The grade separation would have somewhat reduced impacts in the middle of the roadway due to the lack of LRT poles and wires. However, it would have a somewhat increased visual impact due to the proximity of the entrances to residential uses, including townhouses recently constructed within metres of the planned north-east entrance. (under-performs)

12) Impacts On Streetscaping And The Public Realm

The grade separation entrances create opportunities for place-making at the four corners of the intersection. However, the character of the street may be negatively impacted by the integration of the portal structure. (performs similarly)

13) Impact On Community Facilities And Services

Neither option creates significant impacts on community facilities or services. (performs similarly)

14) Impact On Natural Surveillance

The below-grade stop would have less natural surveillance than an at-grade stop. (under-performs)

15) Construction Disruption To The Neighbourhood

Construction of the grade separation would have a significantly greater impact on the surrounding neighbourhood due to dust from digging, potential utility disruption and noise over a longer period of time. (under-performs)

16) Impacts On Adjacent Properties

The below-grade option would likely require some land outside of the existing ROW for stop entrances. Though there is a reduction in needed road width by setting the LRT underground, the portal structure adds width to the roadway corridor. Overall the impacts are similar with both options but land-taking is more likely with the grade separation. (under-performs)

SHAPING THE CITY

17) Impacts To Future Residential Development Potential

Neither option would significantly impact future residential development. (performs similarly)

PUBLIC HEALTH & ENVIRONMENT

18) Impacts On Esas, Parks, And The Natural Heritage System

More trees would likely be lost to construct entrances in the below-grade option. (under-performs)

19) Impacts On Heritage Or Archaeological Sites

All but the north-east corner are an area of archaeological potential. There may be greater risk of impact by development for the below-grade option than the at-grade option, though either option could potentially impact areas of archaeological potential. (performs similarly)

SUPPORTS GROWTH

20) Impacts To Future Employment Development Potential

Neither option would significantly impact future employment development. (performs similarly)

SUMMARY

While the below-grade stop would minimize public realm impacts and impacts on driver visibility, the construction impacts from digging down would be greater than those of an at-grade stop. There are also increased impacts due to the proximity of the north-east entrance a recently-completed townhouse development, and reduced ease of access compared to an at-grade stop.

CONCLUSION

Assessed against Strategic Values, a grade separation at Kipling Avenue generally under-performs compared to the at-grade option and is not preferred.

MARTIN GROVE ROAD

Source: Google, 2017.

MARTIN GROVE ROAD CONTEXT

The intersection of Martin Grove/Eglinton features a large amount of green space including Richview Park and reservoir to the North East and the Martingrove Collegiate Institute to the South-East of the intersection. There is also a gas feeder stop, a hydro corridor and the Mimico Creek to the west that has an impact on elevated grade separation options.

The grade separation studied at Martin Grove/Eglinton is a below-grade stop in the middle of Eglinton Avenue, with side platforms. There are stop entrances at each corner of the intersection (see Figure 29).

MARTIN GROVE ROAD

UNDERGROUND / CENTRE OF ROADWAY / SIDE PLATFORMS

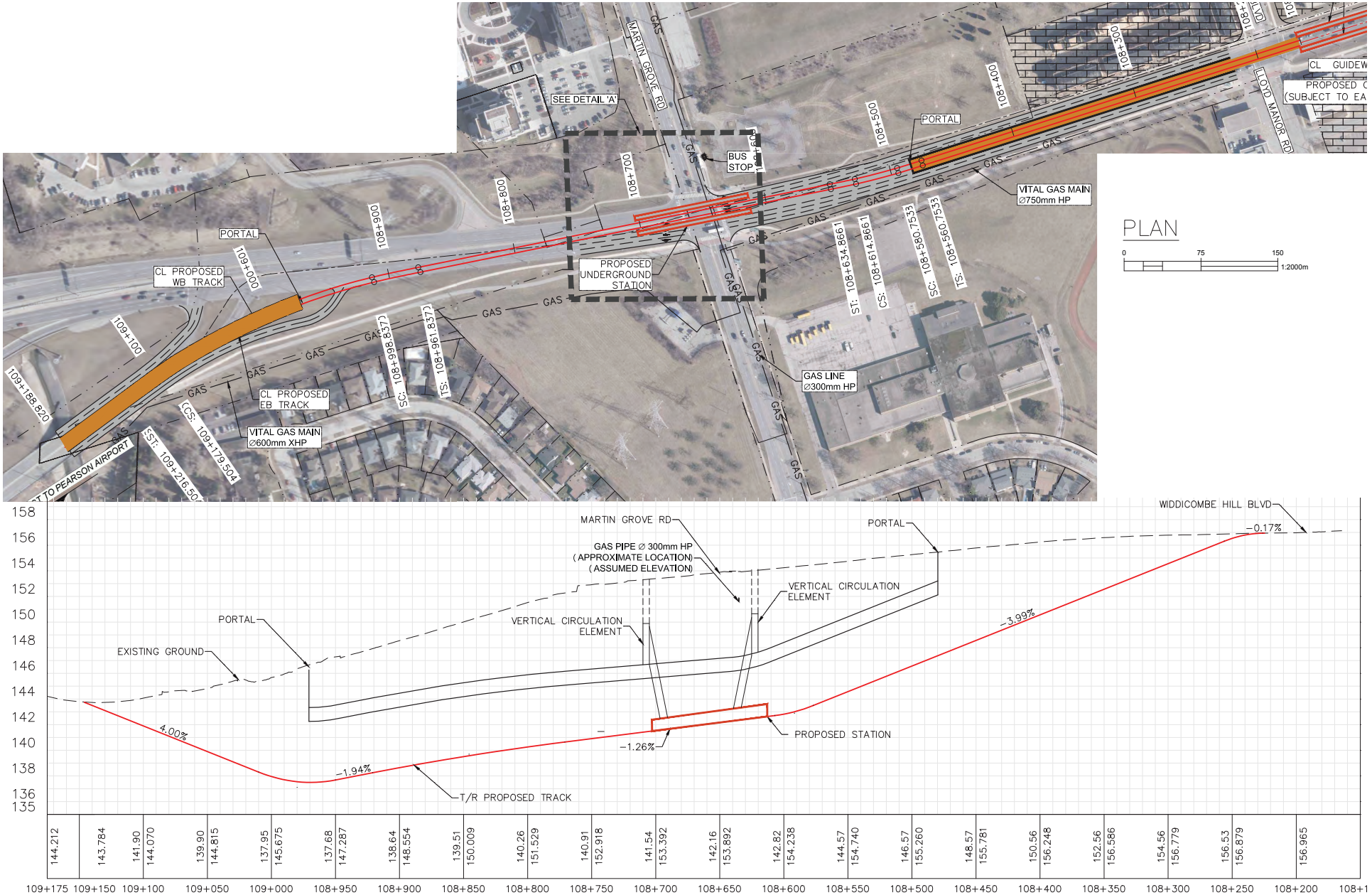


Figure 29: Plan and profile of the grade separation that was studied at Martin Grove/Eglinton.

MARTIN GROVE ROAD

COMPARISON OF EVALUATED OPTIONS

Figure 30: Depiction of the base case at-grade stop looking east.

Figure 31: Depiction of what the studied grade separation might look like looking east.

MARTIN GROVE ROAD

COMPARISON OF EVALUATED OPTIONS

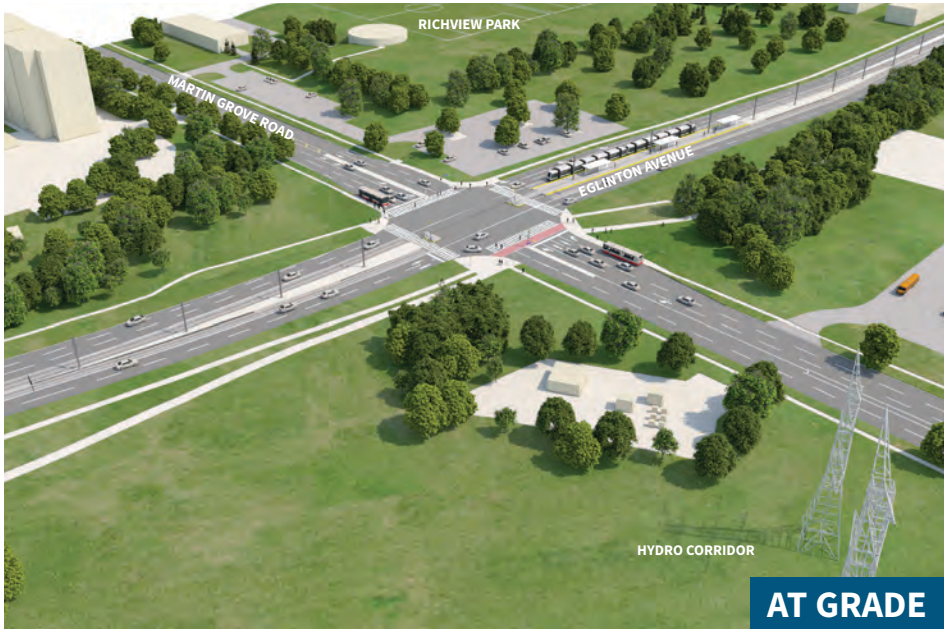


Figure 32: Depiction of the base case at-grade stop looking north-east.

Figure 33: Depiction of what the studied grade separation might look like looking north-east.

MARTIN GROVE ROAD GRADE SEPARATION

STAGE THREE: SUMMARY EVALUATION OF STRATEGIC VALUES

CHOICE

1) Creates Choices For Pedestrians

Both the grade separation and at-grade option provide direct connections to pedestrian infrastructure. (performs similarly)

2) Creates Choices For Cyclists

Both the grade separation and at-grade option provide direct access to the multi-use path along the south side of Eglinton. This is based on the assumption that the stops are designed to support access by cyclists. (performs similarly)

3) Ability To Connect A Future Jane LRT To The Mt Dennis MSF

Not applicable.

SOCIAL EQUITY

4) Provides Equal Access To Transit for All Users

Though both options are fully-accessible, the vertical transfer requirement of the grade separation would render the stop inaccessible for users with disabilities in the event that the elevator is out of service. (under-performs)

EXPERIENCE

5) Ease Of Access For All Users

There is a similar overall horizontal transfer distance between the options. The grade separation offers less ease of access as it requires a vertical transfer to access the stop.

The side platform configuration and assumption of only two elevators means that users requiring an elevator would need to cross the street to change directions. If an elevator goes out of service the platform it services would become inaccessible.

The below grade location and split platforms means that wayfinding would be less intuitive for all users,

Ease of access would be reduced for disabled users, people with strollers, and cyclists bringing a bike on the LRT. (under-performs)

6) Shelter From Weather Conditions

The below-grade stop would provide greater shelter from precipitation and likely improved shelter from wind and temperature conditions. The at-grade option is assumed to have shelter in line with the Eglinton Crosstown LRT (not fully-enclosed or heated). (out-performs)

7) Impacts On Auto/Pedestrian Conflicts

There is a reduced risk as fewer users would have to cross a street to access the stop as the entrances are located at the sidewalk as opposed to the middle of the roadway in the at-grade option. Though some users will have to cross the entire width of Eglinton to access the below-grade stop, all users in the at-grade option must cross traffic to access it. (out-performs)

8) Impacts On Driver Sightlines

Either option would be designed to meet visibility standards. The grade separation would allow for better visibility as the stop is located below the roadway and the entrances and portals are set back far enough as to not have an impact. This is in contrast to the at-grade stop in which visibility would be temporarily obstructed for drivers whenever an LRT vehicle was at the stop or pulling through the intersection, and where the shelter and guard rail in the middle of the roadway may impact visibility. (out-performs)

9) Construction Impacts On Traffic

Construction of the underground structure will result in significantly-greater disruption to traffic because the work is located beneath all of the active traffic lanes for all directions. The excavation will need to be completed in stages, and traffic will need to be temporarily routed around the construction areas, extending the construction duration. (under-performs)

10) Impact Of Slopes And Curves On Passenger Comfort

Both options would be designed to meet the standards for comfortable slopes and curves and their impacts on travel experience would be minimal.
The experience would be generally similar for passengers in both options as there is only a slight change in elevation in the grade separation and no horizontal shift. (performs similarly)

HEALTHY NEIGHBOURHOODS

11) Impact On The Surrounding Neighbourhood

There is little residential development around the intersection, though the east portal would directly front existing townhomes. This minor visual intrusion is balanced by the removal of overhead wires and poles as the LRT goes below grade. (performs similarly)

12) Impacts On Streetscaping And The Public Realm

The grade separation entrances create opportunities for place-making at the four corners of the intersection. However, the character of the street may be negatively impacted by the integration of the portal structure. (performs similar)

13) Impact On Community Facilities And Services

Neither option creates significant impacts on community facilities or services. (performs similar)

14) Impact On Natural Surveillance

The below-grade stop would have less natural surveillance than an at-grade stop. (under-performs)

15) Construction Disruption To The Neighbourhood

Construction of the grade separation would have a significantly greater impact on the surrounding neighbourhood due to dust from digging, potential utility disruption and noise over a longer period of time. (under-performs)

16) Impacts On Adjacent Properties

The below-grade option would likely require some land outside of the existing ROW for stop entrances. Though there is a reduction in needed road width by setting the LRT underground, the portal structure adds width to the roadway corridor. Overall the impacts are similar with both options and while it appears that much of the surrounding land is publicly-owned, land-taking is more likely with the grade separation. (under-performs)

SHAPING THE CITY

17) Impacts To Future Residential Development Potential

Neither option would significantly impact future residential development. (performs similarly)

PUBLIC HEALTH & ENVIRONMENT

18) Impacts On Esas, Parks, And The Natural Heritage System

Similar impacts for both options. No impacted ESAs, parks, or NHSs, including Mimico Creek to the west of the intersection. Any redesign of the portal that moves it further west may lead to conflicts with the flood plain. (performs similarly)

19) Impacts On Heritage Or Archaeological Sites

The south side is an area of archaeological potential. While both options may result in impacts there is risk for more impact by development of the below-grade option than the at-grade option. (performs similarly)

SUPPORTS GROWTH

20) Impacts To Future Employment Development Potential

Neither option would significantly impact future employment development. (performs similarly)

SUMMARY

The Martin Grove grade separation option has minimal impacts due to the amount of space around the intersection. However, only impacts on driver sightlines and auto-pedestrian conflicts are improved by a grade separation. Similar to the other grade separations, it would have reduced ease of access for most users and increased construction impacts.

CONCLUSION

Assessed against Strategic Values, a grade separation at Martin Grove Road generally under-performs compared to the at-grade option and is not preferred.

SUMMARY OF STAGE THREE

The following chart summarizes the results of the Stage Three evaluation for each grade separation according to the 20 evaluation criteria.

Table 1: Summary of Stage 3 evaluation of grade separations against at-grade options.

Criteria	Jane	Scarlett	Royal York	Islington	Kipling	Martin Grove
CHOICE						
1 Pedestrian choice	=	=	=	=	=	=
2 Cyclist choice	=	=	=	=	=	=
3 Connection to Jane LRT	–					
SOCIAL EQUITY						
4 Equal Access	=	–	–	–	–	–
EXPERIENCE						
5 Ease of access	–	–	–	–	–	–
6 Shelter from weather	=	=	+	=	+	+
7 Auto-pedestrian conflicts	+	+	+	+	+	+
8 Driver sightlines	–	–	+	–	+	+
9 Construction impacts on traffic	+	+	–	–	–	–
10 Passenger comfort	=	=	=	=	=	=
HEALTHY NEIGHBOURHOODS						
11 Surrounding neighbourhood	=	–	=	–	–	=
12 Public realm	–	–	=	–	=	=
13 Community infrastructure	=	=	=	–	=	=
14 Natural Surveillance	–	–	–	–	–	–
15 Construction disruption	–	–	–	–	–	–
16 Land-taking	–	–	–	–	–	–
SHAPING THE CITY						
17 Future residential development	=	–	=	–	=	=
PUBLIC HEALTH & ENVIRONMENT						
18 ESAs, parks, NHS	–	–	–	–	–	=
19 Heritage / archaeology	=	=	=	=	=	=
SUPPORTS GROWTH						
20 Future employment development	=	=	=	=	=	=

+ Out-performs compared to the EA Base Case (+)

= Performs similar to the EA Base Case (=)

– Under-performs compared to the EA Base Case (–)

CONCLUSION

The evaluation of the six grade separations through the Stage Two (affordability) and Stage Three (strategic values) assessments has identified the relative performance of each of the grade separation against the EA base case.

The evaluation found that none of the six potential grade separations performed well from either the affordability or strategic values perspectives against the EA base case. Therefore, none of the grade separations are preferred to the EA base case.

STAGE 2 & 3 SUMMARY

JANE STREET	GRADE SEPARATION NOT PREFERRED
SCARLETT ROAD	GRADE SEPARATION NOT PREFERRED
ROYAL YORK ROAD	GRADE SEPARATION NOT PREFERRED
ISLINGTON AVENUE	GRADE SEPARATION NOT PREFERRED
KIPLING AVENUE	GRADE SEPARATION NOT PREFERRED
MARTIN GROVE ROAD	GRADE SEPARATION NOT PREFERRED

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