

Transit Priority Measures to Support Scarborough SRT Bus Replacement

Date: May 1, 2023

To: Executive Committee

From: General Manager, Transportation Services

Wards: Ward 21 – Scarborough Centre

SUMMARY

The Line 3 Scarborough Rapid Transit (SRT) has surpassed its life expectancy and is planned to be decommissioned by Q4 2023. The Scarborough Subway Extension (SSE) will ultimately replace the service in 2030. An interim bus replacement plan, to service the SRT's 35,000 daily customers with on street express buses at a combined frequency of up to 70 buses per hour, was developed and subsequently approved by the Toronto Transit Commission (TTC) board in April 2022, including proposals to install transit priority measures on the road network. Transportation Services is now requesting approval, on behalf of the TTC, to install transit priority measures (TPMs) to support the on-street express bus replacement service.

The approved route connects customers between Kennedy Station and Scarborough Town Centre Station with intermediate stops at Kennedy Road, Ellesmere Road and Midland Avenue.

A suite of transit priority measures are proposed to support the bus replacement service plan: (1) priority bus lanes on Kennedy Road, Ellesmere Road, Midland Avenue and Eglinton Avenue East designed as a one-way loop routing between Kennedy Station and Scarborough Town Centre Station; (2) queue-jump lane on southbound Brimley Road at Ellesmere Road; (3) left-turn lanes exclusive to TTC buses; (4) transit signal priority; and (5) stopping and turning prohibitions.

The City and TTC will collect transit and traffic data to monitor bus operations and make necessary adjustments to improve transit service and to generally reduce impacts on road users. The monitoring program will inform decisions on the viability of retaining the TPMs after the SSE is operational as part of the long-term vision for surface transit in Scarborough envisaged by the emerging RapidTO program.

The bus replacement service will continue operating on-street until either the existing SRT right-of-way between Kennedy Station and Ellesmere Station is converted to a dedicated busway (subject to funding availability) or the SSE begins service, whichever occurs first.

As TTC operates bus service on Kennedy Road, Ellesmere Road, Brimley Road, Triton Road, Midland Avenue and Eglinton Avenue East, City Council approval of this report is required.

RECOMMENDATIONS

The General Manager, Transportation Services recommends that:

1. City Council authorize the implementation of priority bus lanes on the following roadway sections:

- a. Northbound Kennedy Road from Eglinton Avenue East to Ellesmere Road;
- b. Southbound Midland Avenue from Ellesmere Road to Lord Roberts Drive;
- c. Eastbound Ellesmere Road from Kennedy Road to a point 75 metres east of Midland Avenue;
- d. Westbound Ellesmere Road from Brimley Road to a point 100 metres west of Midland Avenue; and
- e. Westbound Eglinton Avenue East from a point 300 metres west of Midland Avenue to Kennedy Station.¹

2. City Council authorize the alteration of the intersections of Brimley Road at Ellesmere Road, Golden Gate Court/Omni Drive and Triton Road. City Council:

- a. Designate the newly created southbound lane at Brimley Road and Ellesmere Road as a right-turn lane with an exception for public transit vehicles only;
- b. Designate the newly created southbound lane at Brimley Road and Golden Gate Court/Omni Drive as a right-turn lane with an exception for public transit vehicles only; and
- c. Designate the newly created northbound lane at Brimley Road and Triton Road as a right-turn lane only.

3. City Council authorize the alteration of the intersections of Triton Road at Brimley Road and Borough Drive. City Council:

¹ This section of roadway will be impacted by the Scarborough Subway Extension (SSE) tunnel works. As part of the coordination with Metrolinx, two general purpose traffic lanes will be maintained at all times, so in the event of a lane closure to support construction activities the bus lane would be dropped.

- a. Designate one westbound left-turn lane reserved for public transit vehicles only;
 - b. Designate one westbound left-turn lane for vehicles;
 - c. Designate one westbound right-turn lane for vehicles; and
 - d. Designate one eastbound right-turn lane for vehicles, public transit vehicles excepted.
4. City Council designate the existing eastbound left-turn lane at Ellesmere Road and Brimley Road as a left-turn lane reserved for public transit vehicles only.
5. City Council authorize the installation of traffic control signals at the intersection of Ellesmere Road and Borough Approach West. City Council:
- a. Prohibit southbound right turns on a red signal at all times.
6. City Council enact the amendments to traffic and parking regulations associated with Recommendations 1 to 5 above, and as described in Attachment 1 – Amendments to Traffic and Parking Regulations.
7. City Council direct the General Manager, Transportation Services, in consultation with the Chief Executive Officer, Toronto Transit Commission, to collect traffic and transit data, monitor the performance of the bus replacement service plan, and publish the results on a quarterly basis for the first year of its operation, subject to data availability.
8. City Council direct the General Manager, Transportation Services, in consultation with the Chief Executive Officer, Toronto Transit Commission, to report back to Council at an appropriate time with recommendations to retain the transit priority measures or reinstate to original roadway conditions once the existing SRT right-of-way between Kennedy Station and Ellesmere Station is converted to a dedicated busway or when the SSE begins service.

FINANCIAL IMPACT

This report seeks approval to implement transit priority measures to support effective and efficient operation of the on-street express bus replacement service following cessation of the SRT service and during construction of the Scarborough Subway Extension (SSE). The estimated capital funding required to implement the transit priority measures is expected to be \$7.35 million and is funded as part of the TTC's 2023 to 2032 Capital Budget and Plan.

The Chief Financial Officer and Treasurer has reviewed this report and agrees with the financial implications as contained in the Financial Impact Section.

EQUITY IMPACT STATEMENT

The TTC is committed to providing accessible and inclusive service across the network. The bus replacement service for Line 3 Scarborough Rapid Transit will operate with accessible buses and meet all applicable Accessibility for Ontarians with Disabilities Act (AODA) and TTC accessible bus stop and vehicle requirements. The Kennedy and Scarborough Centre stations will continue to be served by buses, including Wheel-Trans, which are already accessible with elevators and other features. The bus replacement service will operate until the fully accessible Scarborough Subway Extension opens and beyond, subject to further analysis and funding availability. Line 3 SRT and connecting bus routes serve numerous Neighbourhood Improvements Areas (NIAs) and equity-deserving groups in Scarborough. The bus replacement service will maintain frequent service to NIAs and continue to serve equity-deserving groups. The on-street express bus service will make it more convenient to customers by extending existing bus routes beyond Scarborough Centre Station to Kennedy Station. It will provide more direct service and minimize transfer for most customers.

The recommendations within this report have the potential to directly benefit four of eight Neighbourhood Improvement Areas within Scarborough through improved bus services.

DECISION HISTORY

At its February 10, 2021 TTC Board meeting, TTC staff presented options to maintain service after decommissioning of Line 3 Scarborough Rapid Transit. The TTC board approved the recommendation to study the on-street bus replacement plan in consultation with the City and TTC customers. A further member motion was considered to convert the existing SRT right-of-way to a dedicated busway as a replacement service option. TTC staff were directed to report their findings back by Q3 2021.

https://ttc-cdn.azureedge.net/-/media/Project/TTC/DevProto/Documents/Home/Public-Meetings/Board/2021/February_10/Reports/2051_9_SRT_Life_Extension_Project_Options_Analysis_Decision.pdf?rev=1fef772576ee4ab5940c96147a9c3bf8&hash=20513C28034F32CE11AC910C97BE16C8

At its September 15, 2021 meeting, TTC Board approved the study of the on-street bus replacement plan and SRT busway options.

https://ttc-cdn.azureedge.net/-/media/Project/TTC/DevProto/Documents/Home/Public-Meetings/Board/2021/September_15/Decisions/2057_5_Line_3_Bus_Replacement_Study_Decision.pdf?rev=f2aa99dc6e8c42478d64874eead973fe&hash=22B52E22A7869A963B1D3F6FCDCDCABC

At its April 14, 2022 meeting, The TTC Board adopted the proposed on-street bus replacement plan while directing TTC staff to continue advancing the SRT busway design.

https://ttc-cdn.azureedge.net/-/media/Project/TTC/DevProto/Documents/Home/Public-Meetings/Board/2022/April-14/Decisions/2063_8_Line_3_Bus_Replacement_Study_Final_Recommendations.pdf?rev=c00986ca0a464e848a3254915295b65d&hash=449CC3AAA1DED3E38F3D7E5947A7EED5

COMMENTS

Background

The Line 3 Scarborough Rapid Transit (SRT) has surpassed its life expectancy and is planned to be decommissioned by Q4 2023. The Scarborough Subway Extension (SSE) will ultimately replace the service in 2030. Therefore, as directed by the TTC Board on February 10, 2021, an interim bus service plan was developed to operate on-street until the SSE is completed and operational in 2030, as anticipated by Metrolinx. The TTC Board approved the bus replacement plan on April 14, 2022, including proposals to install transit priority measures on the road network.

After a detailed technical review of various options and obtaining feedback from public consultations, the TTC Board approved (during the April 14, 2022 meeting) pursuing the conversion of parts of the existing SRT right-of-way between Ellesmere and Kennedy stations to a dedicated busway, subject to funding availability. The route would depart from Kennedy Station and travel via the dedicated busway to Ellesmere Road and then along Ellesmere Road to Scarborough Town Centre Station, as shown in Figure 1.

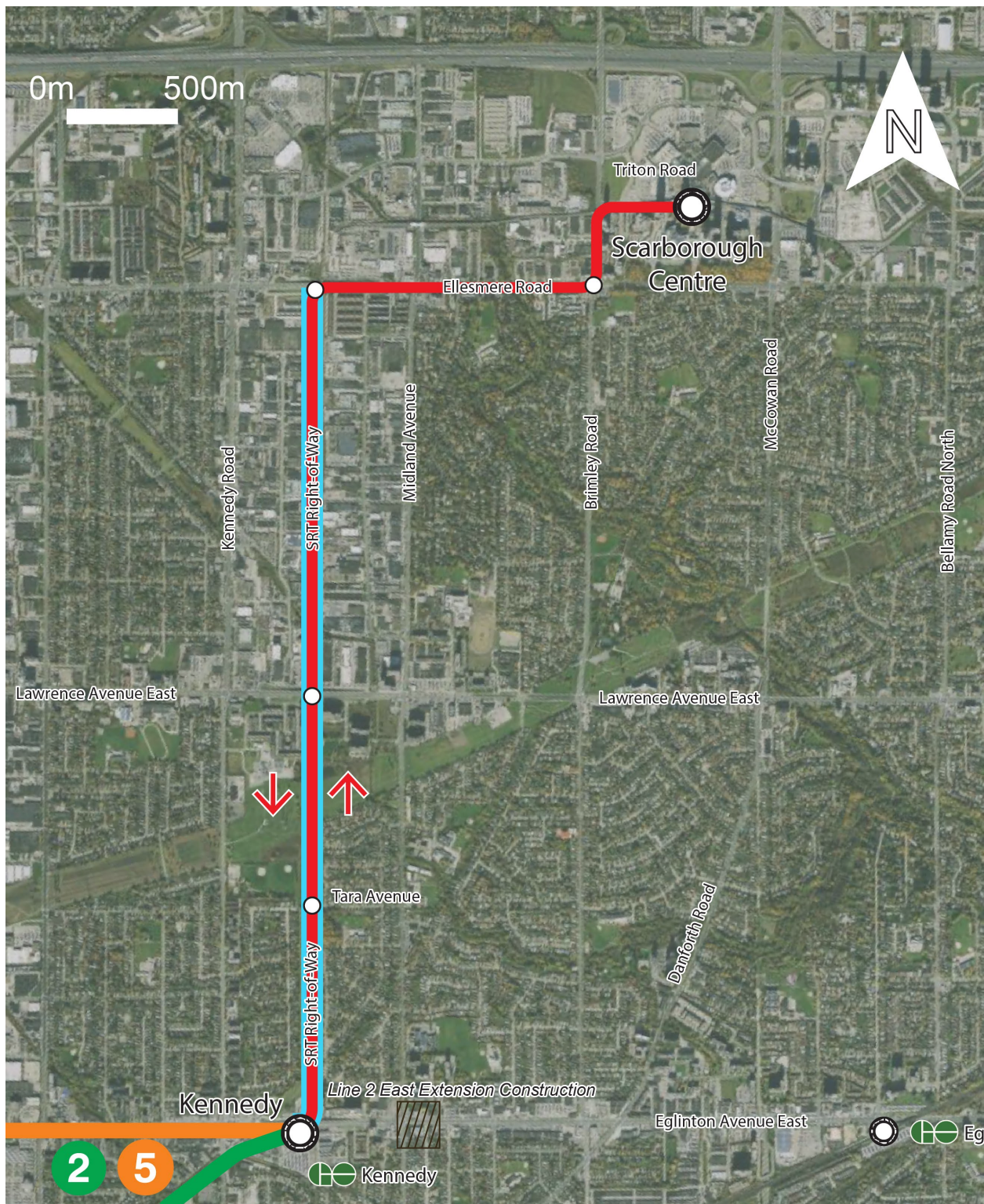


Figure 1. Bus Replacement Service on Dedicated Busway

The detailed design, construction and implementation of the busway are subject to funding availability. Once funded, converting the SRT right-of-way to a dedicated busway is expected to take at least two years. As a result, an intermediate on-street bus routing is required to service customers immediately when the SRT closes. The approved routing for the on-street bus replacement service is shown in Figure 2.

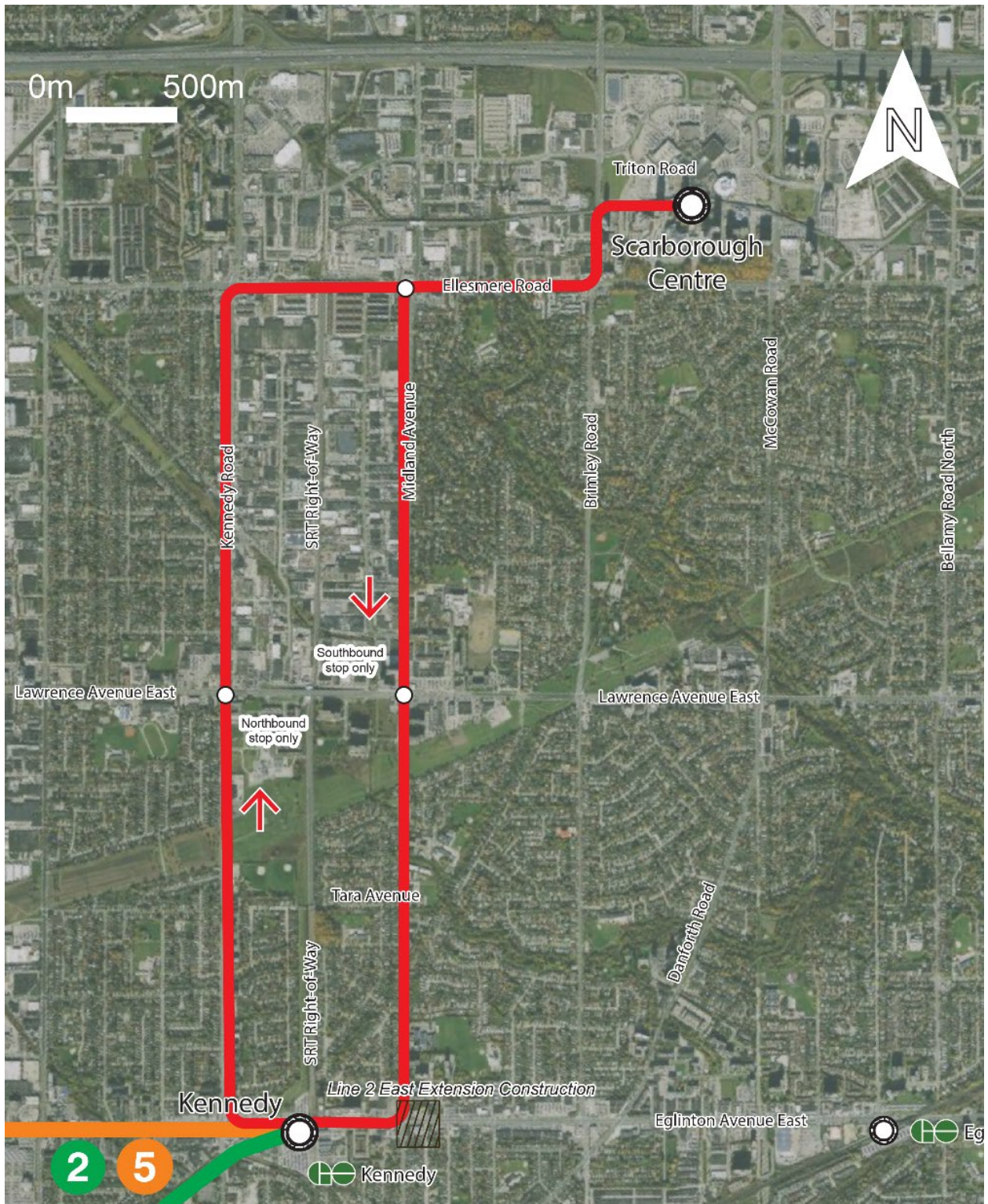


Figure 2. On-Street Bus Replacement Service via Kennedy and Midland Couplet

The on-street bus routing is as follows:

Kennedy Station to Scarborough Centre (North Routing)

- Westbound on Eglinton Avenue East from Kennedy Station Exit to Kennedy Road
- Northbound on Kennedy Road to Ellesmere Road
- Eastbound on Ellesmere Road to Brimley Road
- Northbound on Brimley Road to Triton Road
- Eastbound on Triton Road to Scarborough Centre Station

Scarborough Centre to Kennedy Station (South Routing)

- Westbound on Triton Road from Scarborough Centre Station to Brimley Road
- Southbound on Brimley Road to Ellesmere Road
- Westbound on Ellesmere Road to Midland Avenue
- Eastbound on Ellesmere Road to Midland Avenue via U-turn at 1050-1076 Ellesmere service road
- Southbound on Midland Avenue to Eglinton Avenue East
- Westbound on Eglinton Avenue East to Kennedy Station north service road entrance

Existing Transit Conditions

Five bus routes originate from Kennedy Station and operate north of (or along) Eglinton Avenue East. The 43 Kennedy and 57 Midland bus routes run in the north-south direction with a daily combined ridership of approximately 30,000 people on an average weekday (pre-pandemic) and about 21,000 people in 2022.

There were approximately 35,000 daily customers on the SRT before COVID-19 and an estimated 22,000 SRT riders in 2022 that would be using express buses after the SRT is decommissioned by the end of 2023.

Existing Road Conditions

Kennedy Road is a four-lane arterial roadway between Eglinton Avenue East and Ellesmere Road. It widens to a six-lane cross-section north of Ellesmere Road. The roadway is divided by a two-way left-turn lane into most sections between Eglinton Avenue East and Ellesmere Road. Parking is prohibited at all times along the corridor, with a posted speed limit of 50 km/h. Stopping is prohibited for a distance of approximately 600 meters between Eglinton Avenue East and south of Merrian Road. The 24-hour average annual daily traffic volume along the busiest segment of Kennedy Road is 37,000 (2019).

The segment of Eglinton Avenue East, east of Kennedy Road and Cedar Drive, comprises a six-lane cross-section divided by a two-way left-turn lane into most sections. Eglinton Avenue East has a posted speed limit of 50 km/h. Stopping is prohibited between Kennedy Road and Cedar Drive at all times of the day. Parking is prohibited on both sides of the road between Laird Drive and Kennedy Road and from

Kingston Road to Cedar Drive at all times of the day. The 24-hour annual average daily traffic volume along the busiest segment of Eglinton Avenue East is 49,000 (2019).

Ellesmere Road is an arterial road with six lanes between Warden Avenue and McCowan Road. Ellesmere Road is divided by a concrete median island from Brimley Road to McCowan Road and Kennedy Road to Midland Avenue. A two-way left-turn median divides the roadway from Brimley Road to Midland Avenue and Warden Avenue to Kennedy Road. Ellesmere Road has a posted speed limit of 50 km/h. The 24-hour average daily traffic volume along the busiest segment of Ellesmere Road is 30,000 (2019).

Midland Avenue is a four-lane arterial road with a posted speed of 50 km/h. The 24-hour average daily traffic volume along the busiest segment of Midland Avenue is 25,000. Left-turn lanes are available at all signalized intersections. Parking is prohibited along the corridor between Eglinton Avenue East and Sheppard Avenue East.

Brimley Road is a four-lane arterial road with a posted speed limit of 50 km/h. Left turn lanes are available at most signalized intersections. Parking is restricted on both sides of the street between Eglinton Avenue East and Lawrence Avenue on weekdays and at all times between Ellesmere Road and Progress Avenue. Parking is also restricted on the east side of the road between Kingston Road and Eglinton Avenue East at all times and segments between Lawrence Avenue and Ellesmere Road during weekday peak periods. The 24-hour average daily traffic volume along the busiest segment of Brimley Road is 28,000.

The area surrounding Brimley Road is enveloped by Metrolinx's SSE work and construction permit area. In addition, the City's Cycling Network Plan has programmed future bikeway construction and road resurfacing on Brimley Road between Ellesmere Road and Progress Avenue in 2026/2027. Therefore, Metrolinx, City and TTC works must be coordinated to resolve any issues or concerns arising from the proposed transit priority measures.

Proposed Bus Replacement Transit Priority Measures (TPM's)

The proposed TPMs were developed by focusing on physical roadway modifications, traffic signal operations, and parking and traffic regulatory prohibitions. These measures aim to reduce delays on the street network for replacement buses operating via the on-street couplet and when the SRT Busway conversion is completed. These improvements were developed collaboratively by TTC with City staff to ensure the TPMs align with City policies and future programmed capital projects.

Physical roadway modifications include the installation of priority bus lanes on the existing curb lanes of Kennedy Road, Ellesmere Road, Midland Avenue and Eglinton Avenue East. On Brimley Road, a new southbound queue jump lane is proposed at its intersection with Ellesmere Road and right-turn lanes at Triton Road and Golden Gate Court/Omni Drive intersections, respectively. Pavement marking modifications along westbound Triton Road at Brimley Road and eastbound Ellesmere Road at Brimley Road are also proposed to provide left-turn lanes reserved for TTC vehicles. Bus pad

areas at stops will be expanded to accommodate more customers and make the waiting areas accessible and convenient.

A new traffic control signal is proposed at Ellesmere Road and Borough Approach West to facilitate diverting eastbound traffic turning north towards Scarborough Town Centre or Highway 401. When the traffic signal shows red, southbound right turns will be prohibited at all times to mitigate potential conflicts with U-turning vehicles.

Transit Signal Priority (TSP) measures include (1) optimizing signal cycle lengths and splits for transit progression, (2) implementing active TSP for critical movements, (3) adding protected right-turn phases to overlap with non-conflicting left-turn phases to increase capacity, and (4) implementing turn restrictions for general traffic to give priority for buses to complete critical movements.

Corridor Improvements

Bus lanes are a key component of the proposed transit priority along the corridors where the replacement service operates. These bus lanes would be similar to the existing bus lanes on Eglinton Avenue East/Kingston Road/Morningside Avenue (Figure 3).



Figure 3. Example of Bus Lane on Kingston Road

Local buses would stop in existing stops or bus bays to minimize the disruption to express service. General traffic would be permitted to make right turns from the bus lanes at driveway locations and intersections. Use of the bus lanes by school buses and emergency vehicles would be permitted.

The following locations are where bus lanes are proposed to support the service and are presented as numbered in Figure 4.

1. Northbound on Kennedy Road between Eglinton Avenue East and Ellesmere Road.
2. Eastbound on Ellesmere Road from Kennedy Road to a point 75 metres east of Midland Avenue. The lane stops after Midland to allow for the buses to serve the Midland Avenue stop and then buses merge over for the left turn at Brimley Road
3. Westbound on Ellesmere Road from Brimley Road to a point 100 metres west of Midland Avenue. The bus lane ends west of Midland Avenue to facilitate the proposed bus routing strategy around the service road. This is discussed further in the intersection improvements below.

4. Eastbound left-turn lane at Ellesmere Road and Brimley Road. This is discussed further in the intersection improvements below.
5. Centre westbound left-turn lane at Triton Road and Brimley Road. This is discussed further in the intersection improvements below.
6. Southbound on Midland Avenue from Ellesmere Road to Lord Roberts Drive. This bus lane would terminate into a southbound shared through-right turn lane at Eglinton Avenue East.
7. Westbound on Eglinton Avenue East from a point 300 metres west of Midland Avenue to Kennedy Station. The bus lane would be dropped wherever lane reductions associated with the SSE tunnel work would result in less than two travel lanes for general traffic.

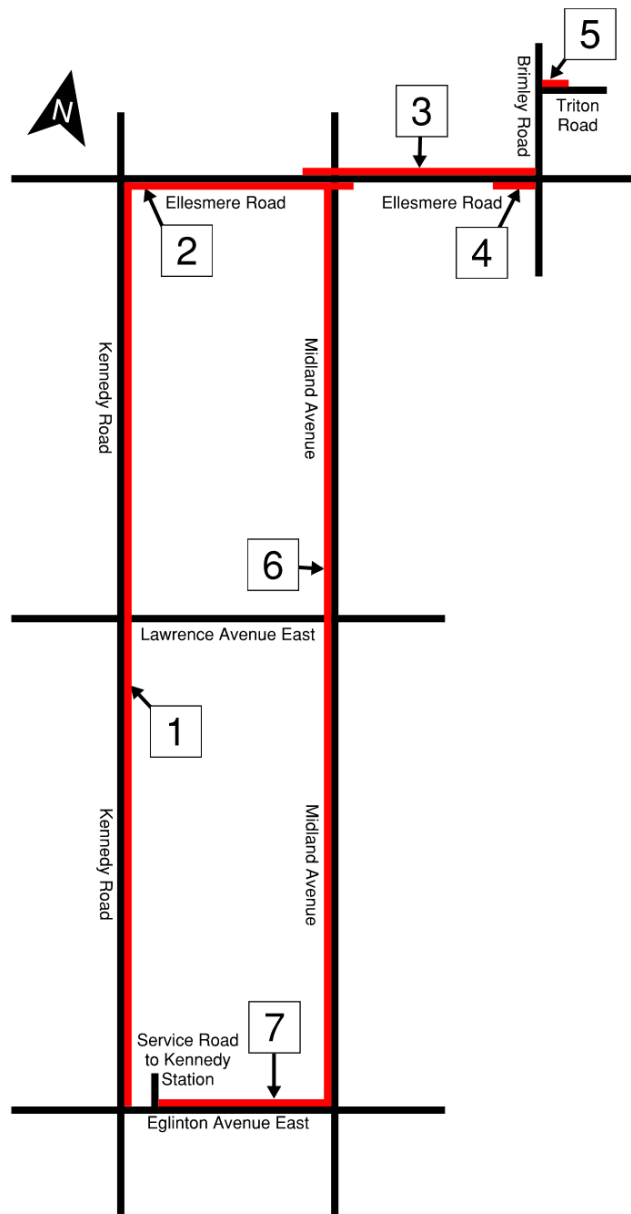


Figure 4. Locations of Proposed Bus Lanes

Intersection Improvements

Kennedy Station

The westbound curb lane along Eglinton Avenue East is currently designated as an HOV lane between Midland Avenue and Kennedy Station North Service Road entrance. The lane then develops into a right-turn lane past the station exit up to the intersection at Kennedy Road.

The following road modifications are proposed to improve bus operations (Figure 5):

1. Convert the HOV lane on Eglinton East between Midland Avenue and Kennedy Station North Service Road entrance into a bus lane. Cyclists are permitted to ride on this lane.
2. Extend the concrete island onto the curb lane, terminating the bus lane at the station entrance. It also creates a protected outbound lane from the station, making it more efficient for buses to turn onto Eglinton Avenue East.
3. The island is designed so cyclists can continue riding on the bus lane and past the station.

Kennedy Road and Eglinton Avenue East

The northbound curb lane on Kennedy Road will be converted into a right-turn-only lane to develop the start of the bus lane north of the intersection with Eglinton Avenue East. This improvement is within the Metrolinx permit area for their works at Kennedy Station, and TTC must obtain a permit from Metrolinx to complete this work. Due to the proposed road modification at Kennedy Station, the westbound right turn lane is shortened to approximately 120 metres, which traffic analysis shows is sufficient to accommodate any waiting vehicles. As part of the SRT bus replacement project, right-turn capacity will be increased by operating an overlapping traffic signal phase between this movement and the southbound left turn.

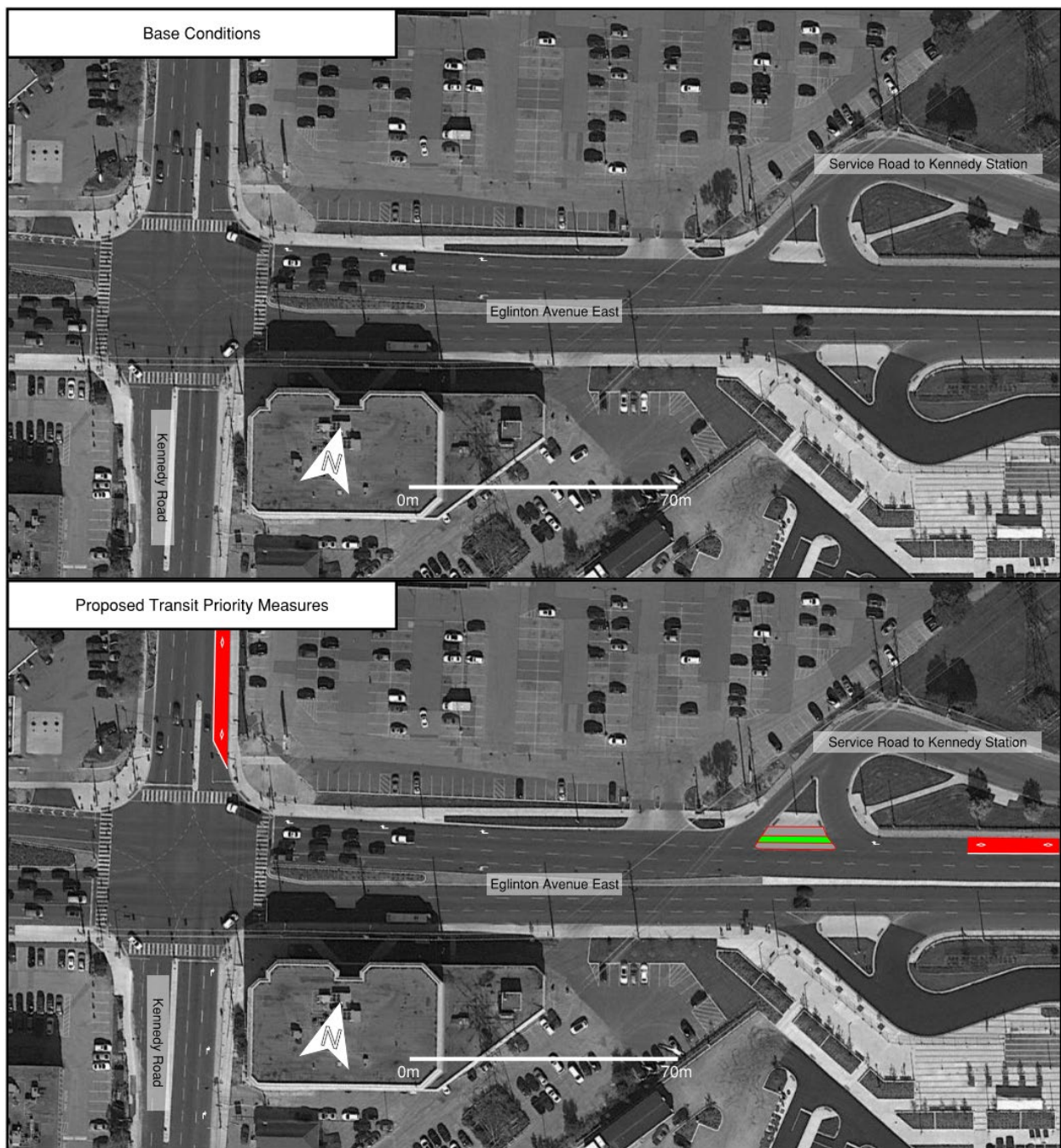


Figure 5. Eglinton Avenue East/Kennedy Road Intersection and Kennedy Station Transit Priority Measures

Kennedy Road and Ellesmere Road

The existing pavement markings and painted median on Kennedy Road will be modified to create a long northbound right-turn lane terminating at Ellesmere Road (Figure 6). This lane would allow buses to bypass the adjacent northbound through vehicle queue and proceed to turn right onto Ellesmere Road. The 43 Kennedy northbound bus stop would be relocated to the far side of the intersection to prevent it from blocking express buses approaching the intersection. The signal phasing will be programmed with overlapped right turns and active transit signal priority to facilitate bus turns.



Figure 6. Kennedy Road and Ellesmere Road Transit Priority Measures

Ellesmere Road and Midland Avenue

The westbound bus lane would terminate at the service road west of Midland Avenue to facilitate a U-turn movement for buses, as shown in Figure 7.



Figure 7. Proposed Bus U-Turn at Ellesmere Road and Midland Avenue

The southbound curb lane at Midland Avenue will be converted into an exclusive right-turn lane and the bus lane will start south of Ellesmere Road. The proposal includes an eastbound right-turn arrow to be overlapped with the existing northbound left-turn to increase the capacity for buses turning south onto Midland Avenue. The proposed changes, including the bus lanes, are shown in Figure 8.

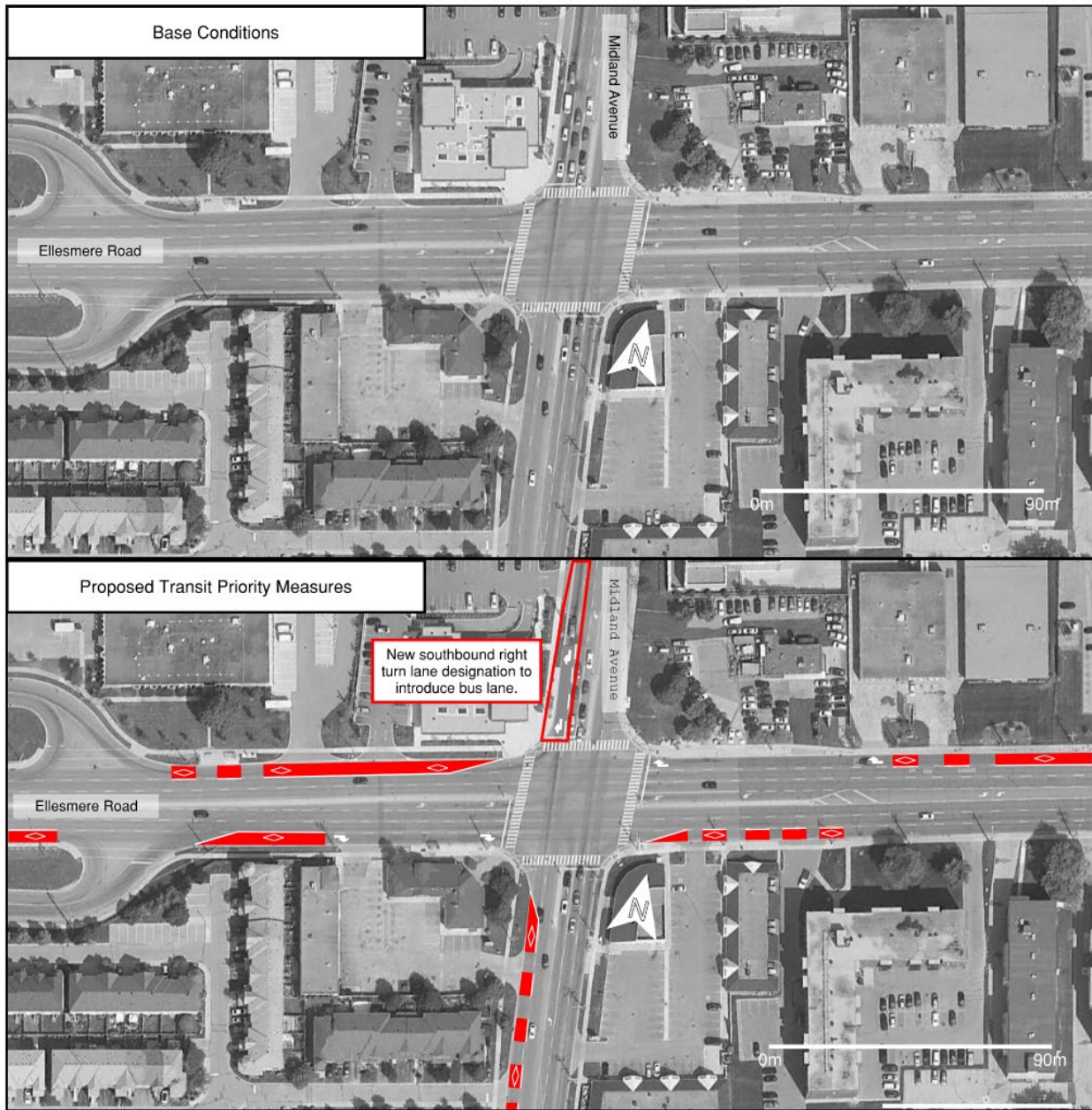


Figure 8. Ellesmere Road and Midland Avenue Transit Priority Measures

Ellesmere Road between Brimley Road and Borough Approach West

The eastbound left-turn lane would be lengthened by approximately 100 metres and reserved for TTC vehicles only. Active transit signal priority would be considered to minimize bus delays at the intersection.

The above proposal would accommodate eastbound general purpose traffic wishing to turn left at Brimley by routing it eastward to the Ellesmere Road / Borough Approach West intersection or the Ellesmere Road / McCowan Road intersection where left turns can be performed (Figure 9). The Ellesmere Road / Borough Approach West intersection would permit eastbound u-turns and restrict southbound right turns on red. (Figure 10).

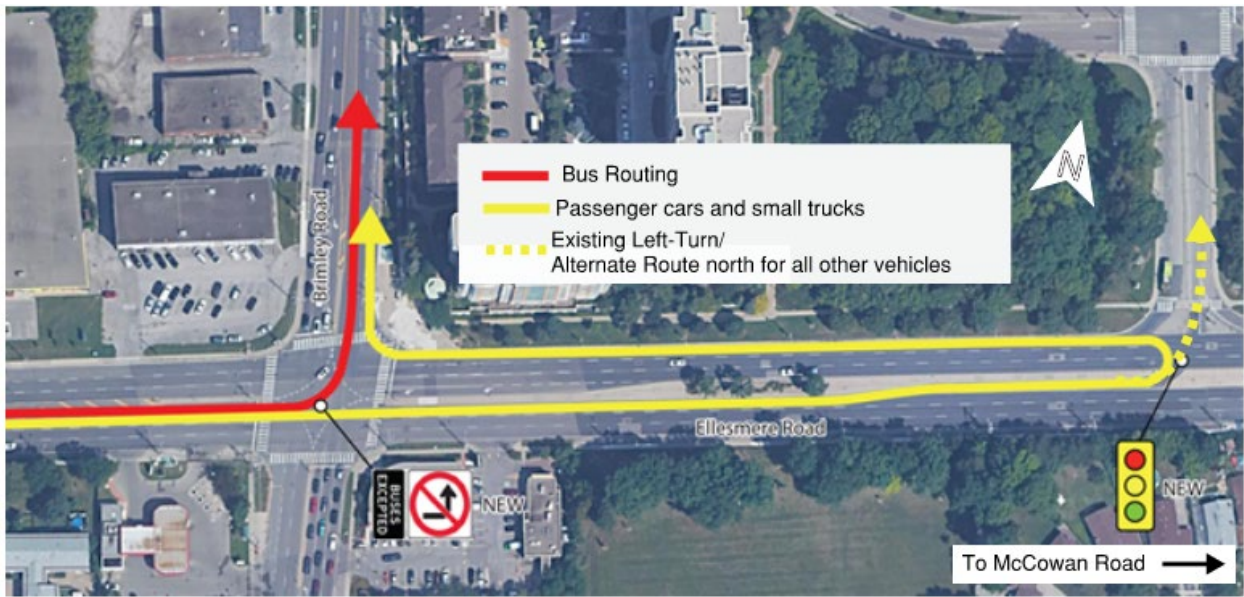


Figure 9. Proposed Bus and Vehicle Routing at Ellesmere Road and Brimley Road



Figure 10. Proposed new traffic control signals at Ellesmere Road and Borough Approach West

TTC will work with the City to prepare a traffic management plan and communication strategy to ensure that motorists and the general public are informed in advance of changes to the road network. For example, information signs would be displayed at critical locations to inform trucks and other heavy vehicles to use alternate corridors such as Kennedy Road, Midland Avenue and McCowan Road when heading north onto Scarborough Town Centre or Highway 401, and media outlets will be used to communicate these changes to the general public.

Brimley Road between Ellesmere Road and Golden Gate Court/Omni Drive

The centre median would be modified and the road widened on the western side of Brimley Road to construct a southbound queue jump lane. The newly created lane will be designated as a right-turn lane, except for TTC buses. The remaining pavement will be resurfaced to maintain the existing four travel lanes and two left-turn lanes at Ellesmere Road and Golden Gate Court/Omni Drive intersections, respectively.

The existing local northbound far side stop on Brimley Road will be relocated to the nearside to free up the required space for the queue jump lane. A southbound protected right-turn phase overlapped with the eastbound left-turn would be added to increase the right-turn capacity for buses. A westbound right-turn-only lane would accompany the westbound bus lane on Ellesmere Road west of Brimley Road at the same intersection (Figure 11).

The area surrounding Brimley Road is part of Metrolinx's SSE work and construction permit area. In addition, the City's Cycling Network Plan has programmed future bikeway construction and road resurfacing on Brimley Road between Ellesmere Road and Progress Avenue in 2026/2027. Therefore, Metrolinx, City and TTC works must be coordinated to resolve any issues or concerns arising from the proposed transit priority measures.

TTC will continue working with City staff to develop and implement bikeways along Brimley to facilitate seamless connections with planned bikeways along the Brimley corridor as identified in the Council-approved Cycling Network Plan.

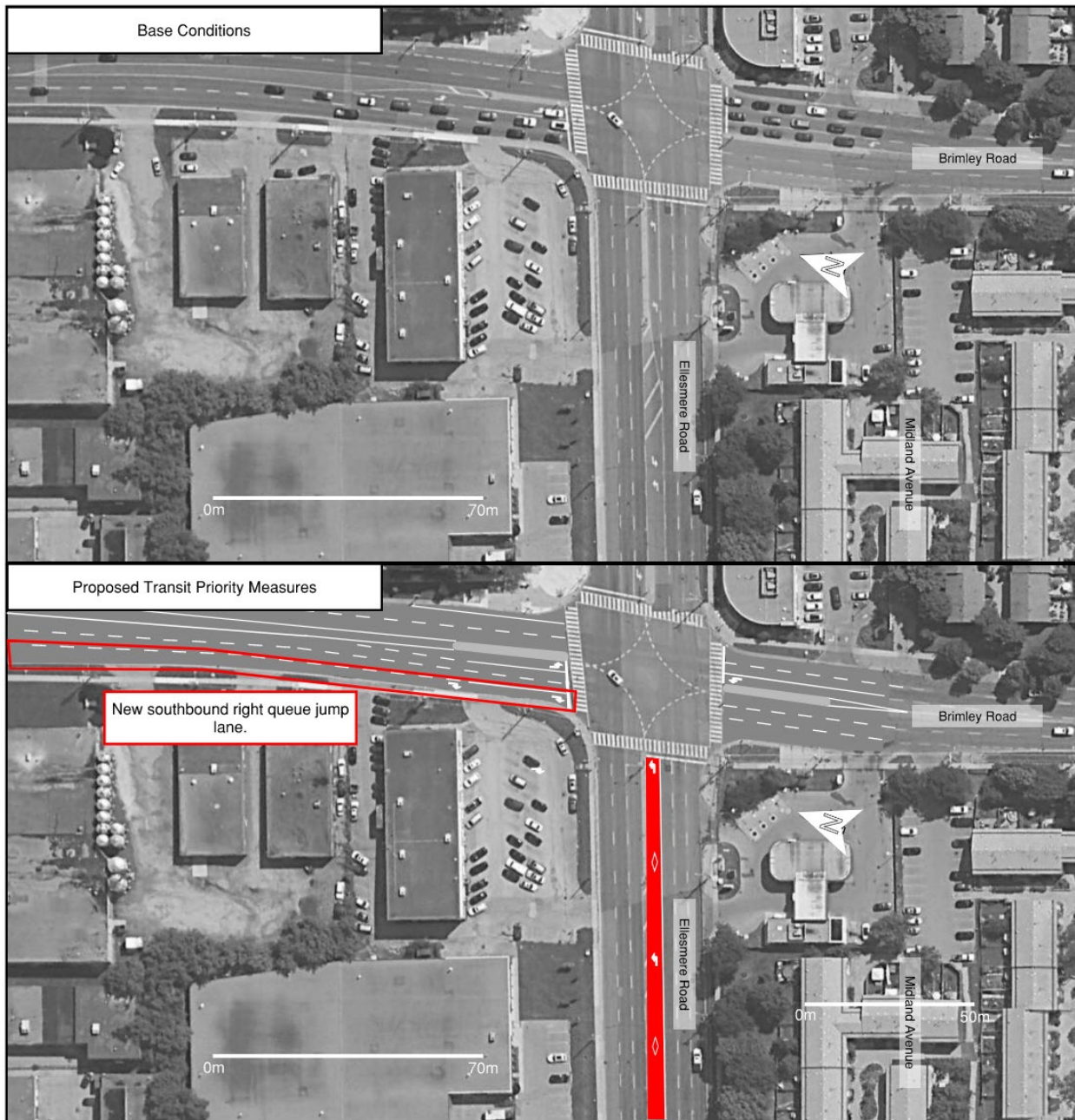


Figure 11. Ellesmere Road and Brimley Road Transit Priority Measures

Brimley Road and Triton Road

On Brimley Road, it is proposed to modify pavement markings to create a 70-meter northbound right-turn lane. On Triton Road, the existing centre median will be reconstructed to create two westbound left-turn lanes (one for TTC buses and one for general traffic) and one westbound right-turn lane. The eastbound curb lane will be designated as a right-turn-only lane, except for TTC buses (Figure 12). Along with the physical changes, a northbound protected right-turn phase overlapping with the westbound phase will increase the right-turn capacity for buses. A left-turn transit signal priority will also be considered to reduce delays to buses.

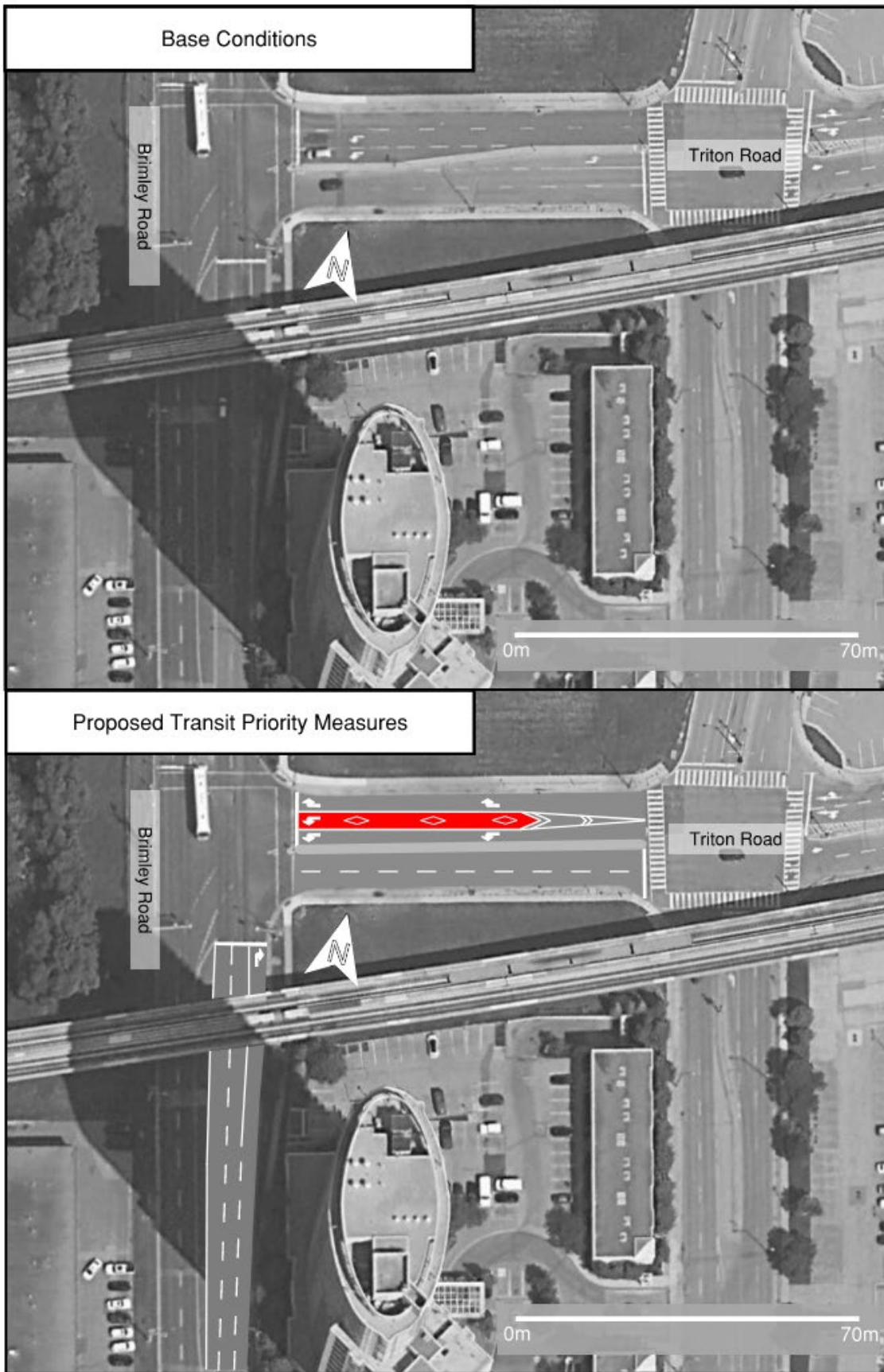


Figure 12: Brimley Road and Triton Road Transit Priority Measures

Midland Avenue from Ellesmere Road to Eglinton Avenue East

The proposed transit priority measures at Midland Avenue and Eglinton Avenue East will be coordinated with Metrolinx to provide a reliable service during the SSE tunnel works. TTC has regularly met with Metrolinx to understand the impacts of the construction and coordinate improvements. Currently the exact configuration of this intersection is not finalized and so this report recommends terminating the bus lane at Lord Roberts Drive intersection which is outside of Metrolinx's staging works. The lane configuration further south to Eglinton Avenue East will remain as existing. City staff and the TTC will work with Metrolinx to monitor traffic and transit operations in this section. Any additional TPMs or road modifications will be considered in future report submissions.

Benefits

The SRT serviced 2,822,300 passengers in 2021, and before the pandemic, 4,220,839 passengers in 2019. As the service is planned to be decommissioned, a replacement bus service supported by TPMs will offset the impacts on customers that will lose access to higher-order transit until the SSE (Line 2 Extension) is completed.

The proposed bus lanes on the surrounding road network, as illustrated in Figure 4, permit cyclists to ride on the lane. There are currently no cycling facilities in this area. Additionally, the proposed road modifications on Ellesmere Road protects for space to build a future cycling facility as programmed in the City's Cycling Network Plan bundled with a future road resurfacing on Brimley Road between Ellesmere Road and Progress Avenue in 2026/2027.

Anticipated Transit Benefits

The replacement service benefits transit customers by eliminating the need for a transfer for trips between Scarborough Town Centre and Kennedy Station, enhancing the customer experience.

Analysis conducted by the TTC indicates that the provision of transit priority measures, including of the proposed priority bus lanes, will further enhance the benefits of the replacement service. The bus replacement service will operate at a headway of 1 bus per minute or lower during the peak periods, a significant increase over the 5-6 minute headway currently provided by the SRT. Bus lanes will help to ensure these services can operate reliably and improve travel times for customers:

- By up to two minutes northbound on Kennedy Road between Eglinton Avenue East and Ellesmere Road; and
- By up to 20 seconds southbound on Midland Avenue between Ellesmere Road and Eglinton Avenue East.

While the analysis suggests negligible travel time improvements eastbound and westbound on Ellesmere Road between Kennedy Road and Brimley Road, these sections would ensure the high bus frequency could operate reliably.

On Ellesmere Road, due to the existing traffic demand at the two critical/required left-turns on the corridor (Midland Avenue and Brimley Road), the left-turn movements without any mitigating measures would result in exceptionally high delay. Therefore, reducing the demand by re-routing either the buses or the cars results in significant savings in delay time for both transit and general purpose traffic.

Impacts on General Purpose Traffic

A planning level analysis was conducted to identify the potential traffic impacts and benefits of the recommended measures, including physical and signal optimization measures. The analysis assumed no diversion by private motor vehicles onto other routes and so can be considered a "worst case". The travel time impacts of the bus-only lanes on private vehicle travel times include:

- An increase of between one and two minutes in the northbound direction and a decrease (i.e. benefit) of up to 20 seconds in the southbound direction of Kennedy Road from Eglinton Avenue East to Ellesmere Road.
- An increase of up to 20 seconds eastbound and up to 35 seconds westbound on Ellesmere Road between Kennedy Road and Brimley Road.
- Negligible impacts northbound and a decrease (i.e. benefit) of up to 15 seconds southbound on Brimley Road between Ellesmere Road and Triton Road.
- Negligible impacts northbound and an increase of between 30 and 45 seconds southbound for Midland Avenue between Ellesmere Road and Eglinton Avenue East.

The planning level analysis completed by TTC excluded the intersection of Eglinton Avenue East and Midland Avenue as this location is under the control of Metrolinx. The TTC is in contact with Metrolinx and has shared the proposed TPMs for Eglinton Avenue East and Midland Avenue to incorporate into the Metrolinx staging plans. An analysis of this intersection has already been completed as part of the Traffic and Transit Management Plan (TTMP) for their work on SSE.

Summary of Impacts and Benefits

While the analysis suggests that the proposed transit priority measures may have a limited impact on private vehicle travel times, they deliver travel time benefits for transit and, crucially, help ensure reliability of service. This will help to manage travel demand during SSE construction, as slower bus trips during this time may push displaced Line 3 riders to other modes for trip making. The TPMs increase the efficiency of the proposed bus replacement service and reduce the potential for thousands of vehicles per day being added to Scarborough's roads during SSE construction.

Consultation

The Line 3 bus replacement plan was developed with an extensive two-part public consultation throughout 2021. The consultation process involved transit customers, local residents, and stakeholder groups in various formats, including stakeholder

meetings, community coordination plan tables, resident focus groups, public surveys, virtual public meetings, and in-person “pop-up” consultations.

The public consultations were promoted through the TTC’s website and social media, announcements in Line 3 Stations, physical posters and advertisements in community spaces (including pop-up consultations), and mail drops. Local councillors and members from stakeholder groups and consultation meetings also helped promote public engagement in the consultation. Further promotion was made with the addition of stop pole posters and a mail drop to approximately 18,000 households within the area bounded by Highway 401 to the north, Eglinton Avenue to the south, Brimley Road to the east, and Kennedy Road to the west. Over 1,186 people participated in approximately 18 weeks of extensive consultation for the Line 3 Bus Replacement Plan. All consultation and informational print materials directed readers to the TTC's Line 3 project website for more information. The pop-up consultation materials were available in English, Arabic, traditional and simplified Chinese, Spanish, Tagalog, and Tamil. The mailers were in English but provided residents with details on how to request the information in a different language. Additionally, the TTC website can be translated into over 50 languages using the Google Translate tool. This tool allows residents and visitors who speak other languages to access TTC information featured on the website.

<https://www.ttc.ca/about-the-ttc/projects-and-plans/Future-of-Line-3-Scarborough>

From December 2022 to January 2023, the TTC sought input from local councillors and community members regarding the advanced transit priority measures. Through these consultations, strong feedback was provided in support of implementing transit priority measures. Dedicated bus lanes were especially supported as a measure that customers wanted advanced. Residents advised that transit priority measures must help balance general traffic and help reduce congestion as much as possible. General suggestions for providing a good transit service were ensuring accessible stops and stations, creating express routes, implementing transit priority measures, particularly dedicated bus lanes, and using articulated buses to serve more riders. The measures and recommendations in this report reflect the feedback from these public consultations.

As part of implementing the transit priority measures and the Line 3 bus replacement service, TTC will conduct comprehensive public engagement to inform and educate customers, residents, local businesses, and other stakeholders of the pending changes. This material will be available in English, Arabic, traditional and simplified Chinese, Spanish, Tagalog, and Tamil.

[Line 3 Bus Replacement Study – Round 2 Online Survey Summary](#) (Page 2/15)

Monitoring

All transit priority measures will be monitored periodically to understand change in travel needs and patterns, identify any traffic congestion or safety problem areas, and measure the impacts of any changes made to mitigate issues that may arise. The near-term objectives of the monitoring program would be:

- Monitoring the on-street operations to optimize signal timings/operating strategies as required
- Monitoring ridership to maintain acceptable headways/service reliability
- Monitoring safety metrics to identify and resolve issues as needed

Transportation Services and the TTC are developing a monitoring plan to collect, assemble, and analyze safety, traffic and transit data after installing the transit priority measures on the affected roadways. The monitoring plan will provide a clear picture of baseline conditions before installing TPMs and will seek to quantify their benefits.

Proposed metrics are likely to include:

General

- Motor Vehicle Travel Times: for primary and alternate corridors, changes in average and 95th percentile motor vehicle travel times during defined periods
- Motor Vehicle Volumes: motor vehicle traffic changes on primary and alternate corridors.

Transit-Specific

- Transit Travel Time: The average and 90th percentile observed travel times will be calculated for each corridor.
- Wait Time Reliability: used as an indicator of service regularity and reliability.
- Wait Time Coefficient of Variation: the value (or percentage) of how much wait time differs from the average wait time.
- Observed Busiest Hour Demand: number of customers travelling on a bus during the busiest hour in the busiest direction at its busiest point.
- Observed Ridership: Number of customers boarding or travelling through the study zone.
- Capacity Delivered: The total number of transit customers that could board the bus during the peak hour (based on TTC’s crowding standard).

The data will refine corridor operations as needed and evaluate performance and the impact of the TPMs.

The data will be reviewed during the construction of the Line 2 extension and after its opening to identify the potential benefits of incorporating the on-street TPMs into the long-term vision for surface transit in Scarborough envisaged in the emerging RapidTO program.

Next Steps

The target schedule for the key milestones is in the following table.

Milestone	Target Date
Council Approval	Anticipated May 2023
Finalize Tender Documents	May 2023

Milestone	Target Date
Community information sessions alongside community anchors to inform residents of SRT service decommissioning	April 2023 – December 2023
Construction of On-Street Measures (TPMs)	June 2023 – November 2023
Bus Replacement Service Start Date	November 19, 2023

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ATTACHMENTS

Attachment 1: Amendments to Traffic and Parking Regulations

Attachment 1: Amendments to Traffic and Parking Regulations

No Parking

Rescind the following:

Highway	Side	Between	Prohibited Times and/or Days
Kennedy Road	Both	Danforth Road and Steeles Avenue East	Anytime
Ellesmere Road	Both	Victoria Park Avenue and a point 61 metres east of Gander Drive	Anytime
Midland Avenue	West	A point 152.5 metres south of Eglinton Avenue East and Lord Roberts Drive (south intersection)	Anytime
Midland Avenue	West	Lord Roberts Drive (south intersection) and Romulus Drive	7:00 a.m. to 6:00 p.m., Mon. to Fri.
Midland Avenue	West	Romulus Drive and Sheppard Avenue East	Anytime

Enact the following:

Highway	Side	Between	Prohibited Times and/or Days
Kennedy Road	Both	Danforth Road and Eglinton Avenue East	Anytime
Kennedy Road	West	Eglinton Avenue East and Ellesmere Road	Anytime
Kennedy Road	Both	Ellesmere Road and Steeles Avenue East	Anytime

Highway	Side	Between	Prohibited Times and/or Days
Ellesmere Road	Both	Victoria Park Avenue and Kennedy Road	Anytime
Ellesmere Road	South	A point 75 metres east of Midland and a point 61 metres east of Gander Drive	Anytime
Ellesmere Road	North	A point 61 metres east of Gander Drive and Brimley Road	Anytime
Ellesmere Road	North	A point 100 meters west of Midland Avenue and Kennedy Road	Anytime
Midland Avenue	West	Eglinton Avenue East and a point 152.5 metres south	Anytime
Midland Avenue	West	Sheppard Avenue East and Ellesmere Road	Anytime

No Stopping

Enact the following:

Highway	Side	Between	Prohibited Times and/or Days
Kennedy Road	East	Eglinton Avenue East and Ellesmere Road	Anytime
Ellesmere Road	South	Kennedy Road and a point 75 meters east of Midland Avenue	Anytime

Highway	Side	Between	Prohibited Times and/or Days
Ellesmere Road	North	Brimley Road and a point 100 meters west of Midland Avenue	Anytime
Midland Avenue	West	Ellesmere Road to Eglinton Avenue East	Anytime

Reserved Lanes for Designated Class of Vehicles

Rescind the following:

Highway	Between	Lanes	Times and/or Days	Designated Class of Vehicle
Eglinton Avenue East	Kennedy Road and Brimley Road	Northerly Westbound and Southerly Eastbound	7:00 a.m. to 10:00 a.m. and 3:00 p.m. to 7:00 p.m. Mon. to Fri. except public holidays	PTVs, HOV2+s, taxicabs, plated motorcycles and bicycles

Enact the following:

Highway	Between	Lanes	Times and/or Days	Designated Class of Vehicle
Eglinton Avenue East	Kennedy Road and Brimley Road	Southerly Eastbound	7:00 a.m. to 10:00 a.m. and 3:00 p.m. to 7:00 p.m. Mon. to Fri. except public holidays	PTVs, HOV2+s, taxicabs, plated motorcycles and bicycles
Eglinton Avenue East	Brimley Road and a point 300 metres west of Midland Avenue	Northerly Westbound	7:00 a.m. to 10:00 a.m. and 3:00 p.m. to 7:00 p.m. Mon. to Fri. except public holidays	PTVs, HOV2+s, taxicabs, plated motorcycles and bicycles

Highway	Between	Lanes	Times and/or Days	Designated Class of Vehicle
Eglinton Avenue East	A point 300 metres west of Midland Avenue and Kennedy Station North Service Road entrance	Northerly Westbound	Anytime	PTVs and bicycles
Kennedy Road	Eglinton Avenue East and a point 125 metres south of Lawrence Avenue East	Easterly Northbound	Anytime	PTVs and bicycles
Kennedy Road	Lawrence Avenue East and a point 125 metres south	Easterly Northbound Through	Anytime	PTVs and bicycles
Kennedy Road	Lawrence Avenue East and a point 150 metres south of Wickware Gate	Easterly Northbound	Anytime	PTVs and bicycles
Kennedy Road	Wickware Gate and a point 150 metres south	Easterly Northbound Through	Anytime	PTVs and bicycles
Kennedy Road	Wickware Gate and a point 50 metres south of Forbes Road	Easterly Northbound	Anytime	PTVs and bicycles
Kennedy Road	Forbes Road and a point 50 metres south	Easterly Northbound Through	Anytime	PTVs and bicycles
Kennedy Road	Forbes Road and a point 160 metres south of Ellesmere Road	Easterly Northbound	Anytime	PTVs and bicycles

Highway	Between	Lanes	Times and/or Days	Designated Class of Vehicle
Ellesmere Road	Kennedy Road and a point 75 meters east of Midland Avenue	Southerly Eastbound	Anytime	PTVs and bicycles
Ellesmere Road	Brimley Road and a point 100 meters west of Midland Avenue	Northerly Westbound	Anytime	PTVs and bicycles
Ellesmere Road	Brimley Road and a point 100 meters west	Northerly Eastbound Left Turn	Anytime	PTVs
Midland Avenue	Ellesmere Road and a point 90 metres north of Lawrence Avenue East	Westerly Southbound	Anytime	PTVs and bicycles
Midland Avenue	Lawrence Avenue East and a point 90 metres north	Westerly Southbound Through	Anytime	PTVs and bicycles
Midland Avenue	Lawrence Avenue East and a point 110 metres north of Prudential Drive	Westerly Southbound	Anytime	PTVs and bicycles
Midland Avenue	Prudential Drive and a point 110 metres north	Westerly Southbound Through	Anytime	PTVs and bicycles
Midland Avenue	Prudential Drive and a point 70 metres north of Lord Roberts Drive	Westerly Southbound	Anytime	PTVs and bicycles
Triton Road	Brimley Road and Borough Drive	Centre Westbound Left-turn	Anytime	PTVs

One-Way Traffic Lanes

Rescind the following:

Highway	Between	Lanes	Times and/or Days	Direction
Brimley Road and Triton Road	Brimley Road and a point 30.5 metres east	2 Southerly Westbound	Anytime	Westbound left-turning
Brimley Road and Triton Road	Brimley Road and a point 30.5 metres east	Northerly westbound	Anytime	Westbound right-turning

Enact the following:

Highway	Between	Lanes	Times and/or Days	Direction
Eglinton Avenue East	Kennedy Station North Service Road exit and Kennedy Road	Northerly westbound	Anytime	Westbound right-turning
Eglinton Avenue East	Kennedy Station North Service Road entrance and a point 30.5 metres east	Northerly westbound	Anytime	Westbound right-turning
Eglinton Avenue East	Kennedy Road and a point 140 metres east	Northerly westbound	Anytime	Westbound right-turning (PTVs and bicycles excepted)
Kennedy Road	Eglinton Avenue East and a point 70 metres south	Easterly Northbound	Anytime	Northbound right-turning (PTVs and bicycles excepted)

Highway	Between	Lanes	Times and/or Days	Direction
Kennedy Road	Ranstone Gardens and a point 30.5 metres south	Easterly Northbound	Anytime	Northbound right-turning (PTVs and bicycles excepted)
Kennedy Road	Lawrence Avenue East and a point 125 meters south	Easterly Northbound	Anytime	Northbound right-turning (PTVs excepted)
Kennedy Road	Wickware Gate and a point 150 metres south	Easterly Northbound	Anytime	Northbound right-turning (PTVs excepted)
Kennedy Road	Forbes Road and a point 50 metres south	Easterly Northbound	Anytime	Northbound right-turning
Kennedy Road	Munham Gate and a point 30.5 metres south	Easterly Northbound	Anytime	Northbound right-turning (PTVs and bicycles excepted)
Kennedy Road	Ellesmere Road and a point 160 metres south	Easterly Northbound	Anytime	Northbound right-turning (PTVs and bicycles excepted)
Ellesmere Road	Kennedy Road and a point 70 metres west	Southerly Eastbound	Anytime	Eastbound right-turning (PTVs and bicycles excepted)
Ellesmere Road	Midland Avenue and a point 75 meters west	Southerly Eastbound	Anytime	Eastbound right-turning (PTVs and bicycles excepted)

Highway	Between	Lanes	Times and/or Days	Direction
Ellesmere Road	Brimley Road and a point 100 metres west	Northerly Eastbound	Anytime	Eastbound left-turning (PTVs only)
Ellesmere Road	Brimley Road and a point 70 metres east	Northerly Westbound	Anytime	Westbound right-turning (PTVs and bicycles excepted)
Ellesmere Road	Birkdale Road and a point 30.5 metres east	Northerly Westbound	Anytime	Westbound right-turning (PTVs and bicycles excepted)
Ellesmere Road	Midland Avenue and a point 75 metres east	Northerly Westbound	Anytime	Westbound right-turning (PTVs and bicycles excepted)
Midland Avenue	Ellesmere Road and a point 70 metres north	Westerly Southbound	Anytime	Southbound right-turning (PTVs and bicycles excepted)
Midland Avenue	Midwest Road and a point 30.5 metres north	Westerly Southbound	Anytime	Southbound right-turning (PTVs and bicycles excepted)
Midland Avenue	Lawrence Avenue East and a point 90 metres north	Westerly Southbound	Anytime	Southbound right-turning (PTVs excepted)
Midland Avenue	Prudential Drive and a point 110 metres north	Westerly Southbound	Anytime	Southbound right-turning

Highway	Between	Lanes	Times and/or Days	Direction
Midland Avenue	Romulus Drive and a point 30.5 metres north	Westerly Southbound	Anytime	Southbound right-turning (PTVs and bicycles excepted)
Midland Avenue	Wainfleet Road and a point 30.5 metres north	Westerly Southbound	Anytime	Southbound right-turning (PTVs and bicycles excepted)
Midland Avenue	Lord Roberts Drive and a point 30.5 metres north	Westerly Southbound	Anytime	Southbound right-turning (PTVs and bicycles excepted)
Brimley Road	Triton Road and a point 75 metres south	Easterly Northbound	Anytime	Northbound right-turning
Brimley Road	Golden Gate Court and a point 30.5 metres north	Westerly Southbound	Anytime	Southbound right-turning (PTVs excepted)
Brimley Road	Omni Drive and a point 40 metres north	Easterly Southbound	Anytime	Southbound left-turning
Brimley Road	Golden Gate Court and a point 30.5 metres south	Westerly Northbound	Anytime	Northbound left-turning
Brimley Road	Ellesmere Road and a point 80 metres north	Westerly Southbound	Anytime	Southbound right-turning (PTVs excepted)

Highway	Between	Lanes	Times and/or Days	Direction
Brimley Road	Ellesmere Road and a point 70 metres south	Westerly Northbound	Anytime	Northbound left-turning
Triton Road	Brimley Road and Borough Drive	Northerly Westbound	Anytime	Westbound right-turning
Triton Road	Brimley Road and Borough Drive	Southerly Westbound	Anytime	Westbound left-turning
Triton Road	Brimley Road and Borough Drive	Centre Westbound	Anytime	Westbound left-turning (PTVs only)
Triton Road	Brimley Road and Borough Drive	Southerly Eastbound	Anytime	Eastbound right-turning (PTVs excepted)

Prohibited Turns

Enact the following:

Intersection or Portion of Highway	Direction	Turns Prohibited	Times and/or Days
Ellesmere Road and Brimley Road	Eastbound	Left	Anytime (PTVs excepted)
Borough Approach West and Ellesmere Road	Southbound	Right	When traffic control signals shows red