

Traffic Control Signals - Sheppard Avenue East and Rainbow Ridge Avenue

Date: June 19, 2025

To: Scarborough Community Council

From: Director, Traffic Management, Transportation Services

Wards: Ward 25, Scarborough-Rouge Park

SUMMARY

As the Toronto Transit Commission (TTC) operates a transit service on Sheppard Avenue East, City Council approval of this report is required.

Transportation Services reviewed the need for pedestrian crossing protection on Sheppard Avenue East, between Meadowvale Road and Atrium Lane/Dunford Road, following a request from Scarborough Community Council. Based on the assessment undertaken, Transportation Services recommends the installation of traffic control signals at the intersection of Sheppard Avenue East and Rainbow Ridge Avenue. The installation of traffic control signals will provide enhanced safety for all road users and is justified based on the assessment undertaken.

RECOMMENDATIONS

The Director, Traffic Management, Transportation Services recommends that:

1. City Council authorize the installation of traffic control signals at the intersection of Sheppard Avenue East and Rainbow Ridge Avenue.

FINANCIAL IMPACT

The estimated cost for installing traffic control signals at the intersection of Sheppard Avenue East and Rainbow Ridge Avenue is \$250,000.00. Funding would be subject to availability and competing priorities within the Transportation Services 2025 Capital Budget.

DECISION HISTORY

Scarborough Community Council, at its meeting on November 1, 2024, adopted item SC17.20 (Sheppard Avenue East - Bus Service and Protected Pedestrian Crossings), directing Transportation Services to review the feasibility of installing pedestrian crossing protection on Sheppard Avenue East, between Meadowvale Road and Durnford Road/Atrium Lane, and report back to Scarborough Community Council at the July 8, 2025 meeting. The Community Council decision can be found at:

<https://secure.toronto.ca/council/agenda-item.do?item=2024.SC17.20>

COMMENTS

Transportation Services was directed by Scarborough Community Council to investigate the feasibility of installing pedestrian crossing protection on Sheppard Avenue East, between Meadowvale Road and Durnford Road/Atrium Lane. This request was prompted through discussions with the TTC regarding their potential removal of transit stops without protected pedestrian crossing along the corridor.

Existing Conditions

Sheppard Avenue East, between Meadowvale Road and Atrium Lane/Dunford Road, is characterized by the following conditions:

- It is a four, east-west and north-south, minor arterial roadway that is approximately 1.9 kilometres in length
- It operates two-way traffic on a pavement width of approximately 22 metres
- The daily two-way traffic volume varies from approximately 10,300 to 12,000 vehicles
- The speed limit is 60 km/h
- Heavy trucks are permitted at all times
- There is TTC service provided by the 85 Sheppard East bus
- There are continuous sidewalks located on the south side of the street and are generally missing on the north side of the street

This section of Sheppard Avenue East does not currently provide any controlled crossings. The following nine stop controlled, local and collector streets intersect with Sheppard Avenue East (listed west to east):

- Twyn Rivers Drive: a “T” type intersection, located approximately 400 metres east of Meadowvale Road
- Rainbow Ridge Avenue: a “T” type intersection, located approximately 350 metres southeast of Twyn Rivers Drive

- Heatherbank Trail: a “T” type intersection, located approximately 90 metres southeast of Rainbow Ridge Avenue
- Grand River Boulevard: a “T” type intersection, located approximately 120 metres southeast of Heatherbank Trail
- Boydwood Lane: a “T” type intersection, located approximately 260 metres southeast of Grand River Boulevard
- Elaine Lennox Court: a “T” type intersection, located approximately 50 metres southeast of Boydwood Lane
- Tallpines Court: a “T” type intersection, located approximately 40 metres southeast of Elaine Lennox Court
- Vandorf Street: a “T” type intersection, located approximately 190 metres southeast of Tallpines Court
- John Graham Court: a “T” type intersection, located approximately 350 metres east of Vandorf Court and approximately 110 west of Atrium Lane/Dunford Road

A preliminary review of these intersections for pedestrian crossover (PXO) and traffic control signals was undertaken. The intersections of Sheppard Avenue East and Heatherbank Trail, Sheppard Avenue East and Grand River Boulevard, Sheppard Avenue East and Boydwood Lane, Sheppard Avenue East and Elaine Lennox Court and Sheppard Avenue East and Tallpines Court were deemed to lack pedestrian generators and are dead-end street with very few residential dwellings which will not provide significant vehicular traffic. Sheppard Avenue East and John Graham Court was deemed too close to the adjacent protected traffic control signals.

The following three intersections that were investigated for pedestrian crossing protection have been described in more detail as follows (listed west to east):

Twyn Rivers Drive is characterized by the following conditions:

- It is a two-lane, north-south and east-west, collector roadway
- It operates two-way traffic on a pavement width of approximately 6.7 metres
- The daily two-way traffic volume is approximately 4,500 vehicles
- The speed limit is 40 km/h
- Heavy trucks are prohibited at all times
- There is no TTC service provided
- There are no sidewalks located on this street

Rainbow Ridge Avenue is characterized by the following conditions:

- It is a two-lane, north-south, collector roadway
- It operates two-way traffic on a pavement width of approximately 8.5 metres
- The daily two-way traffic volume is approximately 1,400 vehicles
- The speed limit is 40 km/h
- Heavy trucks are prohibited at all times
- There is no TTC service provided
- There are sidewalks located on both sides of the street

Vandorf Street is characterized by the following conditions:

- It is a two-lane, north-south, collector roadway
- It operates two-way traffic on a pavement width of approximately 9.7 metres
- The daily two-way traffic volume is approximately 1,400 vehicles
- The speed limit is 40 km/h
- Heavy trucks are prohibited at all times
- There is no TTC service provided
- There are sidewalks located on both sides of the street

The adjacent land use in this area is generally comprised of single-family residential dwellings. Toronto Jaffray Chinese Alliance Church is located on the north side of Sheppard Avenue East and Twyn Rivers Drive and Masjid Zakariya is located on the north side of Sheppard Avenue and John Graham Court. Rouge National Urban Park is located on the north side of Sheppard Avenue East and there is access to Glen Eagles Vista trail located on the north side of the street, opposite Rainbow Ridge Avenue and adjacent to Twyn Rivers Drive.

A map of the area is included in Attachment 1.

Pedestrian Crossover (PXO)

To determine the need for a PXO on Sheppard Avenue East, between Meadowvale Road and Atrium Lane/Dunford Road, pedestrian data for the intersections on Sheppard Avenue East at Twyn Rivers Drive, Rainbow Ridge Avenue and Vandorf Street were analysed against the justification criteria as outlined in the Ontario Traffic Manual (OTM) Book 12. The OTM justification criteria include two main factors: the volume of vehicles and pedestrians; and pedestrian delay to cross traffic. Based on the traffic volume on this section of Sheppard Avenue East, the warrants require a minimum of 271 pedestrians crossing over eight hours. Also, based on the pedestrian crossing volume, at least 91 pedestrians must be delayed more than 10 seconds.

Eight-hour pedestrian volume and delay studies were conducted on Sheppard Avenue East at Twyn Rivers Drive and Vandorf Street on November 19, 2024, and at Rainbow Ridge Avenue on August 28, 2024. The studies recorded the total volume and delays of pedestrians crossing Sheppard Avenue East at these three intersections.

Seniors, unassisted children and people with disabilities that are observed crossing are given a higher weighting by a factor of two. At Twyn Rivers Drive, the adjusted volume of pedestrians observed crossing was nine; of these, three experienced a delay greater than 10 seconds. At Rainbow Ridge Avenue, the adjusted volume of pedestrians observed crossing was 41; of these, 18 experienced a delay greater than 10 seconds. At Vandorf Street, the adjusted volume of pedestrians observed crossing was 14; of these, five experienced a delay greater than 10 seconds.

The compliance level of the study results in relation to the warrant criteria at the three intersections is shown in Table 1 below.

Table 1: Pedestrian Crossover Warrant Criteria and Compliance on Sheppard Avenue East at Twyn Rivers Drive, Rainbow Ridge Avenue and Vandorf Street

Justification	Compliance level		
	Twyn Rivers Drive	Rainbow Ridge Avenue	Vandorf Street
Pedestrian Volume	3%	15%	5%
Pedestrian Delay	3%	20%	6%

In order to meet the warrant criteria, 100 percent compliance is required in both categories. Based on the results of the study, a PXO is not technically justified, as none of these intersections meet the minimum requirements; both the pedestrian volumes and delays are below the required thresholds.

Collision statistics provided by the Toronto Police Service for the three-year period ending December 31, 2024, indicate that nine collisions occurred at Sheppard Avenue East and Twyn Rivers Drive, four at Sheppard Avenue East and Rainbow Ridge Avenue, and none at Sheppard Avenue East and Vandorf Street. Although one pedestrian collision and two collisions involving a person cycling were reported at Sheppard Avenue East and Twyn Rivers Drive, none of these incidents could be considered to have been prevented through the installation of pedestrian crossing protection.

Environmental safety characteristics were also evaluated to determine if a PXO would be appropriate at any of these locations. Details of the evaluation are included in Attachment 2. Based on the evaluation, a PXO is not a suitable type of pedestrian crossing protection on this section of Sheppard Avenue East.

Traffic Control Signals

As noted, the intersections on Sheppard Avenue East at Twyn Rivers Drive, Rainbow Ridge Avenue and Vandorf Street were also reviewed for traffic control signals. Staff rely on the justification criteria as outlined in the Ontario Traffic Manual (OTM) Book 12. The OTM justification criteria includes factors such as volume of vehicles and pedestrians, delay to cross traffic, and collision history. In addition to these technical justifications, staff consider an environmental checklist which includes consideration of road width, posted speed limit, operating speeds, adjacent land uses, pedestrian desire lines and demographics, presence of transit stops, sight lines, and distance between existing crossing opportunities.

As part of the investigation, staff conducted vehicle and pedestrian counts on November 19, 2024, at the intersection of Sheppard Avenue East and Twyn Rivers Drive, Sheppard Avenue East and Rainbow Ridge Avenue and Sheppard Avenue East and Vandorf Street. The results of the counts and collision hazard are summarized in Table 2.

The "Collision hazard" criterion is based on the number of collisions potentially preventable by the installation of traffic control signals. Collision history provided by the Toronto Police Service for the three-year period ending December 31, 2024, were reviewed for collisions that were potentially preventable by the installation of traffic control signals. The review disclosed that there were two collisions on Sheppard Avenue East and Twyn Rivers Drive and two collisions on Sheppard Avenue East and Rainbow Ridge Avenue that were potentially preventable by the installation of traffic control signals, and none were reported on Sheppard Avenue East and Vandorf Street. Of these collisions, one collision involved a pedestrian and two involved a person cycling on Sheppard Avenue East and Twyn Rivers Drive.

Table 2: Warrant Criteria and Compliance

Justification	Compliance level		
	Twyn Rivers Drive	Rainbow Ridge Avenue	Vandorf Street
Minimum vehicular volume	2%	32%	31%
Delay to cross traffic (pedestrians and vehicles)	5%	18%	35%
Collision hazard	13%	13%	0%

To meet the justification criteria for the installation of traffic control signals, one of the justifications must be 100 percent satisfied or both the minimum vehicular volume and delay to cross traffic justifications must be at least 80 percent satisfied. Based on the results in Table 2, the numerical warrants for the installation of traffic control signals are not satisfied at any of the three subject intersections at this time.

As noted in the warrant analysis, side street vehicular traffic volumes were higher in the eastern portion of the study area, while pedestrian crossing volumes were higher in the western portion. The low vehicle volumes recorded at Sheppard Avenue East and Twyn Rivers Drive are likely attributable to ongoing construction on the Twyn Rivers Bridge, which resulted in a temporary road closure. Accordingly, the vehicle data collected during this period may not accurately reflect typical conditions at this location.

Notwithstanding the numeric warrants not being met, in view of the safety and connectivity concerns in this section of Sheppard Avenue East, as well as the long spacing between existing traffic control signals (~1.9 kilometres), Transportation Services further considered the installation of traffic signals on Sheppard Avenue East and Rainbow Ridge Avenue for the following reasons:

- Rainbow Ridge Avenue is centrally located and more ideal location in terms of geometric design compared to the other subject intersections, it is approximately 750 metres to the east and 1.2 kilometres to the west between pedestrian crossing protection on Sheppard Avenue East.
- The pedestrian generators in the immediate area, including the Glen Eagles Vista trail connecting to Rouge National Urban Park at the north side of the intersection.
- The TTC bus stops on the southwest and northeast corners of the intersection and adjacent residential dwellings, will attract vulnerable pedestrians to cross the street. According to TTC ridership data, this stop experiences the highest number of boardings and alightings in this section of Sheppard Avenue East, highlighting the demand for safe pedestrian access.
- This will benefit vulnerable road users on both sides, requiring to cross the four-lane cross-section with operating speeds exceeding 60 km/h. This environment is particularly challenging for vulnerable road users such as seniors, children, and transit riders. Installing traffic signals here would provide a safe, designated crossing point and help consolidate multiple unprotected crossings into one controlled location.

In considering the above reasons, Transportation Services recommends the installation of traffic control signals at Sheppard Avenue East and Rainbow Ridge Avenue as it will provide enhanced safety for all road users.

The TTC has been consulted and concurs with the findings of this review. The TTC has indicated that ridership along this section of Sheppard Avenue East is low; however, they remain supportive of the recommendations. In conjunction with the signal installation, the TTC recommends consolidating the eastbound and westbound bus stops at Twyn Rivers Drive and Grand River Boulevard with the existing stops at Rainbow Ridge Avenue. This consolidation would provide a protected pedestrian crossing and align with TTC service standards, and is expected to support a projected increase in ridership by improving safety and accessibility for transit users in the area.

Additionally, as the Glen Eagles Vista Trail adjacent to Rouge National Urban Park is located at the northwest corner of Sheppard Avenue East and Rainbow Ridge Avenue, Parks Canada was consulted. Parks Canada has expressed support for the proposed improvements and has indicated a willingness to work collaboratively with Transportation Services should the installation of traffic signals encroach upon Parks Canada property.

Other Considerations

It should be noted that the installation of traffic control signals will have the following additional impacts:

- There will be an increase in delays for motorists on Sheppard Avenue East as a result of the traffic control signal installation
- There is potential for an increase in delays to transit service on Sheppard Avenue East as east-west traffic will no longer operate as free-flow
- Potential increase in cut-through traffic on Rainbow Ridge Avenue

The Ward Councillor has been advised of the recommendation in this report.

CONTACT

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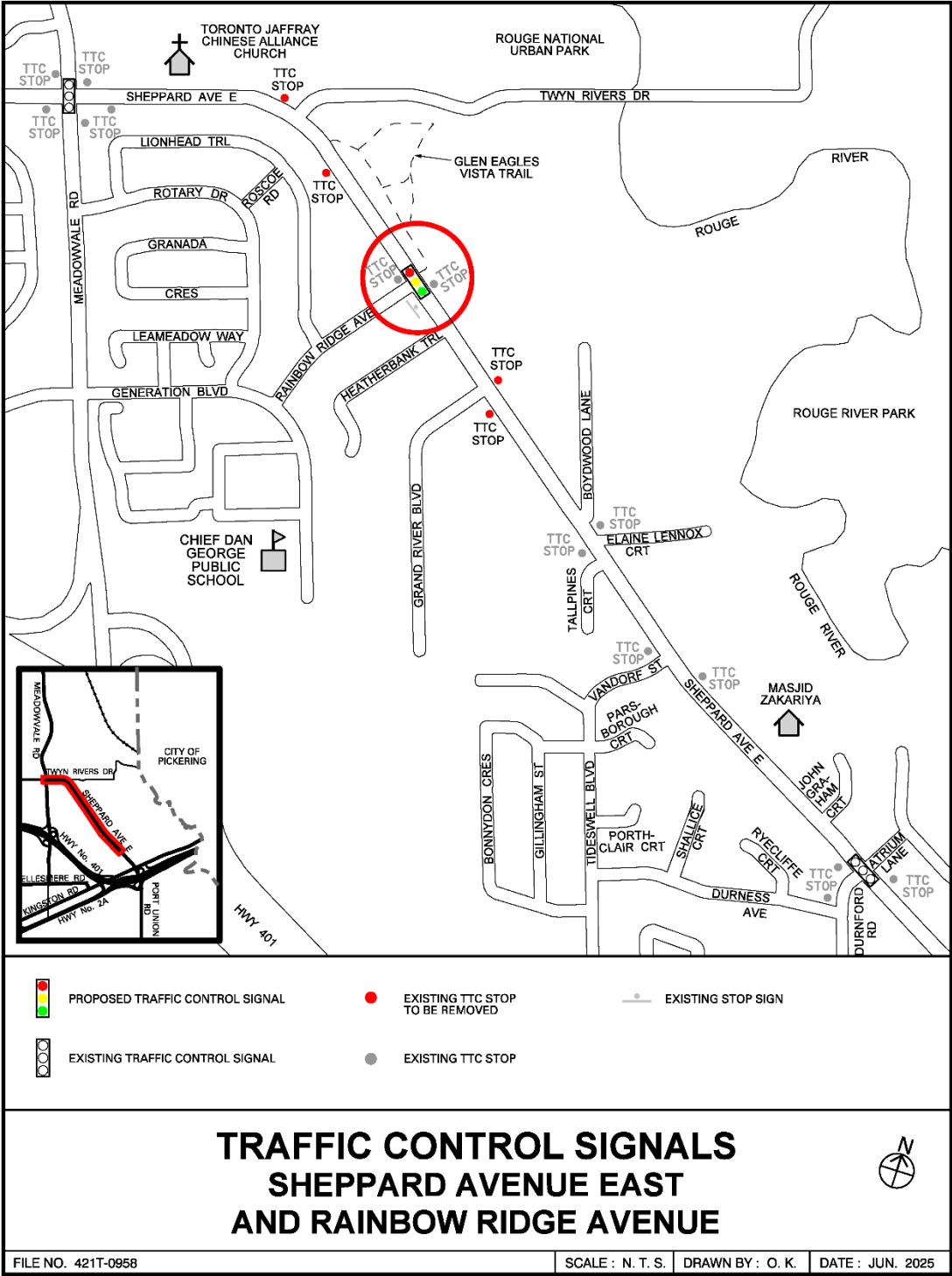
SIGNATURE

Roger Browne, M.A.Sc., P. Eng.
Director, Traffic Management, Transportation Services

ATTACHMENTS

Attachment 1: Map - Traffic Control Signals - Sheppard Avenue East and Rainbow Ridge Avenue
Attachment 2: Environmental Safety Audit - PXO – Sheppard Avenue East

Attachment 1: Map - Traffic Control Signals - Sheppard Avenue East and Rainbow Ridge Avenue



Attachment 2: Environmental Safety Audit - PXO – Sheppard Avenue East

Standard	Comments	Standard Met/Not Met
Vehicle operating speed less than 60 km/h	The operating speed limit exceeds 60 km/h (63 km/h on the western section and 67 km/h on the eastern section)	Not Met
Not more than four lanes wide on a two-way street or more than three lanes wide on a one-way street	Sheppard Avenue East operates with two lanes in each direction	Met
Traffic volume not more than 35,000 vehicles per day	Sheppard Avenue East carries approximately 10,300 to 12,000 vehicles per day	Met
No significant volume of turning movements	The volume of traffic turning to/from Sheppard Avenue is moderate (approx. 1,035 at Rainbow Ridge Avenue and approx 1,136 at Vandorf Street)	Met
No visibility problems exist for either pedestrians or motorists	Sheppard Avenue East has a horizontal curve at Twyn Rivers Drive	Not Met
No loading zones (including TTC) in the immediate area	There are existing TTC stops on both sides of Sheppard Avenue East	Not Met
No driveways or entrances nearby	There are residential driveways approx. 20 m east and west of the intersection of Vandorf Street, hwoere these should not generant signifcant volumes	Met
Spacing is not less than 200 metres to another pedestrian crossover or traffic control signal	Sheppard Avenue East has no adjacent traffic control signals or PXO within 200 metres	Met