

Traffic Control Signals - Midland Avenue and Kilcullen Castle Gate

Date: June 22, 2026

To: Scarborough Community Council

From: Director, Enforcement and Street Management, Transportation Services

Wards: Ward 22, Scarborough-Agincourt; Ward 23, Scarborough North

SUMMARY

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

Transportation Services is requesting approval to install traffic control signals at the intersection of Midland Avenue and Kilcullen Castle Gate. The traffic control signals will provide enhanced safety for all road users and is justified based on the assessment undertaken.

RECOMMENDATIONS

The Director, Enforcement and Street Management, Transportation Services recommends that:

1. City Council authorize the installation of traffic control signals at the intersection of Midland Avenue and Kilcullen Castle Gate.

FINANCIAL IMPACT

The estimated cost for installing traffic control signals at the intersection of Midland Avenue and Kilcullen Castle Gate, along with associated works, is \$300,000.00.

The associated works include relocating the northbound TTC bus stop, extending the southbound TTC bus stop platform, and removing approximately five trees on the east side of the intersection. Funding would be subject to availability and competing priorities within the Transportation Services 2026 Capital Budget.

DECISION HISTORY

This report addresses a new initiative.

COMMENTS

Transportation Services was requested by the Ward 22 Councillor and local residents to investigate the feasibility of installing traffic control signals at the intersection of Midland Avenue and Kilcullen Castle Gate.

Existing Conditions

Midland Avenue is characterized by the following conditions:

- It is a four-lane, north-south, major arterial roadway
- It operates two-way traffic on a pavement width of approximately 14 metres
- The daily two-way traffic volume is approximately 17,700 vehicles
- The speed limit is 50 km/h
- Heavy trucks are permitted at all times
- There is TTC service provided by the 57 Midland bus
- There are sidewalks located on both sides of the street
- A northbound left turn lane is provided at Kilcullen Castle Gate

Kilcullen Castle Gate is characterized by the following conditions:

- It is a two-lane, east-west, collector roadway
- It operates two-way traffic on a pavement width of approximately 12 metres
- The daily two-way traffic volume is approximately 3,200 vehicles
- The speed limit is 40 km/h
- Heavy trucks are permitted at all times
- There is no TTC service provided
- There is sidewalk located on the south side of the street

Midland Avenue and Kilcullen Castle Gate form a "T" type intersection. Kilcullen Castle Gate is stop controlled while Midland Avenue is uncontrolled free-flow.

The land use in the adjacent area east of Midland Avenue is mainly residential, consisting of detached and semi-detached residential dwellings. The adjacent land use in the area west of Midland Avenue is mainly commercial and industrial. Vulnerable road user generators include north-south transit stops, a plaza with a daycare, located on the southwest corner of the intersection, and a business centre, located on the northwest corner of the intersection.

The closest adjacent traffic controls are located approximately 330 metres to the north, at the Finch hydro corridor trail, and approximately 310 metres to the south, at Silver Star Boulevard/South Shields Avenue, both in the form of traffic controls signals.

A map of the area is included in Attachment 1.

Pedestrian Crossover (PXO)

To determine the need for a PXO at Midland Avenue and Kilcullen Castle Gate, staff rely on the justification criteria as outlined in the Ontario Traffic Manual (OTM) Book 12. The OTM justification criteria includes two main factors: the volume of vehicles and pedestrians, and pedestrian delay to cross traffic. Based on the traffic volume on Midland Avenue, the warrants require a minimum of 230 pedestrians crossing over eight hours. Also, based on the pedestrian crossing volume, at least 114 pedestrians must be delayed more than 10 seconds.

An eight-hour pedestrian volume and delay study was conducted on April 23, 2025, which recorded the total volume and delays of pedestrians crossing on Midland Avenue at Kilcullen Castle Gate. Seniors, unassisted children and people with disabilities that are observed crossing are given a higher weighting by a factor of two. The adjusted volume of pedestrians observed crossing was 21; of these, seven experienced a delay greater than 10 seconds. The compliance level of the study results in relation to the warrant criteria is shown in Table 1 below.

Table 1: Pedestrian Crossover Warrant Criteria and Compliance at Midland Avenue and Kilcullen Castle Gate

Criteria	Compliance
Pedestrian Volume	9 percent
Pedestrian Delay	6 percent

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 the compliance levels did not meet the minimum requirements.

In addition to the technical criteria, consideration is given to the surrounding area and the collision history and in some cases engineering judgement may be applied to recommend a PXO even if the number of pedestrians does not meet the threshold of the technical warrants.

Staff's review of the collision history and surrounding area did not disclose any other environmental factors that would warrant a PXO at this location. Collision statistics provided by the Toronto Police Service for the three-year period ending April 30, 2026, disclosed that no collisions were reported at the area of Midland Avenue and Kilcullen Castle Gate that involved crossing pedestrians.

Environmental safety characteristics were also evaluated to determine if a potential PXO would be appropriate. Details of the evaluation are included in Attachment 2. Based on the evaluation, a PXO may not be a suitable type of pedestrian crossing protection on Midland Avenue for the following reasons:

- Midland Avenue is a major arterial roadway with an operating speed of 64 km/h
- TTC stops are present on both sides of Midland Avenue
- The five-lane cross-section on Midland Avenue at Kilcullen Castle Gate
- The presence of roadside trees on the east side of the intersection may create visibility concerns for pedestrian

Although there are some contextual considerations that support a crossing at this location, existing pedestrian crossings are below requirements and environmental safety concerns are present.

Based on the above results, the installation of a PXO is not justified on Midland Avenue and Kilcullen Castle Gate.

Traffic Control Signals

To determine the need for traffic control signals at the intersection of Midland Avenue and Kilcullen Castle Gate, 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 a transit stop, sight lines, and distance between existing crossing opportunities.

As part of the investigation, staff conducted vehicle and pedestrian counts on November 16, 2024, at the subject intersection. The results of the counts and collision hazard are summarized in Table 1. 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 March 31, 2026, disclosed three collisions at the subject intersection that were potentially preventable by the installation of traffic control signals.

Table 2: Warrant Compliance - Midland Avenue and Kilcullen Castle Gate

Justification	Compliance level
Minimum vehicular volume	33%
Delay to cross traffic (pedestrians and vehicles)	63%
Collision hazard	20%

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 1, the installation of traffic control signals is not technically justified.

Notwithstanding the numeric warrants not being met, in view of the potential safety and connectivity concerns in the subject intersection, Transportation Services further considered the installation of traffic control signals based on the following environmental factors:

- The long spacing between pedestrian crossing protection on Midland Avenue, between the Finch hydro corridor trail and Silver Star Boulevard/South Shields Avenue, which is approximately 640 metres.
- The presence of transit stops on both sides of Midland Avenue that attract pedestrians to cross the street.
- The presence of a walkway approximately 200 metres north of the intersection provides a connection to the residential neighbourhood on the east side.
- The pedestrian generators in the immediate area, including the plaza, daycare, and business centre, that will attract vulnerable pedestrians to cross the street.
- The five-lane cross-section on Midland Avenue at Kilcullen Castle Gate.
- The operating speed of 64 km/h and the traffic volume on Midland Avenue.

In considering the above environmental factors, Transportation Services recommends the installation of traffic control signals at Midland Avenue and Kilcullen Castle Gate as it will provide enhanced safety for all road users.

Consultation with TTC

The TTC has been consulted and concurs with the findings of this review. In conjunction with the signal installation, the TTC recommends relocating the northbound TTC bus stop to the south leg of the intersection and extending the southbound TTC bus stop platform to meet the TTC standards.

Other Considerations

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

- Potential increase in delays to transit service on Midland Avenue
- Potential increase in cut-through traffic on Kilcullen Castle Gate
- The removal of five trees on the east side of the intersection

The Ward Councillors have been advised of the recommendation in this report.

CONTACT

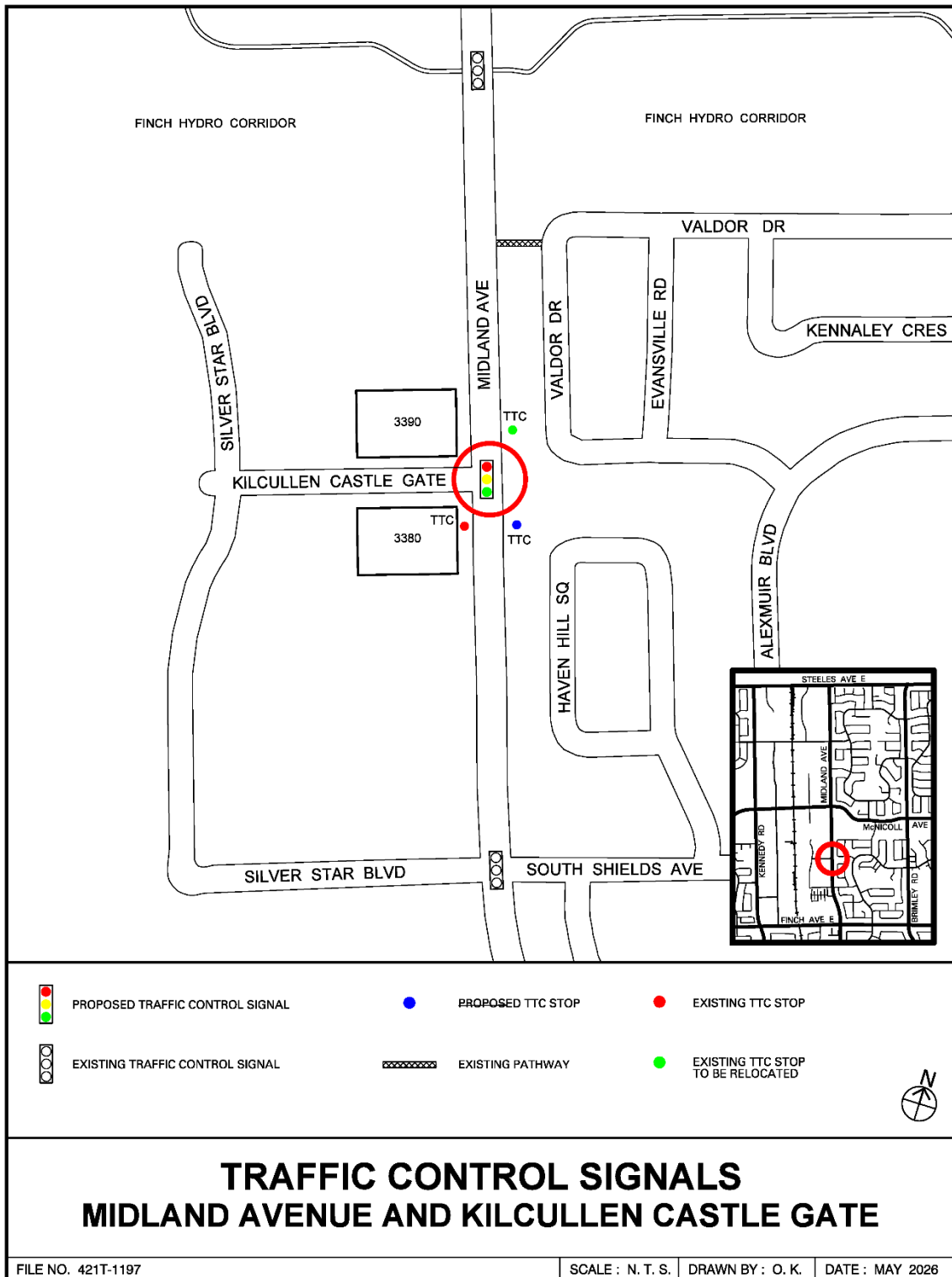
Dan Clement, CET, Manager Traffic Operations (Area 1), Transportation Services
416-396-3226, Dan.Clement@toronto.ca

SIGNATURE

Mike Barnett, P. Eng.
Director, Enforcement and Street Management, Transportation Services

ATTACHMENTS

Attachment 1: Map - Traffic Control Signals - Midland Avenue and Kilcullen Castle Gate
Attachment 2: Environmental Safety Audit - PXO - Midland Avenue and Kilcullen Castle Gate



Attachment 2: Environmental Safety Audit - PXO - Midland Avenue and Kilcullen Castle Gate

Standard	Comments	Standard Met/Not Met
Vehicle operating speed less than 60 km/h	The speed limit on Midland Avenue is 50 km/h and the operating speed is 64 km/h	Not met
Not more than four lanes wide on a two-way street or more than three lanes wide on a one-way street	Midland Avenue operates with two lanes in each direction, with an additional left-turn lane at the subject intersection	Not met
Traffic volume not more than 35,000 vehicles per day	Midland Avenue carries approximately 17,700 vehicles per day	Met
No significant volume of turning movements	Approximately 8 percent of the movements are turning	Met
No visibility problems exist for either pedestrians or motorists	The presence of roadside trees on the east side of the intersection with no maintenance may create visibility concerns for pedestrian	Not met
No loading zones (including TTC) in the immediate area	There are TTC stop at the northeast and southwest corners of the intersection	Not Met
No driveways or entrances nearby	No driveways in the vicinity	Met
Spacing is not less than 200 metres to another pedestrian crossover or traffic control signal	Finch corridor trail (TCS) - 330 metres north Silver Star Boulevard/South Shields Avenue (TCS) - 310 metres south	Met