

## **Safety Review - Keele Street and Calvington Drive**

**Date:** August 6, 2020  
**To:** North York Community Council  
**From:** Acting Director, Traffic Management, Transportation Services  
**Wards:** Ward 6 - York Centre

### **SUMMARY**

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At its meeting on June 16, 2020, North York Community Council directed Transportation Services to conduct a review of the traffic safety and operations standards at the intersection of Keele Street and Calvington Drive. This report provides an overview of the safety review and safety improvements undertaken by Transportation Services.

### **RECOMMENDATIONS**

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The Acting Director, Traffic Management, Transportation Services recommends that:

1. North York Community Council receive this report for information.

### **FINANCIAL IMPACT**

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All costs associated with the short-term safety improvements are included in the Transportation Services 2020 Operating Budget.

### **DECISION HISTORY**

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On June 16, 2020, North York Community Council adopted Item NY15.25 (Urgent Review of Intersection - Keele Street and Calvington Drive) and directed Transportation Services to study strategies to improve safety at the intersection of Keele Street and Calvington Drive and report the findings by the third quarter of 2020. The Community Council decision can be found at:

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2020.NY15.25>

## COMMENTS

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### Existing Conditions

The intersection of Keele Street and Calvington Drive is controlled by traffic signals. Calvington Drive intersects the west side of Keele Street in a "T" type intersection and pedestrian crossings are provided on the west and south intersection legs with approximately 250 crossings on each leg over an eight hour period. There is a laneway and three driveways located on the east side of Keele Street within, or in the vicinity of, the signalized intersection. There are currently no turn prohibitions in effect at this intersection. A map of the area is shown in Attachment 1.

Keele Street is a major arterial roadway comprised of two northbound lanes, two southbound lanes and a centre left turn lane with approximately 48,000 vehicles per day. It has a pavement width of approximately 18 metres and there are sidewalks provided on both sides of the street. The posted speed limit on Keele Street is 50 km/h, which was reduced in 2019 under the Vision Zero 2.0 - Road Safety Plan Update report (Item IE6.8). Keele Street, between Tavistock Road and Victory Drive, is a designated Community Safety Zone and is equipped with permanent Watch Your Speed boards.

Calvington Drive is a collector roadway comprised of a single lane in each direction with approximately 3,200 vehicles per day. It has a pavement width of approximately 8.5 metres and a sidewalk is provided on the south side of the street. The posted speed limit on Calvington Drive is 40 km/h, which was reduced in 2019 under the Vision Zero Speed Management Strategy (Item NY11.23) and signed in June 2020. Heavy trucks are prohibited on Calvington Drive at all times.

TTC service on Keele Street is provided by the 41 Keele and 941 Keele Express bus routes. TTC service is also provided on Calvington Drive by the 120 Calvington bus route. The latter buses also travel on Keele Street, south of Calvington Drive. A northbound bus stop is located approximately 32 metres south of Keele Drive and a southbound bus stop located approximately 40 metres south of Calvington Drive. A westbound bus stop is located approximately 38 metres west of Keele Street.

The land use in the vicinity of this intersection includes commercial uses on the east side of the Keele Street, comprising a small plaza and a gas station. On the west side of Keele Street, as well as on Calvington Drive, there are residential uses.

### Collision Review

A review of the Toronto Police Service collision records, with specific emphasis for pedestrian or cyclist collisions at this intersection was undertaken for the five year period ending June 30, 2020. The results of the review are summarized in the following table:

Table 1: Collision Summary

5 Year Collision	2016	2017	2018	2019	2020
Collision involving Pedestrian or Cyclist	0	0	1	1	1
Northbound Left Turn Collisions	0	1	3	1	1
Other (rear end, sideswipe, right-turn)	3	7	9	10	4

As shown in the above table, there were three collisions involving a pedestrian or cyclist. These three collisions are described in more detail below:

- September 10, 2018 at 3:03 p.m. - A southbound cyclist on the sidewalk on the east side of the intersection was struck by a vehicle exiting a private driveway. The cyclist was taken to hospital by ambulance.
- April 28, 2019 at 7:35 p.m. - A westbound cyclist was crossing in the south intersection leg without the right-of-way and was struck by a northbound motorist. The cyclist was taken to hospital by ambulance.
- June 7, 2020 at 12:15 a.m.-Two northbound pedestrians were crossing in the west intersection leg with the right-of-way and were struck by a northbound motorist who was turning left at the intersection. The motorist failed to remain at the scene but has since been arrested. One pedestrian was injured and the other succumbed to her injuries.

### Safety Review and Improvements

Transportation Services' standard operating practice following all fatal collisions is to conduct a site review as soon as possible. These are generally high level reviews, as the specific details of the fatality are generally not available at this time. This initial review was undertaken at the intersection of Keele Street and Calvington Drive following the June 7, 2020 fatal collision.

Once the collision details are available from the Toronto Police Service, a more detailed assessment is then undertaken on-site. This is typically within two weeks of the fatal collision and includes staff from various units from Transportation Services in attendance.

Finally, based on staff's detailed assessment, further studies may be scheduled to review potential issues at the intersection. At the intersection of Keele Street and Calvington Drive, the operation of the laneway and three driveways on the east side of

Keele Street was reviewed as it was reported they may negatively impact the safety and efficiency of this intersection.

Transportation Services' review included all aspects of the intersection's operation. The results of this review have been summarized as follows:

**A. Laneway/Driveway Operations**

As noted, there is a laneway and three driveways on the east side of Keele Street in the immediate vicinity of Calvington Drive that could potentially impact the safe and efficient operation of this intersection. These locations are as follows (listed from north to south):

1. A public laneway is located approximately 18 metres north of Calvington Drive. This laneway travels east and turns 90 degrees to intersect with the north side of Keelegate Drive. It also provides access to the plaza on the east side of the street (No's. 2883-2889 Keele Street).

2. A private driveway is located roughly opposite Calvington Drive. It is also provides access to the plaza on the east side of the street and is connected to the access noted above.

3. A private driveway is located immediately south of Calvington Drive. It provides access to the gas station that is located at the corner of Keele Street and Keelegate Drive (No. 2881 Keele Street).

4. A private driveway is located approximately 16 metres south of Calvington Drive. It also provides access to the gas station that is located at the corner of Keele Street and Keelegate Drive and is connected to the access noted above. This gas station also has two additional driveways, located on the north side of Keelegate Drive.

Studies were undertaken on August 5, 2020 to assess the operation of the laneway and three driveways, including the volumes of traffic entering and existing, as well as general observations on how they are operating. The results of the review are summarized in the following table:

Table 2: Laneway/Driveway Review

Laneway/Driveway	A.M. Peak Hour (7:45 a.m. to 8:45 a.m.)		P.M. Peak Hour (4:30 a.m. to 5:30 a.m.)	
	Inbound	Outbound	Inbound	Outbound
1.	8	10	11	8
2.	9	5	7	7
3.	0	15	1	19
4.	10	23	7	17

The observations noted minimal conflicts with pedestrians and motorists.

A review of the Toronto Police Service collision records for collisions at any of these four laneways/driveways was undertaken for the five year period ending June 30, 2020. There were two collisions exiting the plaza and two collisions entering and exiting the gas station during the above mentioned period.

### **B. Pavement Markings**

The pavement markings at this intersection were generally in good condition, although they are showing some wear. These markings will be refreshed as part of Transportation Services' annual painting program.

### **C. Sidewalks**

As noted, sidewalks are provided on both sides of Keele Street and on the south side of Calvington Drive. Generally, the sidewalks are in good condition, although the review did note some minor areas requiring repair. Additionally, staff identified a potential improvement to add new sidewalk on the north side of Calvington Drive, to provide improved access for pedestrians using the TTC stop that is located approximately 38 metres west of Keele Street. This would require moving a utility box, two trees and grading and would be incorporated during the next road reconstruction estimated in 2025.

### **D. Sight lines**

All sightlines at this intersection were reviewed and there were no impediments identified for intersection users.

### **E. Signage**

The signage at the intersection was found to be in good condition, appropriate and clearly visible to intersection users.

### **F. Signal Hardware and Design**

The vehicle and pedestrian signal displays at the intersection were found to be in good condition and clearly visible to intersection users. The signal controller cabinet is located on the southwest corner of the intersection and it may be beneficial to utilize for a street art installation.

There are pedestrian crosswalks on the south side and the west side of the intersection. The implementation of a north leg pedestrian crossing would require the following:

#### North West Corner

- Curb depressions would have to be cut and Tactile Walking Surface Indicators (TWSI) installed.
- New traffic pole would have to be installed. The existing hydro pole cannot accommodate the new infrastructure. Relocation of the existing traffic signal infrastructure to the new traffic signal pole.

#### North East Corner

- Curb depressions would have to be cut and TWSI installed.

- The existing location of the traffic pole may not be far enough from the existing hydro pole to accommodate 3 metres, therefore the traffic pole may have to be relocated.
- There is also a chamber lid within the potential north leg crossing which should be avoided.
- The existing southbound stop bar and pavement markings would have to be removed and pushed back to accommodate the north leg crossing and would be skewed to avoid the hydro poles and driveways.

\*Note that the intersection currently isn't Audible Pedestrian Signal (APS) equipped and no TWSI present. The intersection would likely need to be re-wired (it is also unknown what the state of the existing conduits are).

### **G. Signal Timings**

The signals at this intersection operate with a semi-actuated mode of control, which means the signals remain green for north-south traffic on Keele Street, unless a vehicle is detected on Calvington Drive and/or a pedestrian pushes the button to cross Keele Street. This is the appropriate mode of control at this intersection, based on the prevailing conditions.

Based on the pedestrian crossing distances, the signal timings provide sufficient time for pedestrians to cross at a comfortable walking speed. No pedestrians were observed having difficulty competing their crossings.

A northbound left-turn green arrow feature is provided at this intersection. This feature operates during the weekday morning and afternoon peak periods (6:30 a.m. to 10:00 a.m. and 3:30 p.m. to 7:00 p.m., Monday to Friday). This phase does not display every cycle, it is only displayed when there are three or more vehicles waiting in the left-turn queue. Further assessment is required to determine if modifications to the signal phasing are required.

The intersection was also assessed for the installation of a leading pedestrian interval feature (LPI). An LPI operates by displaying the "Walk" phase for pedestrians before the green phase for motorists, giving pedestrians a head-start over turning traffic. This type of phasing is beneficial to pedestrians, as motorists are more likely to yield the right-of-way to pedestrians that are already crossing the street, as opposed to pedestrians that are about to begin their crossing.

For the LPI phase to operate optimally, it is necessary for audible pedestrian signals to be in place at the signalized intersection. In order for audible pedestrian signals to be installed at this intersection to assist visually-impaired pedestrians, a full complement of pedestrian crossings is required. If audible pedestrian signals were to be installed with the missing north leg pedestrian crossing, it could create a dangerous situation as a pedestrian could potentially begin crossing east-west at this intersection upon hearing the audible signal for the south leg crossing.

The installation of a north leg pedestrian crossing is desirable at this intersection for the benefits noted, but may be challenging. As mentioned earlier, there are utility and signal poles located on the north-east and north-west sides of Keele Street that may impede the installation of a pedestrian crossing and the associated curb depression and tactile

walking surface indicators. This work would also provide opportunities also to re-align the south leg pedestrian crossing

## **H. Street lighting**

Street lighting is the responsibility of Toronto Hydro. However, Transportation Services' review did note that there are street lights provided on both sides of Keele Street at Calvington Drive. A request has been made to Toronto Hydro to confirm that street lighting levels are sufficient, a response on this matter is still outstanding.

## **Short and Long-Term Improvements**

Based on Transportation Services' assessment, a number of short-term and long-term improvements were identified at this intersection. These improvements are summarized as follows:

### **Short-Term Improvements**

- Reduce the speed limit from 50 km/h to 40 km/h on Calvington Drive. This was completed July 2020.
- Request for Toronto Police Services enforcement of the heavy truck prohibition on Calvington Drive.
- Request the pavement markings to be refreshed during annual maintenance.
- Request submitted to add street art to the signal controller cabinet on the southwest corner of intersection.
- Undertake a detailed study to determine if changes to the operation of the existing northbound left-turn green arrow feature are required.
- Repairs to the curbs/sidewalks and boulevards on the northwest and southwest corners.
- Follow-up with Toronto Hydro on the street lighting assessment.

### **Long-Term Improvements**

A number of geometric improvements will be assessed during the next road reconstruction, anticipated for 2024 for Keele Street and 2025 for Calvington Drive. This may include but may not be limited to the following, once reviewed:

- Implementation of north leg pedestrian crossing and a re-alignment of the south leg pedestrian crossing.
- The potential consolidation of private driveways on the east side of the intersection, or their inclusion into the traffic control signals.
- Implementation of a sidewalk on the north side of Calvington Drive, between Keele Street and the TTC bus stop approximately 38 metres west.
- Review of LPI (Leading Pedestrian Interval) at the intersection.
- Implementation of Left Turn Calming at the intersection.
- Implementation of a road narrowing of Calvington Drive at Keele Street to enhance pedestrian storage, reduce the pedestrian crossing distance and slow turning traffic. Any potential road narrowing may be limited as TTC buses are turning at this intersection, and they have larger turning requirements.

The Ward Councillor is aware of the recommendations of this staff report.

## **CONTACT**

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## **SIGNATURE**

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

## **ATTACHMENTS**

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Attachment 1: Map - Safety Review - Keele Street and Calvington Drive



### KEELE STREET & CALVINGTON DRIVE SAFETY REVIEW



ATTACHMENT 1    WARD 6    SCALE : N. T. S.    NOTE: INFORMATION ON THIS PLAN IS BASED ON OFFICE RECORDS AND IS SUBJECT TO FIELD VERIFICATION.  
FILE NO. NYRD20 - 0036    DRAWN BY : A. A.    AUGUST, 2020    TRANSPORTATION SERVICES    NORTH YORK YORK DISTRICT



**LEGEND**

- Existing Stop Sign Existing Signalized Intersection Driveway count undertaken

**LOCATION MAP**  
 Keele Street and Calvington Drive  
 Laneway/Driveway Study Locations



Transportation Services	Ward 6	DCC	August 2020
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