

To: Community and Operations Services Committee

From: Kevin Alexander, Commissioner,  
Community and Operations Services Department

Report Number: CO-25-03

Date of Report: January 15, 2025

Date of Meeting: January 20, 2025

Subject: Request for Traffic Control Signals at Greenhill Avenue and  
Wilson Road North

Ward: Ward 1

File: 03-05

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## **1.0 Purpose**

The purpose of this Report is to respond to the following Council direction from September 23, 2024 related to Item CO-24-50:

“That Item CO-24-50 concerning the Installation of Traffic Lights at Wilson Road North and Greenhill Avenue be referred to staff for a report including but not limited to whether it is warranted and the associated cost.”

Attachment 1 is a key plan showing the road network, the subject intersection and Elsie MacGill Public School.

## **2.0 Recommendation**

That the Community and Operations Services Committee recommend to City Council:

That Report CO-25-03 dated January 15, 2025 concerning the investigation of traffic control signals at the intersection of Greenhill Avenue and Wilson Road North be received for information.

## **3.0 Input From Other Sources**

- Legislative Services
- Legal Services

## **4.0 Analysis**

### **4.1 Road Characteristics**

#### **4.1.1 Wilson Road North**

Wilson Road North is classified as an Arterial C road. It has a pavement width of 11 metres and has sidewalks along both sides of the road. The posted speed limit is 40 km/h. Wilson Road North between Taunton Road East and Conlin Road East has bike lanes with supplemental “No Stopping Anytime” restrictions along both sides of the road.

#### **4.1.2 Greenhill Avenue**

Greenhill Avenue is classified as a collector road. It has a pavement width of 10 metres and has sidewalks along both sides of the road. The posted speed limit is 40 km/h. Greenhill Avenue has a “No Heavy Truck” restriction and “Community Safety Zone” by-law between Wilson Road North and Harmony Road North.

Elsie MacGill Public School is located at 800 Greenhill Avenue. An overview map of the area is appended as Attachment 1.

### **4.2 Existing Traffic Control at Greenhill Avenue and Wilson Road North**

The intersection of Greenhill Avenue and Wilson Road North is controlled by an all-way stop control and a school crossing guard currently operates at this intersection providing assistance to students attending Elsie MacGill Public School.

Staff collected traffic data in October 2024 and completed a study to determine if traffic control signals are warranted at the intersection of Greenhill Avenue and Wilson Road North.

#### **4.2.1 Ontario Traffic Manual – Traffic Control Signal Warrant**

The Ontario Traffic Manual (“O.T.M.”) governs the use of traffic control signals. The O.T.M. provides information and guidance for transportation practitioners and promotes uniformity of treatment in the design, application and operation of traffic control devices and systems across Ontario.

The traffic control signal warrant is based on existing traffic volumes and collision history. Operating speeds are not part of the technical warrant criteria as prescribed by the O.T.M., and traffic control signals should not be used as a speed control device.

It should be noted that unwarranted traffic control signals can lead to excessive delay, increased use of fuel, increased air pollution, increased noise, motorist frustration, greater disobedience of the signals and the increased use of alternative routes in attempting to avoid these types of signals. A traffic control signal is a control device rather than a safety device. As such, traffic control signals should not be used for traffic calming schemes, for limiting traffic volumes on specific routes, as speed control devices, as demand control devices, or for the discouragement of motorists and pedestrians from using a specific route.

**4.2.2 Traffic Control Signal Study – Volume Warrant**

The O.T.M. states that traffic control signals may be considered where certain conditions are met specific to traffic volumes.

**4.2.2.1 Justification 1: Minimum Vehicular Volume**

The Minimum Vehicle Volume Justification is intended for applications where the principal reason for installing a traffic control signal is the cumulative delay produced by a large volume of intersecting traffic at an unsignalized intersection. For example, long wait times for a large volume of motorists to move through an all-way stop control.

It is separated into 2 parts: 1A (All Approach Lanes) and 1B (Minor Street Both Approaches). At this intersection, Greenhill Avenue is considered to be the Minor Street. For traffic control signals to be warranted based on Justification 1, parts 1A and 1B must both be satisfied at 100%.

**(1) 1A – All Approach Lanes**

There must be a minimum of 720 vehicles approaching the intersection on all approach lanes during each of the eight (8) peak hours to be 100% warranted. As shown in Table 1 below, minimum compliance in this scenario was not achieved.

**(2) 1B – Minor Street Both Approaches**

There must be a minimum of 170 vehicles approaching on the minor street approach (Greenhill Avenue) during each of the eight (8) peak hours to be 100% warranted. As shown in Table 1 below, minimum compliance in this scenario was not achieved.

**Table 1: Justification 1 - Minimum Vehicular Volume Summary**

Justification	Guidance Approach Lanes	Peak Hour Volume and Percentage Warrant								Section Percent
		Hour Ending								
	Minimum Volume	8:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	
<b>1A - (All Approach Lanes)</b>	720	568	384	328	523	512	541	553	504	<b>68%</b>
	Compliance %	79%	53%	46%	73%	71%	75%	77%	70%	
<b>1B - (Minor Street Both Approaches)</b>	170	272	121	100	209	177	176	182	177	<b>91%</b>
	Compliance %	100%	71%	59%	100%	100%	100%	100%	100%	
<b>Signal Justification 1:</b>					Both 1A and 1B 100% Fulfilled each of 8 hours: <b>NOT MET</b> Lesser of 1A or 1B at least 80% fulfilled each of 8 hours: <b>NOT MET</b>					

#### **4.2.2.2 Justification 2: Delay to Cross**

The Delay to Cross Traffic Justification is intended for applications where the traffic volume on the main road is so heavy that traffic on the minor road suffers excessive delay or hazard in entering or crossing the main road. Based on field observations, there was no significant queuing of vehicles on Greenhill Avenue waiting to cross Wilson Road North with the existing all-way stop control in place. Justification 2 is not met.

#### **4.2.2.3 Justification 3: Volume/Delay Combination**

Traffic control signals may occasionally be justified where neither Justification 1 nor Justification 2 is 100% satisfied, but both justifications are at least 80% satisfied. Justification 3 should only be applied after an adequate trial of other remedial measures designed to reduce delay and inconvenience to traffic have failed to solve the operational issues at the intersection. However, as Justification 1 was less than 80% satisfied, Justification 3 is not met.

Overall, the O.T.M. volume warrant was not met at the intersection of Greenhill Avenue and Wilson Road North to justify traffic control signals.

#### **4.2.3 Traffic Control Signal Study – Collision Warrant**

Traffic control signals may be considered as one means of improving intersection safety where an unsignalized intersection has an unusually high collision history.

The installation of traffic control signals may be justified when there are:

1. Fifteen or more reportable collisions over a 36 month period that are considered reducible with traffic control signals. These types of collisions include angle and turning movement collisions involving vehicles and/or pedestrians which, under signalized conditions, would move on separate phases.
2. Adequate trial or consideration of less restrictive remedies with satisfactory observance and enforcement has failed to reduce collision frequency. An example of this would be changing an unsignalized 2-way stop (minor street) intersection to an all-way stop intersection instead of going directly to traffic control signals.

Upon review of the collision history at the intersection of Greenhill Avenue and Wilson Road North, staff have found a total of four (4) reported collisions over the past 36 months, therefore, the O.T.M. collision warrant was not met at the intersection of Greenhill Avenue and Wilson Road North.

#### **4.2.4 Traffic Control Signal Study - Summary**

Upon review of the traffic volumes and collision history at the intersection of Greenhill Avenue and Wilson Road North, Staff have determined that a traffic control signal is not warranted in accordance with the criteria in the O.T.M., therefore Staff do not recommend a traffic control signal at the intersection of Greenhill Avenue and Wilson Road North.

Observations made at this intersection showed no significant queuing of vehicles on Greenhill Avenue or Wilson Road North with the existing all-way stop control. Based on the observations and the very low collision frequency over the past 3 years, the all-way stop control appears to be operating as intended.

#### **4.2.5 Traffic Control Signal Estimated Cost**

The estimated cost to implement traffic control signals at the intersection of Greenhill Avenue and Wilson Road North is approximately \$250,000.

### **5.0 Financial Implications**

There are no financial implications associated with the recommendation contained in this Report.

### **6.0 Relationship to the Oshawa Strategic Plan**

This report responds to the Oshawa Strategic Plan Priority Area “Care: Safe and Sustainable Environment” with the goal to collaborate and advocate for effective services, programs, and community safety and well-being support.



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Parks and Roads Operations Services



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Community and Operations Services Department

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 Greenhill Avenue and Wilson Road North Intersection

City of Oshawa

