



City of
Peterborough

To: Members of the General Committee

From: Cynthia Fletcher
Commissioner of Infrastructure and Planning Services

Date: July 12, 2021

Subject: Report IPSTR21-012
Installation of Traffic Signals on Charlotte Street at
Hospital Drive

Purpose

A report to recommend the installation of traffic signals on Charlotte Street at Hospital Drive.

Recommendations

That Council approve the recommendations outlined in Report IPSTR21-012 dated July 12, 2021, of the Commissioner of Infrastructure and Planning Services, as follows:

- a) That traffic signals be installed at the intersection of Charlotte Street and Hospital Drive; and
- b) That the Traffic By-law 91-71 be amended to reflect the recommendations of this report.

Budget and Financial Implications

Installation of traffic signals at the intersection of Charlotte Street and Hospital Drive will cost approximately \$300,000, funds for which are available in the uncommitted balance of the approved 2021 capital budgets for Traffic Signal Infrastructure (project ref 5-17.03) and Accessible Transit Stops (project 5-167.05) as summarized in Table 1.

Table 1 – Estimated Costs and Funding Sources

Items	Cost Estimate
1 Installation of Traffic Signals	\$200,000
2 Modifications to Curbs / Sidewalks / Transit Stops	\$ 50,000
3 Contingency (20%)	\$ 50,000
Total Estimated Cost	\$300,000
Funding Sources	
2021 Traffic Signal Infrastructure (project ref 5-17.03)	\$200,000
2021 Accessible Transit Stops	\$100,000
Total Funding	\$300,000

Background

In response to public concerns about the safety of pedestrians crossing Charlotte Street / Clonsilla Avenue between Monaghan Road and Sherbrooke Street, staff undertook a review of opportunities to provide a protected crossing within this section of roadway.

Clonsilla Avenue, from Sherbrooke Street to Hospital Drive (where Clonsilla turns into Charlotte Street) is designated as a four lane, medium-capacity arterial road in Schedule B of the Official Plan. The average weekday volume using Charlotte Street, just west of Monaghan Road, is 18,280 vehicles per day based on traffic counts taken in the fall of 2019. There is a signalized intersection at Sherbrooke Street and a signalized intersection at Monaghan Road, which both provide protected pedestrian crossing opportunities. Between these two intersections the spacing is approximately 690 m and, given the daily volumes, there are minimal safe opportunities for pedestrians to cross Clonsilla Ave / Charlotte Street at a mid-block location.

Hospital Drive is designated as a two lane, high-capacity collector road in Schedule B of the Official Plan. The average weekday volume using Hospital drive, just west of Dobbin Avenue, is 3,670 vehicles per day based on traffic counts taken in the fall of 2019.

Signal Warrant Analysis

The City of Peterborough uses a standardized warrant procedure to determine if traffic signals are required at an intersection. The warrant procedure, contained in the Ontario Traffic Manual – Book 12, was developed by the Ontario Ministry of Transportation and a Technical Working Group from several Ontario Municipalities, and is used by road authorities across the province to assess the need for signalization.

The function of a traffic control signal is to alternate the right-of-way between conflicting streams of vehicular traffic, or vehicular traffic and pedestrians crossing a roadway. Accordingly, the traffic signal warrant process assesses the volume of traffic on both roadways, the amount of traffic and number of pedestrians trying to cross the main roadway and considers the collision history for the types of incidents that can be corrected by the installation of a traffic signal. Data for the intersection is compared to standard criteria for different intersection configurations to determine the degree to which the criteria are satisfied.

There are four main criteria used to determine the need for traffic signals, including:

1. total vehicle volume using intersection;
2. delay to cross traffic;
3. a combination of total volume and cross traffic delay; and
4. collision history.

If condition 1 or 2 are 100% satisfied compared to the criteria, signalization is appropriate for the location. If not, condition 3 can justify installing a signal if both condition 1 and 2 are satisfied to the 80% level or higher. If the first three conditions are not satisfied, signals may be justified if condition 4 is satisfied to a level of 100%.

Based on traffic counts undertaken in the fall of 2019, and collision data between 2015 and 2020, the results of the signal warrant analysis is summarized in Table 1.

Table 2 – Summary of Traffic Signal Warrant Results

Justification Criteria		Compliance	Criteria Met?
1. Total Vehicle Volume	Side Road Volume	54 %	NO
2. Delay to Cross Traffic	Vehicles & Pedestrians Crossing Main Road	100%	YES
3. Combination of 1 & 2	Justification 1 and 2 at 80%	N/A	N/A
4. Collision History	Average 5 Collisions* / Year	20%	NO
SIGNAL JUSTIFIED			YES

Note: Only collisions that could be corrected by the installation of Traffic Signals are included in this section.

This intersection does not meet the minimum threshold under total vehicle volume, and it also does not meet the Collision Justification either, as there has only been an average of one collision per year over the past 3 years that could be corrected by the installation of traffic signals. The volumes at this intersection do satisfy the Delay to Cross Traffic Criteria to the 100% level. Given that justification 2 was satisfied to the 100% level, there is no need to assess condition 3.

The Delay to Cross Traffic warrant also considers the pedestrian demand wanting to cross the major roadway. Under current conditions there are very few pedestrians crossing Clonsilla Avenue / Charlotte Street at this location due to the heavy volumes, speeds, and lack of available gaps in traffic. Installation of a traffic signal will provide a protected crossing at a location with numerous pedestrian generators, such as the Peterborough Medical Clinic, Westmount Pharmacy, and ultimately to access the hospital. Pedestrian demand for this crossing location is expected to increase significantly once a traffic signal is installed.

Based on the above assessment, traffic signals would be beneficial at this location and would assist vehicles trying to find a safe gap to turn left onto Charlotte Street from Hospital Drive.

Additional Benefits to Transit

Providing a protected crossing location at the Hospital Drive / Charlotte Street intersection will also improve Transit service and access in this area. A traffic signal will provide a protected crossing location that can benefit transit users. The current Parkway route (Route 5) includes a stop on Clonsilla Ave at Victory Crescent, and it is

difficult for passengers to cross the four-lane section of Clonsilla Avenue at this busy location. With a traffic signal at Hospital Drive, this stop could be relocated to the signalized intersection to provide a safer crossing for transit passengers.

Adding a traffic signal at this intersection also allows for different routing options for transit routes serving the hospital. The current Weller route (Route 4) uses Weller Street between the Hospital and Monaghan Road for eastbound buses to use the traffic signal at Weller Street and Monaghan Road to make a left turn onto Monaghan Road. This portion of the route does not generate significant ridership, but the routing via Weller Street is necessary to maintain the operating schedule. In the westbound direction, the bus is routed via Charlotte Street and Hospital Drive. With the new proposed traffic signal at Hospital Drive and Charlotte Street, the Weller bus route can be re-routed to use Hospital Drive in both directions. This change in route will also better serve the Peterborough Medical Centre on Hospital Drive.

Summary

In response to requests to improve the safety of pedestrians trying to cross Charlotte Street / Clonsilla Avenue, between Monaghan Road and Sherbrooke Street, staff undertook a review of opportunities to provide a protected crossing within this section of roadway. Staff assessed the need for a traffic signal at the Hospital Drive / Charlotte Street intersection and found that the traffic and pedestrian volumes meet the criteria for traffic signals to be installed. The installation of signals will improve pedestrian access, improve traffic safety and improve transit service to this area. Funding is available within approved budgets. Upon approval of the recommendations, staff will proceed with installation of the traffic signals with completion anticipated by the end of the year.

Submitted by,

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Commissioner, Infrastructure and Planning Services

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