



SUBJECT: Prospect Street Renewal – Guelph Line to Cumberland Avenue Cycling and Safety Enhancements

TO: Community Planning, Regulation & Mobility Cttee.

FROM: Transportation Services Department

Report Number: TS-13-23

Wards Affected: 2,4

Date to Committee: June 27, 2023

Date to Council: July 11, 2023

Recommendation:

Direct the Director of Transportation Services and Director of Engineering Services to proceed with the detailed design and construction work required to facilitate two through vehicular lanes, with a center left turn lane (left turn lanes at intersections), and on-road protected bike lanes on Prospect Street (Guelph Line to Cumberland Avenue).

PURPOSE:

Vision to Focus Alignment:

- Improve integrated city mobility
- Support sustainable infrastructure and a resilient environment

Background and Discussion:

Background

The Prospect Street and Dynes Road Renewal project (Project # RD-RR-1748), which is scheduled to begin construction in 2024 will include removal and replacement of asphalt surface, localized rehabilitation of the storm drainage system, replacement of deficient curbs and sidewalks, streetlighting upgrades and reconstruction of the traffic signal at Prospect Street and Dynes Road, as well as Prospect Street and Regency Court. This project will be delivered as a joint project with Halton Region replacing both the water and wastewater services in the area.

Since Prospect Street is identified as part of the spine network in the City's Cycling plan, the detailed design is incorporating protected cycling facilities on both sides of the

street. The spine network is defined as a network of connected facilities across the City that provides a higher order of protection for cyclists and can be used by all ages and abilities.

Staff reviewed the section of Prospect Street between Guelph Line and Cumberland Avenue to identify opportunities for cycling and roadway safety enhancements.

Prospect Street between Guelph Line and Cumberland Avenue currently consists of the following notable characteristics:

- commercial and mixed (medium/high) density residential land uses
- four lane cross section (two lanes in each direction) with no midblock or intersection left turning lanes
- 50 km/h posted speed
- no cycling facilities
- north and south side sidewalks
- wide boulevard green space
- Cumberland Trail connection between Dynes Road and Cumberland Avenue – no existing protected crossing at the trail head
- Limited through traffic utilization on Prospect Street which dead ends 348m west of Brant Street (name changes to Grahams Lane) and at Cumberland Avenue to the east.

Analysis

Staff have undertaken a review of the existing safety and operating characteristics for Prospect Street between Guelph Line and Cumberland Avenue as well as the design work underway for the section of Prospect Street west of Guelph Line (Between Brant Street and Guelph Line).

Utilizing 2022 traffic count data, a capacity analysis was conducted utilizing a lane capacity of 900 vehicles per hour. During the busiest (worst case) peak period and direction (westbound p.m. peak period with 403 veh/hr), it was found that 22% of the available roadway capacity is being utilized, indicating the roadway has a large amount of unused capacity. When roadways operate substantially under capacity issues such as speeding can become prevalent. As speeds increase the severity of collisions, should they occur, also increases.

A summary of the remaining peak hour vehicular volumes and capacity utilization under the current conditions on Prospect Street (between Guelph Line and Cumberland Avenue) are outlined below:

Time of Day	Eastbound direction		Westbound direction	
	Peak hour volume (veh/hr)	Capacity utilization (4 through lanes)	Peak hour volume (veh/hr)	Capacity Utilization (4 through lanes)
8:00 a.m. -9:00 a.m.	161	9%	193	11%
11:15 a.m. -12:15 p.m.	338	19%	253	14%
4:45 p.m. – 5:45 p.m.	248	13%	403	22%

As a result of the excess capacity available on the roadway, to address the collision and speeding concerns, and to facilitate the provision for protected bike facilities staff are recommending revising the existing four lane cross-section to be two through vehicular lanes, with a center left turn lane (left turn lanes at intersections), and on-road protected bike lanes.

Similar to the existing conditions analysis, capacity utilization assuming a two through lane (with centre left turn lane) cross section scenario was conducted. In the busiest (worst case) peak period and direction (westbound p.m. peak period with 403 veh/hr) it was found that 44% of the available roadway capacity would be utilized (leaving 56% of the lane capacity remaining).

A summary of the peak hour vehicular volumes and capacity utilization under a two through lane with centre left turn lane scenario on Prospect Street (between Guelph Line and Cumberland Avenue) are outlined below:

Time of Day	Eastbound direction		Westbound direction	
	Peak hour volume (veh/hr)	Capacity Utilization	Peak hour volume (veh/hr)	Capacity Utilization
8:00 a.m. -9:00 a.m.	161	18%	193	22%
11:15 a.m. -12:15 p.m.	338	37%	253	28%
4:45 p.m. – 5:45 p.m.	248	27%	403	44%

Currently a PXO is being assessed at the location where the Cumberland Trail meets Prospect Street (between Dynes Road and Cumberland Avenue). Reducing the number of through lanes would enhance safety at this location for trail users by reducing the number of vehicle travel lanes required to be crossed, reducing operation speeds, and minimizing the visibility constraints which can occur on a four-lane roadway.

Prospect Street east of Guelph Line (from Brant Street to Guelph Line) is currently being designed to have on-road protected bike facilities. A two through lane (with centre left turn lane) cross section allows for the section between Guelph Line and Cumberland Avenue to follow this same design methodology. On street protected bike lanes along the entire corridor provide continuity and consistency for users and eliminates the need for transitions from an on-road to off-road cycling facilities (reducing design and operational complexities).

The existing cross section on Prospect Street (between Guelph Line and Cumberland Avenue) is illustrated in Appendix A, with the revised cross section (two through vehicular lanes, with a center left turn lane (left turn lanes at intersections), and on-road protected bike lanes) illustrated in Appendix B.

Strategy/process/risk

Information impacting this decision results from the information provided in the Ontario Traffic Manuals as well as the traffic and collision data collected.

Information provided by the Collision Countermeasure Clearinghouse informs on the predicted reduction in crashes based on the implementation of various measures, in this case centre left turn lanes reducing crashes by 47% and intersection left turn lanes reducing crashes by 25%.

The risk of not adopting these changes and utilizing the existing cross section with bicycle facilities off-road would:

- not achieve the safety benefits mentioned above relating to speed and the collisions susceptible to remediation by introducing left turning lanes.
- add operational complexities as the on-road protected cycling facility being designed west of Guelph Line would need to transition to an off-road facility east of Guelph Line.
- introduce a change in continuity and look and feel as the corridor would have both on and off-road bike facilities.
- increase impacts to boulevard green space due to the implementation of an off-road bike facility.
- Increase construction costs and utility impacts.

Options Considered

Bicycle facilities can be added off-road, utilizing the existing cross section.

Financial Matters:

If approved by Council, the recommendations to implement the above road cross section can be accommodated within the existing funding envelope available for Project RD-RR-1748. This project was successfully awarded \$3,804,000 through the Active Transportation Fund (ATF) to be completed by March 31st, 2026 (2 year construction period).

Total Financial Impact

Not Applicable

Source of Funding

RD-RR-1748

Other Resource Impacts

Not applicable

Climate Implications:

Implementations that contribute to roadway safety can provide positive impacts in reducing incident related congestion and delays and can foster a more favorable

environment for modes of active transportation. As a result, this can create a positive impact on emissions and climate change.

Engagement Matters:

As part of the Prospect Street and Dynes Road Renewal project (Project # RD-RR-1748), 2 Public Information Centres (PIC) will be initiated. The first will focus mainly on the detailed design concepts related to the active transportation and road cross sections to seek public feedback. The 2nd PIC will inform on other aspects relating to the scope of the project (i.e. Region Watermain works, construction impacts etc..).

Conclusion:

Based on the analysis completed by staff with respect to available capacity and associated enhancements to reduce collisions, staff recommend to proceed with the detail design and construction work required to facilitate two through vehicular lanes, with a center left turn lane (left turn lanes at intersections), and on-road protected bike lanes on Prospect Street (Guelph Line to Cumberland Avenue).

Respectfully submitted,

Chris King

Manager Traffic Operations and Signals

905-335-7600 ext. 7405

Appendices:

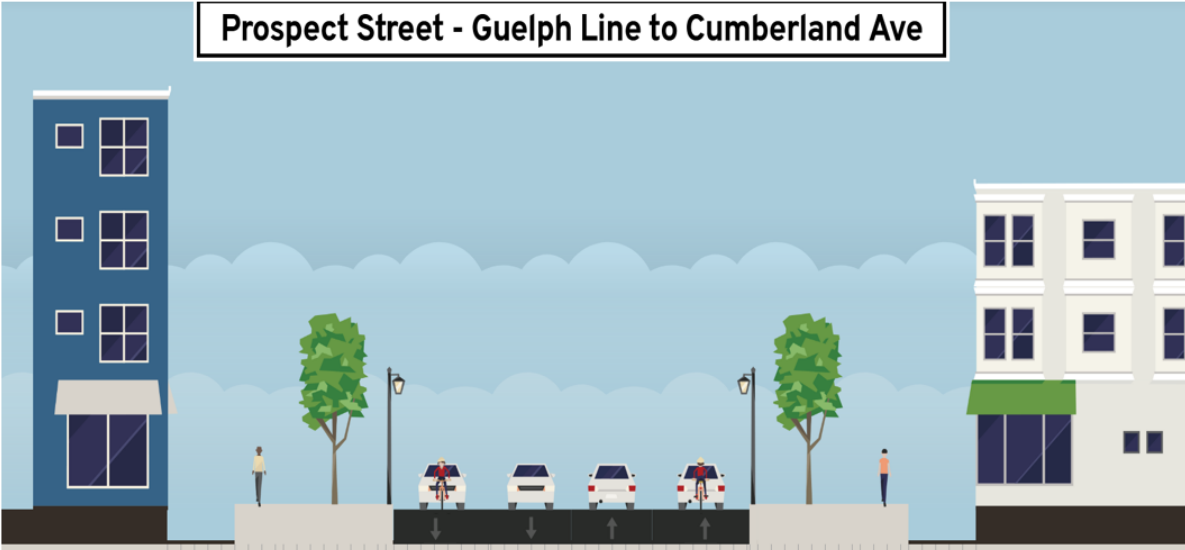
- A. Existing 4 lane cross section
- B. Recommended 3 lane cross section

Report Approval:

All reports are reviewed and/or approved by Department Director, the Chief Financial Officer and the Executive Director of Legal Services & Corporation Counsel.

Appendix A

Existing Cross Section



Appendix B

Recommended 3 Lane Cross Section
(including centre left turn lane and protected on-road bike lanes)

