Hamilton
Public Works

KING STREET TRANSIT ONLY LANE PILOT PROJECT

# Appendix "G"

# King Street Transit Only Lane Pilot Project Cycling Issues

APPENDIX G

**King Street Transit Only Lane Pilot Project**

**Cycling Issues**

## 1. Background

King Street is the arterial road which travels westbound through the centre of downtown Hamilton. A pilot project to implement a Transit-Only Lane (TOL) is in effect from October 2013 to October 2014. The purpose of the pilot is to test rapid transit service, so the lane is reserved exclusively for buses at all times. The city has received feedback from citizens indicating that prohibiting cycling in the TOL makes King Street excessively dangerous and unpleasant for cycling. A petition to permit cycling in the TOL has reached 322 signatures as of February 2014.

The 2013 City of Hamilton Bike Routes, Trails & Parks map marks King Street between Dundurn Street and Ferguson Avenue as a high volume and/or narrow lane cycling route, which indicates that while it should be used with caution, it provides a useful network connection. The *Shifting Gears* cycling master plan does not designate King Street as a cycling route, with the nearest routes being Napier - York - Cannon/Wilson to the north, and Hunter Street to the south. As of 2014, the northern route is not continuous in either the eastbound or westbound directions due to gaps caused by one-way restrictions. Hunter Street is scheduled to have bi-directional bicycle lanes installed in two separate segments in Spring 2014, with the third connecting segment to be completed at a later date. Figure 1 displays the existing bicycle network as of summer 2014.

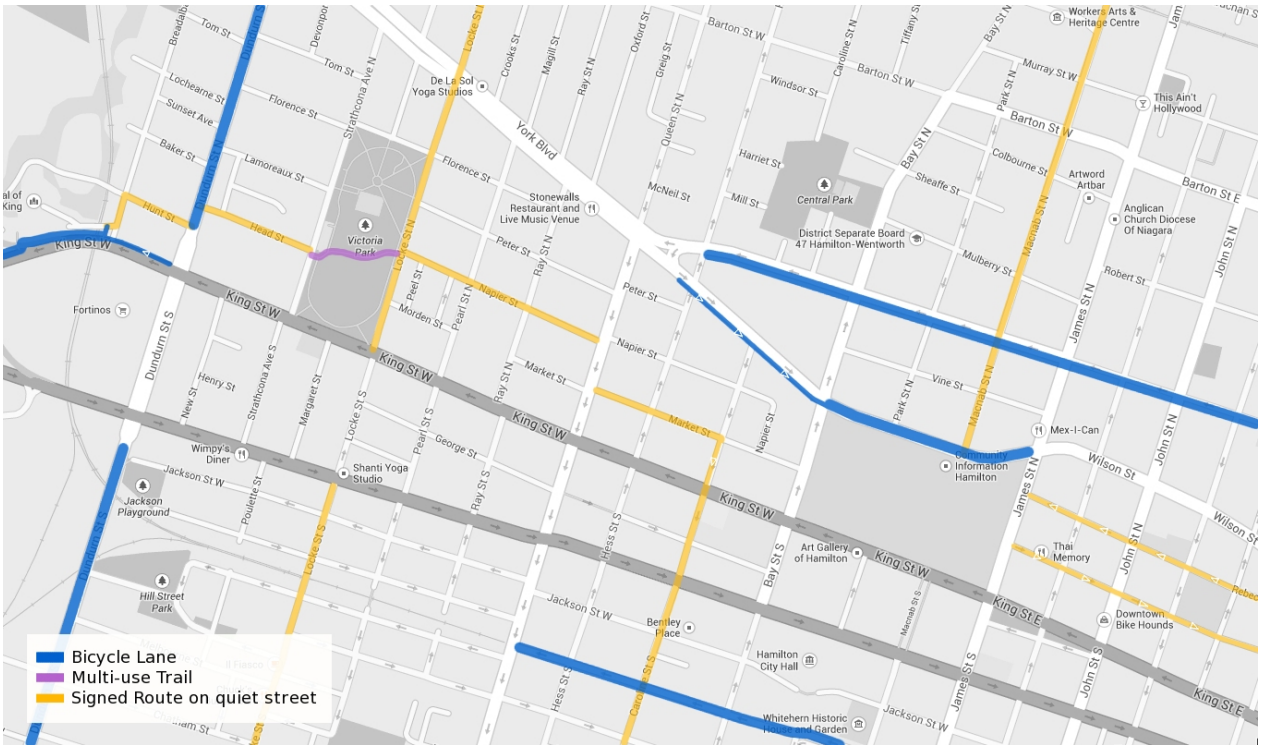


**Figure 1: Existing Bicycle Network as of Summer 2014**

The City of Hamilton's Transportation Master Plan (2007) aims to attain a 15% active transportation modal share by 2031, and the cycling routes through the centre of downtown may have a significant effect on this goal.

## 2. Lane Width Standards

Table 1 displays the relevant standards for lane widths on arterial roads, from City of Hamilton - Traffic Signal and Pavement Marking Design Drawings (2009):

**Table 1: City of Hamilton lane width standards**

| Lane Type | Absolute Minimum | Recommended Minimum | Desireable/ Optimum |
|---|---|---|---|
| Arterial | 3.0 | 3.5 | - |
| Turning | 3.0 | 3.5 | 3.5 |
| Bicycle | 1.2 | 1.5 | 1.8 |
| Parking | 2.5 | 2.5 | - |
| Shared Car/Bike | 4.0 | 4.3 | 4.5 |

The absolute minimum width of a bus lane can be considered to be 3.5 metres, based on the TAC Geometric Design Guide for Canadian Roads, which indicates:

> "Where [transit] lanes are provided in the same direction of travel as the adjacent through lanes, the width of the transit lane should be the same as the adjacent through lane or 0.2m less, but not less than 3.5m"

Shared bus-bicycle lanes (SBBLs) are not specifically mentioned in the TAC manual, but in the Ministry of Transport of Ontario (MTO) Operational Design Guidelines for High Occupancy Vehicles on Arterial Roadways, it states that:

> "If the [transit] lane is to be used as a bicycle facility as well, it should be at least 4m wide"

The City of Hamilton Design Guidelines for Bikeways states:

> "A minimum width of 4.3 m is recommended [for SBBLs]. However, it is desirable to provide a 4.5 m width to accommodate buses and interaction with other vehicles."

**Table 2: Assumed bus lane width standards**

| Lane Type | Absolute Minimum | Recommended Minimum | Desirable/ Optimum |
|---|---|---|---|
| Bus | 3.5 | 3.75 | 4.0 |
| Bus + Bicycle | 4.0 | 4.3 | 4.5 |

The recommended widths shown here for a bus-only lane are identical to those assumed by Cole Engineering in the design of the King Street Transit-Only Lane.

Despite the desirable/optimum SBBL width above, the American Association of State Highway and Transportation Officials (AASHTO) notes that in order for a bus to pass a

cyclist within the lane while maintaining safe operating spaces, a SBBL must be at least 16' 7'' (5m) wide. This is equivalent to the sum of the recommended minimum widths for a bicycle lane (1.5m) and a bus lane (3.5m). Because the ideal width for a SBBL is the same as the combined width of a bicycle lane and a bus lane, separate lanes should be provided wherever possible, and where there is not space for separate lanes, the SBBL should be as wide as possible.

## 3. Shared Bus-Bicycle Lane Guidelines

The MTO does not provide guidance on additional characteristics of bus bicycle lanes, such as maximum bicycle and bus volumes.

The general consensus among SBBL guideline documents is that SBBLs become increasingly dangerous and ineffective as the volumes of cyclists and buses increases, due to frequent conflicts. The City of Ottawa indicates that SBBLs are not suitable on corridors with more than 20 buses per hour. The scheduled weekday hourly volumes for HSR, GO, Greyhound and Coach Canada buses are summarized in Figure 1 below. Note that unscheduled buses may also use the King Street TOL.

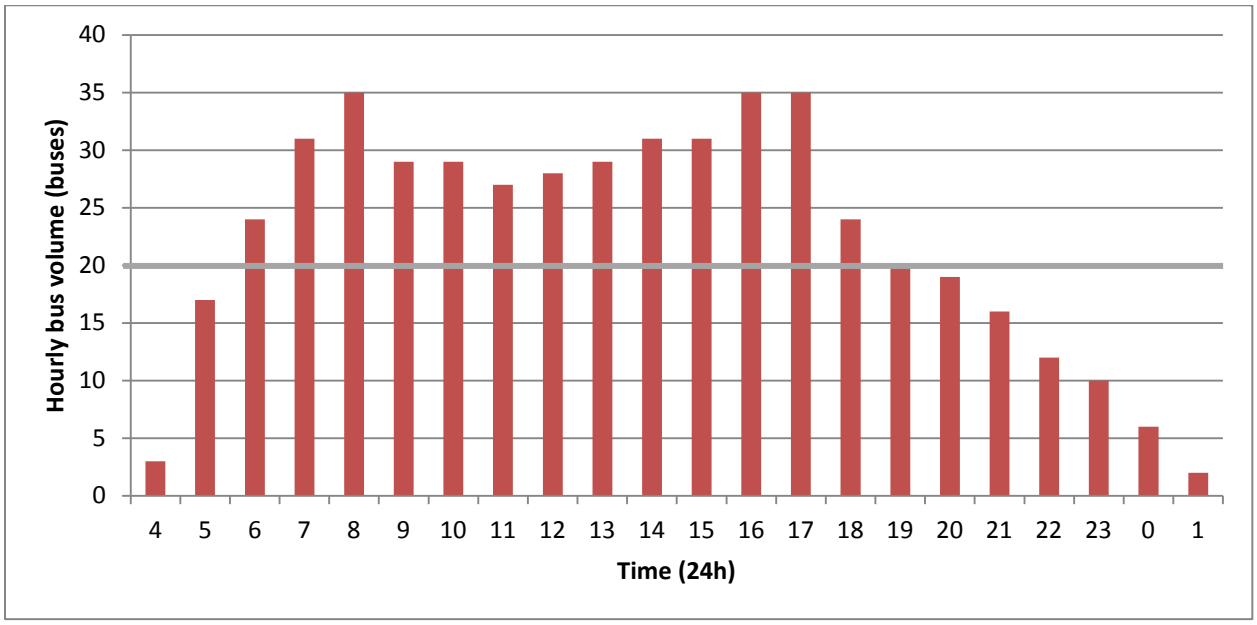


**Figure 2: Weekday hourly scheduled bus volumes on King Street at Hess Street, January 2014**

Between 6:00 AM and 7:00 PM, the number of scheduled buses on King Street exceeds the maximum recommended volume of 20 buses per hour for an SBBL.