Our Transportation System is in Crisis – 372

This article continues from last week. A cycle lane was created as part of the three-lane Queen's Park Savannah roundabout system on Sunday March 1, 2015.

According to Chris A. Fees et al (2015) Design Guidance for Bicycle Lane Widths, Transportation Research Board 94th Annual Meeting, Washington, DC,

"*The American Association of State Highway and Transportation Officials' (AASHTO) 2012 Guide for the Development of Bicycle Facilities, often referred to as the Bike Guide, defines a bicycle lane as 'a portion of a roadway that has been designated for preferential or exclusive use by bicyclists by pavement markings and, if used, signs. It is intended for one-way travel, usually in the same direction as the adjacent traffic lane, unless designed as a contra-flow lane.' The Bike Guide provides general guidance on appropriate bicycle lane widths. It states under most situations the recommended width for bike lanes is 1.5 m, but under some circumstances, wider bicycle lane widths may be desirable, while in other cases narrower bike lanes can be used. In particular, the Bike Guide provides the following guidance on bike lane widths:*

- *If parking is permitted, the recommended bike lane width is between 1.5 to 2.1 m and the bike lane is to be placed between the parking area and travel lane.*
- *Where parking is permitted, the shared area consisting of the bike lane and parking lane should be a minimum of 3.6-m wide, and desirably up to 4.5-m wide.*
- *On high-speed and high-volume roadways or where there is a substantial volume of heavy vehicles, wider bike lanes are recommended.*
- *When the bike lane is along an urban curbed street where parking is prohibited, the recommended bike lane width is 1.5 m from the face of the curb or guiderail to the bike lane stripe, given that there is a usable width of 1.2 m.*
- *For roadways without curb and gutter, the minimum bike lane width should be 1.2 m.*

Still, there is a need to conduct scientifically-based research to develop more specific guidance on recommended bicycle lane widths for various roadway conditions."

The authors also gave the following conclusion:

"*1. A bike lane with a buffer on the parking side provides distinct advantages over simply a wider bike lane.*

2. Narrowing the width of a bicycle lane reduces the variability of the bicyclists' lateral positions; however, this impact is relatively minor, at least for the bicycle lane widths evaluated in this research.

3. As traffic volume and truck percentage within the vehicle mix increase, bicyclists move away from vehicles in the travel lane and position themselves closer to parked vehicles or the curb.

4. For streets with on-street parking and where the parking lane width is between 2.1 to 2.7 m and the bike lane width is between 1.2 to 1.8 m, the effective bike lane will likely be less than the physical width of a typical adult bicyclist, and the majority of bicyclists will position themselves outside of the effective bike lane.

5. For streets without on-street parking, as long as the adjacent travel lane is at least 3-m wide and the bike lane is 1.2 to 1.5 m in width, most bicyclists will position themselves in the effective bike lane, and the effective bike lane will be equivalent to the width of the marked bike lane."

Finally, the authors have suggested the following design guidance:

"*1. Travel lanes between 3 and 3.6 m in width are appropriate for streets with a bicycle lane.*

2. At sites with travel lane widths between 4.8 and 5.4 m on streets without on-street parking, marking a bicycle lane provides no distinct advantages for the lateral positioning of bicyclists and motorists.

3. In most situations where a bicycle lane is adjacent to on-street parking, the recommended width for the parking lane is 2.4 m. A 2.4-m parking lane provides sufficient space for a large percentage of vehicles to park within the limits of the parking lane, and it allows more of the roadway cross section to be designated for bicyclists in the bicycle lane and motor vehicles in the travel lanes. This is consistent with current recommendations in the Bike Guide.

4. The Bike Guide states that under most circumstances the recommended width for bike lanes is 1.5 m. The Bike Guide also states that under certain conditions wider bicycle lanes may be desirable. In particular, the Bike Guide states that when adjacent to a narrow parking lane (2.1 m) with high turnover, a wider bicycle lane (1.8-2.1 m) provides more operating space for bicyclists to ride outside of the door zone of parked vehicles.

5. For parking lanes 2.1- to 2.7-m wide, assuming the 95th percentile parked vehicle displacement and an open door width of 1.1m, the open door zone width of parked vehicles extends approximately 3.3 m from the curb. Therefore, the design of the bike lane should encourage bicyclists to ride outside of this door zone area and account for the width of the bicyclist…"

It is not clear how much emphasis was placed in the planning of this new facility, or the level of enforcement proposed for its effective functioning.

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