The effects of cycle tracks installation on the spatial distribution of cyclist-motor vehicle collisions in Toronto, Canada

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Background

- Non-significant reduction by 19% in the frequency of collisions per segment-month following the implementation of painted cycle lanes (IRR=0.82, 95% CI: 0.65, 1.03)[1]

Painted cycle lane

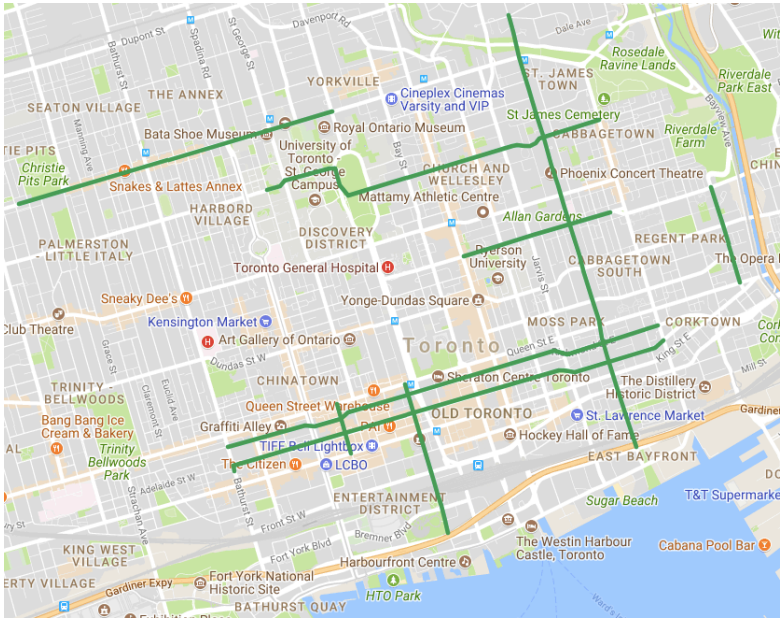
https://www.campaignresearch.ca/single-post/2017/09/19/high-support-for-bike-lanes

Cycle track

https://chi.streetsblog.org/2013/03/20/how-to-create-protected-bike-lanes-that-confident-cyclists-will-enjoy-riding/

Cycle Tracks in Toronto

Cycling Network Map



Source: https://www.toronto.ca/services-payments/streets-parking-transportation/cycling-in-toronto/cycling-google-map/

- Increasing installation of cycle track infrastructures in Toronto over the years
- What are their effects on cycle-motor vehicle collisions?

Methodology

Objectives:

1. To examine rates of cycle-motor vehicle collisions pre- and post-installation of cycle tracks along the segments
2. To examine the effects of these cycling infrastructures within defined buffer distances from the tracks
3. To examine the effects of these cycling infrastructures on parallel major roadways

Data sources:

1. Bikeways - Open Data Catalogue
2. Collision Reports from the Toronto Police Services

Preliminary Results

Analysis 1 – Collisions along Cycle Tracks

- Crude CMVC incidence rate before and after cycle track implementation was 0.42 collisions/ month and 0.90 collisions/month respectively.

- Incidence rate of CMVC significantly increased more than 2-fold following the implementation (IRR = 2.18, 95% CI: 1.42–3.33, p=0.003).

Next steps

Underlying factors related to these preliminary findings

1. **Likely change in cycling volume**
   - Challenge with comprehensive data on ridership numbers → no denominator
2. **Possible change in injury severity/collision type**
   - To be further investigated
3. **Possible change in routes taken by cyclist/drivers**
   - Objectives 2 and 3 - E.g. Do the frequencies of collisions change in the surrounding area or on parallel major roads following the cycle track implementation?

References

1. Bhatia, D., et al., Examining the impact of cycle lanes on cyclist-motor vehicle collisions in the city of Toronto. Journal of Transport & Health (2016), http://dx.doi.org/10.1016/j.jth.2016.04.0