Assessing bicycle network performance through directness and connectivity measures: A Montreal, Canada case study

**CONTEXT**
Over the last two decades, cycling has seen a rise in popularity in North American cities. In this context, many cities are continuously expanding their bicycle networks to promote bicycle use. While a good network should provide direct bicycle routes for cyclists to reach their desired destinations, most network assessments simply measure the length of bicycle facilities in a region.

Building on a set of complementary indicators to account for the directness of bicycle facilities, this study assesses the performance of the bicycle network in Montreal, Canada.

**PERFORMANCE INDICATORS**
A good network should provide direct bicycle routes for cyclists to reach their desired destination.

- **Bicycle route diversion** compared to the shortest street network distance
- **Presence of bicycle facilities**, measured as the proportion of the route on bicycle facilities

To account for the directness of the bicycle network, two indicators are developed at the route level.

- Bicycle route diversion compared to the shortest street network distance
- Presence of bicycle facilities, measured as the proportion of the route on bicycle facilities

**Montreal bicyclists’ route preferences**
Based on the 2009 cycling survey, the characteristics of the routes actually taken by cyclists in Montreal are calculated.

**Spatial analysis**
Most boroughs located on the periphery of the Island have a relatively low presence of bicycle facilities. Some boroughs located in the centre of the Island are characterized by a high presence of bicycle facilities on both north-south and east-west axes. The results suggest that the street network provides car drivers with more direct routes than the bicycle network does for cyclists.

**CONCLUSION**
Bicycle Network Planning: Multiple, complementary indicators should be used to evaluate the directness of bicycle networks.

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