Reliability Considerations in Bus Route Service Planning
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Objectives:
- Assess transit service reliability of an Edmonton Transit Service (ETS) bus route, applying well-established performance metrics
- Develop a framework for incorporating Transit Signal Priority (TSP) and schedule redesign, in order to reduce bus travel time variability

Methodology

Study Area
- Stony Plain Road from Jasper Place Transit Centre to 108 Street/Jasper Avenue (downtown) in the City of Edmonton
- 6 km, with 26 bus stops in the EB direction
- Bus Route 1 during AM peak (6:45 - 6:45 AM)

Data
- ETS’s Automatic Passenger Count (APC) data from September 2 through December 1, 2012
- Scheduled and observed arrival & departure times
- Boarding, alighting and departing passenger volumes

Results

A new schedule was developed with TSP (reduced travel time) and explicit reliability considerations in scheduling. The new schedule data set (Case 4) demonstrates that on-time performance deteriorates along corridor – highly unreliable service (CTP=70%, TCOSM1) is observed at points B and C, and the schedule with higher costs assigned to lateness and variation in schedule deviation (Case 4) may provide more reliable service.

Future work:
- Additional data analysis on a larger APC data set (2 years of data)
- Improvements to the optimization model specification
- Application of framework to another major bus corridor within the city

Acknowledgements

This work was partly sponsored by Edmonton Transit System (ETS). The authors would particularly like to thank Ken Koreposki and Musie Desse from ETS, and Iris Ye from the City of Edmonton’s Transportation Operations group.

References