ABSTRACT

Data visualization is a powerful tool for communicating with planners, decision makers and the public and can take advantage of “big data” in the transit industry. The main objective of this paper is to move beyond the generation of internally focused performance measures to introduce new visualizations that demonstrate general aspects of transit.

The new performance measures will help in communicating the positive attributes of public transport to the community. They will also help planners to negotiate and support service-change projects.

METHODOLOGY

The paper uses transit data from The Société de Transport de Montréal (STM), Montréal, Canada, to generate performance measures that are of interest to both transit planners and professionals, using:

- Archived AVL/APC data
- Google Transit Feed Specification (GTFS) data
- Bicycle-share data, Spatial Data, and OD survey data

This research generates performance visualizations at four hierarchical spatial levels:

- System level
- Neighborhood level
- Route level
- Stop level

SYSTEM LEVEL, CONT’D

System Coverage

NEIGHBORHOOD LEVEL

Waiting Time at Stops

System Span of Service

Combined Benefits

ROUTE LEVEL

Speed Improvement

Route Seating Capacity

Demand at Bus Stop

Downtown

Contribution

Combined

CONCLUSION

Increasingly, transit agencies are interested in new methods of visualizing different data sources (e.g., GTFS, AVL/APC) in order to communicate the results of their planning efforts, operational investments and overall performance to different stakeholders. This paper demonstrates some of the untapped potential of these data sources.

ACKNOWLEDGEMENTS

The authors gratefully acknowledge Michel Tremblay, Anna Guinzbourg, and Sébastien Gagné from the Société de transport de Montréal (STM) for providing the data used in the paper. This research was funded by the Natural Sciences and Engineering Research Council of Canada.