

Detailed Transit Operations Plan Through an Integrated Data Platform

TransLink is the transit agency and metropolitan planning organization for Vancouver, BC. The transit system is characterized by a high diversity of modes and various operators. Using PTV's long standing experience in transit modeling, this project provided systematic analysis of system capacity and fleet requirements and a turn-key operational planning model.



Phase A of the project focused on the SkyTrain tem, which is the backbone of the region's rapid transit network. SkyTrain is an automated (driver-less) and grade separated train system. In operation since 1986, SkyTrain carries now 200,000 passengers/day with a 108-seconds peak headway on the main branch. The system has reached capacity constraints.

Client: TransLink

Project Period: Phase A May 2006 – Jan. 2007

Phase B Jun. 2007 – Feb. 2008

Budget: \$200,000

Reference: Ian Fisher, TransLink, 1600-4720 Kingsway, Burnaby, BC, Canada V5H 4N2, 604-453-3058, ian_fisher@translink.bc.ca

PTV Staff: Wolfgang Scherr, Anette Ehlert, Kean Lew

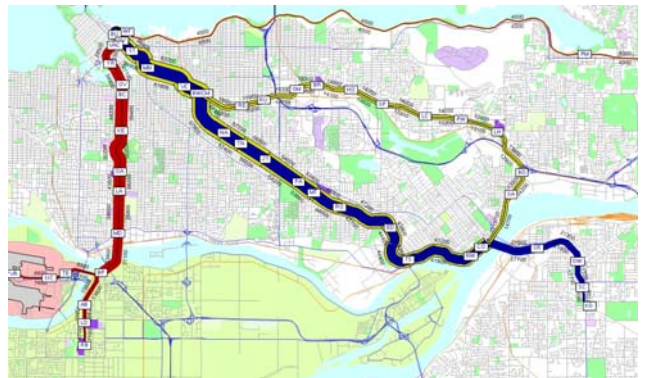
Key Project Questions

- How efficiently would SkyTrain function under various operating scenarios that differ from the existing operations in route alignment and train assignment?
- How many passengers can be carried at different future horizons under different operational concepts and what volume/capacity ratios will be obtained in the future?
- At what times of day and which network segments will capacity shortcomings occur?

- How many cars will be required for a future SkyTrain fleet that can satisfy the future networks, operational scenarios and the predicted ridership?
- How will future network extensions (new LRT and BRT lines, potential SkyTrain extensions, the Canada Line linking Vancouver International Airport to downtown) operate together and what will be the system performance?
- Where can we park all SkyTrain vehicles currently and in the future? (first and last run analysis and track storage capabilities)

Methodology

The methodology is based on the VISUM software which offers off-the-shelf solutions to answer all the above questions. As part of the project, a detailed data model will be built and calibrated to reflect the rapid transit operations in Vancouver. The main basis of the model are the schedules and line blocking. Other components of the model are stations, tracks, a time-dynamic passenger flow model, the fleet and their cost functions.



Perspectives

The model is currently in use by TransLink staff. It has received outstanding feedback from inside and outside of TransLink for its unique integration of a ridership model with an operations model.

Phase B of the project extends the model to also include BRT, local bus and ferry operations, and undertakes a fleet facilities analysis (new train yards).

