Information sheets are prepared and maintained for each project currently approved by IMTC Program organizations for their 2013 list of shared priorities for Cascade Gateway border improvements. Information sheets are updated as needed and thus include a version-date. Current copies, inclusive of any changes to information below, are available in the future-projects section at theIMTC.com.

ATIS Assessment & Calibration

Overview

Recent construction (booth additions and approach lane reconfigurations) along with changing operational strategies such as active booth management (opening of additional NEXUS booths during peak periods) have resulted in periodic discrepancy between posted wait-times and observable circumstances. This project will assess and document degrees and sources of current error, identify new variables that need to be accounted for in algorithm modifications, and establish a repeatable methodology for system validation and regular calibration.

Location

The map below shows the border crossings, related approach roads, and border-region road network of the Cascade Gateway. Each of the four border crossing locations, in each direction, is served by a wait time measurement system.
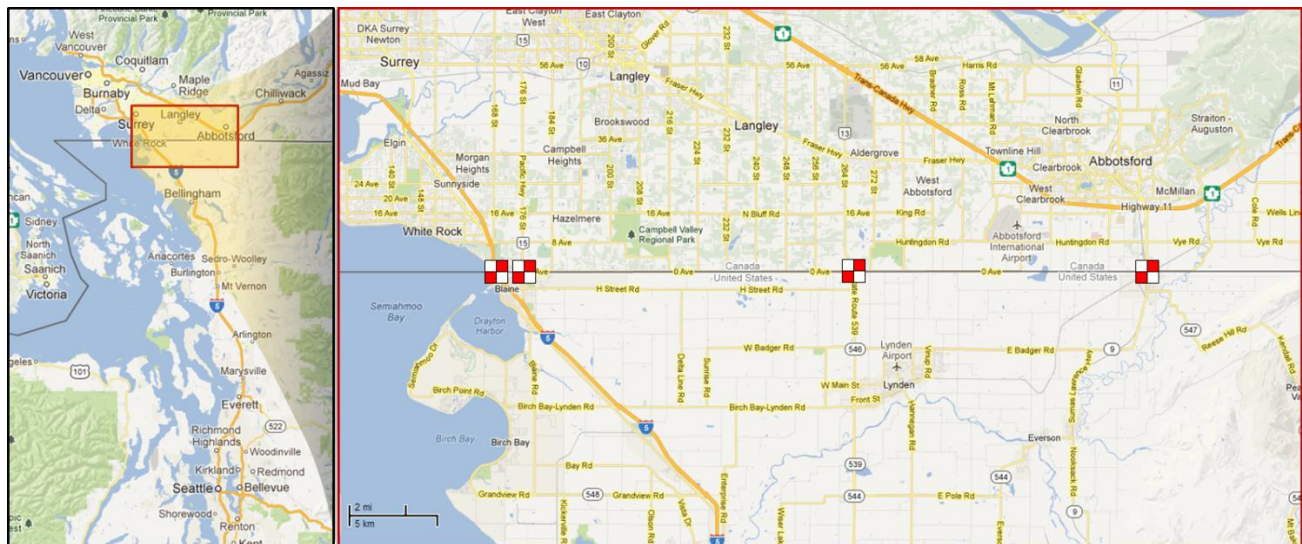
Why this project is needed

The border wait times generated and distributed by the ATIS system serve important functions for the regional cross-border transportation system. It encourages drivers to avoid unnecessary delay and thus balance traffic demand across the available capacity. It provides important situational awareness to inspection agencies as well as operational performance metrics. And finally, the systems provide high-resolution historical border traffic data that supports operational planning, travel planning, traffic studies, and infrastructure investment business case development.

If consumers of ATIS information lose trust in the system's accuracy, these benefits will be lost.

Additional reasons for auditing current system accuracy and identifying site-specific variables that affect estimates include the following:

- Inspection agencies are increasingly able to open more than one NEXUS *booth* to serve peak demand arriving from the NEXUS *lane*. ATIS systems need new inputs to dynamically adjust wait-time estimation algorithms to account for these *active booth management* strategies. U.S. CBP will soon likely be able to

export booth-specific service rates by booth type (regular, NEXUS, and Ready). This project is an opportunity to collect baseline data on lane and booth-specific wait times and.

- Periodic operational changes at the border are common. Thus, border wait time measurement systems that can be sensitive to small routing changes need to be periodically audited, recalibrated (if necessary) and validated to assure system operators and system users of maximum accuracy.

Results

- Consultations with system operators (WSDOT and BC MoT) and inspection agencies (CBSA and US CBP) to review and modify the scope of work – especially regarding the list of variables to be assessed, suspected issues needing attention, and expectations for level of accuracy.
- Development/selection of a validation methodology that, in addition to being used for this project, could be repeated in the future.
- A field-based validation.
- A field-survey based assessment of system use by travelers and related human factors.
- Assessment of system benefits.
- Project report.

Application to other IMTC projects

In addition to refreshing often-used data sources and continuing the development of a valuable time series of data, this project will have direct applications for other current priority IMTC projects. These include:

- **Near-term Predictions of Significant Changes in Cross-border Traffic**. This proposed system, which would learn to recognize patterns in traffic *approaching* the border that can be used as signals of near-term changes in demand, will depend on accurate, high-resolution measure of the wait-times *at* the border.
- **Pacific Highway Southbound Lane-to-booth Traffic Flow Improvements**. Improvements envisioned in this project would result in a more balanced flow of queued traffic. This would bring driver experiences into line with system wait-time estimates.
- **Lane-to-booth striping at Peace Arch Southbound**. Better channelization of vehicle flow over loop detectors and in-line with inspection booths will improve the connection between departure rate data and lane number/type.

Estimated project Schedule

This project can be phased to complete more urgent assessments and corrections first. Total project duration should be less than one year. Estimated completion times for a phased approach are as follows

- Assessment and correction of current discrepancies—2 months.
- Field assessments/validations of all eight system locations—3 months.
- Adjustments to algorithms including integration of new dynamic operation variables (booth status, etc.)—2 months.

Cost

This project is estimated to cost $164,000

This project is not currently funded.

Administration, funding, and partnerships

Several partners are promoting this project and together seeking funding to advance it. WSDOT, BC MoT, CBSA, and US CBP are the primary involved agencies. In addition to funding from the above agencies, financial support is being sought from the U.S. FHWA. Agencies and organizations to conduct the work will include WSDOT, BC MoT, the Border Policy Research Institute (at WWU), and WCOG. US CBP and CBSA's participation will be essential for operational access required for measurements and data collection.