

Version
March, 2009

Cascade Gateway Systems Definition Report

Study purpose

The Cascade Gateway Border Circulation Analysis (**BCA**) is a multi-agency effort advanced through the IMTC Project to plan for ongoing functionality of the cross-border transportation and inspection systems that connect the West Lower Mainland of British Columbia and Western Washington. The four primary ports-of-entry that comprise the Cascade Gateway serve West Coast corridor trade and travel (of nationwide economic interest) along with important regional trade and travel flows.

IMTC Goals & Objectives

The International Mobility and Trade Corridor Project (IMTC) is a regional binational planning coalition led by the Whatcom Council of Governments (WCOG). IMTC is comprised of representatives from both countries' transportation agencies, inspection agencies, border jurisdictions, industries dependent on cross-border mobility, and other organizations, who frequently meet and work together on coordinated system management, identification of needed improvements, and partnerships to advance projects.

As part of its formation, the IMTC coalition identified a set of shared objectives which serve as the most basic point-of-departure for the BCA.

1. Improve planning and data collection efforts.

- a) Improve travel information and data.
- b) Promote development and management of the Cascade Gateway as a system.
- c) Determine the feasibility of rail, transit, and marine options.
- d) Monitor work completed by regional and national-level border planning initiatives including the Transportation Border Working Group and the West Coast Corridor Coalition.
- e) Monitor the Western Hemisphere Travel Initiative issue.

2. Promote infrastructure improvements.

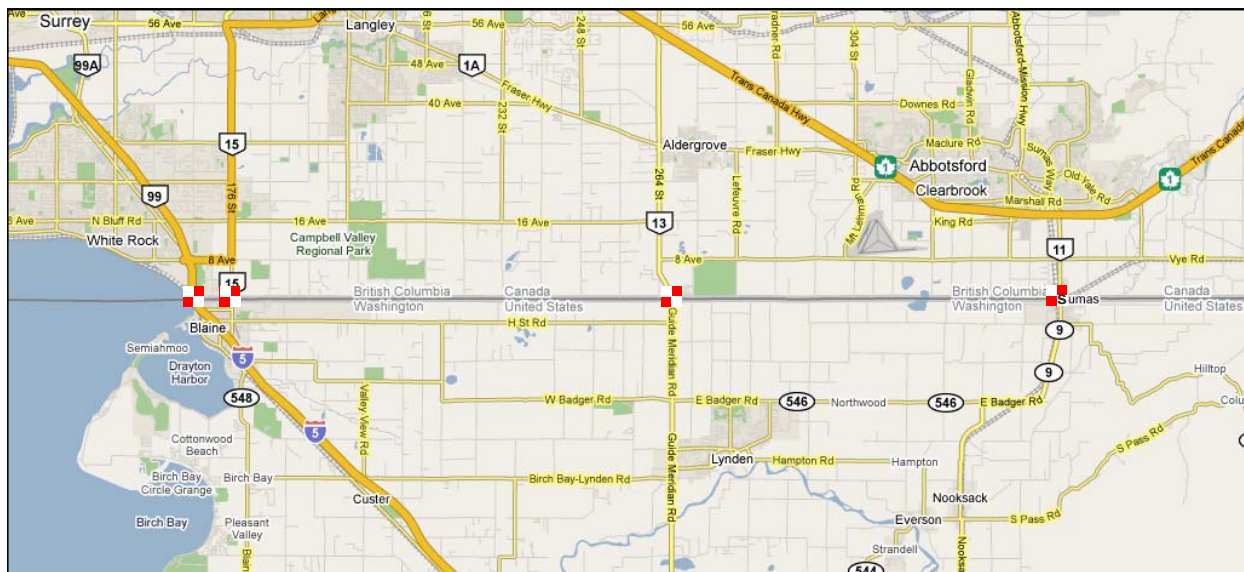
- a) Improve border crossing approach roads.
- b) Improve rail crossings and connections.
- c) Improve corridor connections of trade and travel routes.
- d) Integrate Intelligent Transportation Systems (ITS).

3. Promote improvements to operations, policy, and staffing at the border.

- a) Promote cooperation and improvements in accordance with the goals of various federal initiatives, including the Security and Prosperity Partnership and the U.S. – Canada Smart Border Declaration.
- b) Increase resources and staffing levels at border inspection facilities.
- c) Improve traffic management at all four Cascade Gateway ports-of -entry.
- d) Ensure ongoing sustainability of the NEXUS and FAST programs.
- e) Encourage institutional collaboration and integration of information systems to improve risk management and increase cross-border security.
- f) Promote harmonization and consolidated administration of regional pre-approved travel programs including commercial pre-approved travel.
- g) Explore options for binational financing structures for future cross-border improvements.
- h) Pursue shared, U.S.–Canadian border inspection facilities including the creation of accord processing zones.
- i) Consider off-border inspection functions.
- j) Promote the adoption of pre-clearance for passenger rail under Canada's 1999 Pre-Clearance Act.
- k) Pursue IMTC objectives with specific attention to improvements that will support efficient and predictable international travel to and from the 2010 Winter Olympic Games in British Columbia.

The Cascade Gateway

The objectives listed above focus on the Cascade Gateway, the *set* of four border crossings that serve this binational region.



The BCA will focus on calculating benefits relative to improvements to cross-border mobility and security. Beyond the crossings themselves, the IMTC objectives identify the goal of

analyzing and managing the four ports-of-entry as a system (rather than discrete facilities) and exploring and promoting the optimization of parallel modes (rail, marine, etc.) in order to most efficiently serve trade and travel demand.

The systems-operation and multi-modal perspectives are important components of the analytical approach and project goals of the BCA. In the face of continued growth and development, effective provision of a multi-port, regional cross-border transportation system is increasingly constrained by congestion, development, and changing operational procedures. Through the IMTC coalition, agency and industry representatives have identified the BCA as a way to address future needs and develop strategies. Strategies to mention at the outset of this work include:

- Coordinated identification and improvement of east-west road connections between border access routes.
- Coordinated deployment of information technology – especially advanced traveler information (ATIS).
- Evaluation of various operational scenarios.
- Improvement of system monitoring, forecasting methods, and planning tools.
- Improved institutional arrangements for project advancements and partnerships.

Scoping & technical resources

The next sections of this report will explain the process of scoping different aspects of the BCA as well as the Phase I development of technical resources needed to further define the Cascade Gateway cross-border system. There are four scopes – geography, transportation modes, time (temporal scope), and institutions. Each scope aims to link work to the goals and objectives listed above and emphasize those things that we can change and manage. Depending on the scope, it will be useful to differentiate a **primary focus** (geography or modes or time-frames) in which IMTC participants would look for opportunities to take action, a **secondary focus** that encompasses determinants (generators of system demand, infrastructure geography, etc.) that inform future actions, and an **external focus** that acknowledges relevant context surrounding the BCA (regionally significant corridors, connections to global supply chains, etc.).

Geographic scope

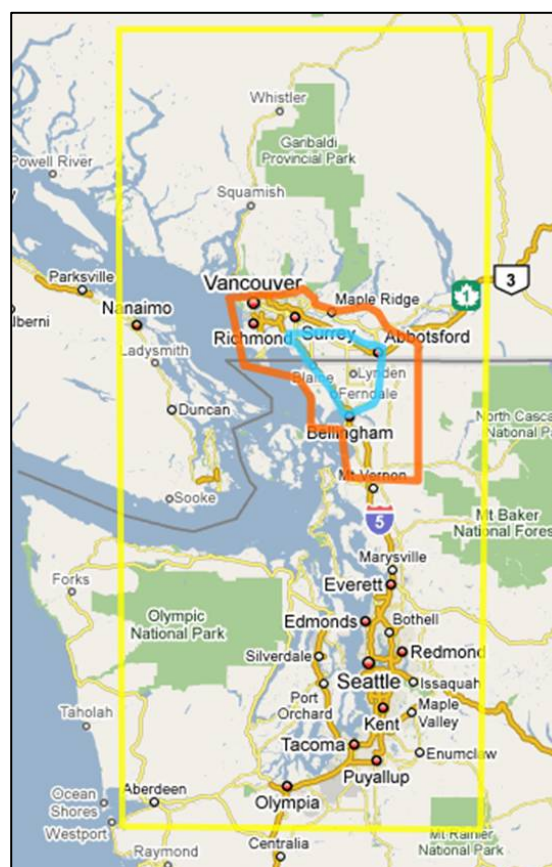
Determination of the primary, secondary, and external focus for the project’s travel-system analyses are in the process of being refined with network assignments run on the Whatcom Council of Governments’ cross-border traffic model.

Travel – Network assignments for Cascade Gateway cross-border travel will be based on origin-destination and residence data from the 2008 IMTC Passenger Intercept Survey.



Geographic travel-system zones

Above: A preliminary illustration of the primary geographic focus for cross border travel (in blue) and the secondary focus area (in orange). Right: The primary and secondary areas nested in the much larger external focus area.



Trade – Network assignments for Cascade Gateway trade volumes (by truck) will be based on data from the 2006 National Roadside Survey conducted by Transport Canada and BC Ministry of Transportation.

Modal scope

This scoping focuses the study on the modes of travel and transport that are most relevant to the Cascade Gateway system. The primary focus in this case will be the modes that use the regional ports-of-entry. The secondary focus will include modes that don’t use the Cascade Gateway port facilities but offer alternatives and potential alternatives to the primary modes.

Primary modes in the Cascade Gateway

- 1) Roads

- a) Cars
 - b) Trucks (heavy commercial vehicle)
 - i) Major truck types/useful analytical categories
 - ii) Containers
 - c) Non-truck commercial vehicle
 - i) Bus
 - d) Bicycle/pedestrian
- 2) Rail
- a) Passenger rail
 - b) Freight rail
 - i) Car-load
 - ii) Intermodal (future potential)
 - iii) Short-haul intermodal (future potential)

Secondary modes relative to the Cascade Gateway

- 1) Air
 - a) Commercial passenger
 - b) Air freight
- 2) Marine
 - a) Large container ships, mostly transoceanic
 - b) Tug & barge bulk movements
 - c) Passenger ferry services
 - d) Other regional marine, existing services
 - e) Potential future market for cross-border coastwise services between public terminals in a roll-on, roll off (RoRo) configuration

Temporal scope

This scope establishes a base year and a planning horizon so that we can standardize our perspective as we work on both sides of the border and among many jurisdictions and institutions. Historical information and data will be valuable to understanding variability and forecasting.

- Base year: 2007
- Planning Horizon
 - Short term; 10 years – 2017
 - Medium term; 25 years – 2032
 - Long term; 50 years – 2057

Institutional scope

This scope identifies the entities, (bureaucratic, corporate, political, etc.) that make the system what it is. The primary institutional focus includes agencies that own and operate the port-of-entry facilities and the modal facilities that connect them. The secondary focus includes system users, those who oversee primary institutions, and those who pay for maintenance, operations, and improvements. Finally, the external focus covers institutions which form important context for the regional, cross-border system.

A core objective of the Circulation Analysis is to identify parts of the system that can be made more efficient and productive through improvements to information technology. Leveraging efficiency through better information flow is more often an institutional challenge rather than a technological challenge. Thus, we need to appreciate the institutions involved.

Primary institutions

System operators	Entity name
U.S. port of entry	U.S. Customs & Border Protection (CBP)
Canadian port-of-entry	Canada Border Services Agency
BC border access roadways	BC Ministry of Transportation
WA border access roadways	WA State Department of Transportation (WSDOT)
U.S. port facility design and maintenance	U.S. General Services Administration
Other regional roads & transportation linkages	BC TransLink, Whatcom County
At-border cities	BC: Surrey, Langley, Township of Langley, Abbotsford. WA: Blaine, Lynden, Sumas
Cross-border rail	Burlington Northern Santa Fe Railway (BNSF), Amtrak <i>Cascades</i> , Canadian National Railway
System users	
Travelers	Tourism industry & agencies, labor migration interests, regional recreation & hospitality, others
Freight shippers	Industries and individual companies
Freight carriers	Trucking associations, railway carriers (BN, CN, Amtrak), individual companies
System policy, advocacy, & planning	
Federal transportation	Transport Canada, U.S. Federal Highway Administration
Regional government	Whatcom Council of Governments, municipalities listed above, Greater Vancouver Regional District
Other federal agencies	U.S. and Canadian Consulate Generals;
Legislator's offices	State, provincial, and federal legislator's offices

Secondary institutions

System determinants	Entity name
Agency headquarters	Ottawa, ON; Washington; DC, Victoria, BC; Olympia, WA
Legislatures	US, Canada, BC, WA
Trade & travel demand	Consumers, producers, carriers, travelers

External institutions

System context	Entity name
Regional modal facilities	Rail yards & stations, airports, marine terminals

Production, distribution, and trade logistics facilities	Manufacturing centers (associations), distribution centers, carrier industries (trucking associations, rail carriers)
Travel dependant businesses	Recreation and hospitality; employers of cross-border residents

Technical Resources

This project will depend on technical resources of partner agencies. This will include transportation system modeling, border and transportation facility modeling, and detailed mapping of cross-border networks and demand.

Model scenarios involving upcoming infrastructure changes include:

- Widened Hwy 15
- Fraser perimeter roads (north & south)
- Mary Hill interchange
- Golden Ears Bridge
- Pitt River Bridge
- Port Mann Hwy
- Roberts Bank Rail Corridor

Data

The Whatcom Council of Governments (WCOG), as lead agency of IMTC, has compiled data related to cross-border travel and trade. These data, along with data from other sources make up a long list which will be referenced in conjunction with this study ([see appendix: data catalog](#)). Of immediate value will be the tables from the 2008 IMTC Passenger Intercept Survey.

Opportunities for improving the detail of information on cross-border trade and travel continue to emerge. These sources will be developed when available. Examples include forthcoming national roadside data and analysis, continuing ATIS data compilations, and upcoming data collection on commercial vehicle throughput.

Mapping

Quality map graphics will be critical for communicating findings regarding current and future system deficiencies and opportunities within different scenarios and demand levels.

Regional transportation model

WCOG’s cross-border traffic model will be used to portray the distribution of current trip volumes on the network as well as test the impact of route changes. An initial output will be an assignment of the 2008 IMTC Passenger Intercept Survey trip records to the cross-border road network.

Simulation

Simulation will be applied to facility level questions – especially those that involve inputs from both the inspection and transportation systems such as NEXUS and FAST programs and associated, dedicated lanes.

Phase 1 work program

This systems definition report sets the parameters for phase 1 and phase 2 work. Phase 2, as described in the work-plan document, will use data, tools, and analysis generated in Phase 1 to recommend specific system investments needed for long term Cascade Gateway system efficiency.

While the system definition will continue to be refined (with updates to this document) as noted above, the following tasks have either been completed, are underway, or planned. The following overview of phase 1 work is presented here to illustrate the how this system-definition works to most efficiently focus subsequent efforts by the multiple stakeholders involved.

Stakeholder interviews and issues summary

Interviews have been conducted with primary institutions and summary information and graphics are available. Information from this task will be used to identify phase-1 technical reports (below) for scoping of phase-2 system planning efforts.

Technical reports

Using the scoping parameters defined in this systems definition, a limited number of technical reports will be identified and conducted. Reports currently being developed include coverage of the NEXUS and FAST programs, their regional performance, and opportunities for optimal integration with the collection of regional, institutional objective and system parameters. Other possible topics (listed here for illustration only) include rail, bus, and marine transportation.

Technical reports on system components will follow a basic format covering 1) definition of the process, 2) demands on that system component by travel, trade, and security, and 3) current and potential supply of the involved process or service.

Technical resources gap analysis

Through the development of technical resources as described above and through the application of currently available tools to the technical reports, phase 1 will also include an assessment of the suitability of these resources to inform analysis and planning for phase-2: forecast based identification of needed system improvements, modifications, and information-technology.