

iMove® - Metro Vancouver's new integrated, multi-modal web portal for traveller information

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Abstract

On November 26, 2007, TransLink, the regional transportation authority for Metro Vancouver, launched the iMove® system as a “one-stop” transportation portal to provide multi-modal, multi-jurisdiction, real-time and static traveller information via the World Wide Web. The iMove® website enables transportation consumers in Metro Vancouver to quickly access information on a host of transportation issues, including transit and cycling routes, construction and event information, current incidents, airline arrivals and departures, border crossing wait times, ferry sailing time and loadings, all from a single source. Visitors to the site have access to over 125 webcams to access current road conditions on major regional corridors and at key locations.

The iMove® system was developed as the first phase of the Regional Advanced Traveller Information (ATIS) strategy of the BC Provincial Intelligent Transportation Systems (ITS) Vision and Strategic Plan. The plan was developed by TransLink’s subsidiary, the ITS Corporation, for using advanced technologies to help solve provincial, regional and local transportation issues.

The paper describes the iMove® project including the use of ITS Corporation’s structure to bring together the efforts of many existing regional agencies in the Vancouver area to create a unified multi-modal traveller information service which bundles information to cater for the needs of specific user groups. The design of the iMove® system is in conformance to the Canadian ITS Architecture and NTCIP and ITE ITS data and interface standards.

Background

The ITS Corporation of British Columbia was established on December 3, 1999, as a subsidiary of TransLink, to define an ITS program and guide the development and implementation of ITS projects in the region and province. Beginning in 2003, member agencies of the ITS Corporation a series of work packages were developed for a regional ATIS strategy and implementation plan for Metro Vancouver. An ATIS implementation plan was finalized in 2004 and the first project, branded as iMove®, began development and implementation in 2005.

iMove® for Metro Vancouver is a joint initiative of TransLink's wholly-owned subsidiary, the "ITS Corporation", comprised of agencies at the federal, provincial, regional and municipal levels of government, as well as the Insurance Corporation of BC, University of BC, Vancouver Fraser Port Authority, commercial transportation representatives, and E-Comm, the region’s emergency 911 call centre and organization. iMove® is an integrated multi-modal web portal, one of the first of it's kind in Canada, that brings together traveller information from various sources into one convenient location.

Overview

The primary objective of iMove® is to provide access to accurate, timely, and reliable information to empower users to make better transportation choices such as deferring or cancelling a trip, changing modes or selecting a different route based on current conditions. The

targeted user groups include motorists, transit users, cyclists, inter-regional travellers, visitors, and commercial transportation agencies. The plan is to deliver sufficient information to enable hybrid or multi-modal trip options. The information is to be made available at each stage of the trip namely, prior to departure (pre-trip), at departure and during the course of the journey, in a wide variety of customizable formats, including voice-synthesized information bulletins, short messages and sophisticated map-based displays with adequate geographical coverage; personalized access & decision guidance; convenient access and speed; and free to the public.

In the development of the concept of operations of the regional ATIS the project team identified that the major goal was to provide users a “one-stop” public web portal with multi-modal, multi-jurisdiction, static and real-time traveller information for Metro Vancouver based on using existing and future prospective information resources from member agencies (as well as other stakeholders) and integrating them to provide a unified traveller service within Metro Vancouver. The design process considered institutional issues, technology, operation, and maintenance, and included the definition and outline of the Regional ATIS service. In addition to providing a functional concept, the ATIS design offered a very cost effective and constructible solution for project execution and for system implementation at present, as well as a feasible integration path for future project phases that will come on line as new data sources and dissemination technologies and are implemented. The design is also in accordance with the ITS Architecture of Canada and incorporates the latest ITE and NTCIP standards for data exchange to support integration with ITS centres publishing traveller information. The web portal architecture was developed in adherence to guidelines for presentation of ITS information developed by ENTERPRISE and web accessibility from World Wide Web Consortium (W3C).

The Regional ATIS initiative was planned to be implemented over three distinct phases as follows:

- Phase 1 – Integration of existing information sources and any other feasible sources that come online during the deployment period and dissemination via a public web portal;
- Phase 2 – Addition of other sources of data as they come online or new information sources as generated by new deployments pursued independently by the member agencies; addition of mode-choice planning tools and support for additional dissemination technologies, such as phone, personal digital assistants (PDA), e-mail and kiosks.
- Phase 3 – ATIS initiatives requiring larger capital investments such as predictive systems; and/or, systems that require a high degree of data fusion from multiple sources and agencies.

The iMove® web portal represents the realization of the Phase 1.

Description of iMove®

The iMove® system encompasses the delivery of pre-trip traveller information for motorists, cyclists, transit users, visitors and commercial vehicle operators via a web portal. The cornerstone of the portal is a feature-rich interactive map based on the Google Maps service that presents layers of traveler information customized to the mode of travel. Travel information is provided on current traffic conditions, construction, planned road closures, transit service information, bus routes and schedules, cycling routes, weather, CCTV cameras, dynamic message signs, inspection stations, disaster routes, port operations, USA/Canada border crossings, etc. The iMove® system obtains real time information (e.g. traffic flow, CCTV cameras etc.) from the Ministry of Transportation, City of Vancouver, Port of Vancouver, The Weather Network,

Washington State Department of Transportation and Metro Vancouver municipalities and major project teams (i.e. Golden Ears Bridge, Canada Line, Evergreen Line, Gateway Project, Sea-To-Sky Improvement Project). The portal also provides links to private transportation operators to obtain a full picture of travel options.

The iMove® web portal allows the user to see current incident and congestion information in a graphical form, and through the use of toggle switches, include the road, rail, marine and air travel networks at the same time. Travellers will also have the ability to view the locations of all traffic and border cameras situated on the same map if they choose. The interactivity of the map presents the user with the ability to customize the view to fit their travelling needs. Finally, the map is designed to allow the user to zoom into a specific region, and then pan the view of the map across the region, allowing even greater control.

Incident, construction and event information, along with transit and border delay information and news will be available from both the interactive map and a more detailed tabular grid below it to allow the traveller access to descriptions of issues they may need to take into consideration when planning their trip. This information is presented in a tabular format that includes a filter to make it easy to exclude information that does not apply to the area the traveller is interested in.



iMove® provides travellers access to TransLink’s interactive trip planning tool allowing one to plan a transit trip from their stop from the map or find the next bus arrival time.

Looking Forward

The iMove® web portal represents the first phase implementation of the Regional ATIS initiative. It provides traveller information to the travelling public and other key user groups. The information provided will effectively support travel decisions, such as choice of mode, choice of route, and timing of the journey.

In the short term, the following additional features are expected to be available on iMove:

- Emergency incidents affecting transportation via a direct interface to E-Comm in the first half of 2008. This feature is expected to draw significant interest from traffic radio stations and will effectively bring iMove® directly into the vehicle.
- Highway related information from a direct interface to the Provincial DRIVE BC system in 2008.
- Real time service levels for the SkyTrain system
- Advisories for major events such as the Sun Run on iMove®
- Additional content for cycling and transit modes.

In the long term, subject to funding, iMove® will be developed further and is expected to incorporate other features such as:

- Greater access via portable media devices (PDAs, cell phones, etc)
- Expanded coverage (web cams on Knight St Bridge, etc)
- Improved data through deployment of additional traffic detectors throughout the region
- Integration of iMove® into a central booking and vehicle tracking system for paratransit.
- Real time next bus arrival information for the transit fleet
- Improved trip planning for other modes.

The iMove® web portal has also been recognized by neighbouring jurisdictions which are investigating the possibility of integrating their information systems and becoming “iMove communities”.

Nationally, the iMove® web portal is considered by many as a showcase for Canada in advanced traveller information systems, using the latest technology and branded as a consumer product. Regionally, iMove® is viewed as the first step towards a vision of a multi-modal, integrated and seamless transportation network in Metro Vancouver.