ITS Canada News

511 Initiative Moves Forward

By Paul Frigon, Canada 511 Coordinator

Prior to July 28, 2006, 511 could not be used in Canada for Traveller Information Services. However, on July 28, 2006, through the collective efforts of the Federal Government (Environment Canada and Transport Canada), the Provinces and Territories (Council of Deputy Ministers Responsible for Transportation and Highway Safety), and ITS Canada, with support from the Canadian Urban Transit Association (CUTA), the 5-1-1 telephone dialing sequence was approved by the Canadian Radio-television and Telecommunications Commission (CRTC) for the provision of weather and traveller information services in Canada.

Since then, the former Canada 511 Consortium (which was established to pursue the CRTC's approval) has continued to address implementation issues in two fora: the 511 Transition Team and the 511 Task Force of the Policy and Planning Support Committee (PPSC) of the Council of Deputy Ministers Responsible for Transportation and Highway Safety (CDM). Ongoing discussions related to issues such as "governance" and "systems design" reflect the complex nature of this co-operative effort between the Federal Government and the Provinces and Territories. For the Canada 511 system to deliver a high level of service to the travelling public in Canada, collective decision making by the implementing agencies is needed on implementation issues. Such decision making would inform and facilitate local action by individual agencies and also ensure the adequate provision of telecom services that can accommodate both weather and future traveller information services.

In the United States, travellers have responded enthusiastically to 511 and use it to make the best decisions about when, where and how to travel. Currently 40 percent of the U.S. population has access to 511 services and it is estimated that, in 2007, close to 70 percent will have access. Implementing agencies in the U.S. are also realizing benefits in the form of reduced demands for labour-intensive processes, reduced calls to highway patrol offices, increased breadth of information in the form of AMBER and homeland security alerts, and enhanced inter-agency coordination.

On the Canadian traveller information front, many initiatives are moving forward through deployments and studies funded by Transport Canada under the Strategic Highway Infrastructure Program. Examples include:

Transport Canada: *511 Readiness in Canada (2005)* - a study that includes consistency and content guidelines for traveller information systems in Canada.
New Brunswick: *Traveller Information System Development Plan (2006)* - a study that lays the groundwork for a traveller information system and 511 implementation.
Quebec: *Inforoutière* is the sole source of all information needed to plan safe trips on Quebec's road network, whatever the season. It is reached by telephone at 1-888-355-0511 or #0511 and on the Web at Inforoutiere.qc.ca.
Yukon: A study to assist in the development of a "highway condition" acquisition and reporting system is underway.
British Columbia: TransLink's traveller information system, *iMove*, should be launched in 2007 as a web portal. Studies are underway to explore other media, including 511, to provide traveller information throughout the region.

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Newsletter published by ITS Canada.
Submissions or comments can be e-mailed to itscanada@itscanada.ca.

Visit ITS Canada's website at www.itscanada.ca

Regional Updates

BRITISH COLUMBIA

By Robert Shirra, RGS Consulting International Inc.

In anticipation of the 2010 Winter Olympics, south-western British Columbia is abuzz with construction activity and associated ITS initiatives. A major upgrade to the Sea-to-Sky highway, connecting Vancouver to Whistler, is well underway. The Sea-to-Sky Highway Improvement Project will increase this road's safety, reliability and capacity. In addition to meeting the area's future traffic needs, the upgrades will also enhance economic development opportunities in communities along the highway and in the province as a whole. Visit:

www.seatoskyimprovements.ca

Other major projects in the region with significant planned ITS components include:

- the Golden Ears Bridge construction, which will include an automated tolling facility www.translink.bc.ca/Plans_Projects/GoldenEarsBridge
- the Canada Line rapid transit expansion project (www.canadaline.ca) which is currently underway
- the Urban Showcase Project, six projects that will showcase how transportation can build healthy, vibrant cities by providing greener transportation alternatives, help reduce greenhouse gas emissions and move us closer to our climate change goals (www.translink.bc.ca/Plans_Projects/Urban_Showcase)
- the Gateway Program, which is about creating a comprehensive, effective network that supports improved movement of people and goods, increases transportation choice, facilitates economic growth, and provides better connections to designated population growth areas (www.th.gov.bc.ca/gateway).

The following ITS projects were reported by the major BC transportation agencies.

BC Ministry of Transportation

The BC MoT has upgraded its popular DriveBC traveller information website (www.drivebc.ca) to include approximately 80 webcams across the province, which can now be accessed through the DriveBC website in addition to travel advisories, road closure information, load restrictions and other important links. Most recently implemented, Weather Station Reports will have "current weather" display panels with up-to-date data from Ministry of Transportation weather stations. Users will be able to look at detailed information on air temperature, precipitation, wind speed, wind direction and, where available, road surface temperature. These reports are updated hourly.

Greater Vancouver Transportation Authority (TransLink)

TransLink, the regional transportation authority, is conducting several important ITS projects:

1. iMove™, the Advanced Regional Traveller Information System for Greater Vancouver is nearing its final stage of development and will begin controlled market testing in the summer of 2007.
2. IRSS (Integrated Regional Signals System) is implementing a pilot project to provide automated signal timing plan coordination across three municipal jurisdictions in the Greater Vancouver region. IRSS is also planning a rail pre-feasibility study to determine how the integration of IRSS and the rail preemption systems can provide improved advanced warning to motorists of rail crossing delays.

Regional Updates

BRITISH COLUMBIA … *continued*

3. Regional Condition Reporting System (RCRS) will enable the 21 Greater Vancouver municipalities and other key regional agencies to enter road condition information (construction, road closure information, planned events, incidents, etc.) This condition information will be shared among the participants and will automatically be posted to the iMove™ system.
4. TransLink and the Ministry of Transportation are jointly developing a functional program and concept of operations for a proposed regional Transportation Management Centre.

Bureau of Intelligent Transportation Systems and Freight Security (BITSAFS), University of British Columbia

By David Frank, Managing Director of BITSAFS

Results from our ITS, freight security and efficiency research are being released weekly - border regulations, issues, process mapping of all transportation modes, border technologies, FAST lane modeling and simulation, institutions, economics of ITS, and the need for marketing and education.

Jinwoo Lee has joined our Team. He recently completed his Ph.D at the University of Toronto focusing on Transportation Systems and ITS.

Dr. Garland Chow and Dave Frank both completed papers and made presentations about the importance of ITS to gateway development, international supply chains and the Canada-U.S. border at the recent workshop on Gateways and Corridors held by the Van Horne Institute in Calgary.

Dr. Chow is a member of the ongoing review of the ITS Architecture for Canada. He also made a presentation to Canada's Department of Foreign Affairs Vancouver/San Diego Bordernet Forum on "The Canada-United States Supply Chain and the Border: Current Issues and Challenges."

Please see www.FreightSecurity.ca for the latest public results. Our website is being constantly updated. Applied Science at UBC will be joining the Sauder School of Business, conducting our extensive research program later this year. Our thanks to the BC Ministry of Transportation and Transport Canada for their support.

ALBERTA

By Donna Lee,
Alberta Infrastructure and Transportation

Alberta is deploying Automated Vehicle Identification (AVI) technology at key vehicle inspection stations across the province to allow electronic pre-clearance of low-risk commercial vehicles. Six of these AVI systems are cost-shared with Transport Canada under the Strategic Highway Infrastructure Program.

Alberta
INFRASTRUCTURE AND TRANSPORTATION

The AVI project is close to completion and the system is expected to go live in spring 2007. Carriers under the Partners-In-Compliance program may apply for in-cab transponders, which will communicate with the AVI reader upstream of inspection stations and allow compliant vehicles to bypass AVI-equipped inspection stations. This ITS technology will generate significant travel time and fuel consumption savings for the trucking industry. It will also improve the efficiency and productivity of commercial vehicle operations by allowing transport officers to focus resources on higher-risk vehicles.

Alberta is also jointly building a remote control weigh station (RCWS) pilot with Saskatchewan at an exiting unattended weigh scale at Macklin, which is just a few kilometres east of the Alberta-Saskatchewan border. This project will utilize video cameras, variable message signs, piezo sensors and high-speed Internet to allow remote operation of the unattended weigh scale from a distant office. These proven ITS technologies will provide an efficient and less costly alternative for operating unattended weigh stations. The RCWS pilot site is expected to go into service in May 2007, with evaluation to follow over summer 2007. Transport Canada has provided co-funding for the project under the Strategic Highway Infrastructure Program.

Regional Updates

ALBERTA … *continued*

Updating previously reported ITS projects:

- Sixty-three Road Weather Information System (RWIS) stations have been installed since 2005 and the project is on target to have all 75 stations completed by the end of 2007. Training for the maintenance contractors and government staff is ongoing. The immediate positive impacts from these installations have so far been from the traveller information side as a result of the real-time road images from the stations being made available for the public.

- In the Automated Vehicle Location System (AVLS) project, a combined fleet totaling almost 600 snowplows from five private maintenance contractors was equipped in the final phase of the project in 2006. Some winter trials using the AVLS to generate GPS-based billing for the contract work have been performed successfully, with the goal to go fully automated for the winter of 2007/08.

By Bart Rakoz, City of Calgary

Over the past year, the following initiatives have been underway in Calgary:

Parking

Calgary Parking Authority is launching a new on-street pay and display parking meter system in 2007. Please see the following article for more details:
www.roadtraffic-technology.com/projects/calgary

Transit – Cell Phone eTickets

Calgary Transit implemented a pilot project where riders were able to purchase fares through an online account and order an electronic ticket real-time through cell phone text messaging. The pilot was technically successful and is being evaluated for city-wide rollout.

Traffic Management Centre - CCTV Camera Deployment

Camera deployment has continued at city intersections. There are now about 30 cameras deployed throughout Calgary. Still camera images for most locations are available on the Internet through the Calgary Traveller Information System.

Calgary Traveller Information System

The Calgary system recently went through an upgrade, and has also been integrated with the Calgary Detours database so detour information is automatically passed to the Traveller Information System. Visit the website at http://65.104.36.247/ or through the following portal:
http://calgary.ca/trafficinfo.

AVL

The Development and Building Approvals division implemented a basic AVL solution from iTrack using off-the-shelf cellular modems for fleet monitoring and historical location reporting.

By Dan Godlewski, City of Edmonton

Edmonton's Transportation Master Plan (TMP) - ITS Implementation Status

The following list identifies key ITS component areas completed, under development, or to be implemented within the next two years (2007 – 2008) in the City of Edmonton:

1. Dedicated ITS resources: Creation and appointment of a new Senior ITS Engineer with plans to possibly expand the area in the future

2. Replacement and upgrading of arterial traffic control system equipment:
   a) Four permanent Dynamic Messaging Signs (DMS) are currently deployed and two additional locations will be selected in 2007.
   b) A new Central Computer Traffic Signal Control System is to be specified in 2007 with the procurement, installation and commissioning scheduled for 2008.

Regional Updates

ALBERTA … *continued*

3. Traffic Signal Re-timing and Coordination Program:
   a) Continuation of the four-year cycle of review of each signal network in the City system re-time evaluation program
   b) Traffic count data collection using existing or new detection systems is to be explored in future years.

4. Freeway Traffic Management Systems:
   a) Freeway management systems within selected planned transportation projects for the Inner Ring Loop and major connectors to the Province's Anthony Henday Drive
   b) Various vehicle detection systems have been explored in order to define a viable and reliable alternative to inductive loops in the roadway surface.

5. Enhanced traffic signal management strategies to meet the stated TMP objectives include:
   a) Traffic responsive signal control, to maintain or improve traffic flow during recurring and non-recurring traffic congestion, has been implemented in special event areas and is scheduled for implementation in 2007 in the West Edmonton Mall area.
   b) Transit Signal Priority (TSP), to reduce and improve travel time, has been tested and will be implemented on select transit routes in the future.

6. Incident Management Systems: Video traffic management systems (traffic cameras), used to monitor incidents in real-time, continue to be deployed. Nineteen traffic cameras are deployed City-wide, and a centralized camera control system has been installed in the Traffic Management Centre. A number of additional traffic cameras are to be deployed annually, with three to five systems installed in 2007.

7. Traveller Information Systems: Public access to the existing traffic cameras is available though a local television community channel and through the City's Internet web site.

SASKATCHEWAN

By Blair Wager,
Saskatchewan Highways and Transportation

With funding from Transport Canada, International Road Dynamics (IRD) and the University of Saskatchewan completed a Feasibility Study of a Remote Control Weigh Station in March 2005. The study examined the concept and functional requirements of a remote control weigh station (RCWS) and evaluated its economic feasibility. The feasibility study concludes that the concept could have potential cost savings and provide an efficient and effective alternative for operating weigh stations where only a scale deck exists.

As a result, Saskatchewan Highways and Transportation, Alberta Infrastructure and Transportation and Transport Canada have entered into agreements to cost share the building of a prototype to conduct field trials and prove the RCWS concept. IRD has agreed to participate with in-kind contributions. This project will involve the research and development (R&D) and pilot operation of a remote control weigh station that will enable remote operations of a weigh scale deck for more efficient commercial vehicle enforcement. The pilot is to use existing and proven technologies such as cameras, message sign boards and high-speed Internet communications to remotely operate a vehicle inspection station at a static scale deck location in rural Saskatchewan.

Regional Updates

SASKATCHEWAN … *continued*

Saskatchewan Highways and Transportation

The project will assess the feasibility of expanding the Department's ability to enforce commercial vehicle regulations without incurring significant capital and staffing costs associated with conventional methods of enforcement.

The main objectives of this project are:

- To build a prototype of a RCWS at an existing weigh scale deck that can be operated from a distant office
- To evaluate the technical and economic viability of the RCWS concept
- To identify possible solutions to providing remote monitoring and enforcement of all unattended vehicle weigh scales across the province
- To assess the interoperability of the joint RCWS between the two jurisdictions.

We are currently in the construction phase and hope to have the system up and running for testing by the end of March or early April 2007.

YUKON

By Wally Hidinger, Government of Yukon

Yukon has successfully installed three road weather information sites over the past 12 months. All three sites are in or near Whitehorse. Commissioning is in progress to ensure the data produced by the sites meets the required Environment Canada standard. Once certified, a subset of the site data will be made available to the public.

A project to develop an ITS strategy for Yukon has just recently been initiated. A contract has been awarded to produce this important planning document. Completion of the project is expected in early to mid-summer.

Some other smaller projects are in the early stages, as follows:

- Yukon has acquired a small amount of weigh-in-motion equipment. Training in use of the equipment and experimental deployment will occur over the summer of 2007.
- A project to develop a road condition information system (511) is in the early stages. A preliminary requirements document has been developed and the design phase of the project is in progress.
- A project to develop a GPS-based vehicle location monitoring system has also been initiated. A preliminary requirements document has been drafted and design will proceed over the remainder of the current fiscal year. A test program based on highway maintenance fleet vehicles will be incorporated in the design phase.

ONTARIO

By Bruce Zvaniga, City of Toronto

In April 2006, Toronto City Council adopted a report identifying a number of principles and strategies for the continued deployment of ITS in the city. Of particular significance were two recommendations relating to formalizing collaboration between the Transportation Services Division and others. Firstly within the City's public service, an ITS Working Group was formed consisting of fire, police, emergency medical, transit, parking and transportation services. Secondly, Toronto Transportation Services staff were asked to reach out to their neighbouring jurisdictions to explore opportunities for area-wide ITS initiatives.

In the past 12 months, the City has deployed its new RoadMap road disruption management system that is used to identify potential conflicts among numerous activities in the road allowance during the early planning stages, and to provide traveller information when the events take place.

Regional Updates

ONTARIO … continued

Currently, the City is in the third year of a 12-year program to replace old interval-based traffic controllers, proprietary communications hardware, and the City's venerable in-house traffic control signal system. The new central system provides second-by-second monitoring with distributed control, and utilizes NTCIP communications to NEMA TS2 controllers. The City's system currently uses three different independent traffic controllers interoperably and interchangeably on the same communications channel.

The City is also in the midst of expanding its RESCU traffic management system to provide queue-end warning, video surveillance and incident management on Allen Road.

Smartcard Fare Payment for Ottawa

By Joel Koffman, Transit Services, City of Ottawa

By 2009, OC Transpo plans to implement a smartcard fare payment system. City Council has allocated funds in the 2007 budget for the project that will change the way OC Transpo's 92 million annual passengers pay their fare.

The smartcard system will make use of contactless smartcards that are widely used in the transit industry because they allow for rapid boarding and, with no moving parts in the readers, have low maintenance costs.

The timetable for smartcard implementation will see the introduction of smartcards configurable as any form of pre-paid pass (monthly, semester, annual or Ecopass employer payroll deduction plan) in 2009 followed by the implementation of the 'purse' or electronic tickets in 2010.

ITS Canada Welcomes New Member

CORPORATE

Automatisation Grimard

Cash will continue to be accepted for the foreseeable future, although pre-paid fares will be encouraged through discounts as they are today. OC Transpo progressively discounts fares the more customers commit to becoming frequent transit users. For example, the adult cash fare is $3.00 while the ticket fare drops to $1.90. The regular adult monthly pass costs $71.25, or about $1.25 per trip. Today, 75 percent of all transit trips are paid for with some form of transit pass, with ticket and cash fares accounting for 20 percent and 5 percent of the trips respectively.

There are many benefits associated with the smartcard fare payment system. These include:

- Enabling the launch of a 'personal Ecopass' to allow all residents to take advantage of the convenience of payment and receive the associated discount of automatic pre-authorized payment. Today, only those customers who work for one of the participating companies or the federal government can join the program. As of April 2007, there were 20,000 customers taking part in the highly successful Ecopass program.
- Ensuring seamless integration and inter-provincial travel between customers who use both OC Transpo and STO, the transit carrier for the City of Gatineau that already has a smartcard fare payment system.
- Reducing the incidence of fraud since the verification process for smartcards will be more effective than is currently possible with paper passes and tickets.
- Simplifying the fare system for bus operators. There are now almost 50 different fare payment options. Smartcards will automatically carry out most of the fare validation process.

Currently, OC Transpo operates under a 'Proof of Payment' (POP) system on all 227 articulated buses in the total 950-bus fleet. Customers who have a valid pass can board through the middle and rear doors.

Regional Updates

ONTARIO … *continued*

Customers paying with cash and tickets must board by the front door and get a transfer receipt. Transit Fare Enforcement Officers randomly check passengers for POP and issue ticket violations to those customers who do not have POP. Once smartcards are in place, the POP system will remain in operation, the only difference being the inspection staff will be using portable card readers to check fares.

Overall, the smartcard system makes good business sense. A detailed business case was carried out comparing the capital and operating costs of the new system with the costs of continuing with the current system. The business case showed that the system would cover its costs in about six years. It is expected that the smartcard system would have a ten-year life.

The next step in the project is to issue proposals for the system. Once a preferred proponent has been selected and the details of the final system are known, final approval from City Council is needed. It is expected that a contract for the system will be finalized by the fall with work commencing immediately towards the 2009 implementation date.

Ontario Ministry of Transportation Keeps Traffic Moving With Intelligent Transportation Systems

A sustainable transportation system manages congestion and helps maintain a high quality of life. Transportation solutions such as the Ministry of Transportation's COMPASS system use intelligent transportation systems (ITS) technology to help ease traffic jams by informing drivers of highway conditions. Launched in 1975, this high-tech traffic management system is one of the most advanced in North America.

MTO recently expanded a part of its COMPASS system – the traffic flow map, an online tool that allows drivers to check highway driving conditions. The traffic flow map uses colour-coding to show how traffic is moving on specific sections of the highway, describing traffic flow as "moving well", "moving slowly" and "moving very slowly". The map also marks "incident" where a collision or other blockage has occurred.

Queen Elizabeth Way Traffic Flow Map

MTO uses ITS solutions to collect and update information for posting on the web. Electronic loops embedded in the road feed traffic volume, speed and congestion information into COMPASS traffic operations centres. The information is analyzed and then updated every five minutes so drivers can check accurate traffic reports and plan their routes.

First created in 2004, MTO's traffic flow map shows drivers current traffic conditions on the Queen Elizabeth Way (QEW) and on Highway 401, one of the busiest highways in the world. On a regular day, Highway 401 carries more than 420,000 vehicles. It has 18 lanes at its widest sections, including express and collector lanes. The QEW and Highway 401 are Ontario's gateway to the United States, the world's largest commercial market.

The system also uses detectors to collect and provide information to drivers using variable message signs on the highways and the media. COMPASS improves road safety and reduces traffic congestion by quickly detecting highway incidents and vehicle breakdowns. If the data indicate there could be a congestion issue, the operators at the COMPASS centre confirm the problem with closed circuit TV cameras and then notify the appropriate emergency response agencies (i.e., Ontario Provincial Police, fire department, ambulance) to clear the problem. Studies conducted in the early 1990s (when the COMPASS System on Highway 401 first opened) showed messages on the variable message signs helped reduce collisions by 12 percent. Information about Ontario's COMPASS System can be viewed at: www.compass.gov.on.ca

Upcoming Events

Le 42e congrès annuel de l'AQTR
April 2 to 4, 2007 – Montreal, QC
www.aqtr.qc.ca

2007 PIARC International Seminar: "Road Network Operation Management (ITS) and Road Safety"
April 11 to 13, 2007 – Santiago, Chile
Email: josemiguel.ortega@itschile.cl

TAC's Spring 2007 Technical Meetings
April 11 to 18, 2007 – Ottawa, Ontario
www.tac-atc.ca

Laser Scanners/Multi-Application Sensors and their Application to ITS
April 13, 2007 – Vancouver, B.C.
cynthia.ree@sauder.ubc.ca

Smart Moving Conference 2007 / Traffex 2007
April 17 to 19, 2007 – Birmingham, UK
www.its-uk.org.uk

ITS Canada Annual Conference and General Meeting
April 29 to May 1, 2007 – Niagara Falls, Ontario
www.itscanada.ca/niagara2007

International Conference on Gateways and Corridors
May 2 to 4, 2007 – Vancouver, B.C.
www.gateway-corridor.com

CITE 2007 Conference
May 6 to 9, 2007 – Toronto, Ontario
www.itetoronto.ca

15th International Symposium on Electronics in Traffic (ISEP 2007)
May 9 to 11, 2007 – Ljubljana, Slovenia
www.ezs-zveza.si/isep2007/foreword/

Intertraffic Istanbul
May 9 to 11, 2007 – Istanbul, Turkey
www.intertraffic.com

Africa Roads 2007
May 21 to 24, 2007 – Johannesburg, South Africa
www.terrapinn.com/2007/roadza

XVII Canadian Multidiscipinary Road Safety Conference
June 3 to 6, 2007 – Montreal, Quebec
www.cmrsc.polymtl.ca

ITS America 2007 Annual Meeting & Exposition
June 4 to 6, 2007 – Palm Springs, California
www.itsa.org/annualmeeting.html

7th International Conference on ITS Telecommunications (ITST 2007)
June 6 to 8, 2007 – Sophia Antipolis, France
www.itst2007.eurecom.fr

ITS New York Annual Meeting and Technology Exhibition
June 7 and 8, 2007 – Saratoga Springs, New York
DottyD@aol.com

CUTA Annual Conference
June 9 to 13, 2007 – Halifax, NS
www.cutaactu.ca

IBTTA Spring Technology Workshop
June 10 to 12, 2007 – Berlin, Germany
www.ibtta.org/Events

European ITS Congress and Exhibition
June 18 to 20, 2007 – Aalborg, Denmark
www.itsineurope.com/congress/index.cfm

Asia Traffic
July 9 to 12, 2007 – Singapore
www.asia-traffic.com

23rd World Road Congress
September 17 to 21, 2007 – Paris, France
www.paris2007-route.fr

National Rural ITS Conference
October 7 to 10, 2007 – Traverse City, MI
www.nritsconference.org

14th World Congress on ITS
October 9 to 13, 2007 – Beijing, China
www.itsa.org