

ITS Canada Mission to China



By William Johnson, TRENDS

In October 2007, ITS Canada led a mission to China, timed in conjunction with the 14th World Congress on ITS. ITS Canada's hospitality event, held on October 11 at the Dazhaimen Great Theater in Beijing, included a cocktail reception followed by dinner. Joseph Lam, Chairman of ITS Canada, represented the Society at the event, which was attended by 175 invitees.

Guests were welcomed to the event with a reception in the lobby that included a photo opportunity with Chinese in traditional costume. The Canadian Ambassador Robert Wright, Susan Spencer of Transport Canada, and Joseph Lam, Chairman of ITS Canada, officially welcomed everyone, and invited guests to network. There was entertainment throughout the meal. The actors were brilliant and the arrangement of the raised stage and tables surrounding it gave everyone a good view. The food was excellent, and compliments poured in afterward from attendees as everyone had an excellent time.

A full report on the mission will be included in the November newsletter.



ITS Canada Chairman **Joseph Lam** (second from right) chats with fellow delegates in ITS Canada's booth at the 14th World Congress on ITS.

Visit
www.itscanada.ca/english/WCbeijing.htm
for more photographs and
information from the mission.

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itscanada@itscanada.ca.



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Toronto Improves Incident Response

A traffic management system being used to detect disruptions to traffic flow along the Don Valley Parkway, Gardiner Expressway and Lake Shore Boulevard in Toronto, Canada, has been enhanced through the adoption of Citilog's VisioPaD video image processing system on 21 of the 57 cameras on the network.

The RESCU management system, which has been in service since 1994, also has 635 vehicle sensors (loops) and six overhead changeable message signs. It is operated by the City of Toronto's Transportation Services division. Spokesman Steve Kemp says, "We didn't have a significant accident problem. But there is a public expectation that we are able to detect any incident that happens and to respond quickly. There were a few high-profile incidents that we did not detect, so we started to look at ways to have a better chance of detecting incidents. It was not the numbers of collisions that was the problem. It was those that were not being captured."

The outcome was a pilot project to test Citilog's VisioPaD which, according to Kemp, successfully augments existing incident systems. He says, "Although there hasn't been a dramatic reduction in accidents, we are now responding to incidents quicker than before." The City of Toronto Transportation Services Division is responsible for the operation and maintenance of over 5,300 kilometres of roadway, including 60 kilometres of urban expressway. The network includes over 2,000 traffic control signals and 600 pedestrian crosswalks.

The Gardiner Expressway is a six-lane urban freeway with at-grade and elevated sections. Running parallel to the expressway is a six-lane arterial roadway called Lake Shore Boulevard. The Gardiner-Lake Shore corridor carries approximately 300,000 vehicles a day. The Don Valley Parkway (DVP) is a six-lane urban freeway at-grade. The DVP carries over 200,000 vehicles per day.

Both the Gardiner and the DVP experience congested conditions for most of the day. In many areas these expressways have limited or no shoulders.

As a result, incidents that are not cleared quickly cause significant delay to other road users. RESCU uses a combination of tools to detect incidents within the road network. Traditionally, automatic incident detection algorithms have used data from inductive loops to identify disruptions. Operators then confirm these disruptions through closed circuit cameras and implement response plans accordingly.

This method of incident detection has been successful; however, it is dependent upon traffic congestion building as a result of the incident in order to "trigger" the upstream detector station. During periods of light traffic, some incidents do not result in a significant disruption and are therefore not detected by traditional methods.

Citilog's VisioPaD provides traffic operators with an alarm (audible and visual) immediately after an incident occurs (within seconds), even before the consequences of this incident can be noticed by traditional monitoring. Video signals from the existing CCTV system are fed into video detection units that run a detection algorithm that identifies stopped vehicles within the field of view of the cameras.

Because it requires no setup or calibration, Citilog says VisioPaD fits perfectly into any CCTV system without the need for additional or new cameras. It also does not require the use of preset positions on PTZ cameras; cameras can be moved at will and within a minute the system automatically recalibrates and is fully functional. The system works in the background on all pictures of the network, 24/7, and traffic operators can concentrate on other tasks than pure surveillance of screens.

VisioPaD turns a traditional video surveillance system from a reactive monitoring system (incident verification) to a proactive monitoring (incident detection) system. Additionally, for each incident detected, a digital video clip is automatically recorded by the system. These clips are tools to investigate the nature and the cause of incident.

Continued, next page

Toronto Improves Incident Response

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Toronto's Steve Kemp says that during periods of light traffic overnight, existing systems would not detect vehicles stopped on the shoulder of the expressway. Operators relied on detecting these incidents visually either through closed circuit cameras or reports from field patrols. These shoulder incidents (although most are often minor) have occasionally become major when secondary collisions occur. The combination of a stopped vehicle on the shoulder and high speed traffic in the adjacent lane has, at times, had deadly consequences.

"Our ability to detect this type of incident quickly and get the appropriate emergency services on scene has been greatly enhanced by the Citilog VisioPaD system.

"The system immediately improved our ability to detect incidents within our coverage area. The false alarm rate is minimal, usually caused by shadows under bridges, and managed easily by our operators."

The added benefit of storing incident video has helped to identify problem areas within the network. It has also proven useful to determine the cause of some incidents, added Kemp.

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*ITS Canada Welcomes
New Member*

CORPORATE
Nova Bus

Government of Canada Strategic Transportation Projects

Below is a sample of the types of strategic transportation projects the Government of Canada is currently involved with:

Canada Line - Vancouver

The transportation corridor connecting downtown Vancouver with downtown Richmond is one of the busiest in Greater Vancouver, experiencing the greatest traffic density and associated problems. The Canada Line will provide additional transportation capacity equivalent to 10 major road lanes in a dense corridor where expanding roads and bridges is neither practical nor desirable. This additional capacity will address congestion and make growth in these centres more manageable, boosting liveability, sustainability and competitiveness. For info: www.canadaline.ca.

Autoroute 30 - South of Montreal

The project involves construction of a highway connecting the industrial municipalities south of the St. Lawrence River, providing Montreal with a bypass to the south to reduce congestion on the city's highway network. Completion will also facilitate the integration of Autoroutes 10, 15, 20, 30, 40, and 540 into a more efficient network, enhancing economic development in the region. Autoroute 30 will also reduce congestion on the segments of Route 132 and Route 201. For info: www.autoroute30.qc.ca.

Kicking Horse Canyon Project - BC Rockies

The highway is being improved to a modern four-lane standard with a design speed of 100 kilometres per hour to move traffic more safely and efficiently. www.th.gov.bc.ca/kickinghorse

Route 2 Twinning in New Brunswick

www.gnb.ca/0113/fed-prov

Corridors for Canada Project – Northwest Territories

www.dot.gov.nt.ca/live/documents/documentManagerUpload/cfc_4.pdf

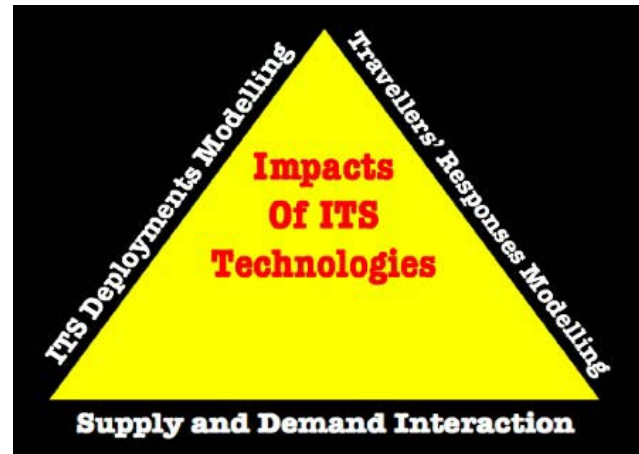
New Transit ITS Initiatives

Modelling Passenger Behaviour through MILATRAS

*By Mohamed Wahba, PhD Candidate,
University of Toronto*

Intelligent Transportation Systems (ITS) technologies are promoted as a means for improving the transportation system, including public transit services. The intended benefits of ITS include better and more regular information, seamless transportation services, and improved productivity. ITS deployment in public transit is seen as a tool to improve efficiency, increasing service quality, and *ultimately* attracting more choice riders. Technology such as automated passenger counters (APC) and automated vehicle location (AVL) systems may allow transit operators to better balance supply and demand, and improve reliability of the service, for example through schedule adherence. Electronic fare cards may reduce dwell time and make fare payment more convenient. Traveller information services can enhance and expedite trip-planning and provide real time schedule information to travelers, hence affecting their decisions. Transit Signal Priority (TSP) systems can reduce travel time, thus improving the transit network performance, which subsequently affects traveller's choices. In the transit assignment field, the dynamic modelling approach is receiving growing interest because of the importance of explicit system simulations to enable user decisions to be evaluated if ITS is used.

Traditional transportation planning methods have serious limitations in evaluating the effects of information technologies, since they are neither sensitive to the types of information that may be provided to travellers, nor to the traveller's response to that information. New research focuses on addressing the issues concerning the development and the implementation of a new modelling framework for the transit assignment problem, namely the Microsimulation Learning-based Approach for TRansit ASsignment - MILATRAS. In MILATRAS, the underlying assumption is that individual passengers decide about their choices (departure time, origin/destination stops, transfer/connection stops) for a trip on consecutive days and this decision process is based on a "mental model" of the transit network conditions. For a given day d , each passenger has a perception of the transit network conditions as stored in his mental model.



This perception is built up over time through experience with the transit system. For day d , a set of choices are made by each individual passenger (e.g., departure time choice and route choice), with the aim to realize a Desired Arrival Time (DAT) at the destination. By modeling passengers' travel behaviour on their journey from origins to destinations, MILATRAS distributes a given travel demand on a network and models the interaction between the travel demand and the network supply.

MILATRAS is well suited for testing transit-ITS technologies and policies. MILATRAS provides an integrated dynamic modelling framework that is sensitive to time-dependent and stochastic transit service characteristics (supply modelling), that models adaptive departure time and path decisions by passengers (demand modelling), and that captures the interaction between passenger decisions and transit network performance (via an integrated framework).

A full-scale implementation of the City of Toronto Transit System, Ontario, is underway. The constructed model will provide a testbed for the recently published Toronto Transit Commission (TTC) future plans for rapid transit expansions along major transportation corridors. These rapid transit initiatives address transportation needs identified at both local and regional (GTA-wide) levels. It complements ongoing TTC initiatives and the City's longer-term "multi-modal" vision for transportation in the City.

ITS and the Environment

Based on a presentation made at Industry Canada's "Focus Day"
held August 30, 2007, at the Canada Science and Technology Museum in Ottawa, Ontario

By Mark Pinet, Totten Sims Hubicki Associates

Industry Canada's recent "Focus Day" reviewed the impact that Information, Communication and Technologies have on the environment. They recognized that this presented an opportunity to expand on the role of ITS, and TSH in turn saw it as an opportunity to emphasize the TSH "Greensmart" principles by illustrating how projects can integrate sustainability by introducing a "triple bottom line" into each project from the outset: the consideration of environmental, social and economic implications. The audience was comprised of engineers, administrative personnel, communications officers and policy staff.

Mark indicated that a primary goal of ITS is to promote sustainable mobility through the use of intelligent technologies: to make systems safer, more efficient, more reliable and more environmentally friendly without necessarily having to physically alter infrastructure.

After a brief introduction of ITS highlighting the importance of the ITS Architecture for Canada, the presentation reviewed Traffic Management Systems, Traveller Information Systems, Incident Management and Maintenance Management, and how these work together to assist in protecting our environment.

Agencies are often impacted in their goal to deliver a high level of service by a number of factors that are beyond their control: weather, collisions, capacity, construction and incidents. These events result in congestion, which is costly from a number of perspectives, including the cost on the environment. Traffic Management Systems use devices to collect data on the conditions. Through Traffic Management Systems, drivers are redirected by a central agency to alternate routes. Incident Management involves identifying occurrences and rapidly removing obstructions to mitigate effects, while providing travellers with real-time information on conditions. Maintenance Management focuses on improving conditions to reduce their negative effects. Traveller Information Systems allow drivers to access the information to make their own route choices. These coordinated efforts result in reducing congestion duration.



*Mark Pinet speaks at
Industry Canada's
"Focus Day"*

Traveller Information can be delivered to drivers through Dynamic Message Signs, Highway Advisory Radio and 511, as well as in-vehicle systems and cell phones. Pre-trip planning is supported through the Internet, 511 and media such as radio stations. Mark provided examples from in around Eastern Ontario of existing ITS infrastructure and systems.

Adverse winter weather means increased driving risks. The resulting collisions, aside from being a safety concern, also result in traffic congestion. Congestion has a significant negative impact on the environment. Advanced approaches to winter maintenance have been enabled by ITS technologies, including Road Weather Information Systems (RWIS). RWIS provide the capability to remotely monitor atmospheric, visibility and pavement conditions. RWIS provide input information required to produce pavement condition forecasts, allowing more effective salt use along with improved efficiencies in equipment and labour planning

RWIS forms a basic building block for other more advanced winter maintenance approaches, facilitating improvements in road conditions and driver responses at critical high-risk locations during adverse winter weather. Fixed Automated Anti-Icing Spray Technology (FAAST), for example, improves safety and reduces congestion associated with collisions at high-risk locations. The introduction of FAAST on Highways 401 and 416 eliminated collisions at a site historically a problem, and also allowed automated application of non-chloride de-icing chemicals, a proactive approach and an environmentally-friendly solution.

Congestion contributes to greenhouse gases and air pollution. For the future, moving towards even "greener" solutions will involve continuing integration of a variety of ITS solutions, including further development of an enhanced weather-responsive approach to traffic management.

News *bITS*

Ministry of Transportation of Ontario

The Ontario government is developing a more sustainable transportation system that balances investments in highways and transit to ease congestion, reducing smog and harmful greenhouse gas emissions.

In August 2007, the Ontario government announced three new initiatives to encourage commuters and businesses to reduce greenhouse gases. Incentives will be identified to encourage people to buy green vehicles that will be recognized with an Eco-license plate, to be launched next summer. The government is also investing \$15 million over four years for a pilot to help businesses convert to more environmentally-friendly technologies, such as hybrid power.

Ontario will also increase the use of cleaner fuel in its own fleet by installing two new ethanol fuelling stations in the province. These new facilities could also be made available to other users, such as municipal fleets, once they are operational. Other initiatives include:

- Move Ontario 2020, a \$17.5 billion plan to expand public transit in the Greater Golden Horseshoe area
- The Municipal Eco Challenge fund, a three-year, \$220 million loan and grant program to help municipalities reduce greenhouse gas emissions
- The Next Generation Jobs Fund, which will make \$650 million available to develop clean cars, fuels and other technologies.

For more information, please visit:

www.mto.gov.on.ca



U.S. Traffic Signals Report Card

In early October, the National Transportation Operations Coalition (NTOC), a group of transportation associations, released a new report that reports on the benefits of effectively managing traffic signal systems. Benefits include a reduction in fuel consumption and mitigation of congestion, leading to improvements in air quality. Shorter commute times and decreased driver frustration make these initiatives a win-win.

National Transportation Operations Coalition



By implementing a more pro-active preventive maintenance schedule, the City of Austin reports significant savings. "The City of Austin is a great example of how low cost changes to traffic signal operations can result in big savings," said Congressman Lloyd Doggett (Texas) whose district includes the City of Austin. "Spending no new money, the City of Austin was able to save more than \$40 million in operating costs in just one year by simply changing the way it manages its traffic signal operations."

The report shows that studies consistently demonstrate the benefits of investments in signal timing outweigh the costs by 40:1 or more. The NTOC is raising awareness of the value of traffic signal management.

For the full report, please visit:

2007 National Traffic Signal Report Card
Technical Report and Executive Summary
www.ite.org/reportcard

Members in the News



Applanix Technology Aboard Coast Guard Icebreaker for Arctic Survey Trip

Applanix announced today that its POS MV™ position and orientation system technology will be working with nautical sensors aboard the U.S. Coast Guard icebreaker Healy, which left port in early August 2007 to map the sea floor off the Alaskan Arctic coastline. The installed POS system will assist onboard marine echo sounder systems and other vessel sensors during bathymetric mapping by accurately measuring sensor and ship positioning and orientation during data capture, even under the most demanding sea and ice conditions. Along with environmental and geographic research goals, the data collected onboard the Healy will help register U.S. coastal boundary information with the U.N. Commission on the Limits of the Continental Shelf so that rights over the resources of the sea floor and subsurface (including oil and gas drilling rights) may be preserved. For details: www.applanix.com.



Nokia to Acquire NAVTEQ

Nokia and NAVTEQ have announced an agreement for Nokia to acquire NAVTEQ. The acquisition has been approved by the Board of Directors of each company and is subject to customary closing conditions, including regulatory approvals and NAVTEQ shareholders' approval. For details: www.navteq.com.



TransLink Wins Prestigious APTA Award

TransLink has won first place in the Public Relations/Awareness or Education category and received the "AdWheel" marketing award from the American Public Transportation Association (APTA), recognizing TransLink's employer branding and recruitment campaign that promotes TransLink as an employer of choice for professional workers. For details: www.translink.bc.ca.



Dynamic Message Signs Improve Operations on America's Dream Highway

Daktronics has supplied several full-matrix Galaxy® dynamic message signs (DMS) to the Pennsylvania Turnpike for use at four toll plazas, to better identify exit and entry toll operations. The signs use state-of-the-art, full-color light emitting diode (LED) technology to create clear, readable messages, which make it easier for travellers on the turnpike to see the messages at a greater distance from the toll plazas. Seven messages were created for the signs and can be changed easily by the toll booth operator via a simple control interface powered by Daktronics. For details: www.daktronics.com.



Upcoming Events

2007

2008

Trafic 2007 (IFEMA)

October 2 to 5, 2007 – Madrid, Spain
www.trafic.ifema.es/ferias/trafic/default_i.html

75th IBTTA Annual Meeting and Exposition

October 6 to 10, 2007 – Vienna, Austria
www.ibtta.org

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.itsworldcongress.cn

Road Weather Information System (RWIS) Equipment and Operations Workshop

October 10, 2007
www.nritsconference.org/RWIS.html

Commercial Vehicle and Freight Mobility Forum October
October 10 and 11, 2007 – Traverse City, MI
hyoung@itsa.org

Intertraffic North America

October 10 to 12, 2007 – Fort Lauderdale, Florida
www.intertraffic.com

TAC Annual Conference and Exhibition

October 14 to 17, 2007 – Saskatoon, SK
www.tac-atc.ca

Sudan Transport 2007

October 31 to November 4, 2007 – Khartoum, Sudan
nafees@orangeairs.com

CUTA Fall Conference and Trans-Expo 2007

November 10 to 14, 2007 – Québec, QC
www.cutaactu.ca

Gulf Traffic Exhibition and Conference

December 10 to 12, 2007 – Dubai, UAE
www.gulftraffic.com

Intertraffic Amsterdam

April 1 to 4, 2008 – Amsterdam, The Netherlands
www.intertraffic.com

Intelligent Public Transport Systems (IPTS)

In conjunction with Intertraffic Amsterdam
April 2 and 3, 2008 – Amsterdam, Netherlands
www.iptseurope.com

Intertraffic China

April 24 to 26, 2008 – Beijing, China
www.intertraffic.com

13th International Conference on Road Transport Information and Control

May 20 to 22, 2008 – Manchester, UK
www.theiet.org/rtc



ITS CANADA ANNUAL CONFERENCE AND GENERAL MEETING 2008

June 1 to 4, 2008 – Montreal, Canada
www.itscanada.ca/montreal2008

7th ITS European Congress and Exhibition on Intelligent Transport Systems and Services

June 4 to 6, 2008 – Geneva, Switzerland
www.itsineurope.com

Canadian Multidisciplinary Road Safety Conf.

June 8 to 11, 2008 – Whistler, British Columbia
www.cmrrsc.ca

Freeway and Tollway Operations Conference

June 15 to 19, 2008 – Fort Lauderdale, USA
www.2008ftoc.com

9th Intelligent Transport Systems Asia-Pacific Forum and Exhibition

July 14 to 16, 2008 – Singapore
www.itsasiapacific2008.com

15th World Congress on ITS and ITS America's 2008 Annual Meeting & Exposition

November 17 to 20, 2008 – New York, USA
www.itsa.org/worldcongress.html