



Canadian Guidelines for Establishing Posted Speed Limits to Be Published

A best practices guide providing a systematic, consistent and repeatable process for establishing appropriate posted speed limits on Canadian roadways will be published by TAC in the near future.

In many countries, including Canada and the United States, speed limits are often based on road classification and usage, as stipulated in the jurisdiction's highway traffic act. However, this practice can result in posted speed limits that are not consistent with actual operating speeds.

Moreover, statutory speed limits are generally applied consistently throughout a jurisdiction with exceptions only when required due to road or traffic conditions.



There is no universal method for determining the appropriate speed limit when such exceptions are necessary or for new roadways during the planning or design stages.

The intent of the guide is to provide engineers and traffic operations practitioners with an evaluation tool to assess appropriate posted speed limits based primarily on the classification, function and physical characteristics of a roadway. The risks associated with the road determine the appropriate speed limit. The higher the level of risk, the lower the recommended speed limit.

(cont'd on pg. 2)

Study to Scope Update of Geometric Design Guide for Canadian Roads

TAC has launched a study to assess the work needed to update its *Geometric Design Guide for Canadian Roads*.

Since publication of the most recent edition of the design guide in 1999, there have been significant changes in the body of knowledge in this area.

The key objective of this scoping study is to review the current guide in terms of the technical content of geometric design guides published by similar organizations such as the American Association of State Highway and Transportation Officials and AustRoads. This will help to determine if TAC's guide requires significant rewriting or only needs to be refreshed to incorporate state-of-the-art research findings.

The major deliverable of the project will be a report describing the extent of the effort required to update the guide.

A project steering committee is developing terms of reference for the study and will select a consultant to carry out the study in the near future.

Sponsors of this project are **Manitoba Infrastructure and Transportation**, the **New Brunswick Department of Transportation**, the **Northwest Territories Department of Transportation**, the **Nova Scotia Department of Transportation and Infrastructure Renewal**, the **Ministry of Transportation of Ontario**, **Saskatchewan Highways and Infrastructure**, the **Ministry of Transport of Quebec**, the **Yukon Department of Highways and Public Works**, **Transport Canada** and the **City of Edmonton**. 

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Sorry, it's too late to book exhibit space – the show is sold out – but you can still register as a conference delegate or sign up as a sponsor!

A comprehensive registration package, including an advance program, was sent to most recipients of the print version of *TAC News* in early summer. The same information is available on the association's website at www.tac-atc.ca. Delegates are also encouraged to register online and qualify for a major prize!

In This Issue

Sea to Sky Highway Project Selected for Environmental Award

Transit Vision 2040 - A Blueprint for the Future

TAC Foundation Awards Nearly 40 Scholarships for 2009-10

A Winter Road on Thin Ice

Transit Signal Display Guidelines to Be Issued

Posted Speed Limits (cont'd from p. 1)

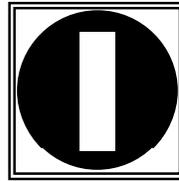
For all roadway categories, application of the methodology results in posted speed limits that are consistent with the roadway's physical characteristics and comparable with operating speeds.

The guidelines were elaborated through the review of current domestic and international practices, technical documentation, as well as considerable testing by the project consultant and members of the project steering committee. An automated spreadsheet was also developed for the project, using a rigorous methodology and substantial testing, in order to facilitate the evaluation of posted speed limits.

Proposed by TAC's Traffic Operations and Management Standing Committee, the project was conducted by **Opus International Consultants (Canada) Inc.** under the direction and supervision of a steering committee. The results were approved by the association's Chief Engineers' Council last June.

The *Canadian Guide for Establishing Posted Speed Limits* is expected to be published this fall. A notice will be posted on the association's website as soon as it becomes available. 

Transit Signal Display Guidelines to Be Issued



TAC will publish guidelines for the application and display of transit signals later this year.

In an effort to improve transit levels of service, several cities across Canada have implemented various transit priority measures including signal priority. Some of these measures require special transit signal displays, which can assign right-of-way to public transit vehicles over other vehicular and pedestrian traffic movements within an intersection, or in combination with other vehicle and pedestrian phasing.

Although TAC's *Manual of Uniform Traffic Control Devices for Canada* includes a transit priority signal indication, there have to date been no national guidelines to ensure consistent and uniform application and display of transit signals. To address this issue, the association's Traffic Operations and Management Standing Committee recommended a sponsored project be undertaken.

The project work, conducted by the **IBI Group**, resulted in guidelines for the application and display of transit signals which were recently approved by the Chief Engineers' Council. Recommended changes to the traffic control manual were also given approval.

The upcoming publication contains information about the evolution of transit signal displays and existing practices. It also offers detailed design guidelines as well as information needed to install and maintain transit signal displays.

The recommended changes to the traffic control manual provide some criteria to be considered when applying transit signal displays and present the displays with their associated transit, vehicle and pedestrian movements.

The guidelines are undergoing a final review by the project steering committee and minor revisions will be made prior to publication later this year. Anyone interested in obtaining the document should check TAC's website for an announcement. 

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TAC is a national association with a mission to promote the provision of safe, secure, efficient, effective and environmentally and financially sustainable transportation services in support of Canada's social and economic goals.

The Association is a neutral forum for gathering or exchanging ideas, information and knowledge on technical guidelines and best practices.

In Canada as a whole, TAC has a primary focus on roadways and their strategic linkages and inter-relationships with other components of the transportation system.

In urban areas, TAC's primary focus is on the movement of people, goods and services and its relationship with land use patterns.

Sea to Sky Highway Project Selected for Environmental Award

British Columbia's Sea to Sky Highway improvement project is the winning nomination for TAC's Environmental Achievement Award.

The award, which recognizes exemplary contributions to the protection and enhancement of the environment or particularly innovative approaches to solving an environmental problem, will be presented during TAC's October conference in Vancouver.

The 2008 award will be given to the **British Columbia Ministry of Transportation and Infrastructure** for having successfully implemented an innovative environmental mitigation and enhancement program for the Sea to Sky Highway improvement project.

The Sea to Sky Highway, which provides access to several provincial parks, backcountry areas, biking and hiking trails, rock climbing areas, and ocean, lakes and rivers, links communities from West Vancouver to Whistler.

The British Columbia Ministry of Transportation and Infrastructure identified the need to increase the safety, reliability and mobility of the 100-kilometre section of highway to serve future travel needs, including transportation demands during the 2010 Winter Olympics.

Upgrades include highway widening, additional passing lanes, straightening for improved sightlines, shoulder and centreline rumble strips, additional median barriers, as well as more effective intersections.

A multi-faceted environmental program delivery model was developed for construction and operation of the highway. This unique approach to environmental management on the public-private-partnership project protected the environment, offered value-added opportunities for environmental enhancement and created significant project legacies.

From an environmental perspective, the project resulted in infrastructure improvements of direct benefit to fish and wildlife, safer public access to



facilities, additional ecologically important habitat in provincial parks and a range of community-based initiatives.

Before recommending the British Columbia proposal to TAC's Board of Directors, six other nominations were evaluated by an Environment Council panel: Monitoring and Follow-up of Sandhill Crane and Bog Habitat: Adaptive Management of Project Mitigation for South Fraser Perimeter Road (**British Columbia Ministry of Transportation and Infrastructure**); Development of an Environmental Management Tool (**Ministry of Transport of Quebec**); Robert-Bourassa Freeway Extension, Quebec City (**Ministry of Transport of Quebec**); Development of a Geothermal Bridge Deck Heating System (**County of Essex, ON**); Wildlife-Vehicle Mitigation on Northeastern Ontario Highways (**Ministry of Transportation of Ontario**); and Salmon River Fish Habitat Compensation Plan (**Ministry of Transportation of Ontario**).

A session based on the award nominations will be held at TAC's Vancouver conference. 

Study Reports on Bicycle Pavement Markings in Conflict Zones

The findings of a study on bicycle pavement markings in conflict zones will be incorporated in an upcoming new edition of TAC's *Bikeway Traffic Control Guidelines for Canada*.

Completed last spring, the TAC study addressed the testing and assessment of coloured pavements for bicycle lanes and the development of traffic signs to accompany bicycle pavement markings for specific applications.

As part of the study, the consultant selected for this project – **Boulevard Transportation Group** – used the driving simulator of the Cognitive Ergonomics Research Laboratory at the **University of Calgary**.

The study report concludes that marking a bicycle lane through a conflict zone with white-dashed markings should be retained as an option.

Where a bicycle route across a conflict zone warrants increased visibility or demarcation, the report more specifically says that, if there are no

lane markings on the route, a succession of shared use lane symbols, or sharrow markings, may be used. If lane markings are employed, a succession of bicycle stencils may be placed between the dashed bicycle lane markings. In both cases, the recommended spacing between stencils is a minimum of 1.5 metres.

The material used for the application of shared use lane symbols should provide a friction coefficient equal to or higher than the pavement coefficient.

The study was initiated by TAC's Traffic Operations and Management Standing Committee.

The new edition of TAC's bikeway guidelines is expected to be published in the spring of 2010. The study recommendations will also be included in the next set of revisions to the association's *Manual of Uniform Traffic Control Devices for Canada*. 

And the Sustainable Urban Transportation Award Goes to...

Quebec City has been chosen as the 2008 winner of TAC's Sustainable Urban Transportation Award for its Ecolobus project.

The award recognizes outstanding contributions by association members to the development and enhancement of sustainable urban transportation, as well as innovation and transferability to other Canadian communities.

The winning project completed the public transit segment of the integrated management plan for travel in Old Quebec City. It embraced many aspects of sustainable urban transportation including accessibility, integrated planning, environmental protection, and promotion of alternative and renewable energy.

Due to its unique setting and land use, Old Quebec City cannot accommodate heavy urban traffic generated by city buses, motor coaches, cars and rail transit. The Ecolobus project provided a solution by introducing free minibus service with vehicles propelled solely by electricity and built for the first time for use in North America.

Challenges arose during the initial months of service including avoiding vehicle overloads due to heavy tourist ridership in the summer, managing a fleet of eight electric vehicles providing almost 20 consecutive hours of service, seven days a week, and training bus drivers and technicians to use the new technology.

Since its implementation in June of last year, the Ecolobus has been used on average by 2,000 persons a day in the summer. It also allowed the city to reduce the number of standard city buses by 76 per cent in summer and by 60 per cent during the remainder of the year.

Benefits of this initiative include reducing greenhouse gas emissions and other air pollutants, decreasing motor vehicle traffic in Old Quebec and improving the modal share of public transportation.

Three other nominations were evaluated by the Sustainable Transportation Standing Committee: Ontario Transportation Demand Management – Municipal Grant Program (**Ministry of Transportation of Ontario**); Transport 2040 (**TransLink – South Coast British Columbia Transportation Authority**); and Pentilly Road Improvements (**Dillon Consulting Limited**).

The winning nomination was ratified by TAC's Board of Directors this summer, with the award slated to be conferred at the association's upcoming Vancouver conference. Nominees will present their projects during a session based on the 2008 award to be held at the conference.

The award is supported by **Transport Canada's Urban Transportation Showcase Program (UTSP)**. 

FOR YOUR AGENDA

TAC's Spring 2010 Technical Meetings will be held in Ottawa April 8 to 12. The meetings provide an opportunity for all of the association's councils and committees to convene. 



Manitoba Recruitment and Retention Initiative to Be Honoured

TAC's 2008 Educational Achievement Award will be conferred to **Manitoba Infrastructure and Transportation** for its "Build Manitoba with Us – Building the Infrastructure to a Sustainable Workforce" program.

The award was created to recognize outstanding contributions by an association member in the area of education or training relating to an in-house or external program that has one or more noteworthy elements of innovation, demonstrable payoff, widespread recognition, improved skills sets, improved practices, or provides the foundation for future and better business practices.

The winning initiative was developed to recruit and retain skilled technical and engineering professionals, addressing personnel shortages and changing demographics in Manitoba's infrastructure and transportation department.

The department formed a training and development recruitment team to develop a number of activities focused on increasing awareness of engineering and operations. These included a co-op initiatives program for grades 11 and 12, a civil engineering, technology and technician co-op education program, a project-specific local area recruitment program, an engineer-in-training program, as well as internal training and annual career development reviews.

These activities have led to dramatic increases in recruitment and retention in rural Manitoba and the ability to provide professional development to technicians, technologists and engineers.

A selection committee of TAC's Education and Human Resources Development Council considered one other nomination for this award. It was for the **International Municipal Signal Association's** certification training courses allowing individuals to qualify in performing specific technical tasks by virtue of their technical knowledge and experience. The successful nomination was ratified by the association's Board of Directors.

The winner will receive the award during TAC's upcoming Vancouver conference. 

TAC Foundation Awards Nearly 40 Scholarships for 2009-10

The TAC Foundation is awarding 38 scholarships for the 2009-10 academic year, 29 of which to university graduates and undergraduates and three to civil engineering graduates at community colleges. Six entrance level students will also receive scholarships.

The Foundation's scholarship fund has grown to \$155,000 intended for students interested in pursuing careers in the transportation sector.

Name	Degree	University/College	Scholarship Donor	Amount
Josh Van Loon	Postgraduate	University of British Columbia	HDR iTRANS	\$10,000
Vimy Henderson	Postgraduate	University of Waterloo	Waterloo Alumni (Carl Haas, Susan Tighe, Ralph Haas and Frank Meyer)	7,500
Hossam Abd El-Gawad	Postgraduate	University of Toronto	Stantec Consulting Ltd.	5,000
Louiselle Sioui	Postgraduate	École Polytechnique de Montréal	Albert M. Stevens	5,000
Karim Aldin Ismail	Postgraduate	University of British Columbia	EBA Engineering Consulting Ltd.	5,000
Shakil Rifaat	Postgraduate	University of Calgary	Delcan Corporation	5,000
Mohamed El Esawey	Postgraduate	University of British Columbia	3M Canada Company	5,000
Reihane Marzoughi	Postgraduate	University of Toronto	IBI Group	5,000
Sybil Derrible	Postgraduate	University of Toronto	MMM Group Limited	5,000
Diana Podborochynski	Postgraduate	University of Saskatchewan	Cement Association of Canada	5,000
Yongsheng Chen	Postgraduate	Ryerson University	AMEC	5,000
Sheyda Saneinejad	Postgraduate	University of Toronto	SNC-Lavalin	5,000
Sébastien Drainville	Postgraduate	École de technologie supérieure	Provinces/Territories	5,000
Luc Pellecier	Postgraduate	École de technologie supérieure	Provinces/Territories	5,000
Haithem Soliman	Postgraduate	University of Manitoba	Provinces/Territories	4,000
A.K.M. Mushfiqur Rahman	Postgraduate	Carleton University	TAC Foundation	4,000
Tarek Agal	Postgraduate	École de technologie supérieure	TAC Foundation	4,000
Saad Syed	Postgraduate	Ryerson University	TAC Foundation	4,000
Sophie Dion	Postgraduate	Université Laval	TAC Foundation	4,000
Maryem Ahbib	Postgraduate	Université du Québec à Montréal	TAC Foundation	3,500
Michael Dowdall	College	Mohawk College	Provinces/Territories	3,000
Ryan Rasmussen	College	Camosun College	Provinces/Territories	3,000
Jason Gagnon	College	Dawson College	Provinces/Territories	3,000
William Martin-Chin	Undergraduate	McGill University	Armtec	5,000
Jérémie Aubé	Undergraduate	Université de Moncton	Dillon Consulting Limited	5,000
Benjamin Jablonski	Undergraduate	University of Manitoba	AECOM	5,000
Sarah Thompson	Undergraduate	University of Calgary	McCormick Rankin Corporation	5,000
David Capelle	Undergraduate	University of Winnipeg	Provinces/Territories	5,000
Joshua Joseph	Undergraduate	University of Waterloo	Provinces/Territories	4,000
Linda Cutler	Undergraduate	University of British Columbia	Provinces/Territories	4,000
Lauren Hockin	Undergraduate	University of Western Ontario	Municipalities	3,000
Jordan Black	Undergraduate	University of Western Ontario	TAC Foundation	3,000

Six \$1,000 scholarships, funded by Dinah and John Emery, will also be presented to entrance level students.

The TAC Foundation wishes to thank its scholarship committee, headed by Susan Tighe. The other members of this year's committee were Ruba AlAssar, Curtis Berthelot, Jean-Pascal Bilodeau, Nancy Button, Yves Cadotte, Alan Carter, Al Cepas, Greg Cousineau, Lynne Cowe Falls, Guy Dore, Masood Hassan, Wei He, Donaldson MacLeod, Robyn McGregor, Jeannette Montufar, Pascale Pierre, Chris Raymond, Susan Tighe, and Guy Tremblay. 

Reversible Lane System Guidelines Developed

Guidelines for the planning, design, operation and evaluation of reversible lane systems will be issued by TAC in the coming weeks.

Across Canada, population growth in urban areas is placing ever-increasing demands on existing transportation infrastructure, particularly on controlled-access and arterial road networks. The construction of sufficient lane capacity to satisfy current and future demands during peak travel periods is often perceived as infeasible due to cost or right-of-way constraints, or contrary to longer-term environmental and transportation sustainability goals.

One approach to meeting mobility and sustainability needs within constrained rights-of-way and budgets is active lane management. This is based on strategies to optimize the operational efficiency of available infrastructure through a dynamic and flexible response to changing traffic demand. A reversible lane system (RLS) is one type of active lane management strategy.



A reversible lane or roadway is one in which the direction of traffic flow in one or more lanes or on shoulders is reversed to the opposing direction for some period of time. The benefit is derived from taking advantage of the unused capacity of the minor flow direction to increase capacity in the major flow direction, potentially negating or deferring the need to construct additional lanes.

Recognizing there was a lack of comprehensive guidelines for reversible lane systems, TAC's Traffic Operations and Management Standing Committee recommended that a project should be undertaken to investigate current practices in North America and internationally. Conducted under contract with **AECOM**, the project resulted in guidelines which should improve the understanding of RLS and promote consistency in this area. This should lead to greater safety and efficiency of RLS.

The guidelines describe key issues to be addressed when planning RLS, as well as considerations needed during the design and operational stages. Accompanying the guidelines are recommended changes to TAC's *Manual of Uniform Traffic Control Devices for Canada* clarifying signal displays and operation during the lane reversal process and pavement markings for different cross-sections in a RLS.

An announcement will be posted on TAC's website as soon as the stand-alone publication – *Guidelines for the Planning, Design, Operation and Evaluation of Reversible Lane Systems* – is available. The update to the traffic control manual will follow next year.

85th Percentile Speed Wording to Be Clarified in Traffic Control Manual

An update to TAC's *Manual of Uniform Traffic Control Devices for Canada* will clarify speed calculations related to minimum sight distances for no-passing zones.

Section C2.2.4 of the manual provides minimum sight distances for no-passing zone markings based on speed. In a footnote to table C2-2, the speed is defined as "the higher of the speed limit or the 85th percentile speed." However, 85th percentile speed data is not available at all locations.

As a result of a volunteer project, the association's Traffic Operations and Management Standing Committee recommended that the table footnote be revised to read "the higher of the speed limit or the 85th percentile speed, where data is available." It also recommended that the text in section C2.2.4 be modified accordingly.

Now approved by the Chief Engineers' Council, an update to the traffic control manual will be released in the coming months.

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A Winter Road on Thin Ice

Editor's Note: In this contribution to TAC News, Greg Cousineau, senior transportation planner, Northwest Territories Department of Transportation, writes about the impacts of climate change on the Tlicho Winter Road. Proposed by TAC's Climate Change Task Force, the feature is one in a series of articles to profile climate change initiatives of member organizations. Other organizations are encouraged to contact the newsletter editor with a view to submitting articles or briefs highlighting their own projects in this area.

The **Northwest Territories Department of Transportation** builds winter roads and ice crossings each year as a cost-effective means of community resupply and access to resource developments where all-weather roads and permanent structures are unavailable.

Since the broadcast of the *Ice Road Truckers* television series, seemingly everyone in North America is familiar with the winter road into the diamond-rich, barren lands of the Northwest Territories.

Virtually unknown is the parallel route to the Tlicho communities of Whati and Gameti. Like the diamond mines, these communities rely on a road made of ice and snow to provide temporary land access to the outside world. As well, like the diamond mines, these communities are concerned that warming winter temperatures resulting from climate change are threatening this access.



"Snow cat" parked at the start of the Tlicho Winter Road

The Department of Transportation (DoT) currently operates and maintains approximately 228 kilometres of winter road in the Tlicho region, from the Yellowknife Highway near Behchoko to the communities of Whati and Gameti, where the road connects with a resupply road to Wekweeti and beyond to mining interests. The route for this Tlicho Winter Road crosses frozen lakes, rivers and ponds, as well as muskegs, swamps and fens.

Dealing with the Current Impacts of Climate Change

The construction of ice bridges and sections of roads on frozen lakes is the most problematic. In recent years, warmer winters have delayed ice formation and reduced ice thickness, resulting in a shorter season and lower weight capacities. In response, DoT has significantly modified winter road construction practices at considerable expense.

No longer is DoT's fleet of equipment composed of

conventional bulldozers, graders and plow trucks. Rather, it is now made up of specialty equipment such as "snow cats", light vehicles with wide tracks and similar equipment that can operate on thinner ice. Sections of road on frozen lakes are flooded by pumping water onto the surface to promote ice formation. Also, DoT routinely assesses the ice capacity and locates discontinuity with the use of ground-penetrating radar.

Warmer temperatures are also affecting the overland portions of the winter road. To extend their use, DoT constructs a minimum 10-centimetre base of ice and snow as a traveling surface. This is a time-consuming operation requiring the mixing of water and snow on the road surface to create a "slurry" that quickly freezes.

Finding Longer-term Alternatives

With the United Nations' Intergovernmental Panel on Climate Change warning that further warming and other changes in the global climate during the 21st century will very likely be greater than those observed in the 20th century, DoT is anticipating that the Tlicho Winter Road may not be viable in its current form in the long term.

The Government of the Northwest Territories has partnered with Indian and Northern Affairs Canada, the Tlicho Government and private industry to investigate an overland realignment of the winter road between Behchoko and Wha Ti.

The Tlicho Road Corridor Study is in response to the request of Tlicho communities for more reliable access to their region. The study identifies alternative overland routes.

The purpose of the proposed land-based winter road alignment is initially to extend the length of the winter road season by routing it around water bodies wherever possible. The long-term goal is the establishment of a

(cont'd on p. 8)

“ This is a good example of a staged or “no regrets” response to climate change. ”

Winter Road on Thin Ice (cont'd from p. 7)

route that is suitable for the potential construction of an all-weather road. If the warming trend continues to the point at which it is not practical or possible to construct the winter road, the option to readily upgrade to an all-weather road is therefore available.

“ The construction of ice bridges and sections of roads on frozen lakes is the most problematic. ”

This is a good example of a staged or “no regrets” response to climate change. The option provides benefits whether or not the impacts of climate change are significant enough in the future to trigger a decision to construct the all-weather road.

By enhancing adaptability, DoT has reduced the vulnerability of the Tlicho Winter Road to the impacts of climate change at little or no net cost and ensured reliable access to the region. □



Water truck taking on a load on a frozen lake



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MEMBERSHIP HAPPENINGS

Quebec-based BIXI has been awarded contracts to set up and operate public bike systems similar to the **City of Montreal's** current system, in London, England, and Boston. The City of Montreal's bike system will be adapted to meet the specific needs of both of these cities.

The London contract provides for creating a network of 6,000 bikes, 400 docking stations and 10,000 docking points by 2010, while central Boston will be served by 2,500 bikes, 290 stations and 3,750 docking points, with a potential expansion to 5,000 bikes.

BIXI, Montreal's public bike system, is viewed as complementary to the public transportation system and as an alternative means of transport for residents and tourists throughout the city. The mandate to create, develop and exploit this service was given to Montreal's parking authority, Stationnement de Montréal, in 2008.

Employee-owned architectural, engineering and consulting firm HDR has acquired Toronto-based iTRANS Consulting Inc. Going forward, iTRANS, which has a staff of 120, will conduct business as **HDR | iTRANS**.

Specializing in transportation planning and design, traffic engineering, safety and transportation systems since 1996, iTRANS saw the merger as a good opportunity to offer an expanded service portfolio to its clients. Under the new corporate structure, Tyrone Gan, who was president of iTRANS, has been named a senior vice-president, leading HDR | iTRANS in Canada.

With more than 8,000 professionals worldwide, HDR is ranked no. 13 overall in the *Engineering News-Record* top 500 design firms survey for 2009 and no. 8 in transportation. □

Geometric Design Guide Revisions Approved

Four revisions to TAC's *Geometric Design Guide for Canadian Roads* have recently been approved by the Chief Engineers' Council.

The revisions, which cover barrier warrants, underpass sight distances, roundabouts and design domain, resulted from volunteer projects overseen by the Geometric Design Standing Committee.

Cost-effectiveness Warrant for Barriers

Section 3.1.6 of the geometric design guide addresses traffic barriers, including embankment warrants. The conventional barrier warrant was not based on cost-effectiveness but, since 2003, both Nova Scotia and Alberta have produced cost-effectiveness warrants that are considered good examples. Revisions have been approved to the text and figures in section 3.1.6.2 in order to reflect these developments.

Sight Distance at Underpasses

Section 2.1.3 of the guide, which deals with vertical alignment, does not currently address instances where sight distance is constrained by overpass structures. While this is not a frequent design problem, a section covering underpasses will be added based on the *Policy on Geometric Design of Highways and Streets* published in 2001 by the American Association of State Highway and Transportation Officials.

Roundabouts

Additional text has been approved to describe the range of geometric characteristics of a roundabout addressed in section 2.3.12 of the guide. The list of references has also been supplemented with recent new publications including TAC's 2008 *Synthesis of North American Roundabout Practice*, the Quebec Ministry of Transport's *Roundabouts: A Different Type of Management Approach* and the U.S. Federal Highway Administration's *Roundabouts: An Informational Guide*.

The Evolving Approach

Chapter 1.1 of the geometric design guide addresses the philosophy of geometric design with various design techniques being discussed in section 1.1.4. Earlier versions of the guide used the concept of minimum and desirable "standards" but the 1999 edition moved away from standards to introduce the "design domain" concept. Additional text has now been approved for section 1.1.4.5 to describe how the change in approach provides designers with greater flexibility to address issues of concern and allows them to respond positively to the emerging design process of context sensitive design or context sensitive solutions.

Currently before the Revisions and Additions Subcommittee, the changes to the guide will be released in the coming months. 

NEW MEMBERS

TAC is pleased to welcome the following new members:

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B.D.R. Safety Consulting Inc.

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Transit Vision 2040 – A Blueprint for the Future



Editor's Note: In this contribution to TAC News, Michael Roschlau, president and chief executive officer of the Canadian Urban Transit Association (CUTA), writes about his association's vision for transit in this country for the next 30 years. CUTA's Transit Vision 2040 was unveiled last June.

For more than a century, public transit has contributed positively to the quality of life of Canadians and supported their need for access and mobility. Today, national transit ridership and investment are both at all-time highs, and transit is widely recognized as an important part of the solution to national challenges including economic prosperity, climate change, public health, safety and security.

Looking ahead, Canada's public transit industry faces pressures arising from the accelerating pace of change. Fast-approaching opportunities and challenges will drive major shifts in how the transit industry can meet the needs of Canadians and in how society can offer transit the support it requires to succeed. As a result, the Canadian Urban Transit Association (CUTA) has created *Transit Vision 2040*. This important new document sets a course for public transit to maximize its contribution to the quality of life in Canadian communities over the next three decades.

The Reality of Change

As the years unroll toward the vision's horizon of 2040, Canada's transit systems and the communities they serve must evolve together. Neither is sheltered from changes that affect the other, and both must address a number of key trends that include accelerating urban growth and an aging population, mounting congestion, smart growth and energy conservation goals, as well as public support for environmental protection.

Transit Vision 2040 is based on an understanding of the role of transit in supporting Canadian communities and an examination of the changes those communities are likely to experience. The vision also factors in an assessment of transit's potential to mitigate or reinforce changes and make communities more liveable, economically robust and environmentally healthy. It integrates considerable input from a wide range of individuals and organizations, including delegates from the 2008 Youth Summit on Sustainable Urban Transportation, an online survey completed by some 650 individuals and discussions with TAC's Urban Transportation Council as well as the Canadian Institute of Planners, the Federation of Canadian Municipalities, and the Canadian Home Builders' Association.

A Vision Grounded in Action

Transit Vision 2040 defines a future in which public transit maximizes its contribution to the quality of life with benefits that support a vibrant and equitable society, a complete and compact community form, a dynamic and efficient economy and a healthy natural environment. The vision emphasizes:

1. **Putting transit at the centre of communities** through stronger government policy and decision-making frameworks, and better community planning and design.
2. **Revolutionizing service** in all types of communities through expansion and innovation so that transit systems can both encourage and serve growing demands as they keep pace with the changing face of cities and towns.
3. **Focusing on customers** and accelerating the delivery of flexible, integrated transit services that meet the needs of an increasingly diverse and discriminating clientele.
4. **Greening transit** to further reduce the industry's ecological footprint, improve energy efficiency and limit greenhouse gas emissions.
5. **Ensuring financial health** through enhanced transit infrastructure and operating investments by all orders of government, more progressive approaches to generating revenue and new efficiencies in service delivery.
6. **Strengthening knowledge and practice** so that Canada's transit industry can more effectively respond to future opportunities and challenges.

A Call for Leadership and Action

Short-term actions toward this vision will exploit immediate opportunities and start work toward critical, longer-term goals. A key priority will be the creation of a monitoring and reporting plan for Transit Vision 2040 that outlines a framework for measuring progress toward key indicators.

Achievement of the vision will require the full commitment of Canada's federal, provincial, territorial, regional and municipal governments in partnership with transit systems, suppliers and CUTA itself. The following points summarize the most vital areas of leadership for each stakeholder group:

- ◆ **Federal, provincial, territorial and regional governments** will have primary roles in shaping transit policy, coordination and investment, particularly with regard to governance, capital and operating funding mechanisms, rapid transit expansion and service growth in smaller communities.

- ◆ **Municipal governments** will play a leading role in coordinating transit and community development, expanding transit service and infrastructure, and ensuring supportive local funding.
- ◆ **Transit systems** will have an important role in improving all aspects of transit service delivery and in implementing local greening and energy initiatives.
- ◆ **Transit suppliers** will play a supporting role in creating products and technologies that enhance customer service, notably fare and information systems, and in developing industry-wide strategies for greening and energy efficiency.

- ◆ **CUTA** will have a vital role in shaping national transit policy, developing industry-wide greening and energy efficiency strategies, as well as creating and sharing information that helps members fulfill their own mandates.

Together, these organizations will provide the leadership, knowledge, resources, innovation, determination and spirit of partnership that can make Transit Vision 2040 a reality, for the benefit of all Canadians.

For more information about Transit Vision 2040, including a copy of the complete final report, please visit the CUTA web site at <http://www.cutaactu.ca/en/node/1872>. 

Project Will Investigate Use of Blinking LED Border Signs

TAC has undertaken a two-part project aimed at reviewing operational and maintenance aspects of blinking light-emitting diode (LED) borders on traffic signs and making recommendations on their use in Canada.

The first part of the project will result in a synthesis of practices for the use of blinking LED border signs in Canada, the United States and a number of other countries. This report will include research and analysis related to the practices and experiences of jurisdictions that have implemented or tested signs with blinking LED borders.

The synthesis of practices should contain a thorough evaluation of whether or not blinking LED border signs are appropriate for use in Canada.

Work on the second part of the project will only proceed if the synthesis of practices indicates that blinking LED borders on signs should be implemented in Canada. The second deliverable would result in comprehensive recommended practices for the use of such signs, as well as in recommended revisions to TAC's *Manual of Uniform Traffic Control Devices for Canada*, if deemed necessary.

A number of different companies are now manufacturing sign products with blinking LED lights on their borders. Common examples include "Stop", "Stop Ahead", "Pedestrian Crossing Ahead", "School Crosswalk", "Sharp Curve" and "School Area" signs.

The blinking LED lights are intended to increase the visibility of the signs. However, the signs do not currently comply with TAC's traffic control manual, which many jurisdictions use as a standard. The manual only addresses the use of beacons in conjunction with signs and does not have provisions for lights embedded within signs.

Sponsoring this effort are **Alberta Transportation, Manitoba Infrastructure and Transportation, the New Brunswick Department of Transportation, the Ministry of Transportation of Ontario, the Ministry of Transport of Quebec, Saskatchewan Highways and Infrastructure, Transport Canada, the cities of Edmonton, Montreal, Ottawa and Vancouver**, as well as the **International Municipal Signal Association**.

The project was advanced through TAC's Traffic Operations and Management Standing Committee. A steering committee is now preparing terms of reference for the initiative and will select a consultant to carry out the work in the near future. 

Quebec's Road Safety Initiatives Pay Off

The winner of TAC's 2008 Road Safety Engineering Award is the **Ministry of Transport of Quebec** in recognition of its broad range of activities aimed at improving driver safety and transportation infrastructure viability.

The award honours exemplary contributions by a TAC member in Canadian roadway safety engineering and infrastructure. It also encourages the development and implementation of roadway safety countermeasures, guidelines and safety management systems for roadway design and operations.

Compared to industrialized countries, Quebec has among the lowest number of roadway fatalities per billion kilometres traveled. Activities undertaken by the Ministry of Transport follow the Quebec government's general policy framework, which specifies the role of the transportation sector in achieving the government's targeted results.

In recent years, the ministry has focused on consolidating the existing road and highway network as a means of addressing issues in the key areas of driver safety and long-term viability of transportation infrastructure.

Two other submissions, reviewed by a panel reporting to the association's Road Safety Standing Committee, were also received: *Methods of Determining a Highway Structure's Optimal Safety Level* (**Ministry of Transport of Quebec**) and *Richard Tay's Contributions to Road Safety* (**University of Calgary**). The winning nomination was ratified by the Board of Directors.

The award will be presented at TAC's Vancouver conference and a session based on the nominations will also be held during the event. 

Concrete Deck Protection Report Slated for Publication

A report on structural concrete deck protection systems will be published by TAC this fall.

Chloride-ion induced corrosion of reinforcing steel causes early deterioration of concrete bridge components, requiring costly maintenance and rehabilitation. A significant portion of this cost is related to the deterioration of reinforced concrete decks which are subjected to heavy loadings, harsh weather conditions and regular winter use of anti-icing and de-icing salts across most of Canada.



Optimized deck durability performance of reinforced concrete bridges, box culverts and parking structures through enhanced technical and cost-effective structural concrete deck protection systems can play a key role in reducing maintenance, repair and rehabilitation costs.

Jointly recommended by TAC's structures and soils and materials standing committees, a project on structural concrete deck protection

systems was conducted by **John Emery Geotechnical Engineering Limited**. The resulting report, now approved by the Chief Engineers' Council, provides information to assist in the selection, design, construction, maintenance, repair and rehabilitation of structural concrete deck protection systems (SCDPS) to optimize deck life-cycle durability and cost for Canadian conditions.

While a full range of SCDPS are considered, the report focuses on structural waterproofing systems commonly used on Canadian transportation infrastructure reinforced concrete components to provide an impermeable barrier protecting the concrete, reinforcing steel and strand (tendon) steel from corrosion damage.

An illustrated overview of concrete bridge deck waterproofing systems, continuing performance problems, corrosion and concrete deterioration, with focus on the service life of reinforced concrete decks, is provided as background to a synthesis of current SCDPS technology. A list of recommended current SCDPS technical resources and a summary of North American standards for deck protection systems and their use is also provided. This is followed by a synthesis of Canadian, American and international SCDPS use and experience.

As well, the report demonstrates an evaluation methodology for an example project for the five main current Canadian structural waterproofing systems: bonded-concrete overlay, hot-applied membrane, liquid-polymer membrane, self-adhering membrane and torch-on membrane.

When the report is published this fall, a notice will be posted on the association's website. 

Busy Fall Meeting Program Ahead for TAC Volunteers

The program of meetings convened during TAC's fall conference in Vancouver promises to be busy for the hundreds of volunteers on the association's many councils and committees.

The conference schedule has been organized to accommodate seven meetings of councils and task forces, 12 standing committee meetings, 11 subcommittee meetings and 17 project steering committee meetings.

With a variety of other related groups taking the opportunity to convene, well over 50 separate meetings will be held during the days leading up to TAC's October conference and at the start of the event. Through these meetings, information will be exchanged, knowledge will be shared, decisions will be made and plans and priorities will be set.

A key objective in scheduling the meetings is to minimize conflicts for attendees, many of whom will participate in several meetings. Another scheduling objective is to keep the overall span of the meetings to a minimum, recognizing that travelers are constrained in the number of days they can be away from home and office.

Achieving both these objectives for all members and at the same time is sometimes impossible and almost always means that, overall, meetings start before breakfast, run through the day and sometimes end late in the evening.

TAC members' continued participation and contributions throughout this hectic schedule reflect their commitment to the work of their committees and councils, as well as to the association as a whole. 

PEOPLE IN THE NEWS

Hon. **Shirley Bond** has been named minister of transportation and infrastructure for British Columbia.

Nova Scotia's new minister of transportation and infrastructure renewal is Hon. **Bill Estabrooks**.

Hon. **James Reiter** is the new minister of highways and infrastructure for Saskatchewan.

Yaprak Baltacioglu has succeeded **Louis Ranger** as deputy minister of transport, infrastructure and communities for Canada. Mr. Ranger retired after 35 years in the federal public service, seven of which were spent in his last position.

Hon. **Peter Taptuna** has been appointed minister of economic development and transportation of Nunavut. His deputy minister is **Bob Long**.

Michel Boivin has accepted the position of deputy minister of transport of Quebec.

Doug McNeil is the new deputy minister for Manitoba Infrastructure and Transportation, replacing **Andy Horosko** who has retired after more than 15 years with the department.

David Norman is now deputy minister of government services for Newfoundland and Labrador.

Kevin Malloy has been appointed deputy minister of Services Nova Scotia and Municipal Relations.

Pierre Duhaime has replaced **Jacques Lamarre** as president and chief executive officer of the SNC-Lavalin Group Inc.

Ian Williams, chair and chief executive officer of McCormick Rankin Corporation, has been elected to the presidency of the TAC

Foundation, replacing **Gary Mack**, president and chief executive officer of ISL Engineering and Land Services Ltd., who has completed his term as president.

Scott R. Butler has become manager of policy and research at the Ontario Good Roads Association.

Brian Conlin has been named president and chief executive officer of the global firm of Golder Associates Corporation.

Gerry Davis has accepted the position of general manager of public works for the City of Hamilton.

Bob Youden, former chief executive officer of Jacques Whitford & Associates, will now lead Stantec's Canada East region as senior vice-president. The environmental consulting services firm was acquired by Stantec last January.

Sany Zein, formerly vice-president, projects, at Opus International Consultants (Canada) Inc., has joined TransLink (South Coast British Columbia Transportation Authority) as manager, road and infrastructure planning. **Vivian Law**, formerly a project engineer at Opus, is now with SNC-Lavalin in Vancouver.

At the Canadian Institute of Transportation Engineers, **Gene Chartier** of the Township of Scugog, ON, is now president and **Jeannette Montufar** of the University of Manitoba is vice-president.

Terry Bidniak has succeeded **Walter Gutwoski**, who retired as manager of highway and airport design and construction at the Yukon Department of Highways and Public Works.

Eric Labrie has been named director of commercial development at Transcore.

Winter Roads Focus of New Project

A new project intended to establish comprehensive best practices for the safe construction and operation of winter roads has been launched by TAC.

Winter roads are constructed in most provinces and territories to provide temporary access to communities, work sites and recreational areas. However, there are currently no national standards or guidelines for the safe construction and operation of winter roads or for the design of their ice-bearing capacity.

Working, travelling and parking on the frozen surface of bodies of water should be undertaken as a planned activity that recognizes and

reasonably addresses the hazards associated with the ability of the ice cover to safely support the activity.

The objective of the project is to review and recommend best practices and procedures for the construction and operation of winter roads both on and off-ice and, if possible, to set national guidelines, including the design of ice-bearing capacity.

A literature review and a scan of current practices applied by Canadian agencies will be carried out. These will address a range of issues, including ice-testing methodology, specifications relating to cracking,

Winter Roads Focus (cont'd from p. 13)

temperature fluctuations and load limits, as well as construction and maintenance procedures on ice roads, environmental issues and collision response and responsibilities. Training based on these best practices may also be provided as part of the project deliverables.

This effort is being funded by **Alberta Transportation, Manitoba Infrastructure and Transportation, the Northwest Territories Department of Transportation, the Ministry of Transportation of**

Ontario, the Ministry of Transport of Quebec, Saskatchewan Highways and Infrastructure, Transport Canada and the Yukon Department of Highways and Public Works.

A project steering committee comprising representatives of the sponsors has been formed and terms of reference have also been developed. A consultant will be selected this fall to conduct the assignment and the project is expected to be completed by September of next year.

The project was recommended by TAC's Maintenance and Construction Standing Committee. ☐

COMING EVENTS

2009

16th World Congress & Exhibition on Intelligent Transportation Systems

September 21-25
Stockholm, Sweden
www.itsworldcongress.com

Annual Conference of the Canadian Institute of Planners

September 30-October 3
Niagara Falls, Ontario
Tel. (800) 207-2138
www.niagarafalls2009.ca

Annual Meeting of the American Public Transportation Association

October 4-7
Orlando, Florida
Tel. (202) 496-4800
www.apta.com

TAC Annual Conference & Exhibition

October 18-21
Vancouver, British Columbia
Tel. (613) 736-1350
www.tac-atc.ca

Fall Conference of the Canadian Urban Transit Association

November 7-11
Montreal, Quebec
Tel. (416) 365-9800
www.cutaactu.ca

Annual Urban Infrastructure Week

November 16-18
Mont Tremblant, Quebec
Tel. (514) 848-9885
www.ceriu.qc.ca

Annual Conference of the Canadian Technical Asphalt Association

November 16-18
Moncton, New Brunswick
Tel. (250) 361-9187
www.ctaa.ca

VicRoads Road Safety Management Workshop

November 16-20
Melbourne, Australia
www.vicroads.vic.gov.au

2010

89th Annual Meeting of the Transportation Research Board

January 10-14
Washington, DC
Tel. (202) 334-2934
www.trb.org/meeting

XIIIth International Winter Road Congress

February 8-11
Quebec City, Quebec
Tel. (418) 658-6755
www.piarcquebec2010.org

TAC Spring Technical Meetings

April 8-12
Ottawa, Ontario
Tel. (613) 736-1350
www.tac-atc.ca

TAC Annual Conference & Exhibition

September 26-29
Halifax, Nova Scotia
Tel. (613) 736-1350
www.tac-atc.ca