

**Traffic Operations and Management
Standing Committee
of
Transportation Association of Canada**

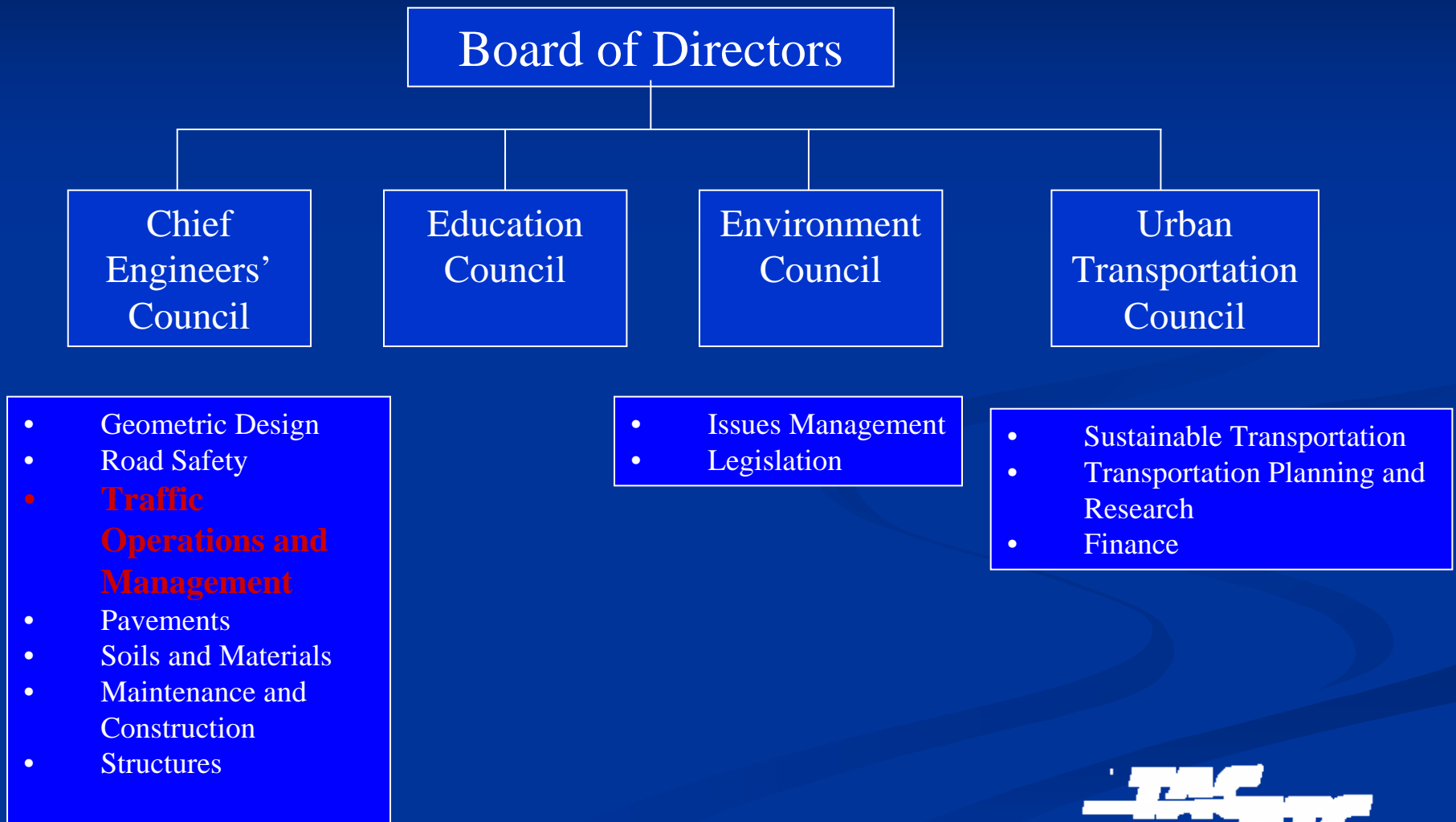
IMSA Conference

March 21-23, 2006

Canmore, Alberta



Transportation Association of Canada Organization Structure



TAC Traffic Operations and Management Standing Committee

Goals and Objectives:

- develop standards for traffic control devices and practices for use in Canada
- propose for publication manuals, reports, guidelines and diagrams of recommended traffic control devices and practices for use in Canada and such revisions to these manuals, as may be considered advisable



TAC Traffic Operations and Management Standing Committee

Goals and Objectives:

- encourage the implementation of recommended standards for traffic control devices and practices across Canada
- develop educational and public information material respecting new and existing traffic control devices, and their correct application and use



TAC Traffic Operations and Management Standing Committee

Responsibilities:

- organize, stimulate and coordinate research for the improvement of traffic control devices and practices in Canada
- regularly report to TAC Chief Engineers' Council as to the degree of compliance with the manuals of recommended standards



TAC Traffic Operations and Management Standing Committee

Responsibilities:

- organize sessions and panel discussions for TAC Annual Conference
- distribute educational and public information materials and carryout such other activities as may be desirable to disseminate information relating to recommended traffic control practices



TAC Traffic Operations and Management Standing Committee

TOMSC Executive:

- **Chair:** David McCusker, Halifax Regional Municipality
- **Vice Chair:** Robert Kahle, Ville de Montréal
- **Secretary:** Chris Brinkmann, City of Ottawa
- **Past Chair:** Larry McCormick, City of Edmonton



TAC Traffic Operations and Management Standing Committee

TOMSC Subcommittees:

- **Development and Devices**
 - Vice Chair: Richard Chow, Alberta Infrastructure and Transportation
- **Applications and Practices**
 - Vice Chair: Alf Guebert, Totten Sims Hubicki Associates
- **Editing and Publication**
 - Vice Chair: Cathy Robertson, Town of Milton
- **Rules of the Road**
 - Vice Chair: Leanna Belluz, Transport Canada
- **Emerging Technologies**
 - Vice Chair: Ron Stewart, IBI Group



TAC Traffic Operations and Management Standing Committee

Membership by appointment:

- Federal department
- Provincial/territorial transportation departments
- Municipalities
- Private-sector firms
- Academic institutions
- Associations



TAC Traffic Operations and Management Standing Committee

Membership

- one member appointed by the minister responsible for highways and transportation for each **province and territory of Canada** that is a member of TAC (number of members varies with number of actual appointees)
- one member appointed by the Minister of Transport of the Government of Canada
- one member appointed by each of 19 municipalities; each of the provinces and territories shall be entitled to at least one municipal membership



TAC Traffic Operations and Management Standing Committee

Membership

- five members appointed by TAC
- five members appointed by the District 7 (Canada), Institute of Transportation Engineers
- one member appointed by the Ontario Traffic Conference
- one member appointed by the Association Québécoise du Transport et des Routes
- one member appointed by the Western Canada Traffic Association
- one member appointed by Canadian Association of Optometrists



TAC Traffic Operations and Management Standing Committee

Membership

- one member appointed by the International Municipal Signal Association,
- one member appointed by the Canadian Cycling Association,
- one member appointed by the Insurance Corporation of British Columbia,
- one member appointed by the Intelligent Transportation Systems Society of Canada
- six members appointed by the Chair of the Standing Committee,
- the immediate Past Chair, if not otherwise a member



TAC Traffic Operations and Management Standing Committee

Projects:

- Can be sponsored (conducted by consultant) or volunteer (conducted by TOMSC members)
- Initiated if approved by TOMSC vote
- Are always guided by Project Steering Committee
- Conducted by collaborative, consensus building approach
- Concluded when final report approved by TOMSC vote



TOMSC Sponsored Projects

For a sponsored project to advance ...

- Issue emerges in TOMSC discussions, usually at spring or fall meetings
- Need for a project is identified
- Project initiation form is prepared and approved by TOMSC
- Project initiation is carried forward to Chief Engineers' Council
- Project is Supported by Chief Engineers' Council
- Project receives sufficient pledges of funding support from interested sponsors
- Project Steering Committee is formed from representatives of project sponsors



TOMSC Volunteer Projects

For a volunteer project to advance ...

- Issue emerges in TOMSC discussions, usually at spring or fall meetings
- Need for a project is identified
- Project initiation form is prepared and approved by TOMSC
- Work is carried out by volunteer TOMSC members who create a Project Steering Committee



Initiation of TOMSC Projects

Standard project initiation form requires:

- Project title
- Description of problem
- Scope and objectives
- Research
- Work program

Transportation Association of Canada

Sponsored Projects in Progress

Accessible Pedestrian Signals - National Guidelines for the Understanding, Use and Implementation

- Objective: to prepare current national guidelines for the understanding, use and implementation of accessible pedestrian signals and incorporation of reference to the guidelines in TAC's Manual of Uniform Control Devices for Canada (MUTCDC)
- Estimated Completion Date: June 2007



Transportation Association of Canada Sponsored Projects in Progress

Advanced Warning Flashers, Phase 2

- Objective: to develop a data collection program to assess: implication of the variance between posted and operational speeds, effectiveness by application criteria and impact of rural vs. urban environment on speed.
- Estimated Completion Date: September 2008



Transportation Association of Canada

Sponsored Projects in Progress

Guidelines for Design and Application of Bicycle Traffic Pavement Markings

- Objective: to provide guidelines for use of pavement markings for bicycle movements to enhance the safety and effective flow of bicycle traffic; situations include shared-use lanes, in contra-flow, two way on one side traffic, and through intersections and interchanges (including roundabouts)
- Estimated Completion Date: November 2006



Transportation Association of Canada

Sponsored Projects in Progress

Framework for the Application of Intelligent Transportation Systems (ITS) for Traffic Management

- **Objective:** to define a process that would assist transportation authority decision makers, planners, engineers and operators by providing useful, practical information on ITS applications. The report will address all stages of ITS applications, namely planning, design, procurement, installation, operations and maintenance
- **Estimated Completion Date:** July 2007



Transportation Association of Canada

Sponsored Projects in Progress

Traffic Signal Warrants - Practitioners' Handbook

- Objective: to develop a handbook for the practitioners in using the new signal warrant methodology illustrated by way of several typical intersection examples supported by commentary on principles and concepts of the warrant procedure. The work includes the refinement of data entry component required for the matrix procedure
- Estimated Completion Date: December 2006



Transportation Association of Canada

Sponsored Projects in Progress

Handbook of Recommended Information Sign Symbols

- Objective: to develop a national reference guide of recommended information sign symbols that will promote uniformity and motorist comprehension of information sign symbols throughout Canada
- Estimated Completion Date: November 2006



Transportation Association of Canada

Sponsored Projects in Progress

School and Playground Areas and Zones: Guidelines for Application and Implementation

- Objective: to develop a stand-alone national guide on application and implementation of school and playground areas and zones to promote uniformity in Canadian jurisdictions.
- Estimated Completion Date: June 2006



Transportation Association of Canada

Sponsored Projects in Progress

Lateral Placement Criteria for Traffic Signs

- Objective: to address the large discrepancy between the recommended lateral sign placement distance in the MUTCDC and distance used in other provinces (such as Alberta) by determining the optimal lateral sign placement criteria.
- Estimated Completion Date: May 2007



Transportation Association of Canada

Upcoming Sponsored Projects

Application of Active Advance Warning Devices for School Bus Stop Ahead Signs

- Objective: to investigate the operational and maintenance aspects of the device types that are available, make a recommendation regarding the appropriateness of the device for use across Canada, and determine if a manually activated flashing beacon supplement should be added to the standard WC-9 sign in the MUTCDC
- Estimated duration: 18 months



Transportation Association of Canada

Upcoming Sponsored Projects

Comprehension Testing Program

- Objective: to assess two different approaches to comprehension testing with a view to establishing a model for an ongoing testing program for TOMSC projects that require it
- Estimated duration: 12 months



Transportation Association of Canada

Recent Publications

- **Guide for the Design of Roadway Lighting**
- **Advance Warning Flashers: Guidelines for Application and Installation**
- **Canadian Traffic Signal Warrant Matrix Procedure 2005**

Upcoming Publications

- **MUTCDC Updates**



Transportation Association of Canada

TOMSC Volunteer Projects in Progress

- Sign Letter Size
- Decision Sight Distance / Longitudinal Sign Location
- Guidelines for STOP Signs at Railway Crossings
- All Way STOP
- Do Not Stop on Track Sign
- Guidance on Use of Chevrons
- Public Information of New Traffic Control Devices
- Loading Zone Sign
- Design of Max Speed Ahead Sign(WB-9)
- Timing of RR-X-ing Sign (WB-6)
- Advance Yielding at Crosswalks



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TOMSC Volunteer Projects in Progress

- Redesign of Graphics of WC-8, WC-12, WC-17
- Modern Roundabout Operations, Signs & Pavement Markings
- Trans Canada Trail Sign
- Computer Modeling System for Signal Safety Warrants
- Optional Use of Pedestrian Countdown Timers
- Vertical Visibility Constraint Sign
- Transit Priority Signal Sign
- Engine Brake Sign
- Identification of Left Turn Signals Sign
- Appropriate Use of Florescent Pink Colour
- Emergency Detour Route Sign



Transportation Association of Canada

TOMSC Volunteer Projects in Progress

- Cross Other Side Sign
- Transit Priority Signal Guidelines
- Pavement Markings for Multiple left Turn Lanes
- Load Restriction Sign
- Signing for Non-Hospital Emergency Health Facilities
- Integration of Road Safety into MUTCDC
- Canadian Capacity Guide
- Enhancing the conspicuity of Traffic Signal Displays
- Rules of the Road for Roundabouts
- Multi-Use Trail Crossing Warning Sign



Status of TOMSC Projects

To find out status of TAC and TOMSC projects,
visit the TAC website at:

<http://www.tac-atc.ca/english/projectsandpublications/projects.cfm>



TOMSC Project #274

Enhancing the conspicuity of Traffic Signal Displays

- **Project was initiated by IMSA**



Project #274

Problem Statement

- The intersection-car relationship is becoming increasingly complex. Failure to recognize a signal or signal change can be catastrophic and/or fatal. Conspicuity of signals is dependent on a number of factors; complexity of background, viewing angle, backboard-signal contrast, size of backboard, etc. Recently, reflective bands have been added to signals to improve recognition at night and the rear of signals have been coloured gray to reduce their distraction. Research is needed to better define the parameters and design of signals for improved conspicuity and therefore reduce accidents.



Project #274

Previous Research

- “Colour Vision Deficiencies & Aging, & Their Effects to Traffic Signals Visibility”

Lorne Holowachuck, P.Eng. BCMOT, 1993

Presented to TAC by Dr. R. Romuald, Sept. 1993 & to WCTA in 1994

- “Visibility of Traffic Signal Displays for Aging & Colour Deficient Drivers”

Ed Miska, P.Eng. BCMOT , Sept. 2001

Presented to TAC as Project #216 & TRB 2005

- These reports dealt with nighttime visibility



TOMSC Project #274

Enhancing the conspicuity of Traffic Signal Displays

Conspicuity of traffic signals is important as more complex symbols & operations are introduced including:

- More complex phasing
- Limitations of viewing angles for LED signal indications
- Bicycle signals
- Transit priority signals



TOMSC Project #274

Enhancing the conspicuity of Traffic Signal Displays

Two main issues:

- Conspicuity of the indications within the signal head
- Conspicuity of the signal head against the environment



Factors that may affect conspicuity of signal heads

- Surrounding illumination levels
- Weather (rain, fog, snow, sun)
- Rural Vs. urban settings
- Approach speeds
- Special physical conditions
- Functions of the heads (left Vs. through)
- Placement of signal heads (vertical Vs. horizontal)
- Colour blindness
- Driver characteristics (age, acuity of vision)
- Adjacent signing
- Properties of headlights



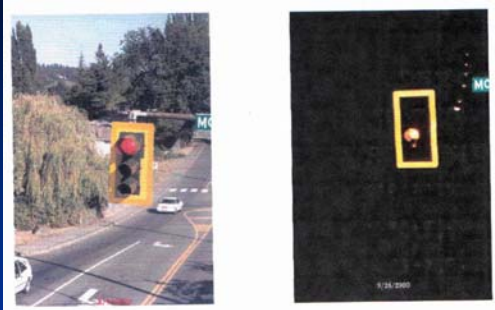
Most Important

- Signal heads are the cheapest but most important component of the overall signal system

Questions

- Are we making our signal heads conspicuous enough?
- What are “best practices” for signal head installations?





BCMOT



Grimsby, ON



Region of York



No Hoods



No Hoods may eliminate
snow accumulation



Edmonton



Hamilton



Somewhere in Canada



Two Piece Board



Vancouver



Two Different combinations
Burlington



Brazil
Count Down Signal



THANK YOU

Questions and Comments?

