

Intelligent Transportation Systems (ITS)  
Standards Development Framework  
for Canada

*Proposal for  
An ITS Standards Partnership  
for Canada*

*PRIORITIES AND ACTION PLANS  
For 3 YEAR PERIOD  
2003-2006*

Prepared by  
ITS Society of Canada  
April 2003

*based on outcome of  
ITS Standards Workshop  
Held in Toronto, Ontario  
On August 8, 2002*

## **Preface**

The purpose of this Proposal is to present ITS Canada's plans for a partnership to implement ITS standards activities in Canada over the 3-year period 2003-2006. It is based on the outcome of ITS Canada's Standards Workshop on August 8, 2002 in Toronto and on feedback received at the Standards Committee meeting in Fredericton on April 27, 2003. The action plans described herein are not static and will evolve as the ITS Standards Framework for Canada unfolds.

The ITS Standards Development Framework for Canada is a call to action, endorsed jointly by the ITS Canada Board of Directors and Transport Canada, to support ITS standards development (i.e. creation) and deployment (i.e. widespread adoption) in Canada. The ITS Standards Workshop was one of the tasks undertaken by ITS Canada to implement the Framework. It was convened by the Standards Committee of ITS Canada and took place in Toronto with simultaneous teleconferencing across Canada. At the Workshop, advice and inputs were received from the Canadian ITS community concerning priorities and action plans.

ITS Canada intends to use this Proposal to guide its own ITS standards activities over the next several months and to inform potential partners of the scope and scale of the overall plans for ITS standards development and deployment for Canada. This will be the basis for soliciting potential partners to join ITS Canada in supporting a collective Canadian ITS standards effort over the period 2003-06.

For further information about the Framework and the Workshop, visit the Standards section of the ITS Canada home page at [www.itscanada.ca](http://www.itscanada.ca).

## **Acknowledgements**

This Proposal was prepared and edited by William Johnson, chair of the ITS Canada Standards Committee, based on previous documents related to ITS standards and approved by ITS Canada and on the ITS standards workshop discussion paper, presentations and breakout group summaries.

The author acknowledges the contributions of many individuals and organizations to the preparation of this proposal and wishes to extend his sincere thanks for their advice and input. However, the author accepts sole responsibility for any errors or omissions contained in this document.

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## Background

### ITS Standards Development Framework for Canada

#### *Brief summary*

The ITS Standards Development Framework is based on the *ITS Standards Development Plan for Canada* (March 2000) and the *ITS Standards Development Framework for Canada* (March 2001). The Board approved a *Proposal for Implementation* of the Framework in June 2001 and Transport Canada endorsed it in August 2001. The elements of the Framework are briefly as follows.

- Policy Board will represent the Partners who support the Framework and are responsible for directing ITS standards policy and providing funding support
- Managing Organization (ITS Canada) will champion the ITS standards framework and the development and deployment processes
- Standards Committee of technical and policy experts will plan and coordinate the standards development and deployment activities
- Working Groups of technical and policy experts will undertake the approved ITS standards development and deployment activities
- Central Secretariat will provide administrative, professional and technical assistance to the Policy Board, Standards Committee and Working Groups

#### *Brief Progress Report*

The Executive Committee approved funding for the action plan of the *Proposal for Implementation* in January 2002 to bring the Framework into full operation in 2002-03. The steps of the action plan are as follows with accomplishments shown to *[March 22, 2002]*, *(June 21, 2002)* & *(August 30, 2002)*.

- Identify Partners to fund and support the framework  
*[ITS Canada and Transport Canada are confirmed; draft letter ready to send out to SCC, major provinces and municipalities, industry; funding commitments still to be developed]*  
*(TAC confirmed in principle; SCC now a funding contributor for ISO travel)*  
***(Solicitation letters may now be sent with 3 Year Work Plans based on workshop consultation)***
- Identify Priorities for ITS standards development and deployment in consultation with the ITS community through the convening of a workshop in late spring 2002  
*[workshop proposal drafted for consideration at the Standards Committee March 25]*  
*(Workshop planning in progress for August time frame; principle players identified)*  
***(Workshop conducted on August 8<sup>th</sup> in Toronto with teleconference link across Canada)***
- Recruit Participants and organize an expanded Canadian presence in ITS standards development working groups and committees and provide it with central secretariat support  
*[membership review underway for ITSC Standards Committee and SCC/CAC for ISO/TC204 and working groups, plans for secretariat to be developed]* *(No further progress)*  
***(Workshop attendees provide a pool of interested and willing recruits for standards work groups)***
- Preliminary Plans for Outreach will include plans for outreach, training, testing and standards related R&D programs. *[to be developed]* *(preliminary outline in progress)*  
***(Workshop discussion paper outlines proposed 3 year Action Plans for detailed ITS standards development and deployment/adoption work plans)***
- Performance Measurement Framework criteria and methodology  
*[to be developed]* *(preliminary outline in progress)*  
***(Workshop discussion paper proposes measures)***

Further information can be obtained from the ITS Canada website at [www.itscanada.ca](http://www.itscanada.ca).

## EXECUTIVE SUMMARY

### *Proposal for ITS Standards Partnership for Canada*

#### *Priorities and Work Plans for 3 year Period 2003-06*

ITS Canada and Transport Canada have cooperated in the development of an ITS standards development framework for Canada. This activity has identified objectives and priorities, produced an implementation strategy in mid-2001 and a workshop held in August 2002. The outcome of the workshop is a strategy paper that provides guidance in the form of action plans for a partnership to implement ITS standards development and deployment activities in the period 2003-06.

ITS Standards are needed to enable the functions and physical elements of intelligent transportation systems to be interoperable with each other and for their components to be interchangeable. Standards also facilitate the development of ITS markets by establishing common performance expectations and a level playing field for competitive procurement processes. Since ITS is a relatively small (but vital) element of the overall capital cost of transportation systems, it is more efficient to define standards within as large an economic trading community as possible. For Canada, this means developing ITS standards within the North American market (with U.S. partners) or within the global market (with ISO/TC204 partners). Canada has participated in U.S.-based standards initiatives for several years and in ISO Technical Committee 204 as a country since 1996.

ITS Canada proposes to lead a partnership to implement the 3-year action plans. The cornerstone of the partnership is a proposed commitment by ITS Canada of \$100K over 3 years to be matched by other interested partners. ITS Canada invites Transport Canada to match its commitment plus those of other contributing partners along the following lines:

|   |         | <u>Scenario 1</u>     | <u>Scenario 2</u> | <u>Scenario 3</u> | <u>Scenario 4</u> |
|---|---------|-----------------------|-------------------|-------------------|-------------------|
| • | 2003-04 | ITS Canada            | \$33K             | \$33K             | \$33K             |
|   |         | Contributing Partners |                   | \$33K             | \$66K             |
|   |         | Transport Canada      |                   | \$66K             | \$100K            |
|   |         | Total annual funding  | \$33K             | \$66K             | \$133K            |
| • | 2004-05 | as above              |                   |                   |                   |
| • | 2005-06 | as above              |                   |                   |                   |

In order to jump-start the action plans so they can begin soon after April 1, 2003, ITS Canada recommends that an up-to-date overview be prepared of ITS standards development and deployment activities in the U.S., in particular related to NTCIP standards, and of ITS standards development in ISO Technical Committee 204. ITS Canada further recommends that Transport Canada fund this update (estimated \$25K) in 2002-03. ITS Canada will undertake to organize an open meeting of its Standards Committee in April 2003 to initiate the work program for 2003-04 and to provide oversight of initial results from the overview study.

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# ITS STANDARDS DEVELOPMENT FRAMEWORK FOR CANADA

## *Proposal for ITS Standards Partnership for Canada*

### *Priorities and Work Plans for 3 year Period 2003-06*

#### 1) **Purpose** – *Setting direction*

The purpose of this Proposal is to present ITS Canada's plans for a partnership to implement intelligent transportation systems (ITS) standards activities in Canada over the 3-year period from 2003 to 2006. It is based on the outcome of the ITS Canada Standards Workshop on August 8, 2002 in Toronto including the presentations, the input papers and the discussions in the breakout sessions. The Proposal includes priorities and work plans for 4 funding scenarios for ITS standards development and deployment activities.

The purposes of ITS standards are to enable the functions and physical elements of intelligent transportation systems to be interoperable with each other and for their components to be interchangeable. Standards also facilitate the development of ITS markets by establishing common performance expectations and a level playing field for competitive procurement processes. Since ITS is a relatively small (but vital) element of the overall capital cost of transportation systems, it is more efficient to define standards within as large an economic trading community as possible. For Canada, this means developing ITS standards within the North American market (with U.S. partners) or within the global market (with ISO/TC204 partners). Canada has participated in U.S.-based standards initiatives for several years and in ISO Technical Committee 204 as a country since 1996.

#### 2) **Objectives** – *Setting targets*

This Proposal has two objectives:

- (1) To guide ITS Canada in the implementation of the ITS standards framework over the next months to March 2003, and, more generally, over the 3 year period 2003-06; and
- (2) To inform senior management of potential partner organizations of the scope and scale of investment required to accomplish Canada's objectives for ITS standards development and deployment, presented in the form of expenditure scenarios.

#### 3) **Priorities** – *First things first*

The six priority areas listed in Table 1 were identified in the ITS Standards Development Framework for Canada (see Ref. 2). They are very general and high level in nature and do not get down to the level of individual standards. It is not possible to rank order this list by "priority" in a collective sense since each area attracts a different level of interest for each national participant. Also, since standards development is a volunteer activity, participants are free to expend their efforts and make their contributions as they see fit.

The estimated current "level of effort" (LOE) is presented at the right of each of the six priority areas in Table 1. Except for the efforts of certain industrial firms acting in their own self interest, the estimated levels of effort are moderate or low. In particular, the level of effort for the important activity related to the Canadian ITS architecture is considered to be low.

## Table 1

### ITS Standards Priority Areas for Canada

#### **i. Standards to Support Canadian ITS Architecture (LOE Moderate to Low)**

The Canadian ITS Architecture defines a set of User Services and their interrelationships. Standards are required to define precisely how information and data is to flow between the various ITS User Services and the central control and coordination functions.

#### **ii. Standards to Support Canadian Obligations International Forums (LOE Moderate)**

- Partnering with the U.S. on Standards Development and Testing

The NAFTA Land Transportation Standards Subcommittee (LTSS) deals with the development of compatible standards between the U.S., Canada and Mexico including technologies, such as DSRC, relating to border crossings and tracking hazardous commodities.

- APEC Cooperation in Standards Development

The Asia Pacific Economic Co-operation (APEC) forum was formed to promote open trade and practical economic co-operation among Pacific-rim economies. The ITS Experts Group was established to help realise the benefits of ITS technologies for the countries of the APEC forum. Canada, through ITS Canada, assumed the Chair of this Group from 1999 to 2001.

#### **iii. Standards to Support Public Policy Imperatives (LOE Moderate)**

The development of standards is also necessary to achieve certain public policy objectives:

- Public safety – a priority for all levels of government
- Human factors considerations – all levels of government and private sector priority
- Accessible transportation – federal and provincial priority
- Dangerous goods – federal and provincial government priority
- Emergency Management centres – priority for provincial and municipal governments
- Environmental (sustainability, climate change) – priority for all levels of government
- System Efficiency – priority for all levels of government

#### **iv. Standards that are Essential for Strategic Deployments (LOE Moderate)**

There are situations where Canada wishes to proceed with a strategic deployment and a standard may need to be modified, developed, tested or deployed. This may be of particular importance when the deployment involves a system that will be applied across-Canada and interoperability is critical (e.g. CVO and RWIS applications).

#### **v. Areas where Canada is Influential or offers Leadership Opportunities (LOE Low)**

Canadian representatives have been extensively involved in the development of harmonized DSRC technology and related standards for North America and international markets. For example, “Canadian DSRC Recommended Practices” was issued in 1997 and a NAFTA trilateral agreement on Guiding Principles for DSRC was signed in January 1998.

#### **vi. Standards to Advance Canadian Industrial Interests (LOE High by certain firms)**

Finally, the Canadian ITS industry may be involved in and lead standards development efforts that will enhance the marketability of their products on a regional or global scale.

**Note: LOE is Level of Effort**

The development of the standards required for the Canadian ITS architecture is a complex area with many participants and a long list of user services (see Table 2). The task is potentially very large requiring cooperation with numerous organizations including Standards Development Organizations (SDO) in the U.S., Canadian and U.S. federal policy makers, provincial transport departments, municipalities, private sector firms and non-profit organizations. Indeed, this area would benefit from a commitment by ITS Canada and federal, provincial and major municipal authorities to cooperate together in a long-term effort and to pool their resources in a common national program. Table 3 presents a list of critical ITS standards as identified by the U.S. Department of Transportation.

#### **4) Organizational Structure – *Working Together***

The organizational structure for the ITS standards development framework originated with the ITS Standards Development Plan for Canada (March 2000, see Reference 1) and was revised in light of discussion and comments at the ITS Standards Workshop. The revised organization chart (see Figure 1) retains the same overall structure but has a simplified set of only 4 working groups instead of the undefined number in the previous version. The elements of the organization chart are as follows:

- Policy Board will represent the Partners who support the Framework and are responsible for directing ITS standards policy and providing funding support;
- Managing Organization (ITS Canada) will champion the ITS standards framework and the development and deployment processes;
- Standards Committee of technical and policy experts will plan and coordinate the standards development and deployment activities;
- Working Groups of technical and policy experts will undertake the approved ITS standards development and deployment activities;
- Central Secretariat will provide administrative, professional and technical assistance to the Policy Board, Standards Committee and Working Groups.

The organization chart will be a challenge to implement because of the large number of players and interrelationships involved. For this reason, it is proposed to implement the organization incrementally and to also initiate functional interactions on an “as needed” basis. This measured approach will facilitate remaining within budget including time and funds available while moving ahead with urgent requirements.

**Table 2**  
**Canadian ITS Development Areas and User Services**

| <b>Development Area</b>               | <b>User Services</b>                             | <b>SDO</b>                                   |
|---------------------------------------|--|--|
| 1. Traveller Information Services     | 1. Traveller Information                         | ISO, CEN<br>SAE                              |
|                                       | 2. Route Guidance and Navigation                 |  |
|                                       | 3. Ride Matching and Reservation                 |  |
|                                       | 4. Traveller Services and Reservations           |  |
| 2. Traffic Management Services        | 5. Traffic Control                               | ISO, CEN,<br>IEEE,<br>(ITE-NEMA-<br>-AASHTO) |
|                                       | 6. Incident Management                           |  |
|                                       | 7. Travel Demand Management                      |  |
|                                       | 8. Environmental Conditions Monitoring           |  |
|                                       | 9. Operations and Maintenance                    |  |
|                                       | 10. Automated Dynamic Warning & Enforcement      |  |
|                                       | 11. Non-Vehicular Road User Safety               |  |
| 3. Public Transport Services          | 12. Multimodal Junction Safety and Control       | ISO, CEN<br>(ITE-NEMA-<br>-AASHTO)           |
|                                       | 13. Public Transport Management                  |  |
|                                       | 14. En-Route Transit Information                 |  |
|                                       | 15. Demand Responsive Transit                    |  |
| 4. Electronic Payment Services        | 16. Public Travel Security                       | ISO, CEN,<br>IEEE                            |
|                                       | 17. Electronic Payment Services                  |  |
| 5. Commercial Vehicle Operations      | 18. Commercial Vehicle Electronic Clearance      | ISO, CEN,<br>ASTM                            |
|                                       | 19. Automated Roadside Safety Inspection         |  |
|                                       | 20. On-Board Safety Monitoring                   |  |
|                                       | 21. Commercial Vehicle Administrative Processes  |  |
|                                       | 22. Intermodal Freight Management                |  |
|                                       | 23. Commercial Fleet Management                  |  |
| 6. Emergency Management Services      | 24. Emergency Notification and Personal Security | ISO<br>IEEE                                  |
|                                       | 25. Hazardous Material Incident Response         |  |
|                                       | 26. Disaster Response and Management             |  |
|                                       | 27. Emergency Vehicle Management                 |  |
| 7. Vehicle Safety and Control Systems | 28. Vehicle-Based Collision Avoidance            | ISO<br>SAE<br>ASTM                           |
|                                       | 29. Infrastructure-Based Collision Avoidance     |  |
|                                       | 30. Sensor-Based Driving Safety Enhancement      |  |
|                                       | 31. Safety Readiness                             |  |
|                                       | 32. Pre-Crash Restraint Deployment               |  |
|                                       | 33. Automated Vehicle Operation                  |  |
| 8. Information Warehousing Services   | 34. Weather & Environmental Data Management      | IEEE   |
|                                       | 35. Archived Data Management                     |  |

Source: ITS Standards Development Framework for Canada, ITS Canada, March, 2001 (ref. 1).

**Table 3**  
**Critical ITS Standards for U.S.**

*(Source: Reference 1 March 2000)*

Foundation Standard

1. Advanced Traveller Information System (ATIS) Data Dictionary: SAE J2353

National Standard

2. Advanced Traveller Information System (ATIS) Message Set: SAE J2354

Foundation Standard

3. Advanced Traffic Management Systems (ATMS) Data Dictionary (TMDD): ITE TM 1.03

National Standards

4. Commercial Vehicle Credentials: ANSI X12 TS 286
5. Commercial Vehicle Safety and Credentials Information Exchange: ANSI X12 TS 285
6. Commercial Vehicle Safety Reports: ANSI X12 TS 284
7. High Speed FM Sub-carrier Waveform Standard: Associations (various)

Foundation/National Standard

8. Information Service Provider - Vehicle Location Referencing Standard: SAE J1746

National Standards

9. Message Sets for DSRC, ETTM and CVO: IEEE P1455
10. On-Board Land Vehicle Mayday Reporting Interface: SAE J2313

Foundation Standards

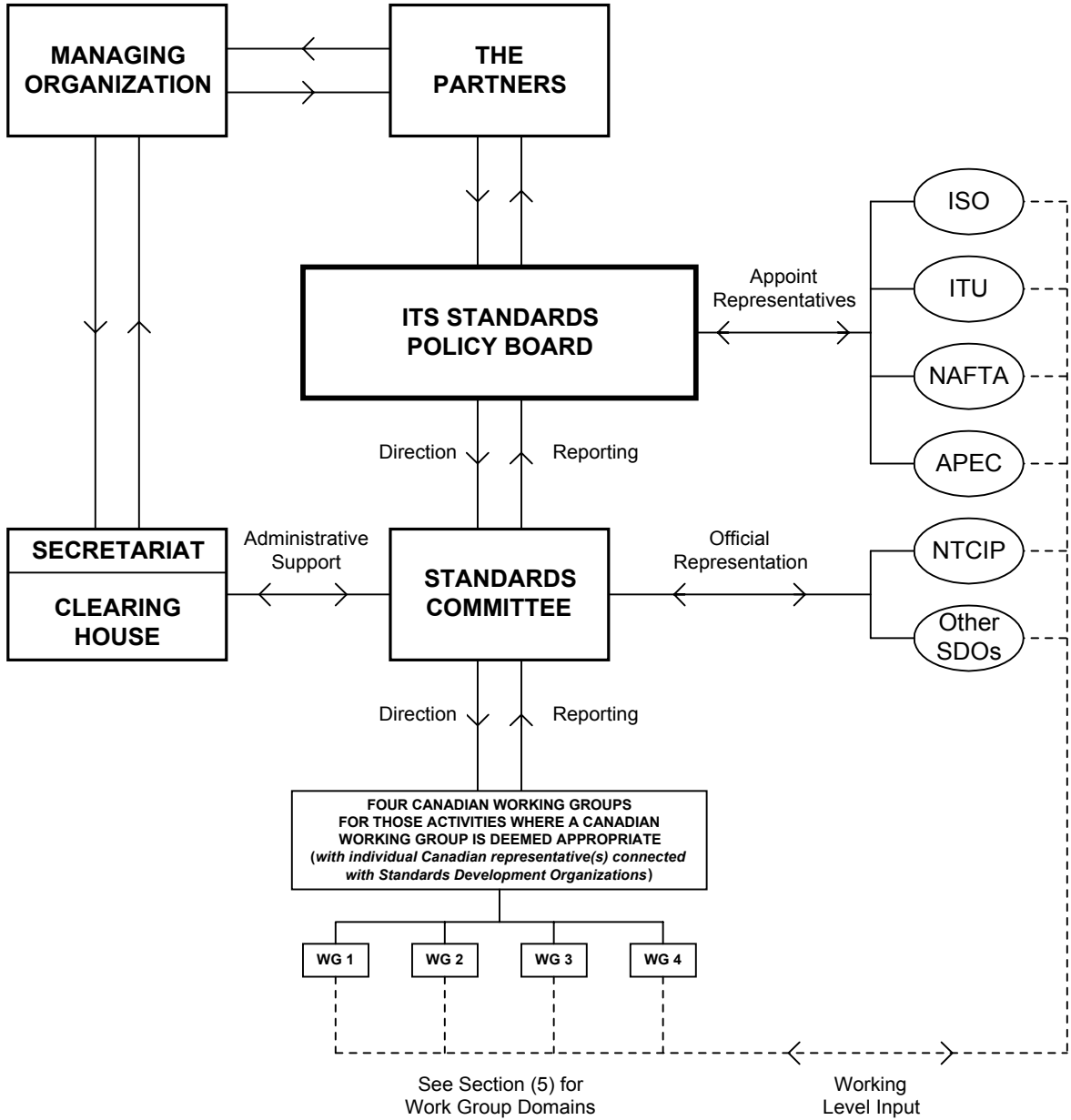
11. Standard for Common Incident Management Message Sets for Use by Emergency Management Centres: IEEE P1512
12. Standard for Data Dictionaries for Intelligent Transportation Systems: IEEE P1489
13. Standard for Message Set Template for ITS: IEEE P1488

National Standards

14. Standard Specification on Dedicated Short Range Communications (DSRC) - Data Link Layer: ASTM
15. Standard Specification on Dedicated Short Range Communications (DSRC) - Physical Layer: ASTM PS 111-98 (902-928 MHz frequency band)
16. Standard Specification on Dedicated Short Range Communications (DSRC) - 5.89 GHz  
ASTM
17. Standards for ATIS Message Sets Delivered Over Bandwidth Restricted Media: SAE J2369

# Figure 1 Proposed Organizational Structure

*(Source: reference 1 with simplifications from workshop August 2002)*



## **5) ITS Standards Development – Proposed Action Plans Part I**

Standards development is a lengthy process that requires a long-term commitment of support and encouragement. Canadian work on ITS standards is focussed in ISO Technical Committee 204, the U.S. efforts to develop NTCIP and other efforts on an ad hoc basis. The ISO work has been underway since 1994 and some of the original Canadian priorities (e.g. DSRC) are now close to completion. Development work is moving on to other forms of short-range communications (e.g. 5.9 GHz, infrared, etc.) and applications of DSRC (e.g. fee collection). As well, the standards associated with emerging Canadian priorities (e.g. ITS architecture) now require greater attention.

To address current and future needs, a “straw man” action plan for ITS standards development activities was presented and discussed at the ITS Standards Workshop in August. A revised and updated version is presented in Annex A. This is a more detailed action plan showing level of effort scenarios by expenditure level. The principle revision is to cluster the standards development activities (see Annex A, Action 2, second bullet) into 4 work groups representing 4 technology and policy domains:

- 1) Mobile data communications (vehicle to roadside and vehicle to vehicle communications and applications),
- 2) Travel and traffic management,
- 3) Public policy imperatives (standards activities related to public safety and security), and
- 4) Architecture (documentation standards),

For the third domain, public policy imperatives, the individual activities can be expanded into full domains as required and resources come available.

Each of the 4 work groups will have these responsibilities:

- 1) Review ITS standards activities in the domain;
- 2) Assess Canadian needs and recommend priority activities to meet these needs;
- 3) Recommend policies concerning standards to adopt; and
- 4) Organize participation in approved standards development activities.

## **6) ITS Standards Deployment – Proposed Action Plans Part II**

An operating agency that wishes to use the recommended standards requires information on the standards and assurance that they will provide reliable service at minimum cost in time and effort. The subject of standards implementation is very technical and, hence, considerable effort may be required to assist users with the following tasks:

- Identify and understand the standards needed,
- Reduce the risks to users of non-performance or errors due to lack of expertise,
- Get started through training,
- Obtain technical support to solve problems, and
- Undertake research and development as needed.

These deployment or outreach services require:

- An up-to-date knowledge base, linked to development, deployment and R&D activities,
- Access to results of recent and relevant demonstrations and field tests,

- Training services in step with user needs, and
- Information dissemination services using the internet and publications.

Standards deployment support services need to be tailored to the position of each standard in its development cycle and the characteristics of the user community. For example, while a standard is under development and not yet ready for application, the support services should focus on informing potential users of the impending standard, its characteristics and likely time frame when available and on seeking candidates for field tests. As the standard is being field tested, full information about the results need to be posted and training and outreach materials assembled. After the standard is verified and approved, the focus shifts to training and technical support.

Annex B contains a list of actions that could be taken over the 3-year period 2002-2005 to initiate a standards deployment support service. This would be planned and coordinated by the Standards Committee under the authority of the Policy Board and in cooperation with many participating agencies and the support services of the central secretariat (see Figure1).

### 7) **Funding Scenarios** – *Who pays?*

The action plans presented in Annex A and B are in the form of scenarios for different levels of effort and resource commitment and include suggested target dates. The eventual level of commitment and timelines will be set by the Policy Board in collaboration with the Standards Committee and based on the results of the planned solicitation campaign. For the purposes of this document, the assumed funding scenarios are as follows:

- |  |        |
|--|--------|
| 1) Base funding from ITS Canada alone  | \$33K  |
| 2) Base funding matching by federal partner funds                                  | \$66K  |
| 3) Base funding <i>plus</i> contributing partner funds matched by federal funds    | \$133K |
| 4) Base funding <i>plus</i> x2 contributing partner funds matched by federal funds | \$200K |

The 4<sup>th</sup> scenario breaks out as follows: ITS Canada – 1/6; partners – 1/3; federal – 1/2.

For further information on the basic processes involved in standards development, the deliverables and the cost elements, see *Proposed Priorities and 3 Year Action Plans* (ref. 5).

### 8) **Measuring Performance** – *How are we doing?*

#### a) Standards Development

The steps in the basic model and the list of deliverables provide elements that can be “counted” and used to measure efficiency in terms of inputs and outputs of standards development activities. For example, the following could be used to assess progress of standards development activities:

- Number of work items in progress,
- Status of each work item in terms of its progress through the basic model,
- Results of balloting,
- Resources consumed by a work item to date.

Measurement of the effectiveness of a standards development activity requires an assessment of factors such as:

- Elapsed time from the beginning to the end of the development process,

- Number and quality of the experts engaged in the development process, and
- The acceptance of the final standard in practise as measured by user feedback.

Both of these measurement activities require keeping diligent records of all activities in a form that can be easily retrieved for assessment purposes. They should also be made available in an abbreviated form on the website to inform the ITS community of progress. The data collection and analysis tasks can be undertaken by the central secretariat under the control and direction of the Standards Committee.

#### b) Standards Deployment and Outreach

The efficiency of ITS standards deployment and outreach activities could be measured in terms of the inputs and outputs to the ongoing process, such as:

- Number of work sites seeking assistance and advice,
- Number of field trials completed,
- Number of training sessions completed and students processed,
- Number of hits on an information dissemination website, and
- Resources consumed to carry out the deployment support program.

The overall effectiveness of a standards deployment activity is measured ultimately by the success in getting operating agencies to adopt and use the approved ITS standards in their operations. This can be measured in terms of:

- Number of standards adopted,
- Number of agencies adopting them,
- Record of problems involved in their introduction, and
- Time frames required from initial introduction to routine field implementation.

The central secretariat would maintain a data base on these data elements under the control and direction of the Standards Committee.

#### **References**

1. ITS Standards Development Plan for Canada, Delcan Corporation for ITS Canada, March 2000
2. ITS Standards Development Framework for Canada, ITS Canada, March 2001
3. ITS Architecture for Canada, Transport Canada, April 2001
4. ITS Standards Development Framework for Canada, *Proposal for Implementation*, ITS Canada, August 2001
5. ITS Standards Development Framework for Canada, *Proposed Priorities and 3 Year Action Plans*, ITS Canada, August 2002
6. ITS Standards Workshop, *Agenda, Presentations and Discussion Paper*, ITS Canada website/standards section at [www.itscanada.ca](http://www.itscanada.ca) .

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## Annex A

### Proposed Standards Development Action Plan Scenarios – 3 Year Timeline

|              |       |       |        |        |
|--------------|-------|-------|--------|--------|
| Scenario =   | 1     | 2     | 3      | 4      |
| Funding PY = | \$33K | \$66K | \$133K | \$200K |

#### Action 1: ITS Canada (lead)

Implement the Proposed Organizational Structure including:

- |   |        |   |        |                      |
|---|--------|---|--------|----------------------|
| • Policy Board, Standards Committee, principal work groups, liaison functions | Mar 03 |   |        |                      |
| • Central secretariat   | –      | – | Jun 03 | Sep 03<br>(expanded) |

#### Action 2: SCC/CAC (lead)

Focus and continue Canadian involvement in ISO Technical Committees in line with the latest agreed priorities for ITS standards for Canada by encouraging participation in the Canadian Advisory Committees of the Standards Council of Canada for ISO/TC 204, 22 & 173.

- |  |          |          |          |                        |
|--|----------|----------|----------|------------------------|
| • Review priorities and report to Standards Committee.   |          |          |          | Mar 03                 |
| • Establish Canadian work groups for 4 priority technology & policy domains that correspond to Canadian ITS standards priorities and support and fund their out-of-pocket operations as funding permits: | Mar 03   | Mar 03   | On-going | On-going<br>(expanded) |
| ○ <i>Mobile data communications (veh-roadside) – safety, security &amp; convenience</i>  | (Mar 02) | (Mar 02) |          |                        |
| - <i>Dedicated short range communications (WG 15)</i>  | √        | √        |          |                        |
| - <i>Commercial freight and fleet management (WG 7, Canada is convener)</i>  | √        | √        |          |                        |
| - <i>Fee and toll collection (WG 5)</i>  |          |          |          | √                      |
| - <i>Automatic Vehicle Identification/AEI (intermodal WG 4)</i>  |          |          |          | √                      |
| - <i>Wide area communications, protocols and interfaces (WG 16)</i>  |          |          |          |                        |
| ○ <i>Travel and traffic management - efficiency, safety and convenience</i>  | (Mar 02) | (Mar 02) |          |                        |
| - <i>Integrated traffic &amp; transport management, information and control (WG 9)</i>   |          |          |          | √                      |
| - <i>Traveller information systems (WG 10)</i>   | √        | √        |          |                        |

|   | Scenario = 1 | 2        | 3                 | 4                 |
|---|--------------|----------|-------------------|-------------------|
| - <i>Public transport/emergency (WG 8)</i>  | √            | √        |                   |                   |
| - <i>Route guidance and navigation systems (WG 11)</i>  |              |          |                   |                   |
| - <i>Database technology (mobile maps WG 3)</i>   |              |          |                   |                   |
| ○ <i>Public policy imperatives – safety, public transport, environment, accessibility</i>   | (Mar 03)     | (Mar 03) |                   |                   |
| - <i>Vehicle/Roadway warning &amp; control systems (WG 14) &amp; In-vehicle (TC 22)</i>   |              | √        |                   |                   |
| - <i>Technical aids for vision &amp; hearing impaired at traffic lights (TC173 WG 7)</i>  |              | √        |                   |                   |
| ○ <i>Architecture – documentation standards</i>   | (Mar 03)     | (Mar 03) |                   |                   |
| - <i>Architecture (WG 1) and Data Quality &amp; Reliability (WG 2 revived)</i>  | √            | √√       |                   |                   |
| • Report on progress & achievements & account for expenditures to the Standards Committee at 6 month intervals or after each ISO TC 204 plenary meeting | Mar 03       | Mar 03   | Sep 03<br>Mar 04  | Sep 03<br>Mar 04  |
| • Host Plenary Meetings of ISO/TC 204 in Spring 2004 in Vancouver, BC   |              |          | Mar 04<br>(Apr04) | Mar 04<br>(Apr04) |
| • Reassess priorities and direction at the end of 3 years of operation and report to the Standards Committee with recommendations by March 2005.        | –            | –        | Mar 05            | Mar 05            |

### Action 3: ITS Canada (lead)

Strengthen & continue Canadian involvement in U.S. based Standards Development Organizations (SDOs) that are developing ITS standards of priority to Canada. Encourage participation in areas related to the Canadian ITS architecture and the need to harmonize ITS standards to facilitate cross-border trade and tourism.

|  |   |  |        |                        |
|--|---|--|--------|------------------------|
| • Expand the scope of the Canadian work groups in the 4 technology and policy domains described in Action 2 above to include ITS standards development activities related to Canadian priorities underway in U.S. based SDOs and support and fund their out-of-pocket operations as funding permits. | – |  | Sep 03 | On-going<br>(expanded) |
| ○ <i>Mobile data communications (veh-roadside) – safety, security &amp; convenience</i>  |   |  | Dec 03 |                        |
| - <i>DSRC 5.9 GHz (ASTM &amp; IEEE)</i>  |   |  | √      |                        |
| - <i>HRI (IEEE)</i>  |   |  | √      |                        |
| ○ <i>Travel and traffic management - efficiency, safety and convenience</i>  |   |  | Dec 03 |                        |
| - <i>NTCIP/TCIP (ITE, NEMA &amp; AASHTO)</i>   |   |  | √      |                        |
| - <i>Incident Management (IEEE)</i>  |   |  | √      |                        |

|  | Scenario = 1 | 2      | 3                | 4                |
|--|--------------|--------|------------------|------------------|
| - ATC (ITE, NEMA & AASHTO)   |              |        | √                |                  |
| - TDMM (ITE & AASHTO)  |              |        | √                |                  |
| - ATIS (SAE)   |              |        | √                |                  |
| - 511 (USDOT)  |              |        | √                |                  |
| ○ Public policy imperatives – safety, public transport, environment, accessibility   |              |        | Dec 03           |                  |
| - Vehicle Safety (SAE)   |              |        | √                |                  |
| - CVISN (USDOT)  |              |        | √                |                  |
| - RWIS   |              |        | √                |                  |
| ○ Architecture – documentation standards   |              |        | Dec 03           |                  |
| - National Architecture (USDOT & ITS America)  |              |        | √                |                  |
| - Data Registry/Data Elements/Message Templates (IEEE)   |              |        | √                |                  |
| • Report on work group progress and achievements and account for expenditures to the Standards Committee at 6 month intervals,                   | –            | Mar 03 | Sep 03<br>Mar 04 | Sep 03<br>Mar 04 |
| • Reassess priorities and direction at the end of 3 years of operation and report to the Standards Committee with recommendations by March 2005. | –            | –      | Mar 05           | Mar 05           |

**Action 4: Policy Board (lead)**

|   |          |          |                        |          |
|---|----------|----------|------------------------|----------|
| Maintain liaison with national and international bodies with ITS standards related responsibilities including Standards Council of Canada, ITS America, NAFTA Transport Consultative Group, Asia Pacific Economic Cooperation Forum, the International Telecommunications Union and other organizations to advance the interests of Canada. | On-going | On-going | On-going<br>(expanded) | On-going |
|---|----------|----------|------------------------|----------|

**Legend:**

|   |                  |            |
|---|------------------|------------|
| Target Date for Completion                  | for activity     | Mar 03     |
|   | for sub-activity | (Mar 03)   |
| No Target Date                              |                  | –          |
| Activity underway/on-going                  |                  | √          |
| Expanded activity with additional resources |                  | (expanded) |
| On-going activity with resources available  |                  | On-going   |

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## Annex B

### Proposed Standards Deployment Action Plan Scenarios –3 Year Timeline

|              |       |       |        |        |
|--------------|-------|-------|--------|--------|
| Scenario =   | 1     | 2     | 3      | 4      |
| Funding PY = | \$33K | \$66K | \$133K | \$200K |

#### Action 1: ITS Canada (lead)

|   |   |   |        |                      |
|---|---|---|--------|----------------------|
| Implement a central secretariat to provide the standards deployment services. | – | – | Jun 03 | Sep 03<br>(expanded) |
|---|---|---|--------|----------------------|

#### Action 2: ITS Canada (lead)

Prepare under the direction of the Standards Committee:

- |   |   |  |  |  |
|---|---|--|--|--|
| <ul style="list-style-type: none"> <li>• An inventory of the assistance services currently available for standards deployment from sources worldwide such as USDOT, Transport Canada, SCC, ISO, U.S. based SDOs, European and Japanese sources, research establishments and the private sector including field testing of standards, demonstrations, publications, web-based services, user training, technical advisory services, R&amp;D services and product verification services,</li> <li>• An analysis of these services to determine if they can be accessed as a resource for Canadians, if gaps exist that would need to be filled and the scope and extent of the information resources available,</li> <li>• A report with recommendations on the scope and scale of a Canadian standards deployment support service and on how to implement it in harmony with existing services already in place in the U.S. and elsewhere and readily available to clients across Canada.</li> </ul> | <ul style="list-style-type: none"> <li>–</li> <li>–</li> <li>–</li> </ul> | <ul style="list-style-type: none"> <li>Jun 03</li> <li>Aug 03</li> <li>Sep 03</li> </ul> |  |  |
|---|---|--|--|--|

The following services are examples of deployment support services:

- - *field testing program with recommended partners and sites,*
- - *demonstration and evaluation needs and services,*
- - *user training, technical advisory services and information services,*
- - *mechanisms to identify needs & fund research & development projects*
- - *product verification information for a published standard (if available).*

|   | Scenario = 1 | 2 | 3                | 4                              |
|---|--------------|---|------------------|--------------------------------|
| <b>Action 3: ITS Canada (lead)</b>  |              |   |                  |                                |
| Implement the recommended standards deployment support services, and report on levels of activity, expenditures, achievements and problems to the Standards Committee at 6 month intervals.   | –            | – | Sep 03<br>Mar 04 | Sep 03<br>Mar 04<br>(expanded) |
| <b>Action 4: ITS Canada (lead)</b>  |              |   |                  |                                |
| Implement a web based information service to inform potential users (and developers, policy makers and other interested professionals) in Canada concerning the current status of ITS standards including:  | –            | – | Dec 03           | Mar 04<br>(expanded)           |
| <ul style="list-style-type: none"> <li>• General information concerning the standards program,</li> <li>• Status of the development, field testing and demonstration of each standard,</li> <li>• Reports on ITS standards activities worldwide,</li> <li>• Availability of training services,</li> <li>• Contacts for technical advice, and</li> <li>• Contacts for advice on product verification services (if available).</li> </ul> |              |   |                  |                                |

**Legend:**

|   |                  |            |
|---|------------------|------------|
| Target Date for Completion                  | for activity     | Mar 03     |
|   | for sub-activity | (Mar 03)   |
| No Target Date                              |                  | –          |
| Activity underway/on-going                  |                  | √          |
| Expanded activity with additional resources |                  | (expanded) |
| On-going activity with resources available  |                  | On-going   |