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## Acronyms

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<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>ITS</td>
<td>Intelligent Transportation Systems</td>
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<tr>
<td>ITSC</td>
<td>Intelligent Transportation Systems Society of Canada</td>
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<tr>
<td>CV</td>
<td>Connected Vehicle</td>
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<td>CVTC</td>
<td>Connected Vehicle Technical Committee</td>
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<tr>
<td>CVO</td>
<td>Commercial Vehicle Operations</td>
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<td>RF</td>
<td>Radio Frequency</td>
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<td>DSRC</td>
<td>Dedicated Short Range Communications</td>
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Executive Summary

This section will be written last. It is a brief description of what we plan to do over the next 3 years. It is the summary of the entire plan, so it can’t be written until the plan is written. Assume this is the most important section of the plan. [This section will be used to describe our activities in summary form in connection with any requests for funding of Committee activities.]

ITS Canada needs an expert group such as the Connected Vehicle Technical Committee to consider high value Connected Vehicle solutions that meet the real needs of Canadian transportation system providers and their users, thus enhancing the added value of ITS Canada.

Google’s Driverless Car, recently unveiled and licensed to operate in Nevada, demonstrates the extreme possibilities of Connected Vehicle technology in North America. This event illustrates that significant technical and policy advances will be changing the paradigm of ITS and that our organization needs to prepare itself for the future. ITS Canada members that are involved in the Connected Vehicle space are ITS Canada’s best option for looking to the future and advising ITS Canada’s Board on where we should concentrate our efforts in this segment.

While vehicle safety is expected to be a major benefit of Connected Vehicles, there are a number of other applications. Initial guidance for the CVTC is to concentrate our efforts on areas of interest to Canadian transportation service providers that do not duplicate efforts of US transportation safety application development. Although, we do need to ensure Canada has policies in place to make interoperability possible for Connected Vehicle safety systems. Also, due to the configuration of automotive research, we will be aligning ourselves generally with Tier 1 suppliers and their vendors (eg APMA), rather than directly with the automotive OEMs, with the possible exception of GM who have Canadian R&D operations.

While the CVTC is a “technical” committee, it is not necessarily a standards committee. Depending upon the makeup of CVTC members from time to time we will have standards experts that will inform us of issues relating to standards that involve Connected Vehicles. We will coordinate with other ITS Canada standards activities to ensure Canadian standards efforts are aligned for the benefit of CV and ITS Canada member interests. As with any emerging technologies, it is also necessary to get involved with market and application factors so the CVTC will be looking at Connected Vehicles from all aspects, narrowing its priorities and refocusing efforts as issues arise.
Statement of Community Need

The annual societal cost of road collisions in Canada is approximately $62bn representing about 4.9% of GDP. ([http://www.tc.gc.ca/eng/roadsafety/tp-tp14800-menu-159.htm](http://www.tc.gc.ca/eng/roadsafety/tp-tp14800-menu-159.htm)).

NHTSA estimates that connected vehicle technology could address about 80 percent, or four out of five, of all the unimpaired driving crashes in the US. Given our roadway and vehicle interoperability with the US, Canada can expect similar results by facilitating Connected Vehicle technology. According to NHTSA, if some 40% of collisions are a result of impaired drivers then 80% of 60% is approximately 48% overall reduction in collisions is possible. Therefore Connected Vehicle Technology addresses a very significant community need for improved road safety in North America and Canada needs to foster this category of intelligent transportation system, in order to enjoy the benefits of safer roadways and non-safety applications available through Connected Vehicles, such as reduced traffic congestion..


Needs and Opportunities for Improvement in Canada Using Connected Vehicle Functions.

General stakeholders can benefit from a well rounded vision of how Connected Vehicles are best implemented. General stakeholders that can be benefit from the Connected Vehicle Technologies includes vehicle drivers, travelers, fleet managers, adjacent residents and businesses, transportation and government agencies, industry and environmental groups.

Travelers are the primary beneficiaries. On one hand, road safety will be improved with connected vehicle technologies implemented, and there will be reduction in crash fatalities, injuries and cost associated with crashes; and on the other hand, travelers may be benefited from real-time, multimodal information that will lead to more efficient and eco-friendly route and mode choices and improved travel time and accessibility.

For adjacent residents and businesses, connected vehicle technology may bring positive physical and operational impact such as better accessibility to stores and labor, less residential collisions, and safer living environment.

Federal, Provincial and Municipal transportation agencies could use connected vehicle technology to monitor, manage and respond dynamically to transportation network conditions. The Connected Vehicle System can collect and provide valuable data such as traffic volume, speed, transit schedule

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status, parking availability etc., to transportation operation centers and enhance traffic signal timing and ramp meter operation optimization, incident and emergency responses and other management actions.

Once the Connected Vehicle technologies are widely available or widely deployed, there will be new market places, products and services created in support of the Connective Vehicle applications. Private sector partners such as Telematics companies, automotive suppliers, computer infrastructure companies, and information service companies, including members of ITS Canada, may take part in the innovative design and applications and be benefit from the development of this new technology.

A focus on the priority needs of transport end users (travellers and shippers), will ensure both relevance and powerful value proposition in the ITS connected vehicle solutions selected for emphasis by the ITS Canada Connected Vehicle Technical Committee.

ITS Canada needs a focus group such as the CVTC to consider high value Connected Vehicle solutions that meet the real needs of Canadian transportation system providers and their users, thus enhancing the added value of ITS Canada.

As Google’s Driverless Car has was recently unveiled and licensed to operate in Nevada, we have to recognize significant technical and policy advances will be changing the paradigm of ITS. ITS Canada members that are involved in the Connected Vehicle space are ITS Canada’s best option for looking to the future and advising ITS Canada’s Board on where we should concentrate our efforts in this segment.

Traffic Congestion and Grid-Lock in Cities can benefit from Connected Vehicle Solutions.

ITS Canada Member expertise includes an in-depth understanding of the damaging effects of ‘gridlock’.

Gridlock on Canada’s urban and interurban roads is becoming increasingly detrimental to the environment, to the economy and people’s quality of life. One of the main examples of this is the bottlenecks within Toronto at the interchanges of 400 series highways.

The millions of hours Canadian commuters spend each year in traffic have significant economic and personal repercussions. In the Greater Toronto Area, for example, the average commuter is spending 80 minutes stuck in traffic, taking time away from both their jobs and their families.
It also has a drastic impact on business in the Toronto Area — as the Toronto Board of Trade noted last year, gridlock costs the local economy a staggering $6 billion annually in lost productivity. Other major Canadian cities are suffering from the same detrimental effects of chaotic traffic congestion.

Compounding these issues is the fact that governments don’t have the funds to pay for new infrastructure.

There is no single broadly accepted definition for traffic congestion. It is both a physical phenomenon relating to the manner in which demand for road space approaches full capacity, and a relative phenomenon relating to road users’ expectations of the road system performance. Traffic congestion prevents us from moving freely and it slows and otherwise disrupts the conduct of business within urban areas. It imposes costs on the economy and generates multiple impacts on urban regions and their inhabitants. Both operational and user perspectives are important in understanding congestion and its impacts. Traffic congestion may involve queuing at the intersections and roadway segments, slower speeds and larger speed variances and increased travel times etc. It has many potential effects and costs, such as loss of time, cause of delay, loss of productivity, waste of fuel, change in accident frequency, air pollutions, greenhouse gas emissions, increased vehicle operating costs, increased noise nuisance and so on. Congestion also has many indirect impacts on life, safety, stress and non-motorized road users such as pedestrians and bicyclists. A study of the Cost of Urban Congestion in Canada conducted by Transport Canada found that the total cost of annual cost of congestions ranges from $2.3 billion to $3.7 billion in 2002 dollars, in which cost of delay accounts for $2.0 billion to $3.4 billion, cost of wasted fuel is between $176 million and $213 million, and cost of annual GHG emissions due to congestion is between $38 million and $46 million. In recent years, fast development in urban areas have attracted more populations, created increasing traffic demand, and traffic congestion problem in the urban roadway environment is getting worse. There is an urgent need for transportation agencies, engineers and researches to come up with cost efficient plan to reduce traffic congestion, and to improve our quality of life and enhance economic development.

Traffic congestion in general, impacting all modes of travel, is by far the primary transport problem. Maximum political support for ITS innovations can be assured by targeting ITS solutions at major forms of traffic congestion.

Expressway traffic congestion is the best ITS innovation opportunity available to members of ITS Canada. Expressways carry huge traffic volumes and are used by large numbers of voters over wide geographic areas.

Local road traffic, being already controlled by intersection signals (“stop lights”), is fairly well in hand. Any attempt further to optimize local road traffic, by real-time micro-control of individual vehicle headways, is a much more complex problem, than is the optimization of traffic on controlled access

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highways (expressways).

Expressway traffic optimization is the "magic key" to unlocking expressways as politically feasible transit funding source. Modest highway toll rates will be paid by drivers who enjoy a much improved trip experience. Piggybacking the tolling function on the traffic optimization platform, can yield significant net toll revenues from low toll rates.

Real-time management of individual vehicle headways, is key to maximizing expressway traffic efficiency (and safety).

Accidents and Fatalities can be Reduced Through Deployment Connected Vehicle Technologies.

Currently in Canada the biggest killer of people under the age of 34 is road collisions. The connected vehicle technology represents the potential to significantly reduce this injury epidemic across all age groups, but particularly for drivers under 34 years old.

Vehicle constructors and road authorities have worked for decades to reduce collisions, and reduce the severity of collisions. In addition legislators and enforcement agencies work together to remove threats and reduce high risk driver behavior. The emerging technology of CV offers all these team members a new tool to assist in collision reduction. The vehicle driver has self- preservation instincts; ideally we could instill simple self-preservation instincts into the vehicle. This should involve vehicle to vehicle communications as well as vehicle to infrastructure communication.

Traffic safety is a close second to traffic congestion, and happily, will enjoy a significant improvement as a natural consequence of a solution to expressway congestion.

The fundamental political problem with an emphasis on traffic safety is private car driver psychology. A person who commutes by private car expects to encounter traffic congestion every day, they do not expect to encounter a collision on any day.

The huge cost of collisions is socialized through insurance. The huge cost of traffic congestion, by contrast, is directly and daily experienced by individual (voting) drivers and shippers. If the auto insurance industry can credibly promise a major reduction in auto insurance premiums, this would go a long way to improving the political appeal of safety-focused ITS innovations.
With the rapidly rising rate of motorization, many countries have focused their efforts on improving mobility, and in recent years, as traffic safety has become a major global health and development problem, people have increased awareness to road safety, and it has become the priority in transportation planning and operation practices. The World Report on Road Traffic Injury Prevention 2004 noted that about 1.2 million people are killed in road crashes globally each year, and about 20 to 50 million are injured, and traffic collisions would become the third major cause of death in the next 20 years if no action is taken. In Canada, collision statistics for 2001 showed that 2778 road users were killed in traffic collisions, and more than 220,000 were injured. Among the road user casualties, 80% are motor vehicle occupants, and 20% were vulnerable road users (pedestrian, motorcyclist, and bicyclist) who are more susceptible to traffic collisions when compared to other group of road users. As a major public health and development problem, road traffic safety issue can also have a socioeconomic and psychological impact on society. The annual estimates of social costs associated with these crashes and casualties in terms of loss of life, medical treatment, rehabilitation, lost productivity and property damage are as high as $25 billion. The present studies and statistics have clearly demonstrated the extent and severity of the road traffic safety problem. The aim is to increase the awareness around the safety of various types of road users and to ensure all their needs are adequately taken into consideration in the planning and designing process to save people’s lives.

**Improved Roadway Efficiencies for Special Vehicles**

The CV communication protocol(s) should leave room for special vehicle status communication. An example would be emergency vehicles, which could ideally communicate to vehicles in the surrounding area about the priority treatment required by law. This could potentially improve the emergency vehicle response rate amongst the general driver population.

**“Killer Applications” for Connected Vehicles**

The killer apps for connected vehicles will differ depending on your point of view. From a road safety aspect they are:

- Side alert
- Adaptive Cruise Control
- Collision Warning/Avoidance
• Pre-Crash mitigation
• Lane keeping
• EMS vehicle warnings
• Red-light runner warning
• Driver monitoring

Enforcement agencies have repeatedly asked for a solution to the high speed chase. Ideally vehicles would come equipped with a remote stop code which could be accessible to a pursuing peace officer. While this comes wrapped in a host of questions and concerns, there are a considerable number of high speed chase related collisions, injuries and periodically fatalities across the country each year.

The potential applications for the connected vehicle system may be categorized into safety applications, mobility applications and environment applications.

Safety applications are designed to increase situational awareness and reduce or eliminate crashes by communications via vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) data transmission to provide user advisories, warnings as well as vehicle and infrastructure controls. Examples for the vehicle to infrastructure applications are curve speed warning, traffic signal violation warning, vulnerable road user warning etc. Examples for vehicle to vehicle applications are cooperative forward collisions warning, lane change warning, incident warning, and freeway hazard alert.

The Connected Vehicle mobility applications provide a data-rich travel environment by capturing real-time in-vehicle and roadside units’ data through transportation communication network, and transmit these data wirelessly for use in dynamic, multimodal applications to achieve system optimum performance. Examples of the newly available data include real-time speed, lane position, brake/throttle status, vehicle dimensions, the number of onboard passengers, the bus schedules to meet, etc. The two focuses under the connected vehicle mobility application research are real-time Data Capture and Management (DCM) and Dynamic Mobility Applications (DMA).

The vision for developing real-time data capture and management applications is to systematically capture real-time multimodal data from multiple sources for transportation management and performance measurement. Some examples under real-time data capture and management applications are probe data collection, trip data collection, weather information collection, and lane closure information.

Dynamic mobility applications are designed to optimize traffic and transportation operations and to promote seamless connection across multiple modes by collecting and sending real-time data from and to location specific and context relevant mobile devices. Major activities for dynamic mobility
applications include dynamic merge assistance, new signal logic development, signal optimization, bus transit priority, cooperative adaptive cruise control, etc.

The applications of environment protection will provide travelers with real-time, vehicle-based and infrastructure-based information. Examples of Applications for Environment are Real-Time Information Synthesis and Road Weather Applications (AERIS) and road weather applications.

AERIS integrates environmental data from vehicles and the data with other sources for use in transportation management and performance improvement. AERIS also focus the analysis on improving the ability to detect and forecast road weather and pavement conditions by specific roadway links. Examples of research projects concerning developing applications for AERIS are Prediction of fuel consumption under eco-drive, Real-time environmental data capture management system, and Fuel-consumption-based route guidance system.

The research focus for road weather applications is to build on the existing road weather systems to include mobile weather sources and to focus the analysis on improving the ability to detect and forecast road weather and pavement conditions by specific roadway links. Some of the examples are Improved Identification of Slippery Pavement, Identification of Foggy Regions, Traffic and Incident Management.

**Benefits of Infotainment that can be Delivered to Connected Vehicles**

In recent years, smartphone business is growing rapidly; and the full functional system and various applications made these phones become widely used around the world. An Automotive Emerging Technologies study conducted by J.D. Power and Associates in the United States in 2010 indicates that almost 30% of smartphone owner’s text and check e-mails while in the vehicle. Of these owners, nearly 40% want to have the ability to have e-mails read aloud through their vehicle’s audio. 40% owners use them in their vehicle to get driving directions, and 20% owners listen to music by connecting their phones to vehicle speakers. Nowadays, smartphones can work as a supporting platform and accessory for Connected Vehicle and as a potential conduit to Internet. However, with the increasing statistics of in vehicle phone usages and distraction-related traffic fatalities, cell phones are considered one of the most common distractions for drivers. In order to reduce driving distraction, the smartphone infotainment technologies can be mounted to the connected vehicles’ head unit and to ensure drivers’ eyes are on the roads and hands are on wheel. Integrating infotainment system with connected vehicles ensures the connectivity between the drivers and their vehicle and the world, especially when drivers have forgotten their smartphones. The integrated system offers travelers with various in vehicle applications such as multimedia entertainment, driver assistance, communications and Telematics.
Some benefits of infotainment system to connected vehicles are listed as follows:

• In terms of safety and security needs, in-vehicle infotainment system is capable of providing crash notification, automatic diagnostic notification, component wear sensor, unauthorized access notification, vehicle use supervision and other services. These functions keep drivers informed of their vehicle conditions and may help to avoid vehicle deficiency related collisions.

• In terms of navigation and information needs, infotainment system can provide drivers information such as traffic and weather information updates, direction and shortest path to destination. These functions make contribution to reduction in weather related crashes and savings on travel times.

• In terms of communication and entertainment needs, infotainment system enables Bluetooth hands-free calling, and provide media players for drivers.

With connected vehicles’ technologies, useful information obtained through infotainment system can be distributed and shared among vehicles and between vehicles and roadside infrastructures. The integration of in-vehicle entertainment and information system will enable safe and effective media usage and communication.

The Vital Need for Guidance from the Connected Vehicle Committee and ITS Canada

Areas where Connected Vehicle technology will have an impact:

1. Safety
2. CVO operations and enforcement
3. Asset management – construction, winter maintenance, short and long term planning
4. Electronic payment – toll, parking
5. Vehicles as probe – many applications can be derived from this
The Need for CV Recommended Practices for Regional Transportation Authorities, Municipalities, Provincial Ministries and Federal Departments

1. Awareness building – when CV hits mainstream, unless there is mandate or regulation to adopt/use, penetration rate could be low

2. Infrastructure planning – the question is when should this start. CV relies on real time information. Without the proper infrastructure in place or in the planning, available CV applications may not be feasible even though the technologies may be ready.

3. Policy setting - policy, regulations and programs for CV would likely be the stimulus for wider adoption and penetration.

Approach to Engagement of the Auto Industry

It is an inescapable fact that highway / road authorities own the roadway corridors. In general, highway authorities are the most conservative of government bureaucracies. They build, operate and manage the common physical transport assets, at the centre of a network of very powerful vested interests (including the voting public).

Anti-car political attitudes need to be shifted in order to assume their necessary role as innovators in procurement and deployment of roadway / roadside technologies that are vital to a successful connected vehicle future.

The ecosystem for connected vehicles in Canada:

- The large majority of the automotive OEMs do not do any research, development or car design in Canada. Also, there is no separately identifiable connected car market in Canada. The OEMs are already engaged in connected cars and most currently market models with first generation connectivity.

- There is a significant Canadian automotive parts industry. The key industry association representing this sector in Canada is the Automotive Parts Manufacturers Association (APMA).
Two members of the ITS Canada Board attend the APMA Board meetings.

- There are other parts of the connected vehicle ecosystem, including software and app developers, mobile carriers, content providers, universities and networks of universities, some government departments, and other industry associations.

- There is more activity in Canada in the automotive infotainment / cell-phone version of connected vehicles than in the Dedicated Short Range Communications (DSRC) space.

This leads to the following strategies:

In general, ITS Canada cannot engage with the OEMs in Canada and it would be a waste of resources to try to do so. The one exception is GM Canada which has an engineering centre in Oshawa.

It is recommended that ITS Canada focus on strengthening and stimulating the Canadian connected car ecosystem, including the Tier 1 and Tier 2 suppliers, technology companies, universities and research networks, and the wireless carriers, all of whom are already in this space. A key partner in this is APMA and it is recommended that ITS Canada develop even closer ties with APMA and explore joint projects.

A key consideration is that the stakeholder community includes some organizations that are members of ITS Canada and some that are not. Examples of stakeholders in the connected vehicle space who are not members of ITS Canada include QNX, Industry Canada, Environment Canada, the wireless carriers, and app developers. Does ITS Canada focus on the interests of its current members or does it seek to expand and attract other organizations in this area? It is recommended that ITS Canada do the latter.

ITS Canada is well positioned to take the initiative in ways that would attract the interest and commitment of new connected vehicle stakeholders. ITS Canada’s expertise includes understanding the CV space, and its members are involved in road safety, transportation efficiency, navigation, environmental protection, etc.

The following specific activities can help provide a bridge between ITS Canada and the CV suppliers and achieve common goals:

- Decide at the Board level that ITS Canada’s interest includes the automotive infotainment, however that may be achieved.

- Hold a summit meeting with others who have a similar interest in order to coordinate strategies for promoting and developing the connected vehicle space in Canada. Attendees would include ITS Canada, APMA, CATA, Industry Canada and Transport Canada.
• Develop and promote a workshop on connected vehicles in association with other stakeholders, especially APMA, CATA, and Industry Canada.

• Reach out to other key stakeholders in this space, especially those that ITS Canada has not engaged in the past: Industry Canada, the wireless carriers, technology companies such as QNX, and the Canadian Advanced Technology Alliance (CATA).

• Reach out to GM Canada and develop a working relationship.

**What can the CVTC contribute towards overcoming the obstacles of driver distraction?**

Driver distraction must be removed from the road network, to the degree possible, and CV technology that avoids driver distraction should be favored. CV technology on its own has the danger of adding to driver distraction. There is a fine balance to be found here – the CVTC could encourage research into the driver distraction problem for the Canadian context and seek to provide guidelines on acceptable levels of required driver interaction with the CV systems.

Ultimately, the issue of driver distraction will be reduced when fully automated trip management for vehicles becomes a reality. The user will simply set the trip parameters, and the system will operate the vehicle without further user intervention.

In the shorter term, the CVTC can implement an expressway traffic optimization technology that guides individual drivers in real time, to use best headways for fast, safe, smooth traffic performance. This will provide the evolutionary path to the fully automated trip.

The CVTC will outreach to driver education programs via organizations like the CAA who have already expressed interest), in order to stimulate driver education about how drivers can safely take advantage of Connected Vehicle Technologies. While the CVTC may not provide the course content on CV, the point is to influence educators to teach drivers how to operate vehicles safely in a CV world.

For example, drivers should be aware of how today’s cars and aftermarket navigation devices support voice commands for hands-free, low distraction, information exchange. Typical driver activities made possible by Connected Vehicles and safer through voice commands include: Making phone calls, choosing music, listening to text messages and Twitter updates, perform web searches, get directions, get weather reports and stock quotes, search for fuel prices at nearby stations, locate restaurants and other points of interests, get traffic updates, find the fastest route to a destination, dictate and send text messages.
**Connected Vehicles in the Long Term**

CV technology is an obvious bridge to driverless vehicles and then synergizes with it to create what is potentially the safest and most efficient way to travel in a vehicle on the road. The driverless vehicle, in theory, requires no change to existing infrastructure as it self-drives, but gains considerable benefit from the CV Safety systems. All occupants of the vehicle are then free to benefit from CV infotainment etc.

**History of the Connected Vehicle Technical Committee**

The Intelligent Transportation Systems Society of Canada (ITS Canada) was incorporated in June 1997 as a non-profit professional society. It is the chief focal point for advancing ITS technologies and practices in Canada. Prior to incorporation, ITS Canada was the former Intelligent Vehicle-Highway Systems (IVHS) Roundtable of the Transportation Association of Canada (TAC). The Roundtable was a small but dedicated group of ITS professionals that had operated since the early 1990s under the aegis of TAC’s former Research and Development Council.

ITS Canada has evolved into an inclusive and growing national non-profit association. Operations are funded by members’ dues, events and initiatives related to the Society’s vision, mission and values. The Society has the broad support of key public sector agencies representing the federal, provincial and municipal governments in Canada, as well as the corporate sector. Membership consists of corporations, public organizations, academic institutions and interested individuals. The Society is led by a 16-member Board of Directors, elected from among the members.

The mission of ITS Canada is to lead the promotion and advancement of intelligent transportation systems and services to benefit Canadians. Our vision is to see a world where Canadian expertise in intelligent transportation research, technology and enterprise is seen by Canada and the world as moving people and goods more safely, efficiently and sustainably than ever before.

Mid-way through the three year strategic plan of ITS Canada, the Board commissioned a task force to review the services offered to members. The task force came back to the Board in December of 2011 with recommendations, which included the creation of 5 technical committees to engage interested members, and further enhance the development and deployment of intelligent transportation systems. The Connected Vehicle Committee, an ad hoc committee set up a year before, was the best practices example that led to the decision.

The Connected Vehicle Technical Committee was formalized at the February 2012 Board Meeting, and its Chair, Paul Manuel, installed. A number of teleconferences have already been held with a view to completing an initial Strategic Plan for the Committee. The response has been exceptional, with over 25 members of the committee active. This document is the result of that initial task. The plan will be used as a basis for the Strategic Planning of the Board, as applicable.
Major Accomplishments of the Past

Pioneering efforts of the prior Technical Vehicle Committee and certain individuals resulted in the development of an excellent but underutilized connectedvehicle.ca website. The CV forum held at the Vancouver ACGM in 2011 demonstrated ongoing interest in this subject. A special panel on CV will be the culminating event of the 2012 ACGM in Quebec. These events have helped develop the interest of ITS Canada members, resulting in more than 30 registered participants for the current CVTC (as at June 2012).

Present Situation:

People are still getting injured and killed on the roads at unacceptably high levels. CV technology has the potential to significantly reduce this injury and the consequential societal impacts and costs. If road collision injuries were a medical condition then it would be considered an epidemic – we should therefore be motivated to deal with it in the same manner that we would for a medical epidemic.

Mission Statement:

[Proposed] The Mission of the CVTC is to encourage appropriate deployment and use of CV technology in Canada in order to improve roadway efficiencies. Our effectiveness will be measured by the number of activities we undertake in this mission.

[Proposed] The Mission of the CVTC is to significantly reduce the number of injured and killed on our roads by promoting the use of CV technology.

Narrative Definition of the Mission

ITS Canada crosses the gap between the road safety professionals, ITS technologists and transportation organizations and is best placed to promote the use of CV for effective operation on the road network. The mission of the Connected Vehicle Technical Committee will be achieved by monitoring technical and market developments in the Connected Vehicle space on behalf of ITS Canada, to promote the use of CV to reduce traffic congestions, accidents, and fatalities and to provide general guidance to the Board and members of ITS Canada, particularly public agencies.
Boundary Clarification:

In support of the CVTC mission, the ITS Canada Board and staff will assist and provide feedback to the CVTC Chairman. Additionally, the Board will consider (and where appropriate provide) funding to ensure the effectiveness of the CVTC.

Vision

CVTC has an important role in preparing the way for CV technology deployments. Public road network operators and policymakers, law-makers and regulatory and standards bodies need prior warning to prepare the way for this tidal wave of technology that will result in a paradigm shift in how we do road transportation.

Strategies- Methods of Service:

The CVTC will partner with relevant organizations to accomplish our goals. As identified in earlier parts of this document, we are considering working with APMA and CAA towards the achievement of our mission. We should partner with the Canadian Association of Road Safety Professionals (CARSP) as they are the ones to help understand the road safety aspects that CV will deliver. The desired effect of CVs on road safety will easily be measured in the road safety stats – those municipalities piloting CV tech should be encouraged to commission their own safety research to monitor safety stats in advance of trials – so we should engage CARSP in advance for advice and assistance setting up links/relationships.

Marketing Plan:

We need to start advocating CV to policy makers, law-makers and transportation service operators so that the uptake is as rapid is possible once the systems are ready. We will do this through networking in the industry, developing educational materials, speaking with media and advocating where opportunities arise.

The CVTC will request support from the ITSC Board for a marketing communications plan that includes:

- Basic Messaging for the CVTC
- Identification of audiences
• Identification of Venues
• Action Plans eg delivery of messages by CVTC members, by ITS Canada through the potential use of PR firm or government relations experts.
• Tracking of Progress
• Defining Opportunities for Improvement
Goals and Objectives

[Identify no more than three CVTC goals. Goals should be broad but measurable. Goal themes will be the same for board and staff. [Must be in line with Goals of ITS Canada]]

The CVTC Committee has established several key objectives to align with the overall objectives of ITS Canada as follows:

1. Develop a Connected Vehicle tactical plan for ITS Canada
   • The tactical plan would include a detailed plan on activities that would promote Connected Vehicle within ITS Canada and platform our efforts to the broader public.

2. Facilitate a Connected Vehicle summit
   • Conduct a summit that will gather academics, industry experts, policy makers, and other stakeholders who have a vested interest in the mission of the Connected Vehicle Technical Committee. The outcome of this summit should be published in the annual ITS Canada reports or news summarizing the themes of the summit, actions and commitments.

3. Stimulate Connected Vehicle Workshops
   • Create a forum for stimulated discussions about Connected Vehicles and technology and meet semi-annually or annually to meet the interested parties. The workshops should be the forum for the parties interested in Connected Vehicle to have wider discussions. The workshop should have clear objectives and agenda so that the discussions can be steered so that there are targeted achievements.

4. Develop publications and articles about Connected Vehicles that could be used for Canadian advocacy activities
   • CVTC team should identify 1 or 2 areas within Connected Vehicle that would be of interest to ITS Canada, Transport Canada and those practicing in the transportation sector.

5. Stakeholder outreach

Committee Member Objectives:

[Objectives are specific ways in which you intend to achieve the goals and should answer; who, what, where, when and how questions.]
Board Objectives:
Objectives will answer the same questions above and will connect back to the same goal themes.

Success Measures

Definition of Success:
How will you know that you are having the desire impact? What are you measuring exactly?

Success can be measured in several ways:

- Tangible measurements through set up of bench marks
- Softer impacts such as publications, exposure to the public, working arrangements with industry and academics, etc

To determine success, there should be visible improvements in transportation and safety policy and Connected Vehicle technology needs should be addressed in the Ministerial platform.

Measurement Tools:
What tools or instruments will you use to measure success? What data based decision making plan do you have?

Continuous Quality Improvement:
What will our relevant processes be? Involve third parties for support?
Proposed Operating Budget of CVTC:

1. **Year one (second half of 2012)**: Expenses: $15,000  Revenues: $15,000+

   Basic Workshop on CV. Assume 60 participants @$250 each plus a few sponsorships.

2. **Year Two (2013)**: Expenses: $30,000  Revenues: $30,000

   Workshop and study TBD. Increased sponsorships. CVTC involvement in CV test bed.

3. **Year Three (2014)**: Expenses: $50,000  Revenues: $50,000

   Workshop and study TBD. Increased sponsorships. CVTC involvement in CV test bed.

Needed Support:

- Consultants
- Staff assistance for minutes, planning, doc writing, etc
- Marketing / Communications
- Private sector partners
- Public sector partners
Governance Terms of Reference

**ITS Canada Executive Committee:**
- Scott Stewart, Chair
- Kara John, Vice-Chair
- Bruce Zvaniga, Treasurer
- Tim Schnarr
- Michael Bailey
- Michael De Santis
- Steven Kemp

**ITS Canada Board Members:**
- Scott Stewart, Chair
- Kara John, Vice-Chair
- Bruce Zvaniga, Treasurer
- Tim Schnarr
- Michael Bailey
- Michael De Santis
- Steven Kemp
- Ross McKenzie
- Chris Ozeroff
- Bill Johnson
- Paul Manuel
- Mike Bailey
- Michael De Santis
- John Greenough
- Tim Schnarr
- Jeff Smart

**Technical Committee Chairs**
- Advanced Public Transit Technical Committee...Rajeev Roy
- Advanced Traveler Information Systems Committee...Gregg Loane
- Connected Vehicle Committee...Paul Manuel
- Revenue Systems Committee...Rosa Rountree
- Advanced Traffic Management Systems Committee...Patrick Livolsi/Roger Browne
**Staff:**

- Carl Kuhnke, Executive Director
- Janneke Poelking, Administrator

**Marketing Tools**

Bios of Committee members (Opt in basis) to be added.

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