Road Safety in British Columbia

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Ministry of Public Safety and Solicitor General
Road Safety in North America
Impact of the Problem

Each year in British Columbia:

- Road crashes on average kill 424 people each year in British Columbia and injure thousands with approximately 4,000 injured seriously enough to require at least one night in hospital.
- Road crashes are the leading cause of Injury induced death among British Columbians of all ages.
- Road crashes are one of the leading causes of lost years of life.
Impact on Vulnerable Road Users

- In 2007 in British Columbia one out of every three road users killed was a vulnerable road user
  - 74 pedestrians
  - 10 cyclists
  - 48 motorcyclists
  Total: 132 fatalities

- VRU’s have little or no protection in the event of a crash

- VRU fatalities and injuries would decrease if:
  - Speeds of motorized vehicles were reduced;
  - VRU’s were more visible; and
  - Roadway design better considered their needs.
The Economic Impact of Road Crashes

- Each Fatality: $13.6 Million
- Each Major injury: $280,000
- Each Minor injury: $48,000
- Each Minimal injury: $18,000
1.2 MILLION PEOPLE WILL DIE THIS YEAR AS A RESULT OF ROAD CRASHES – MORE THAN 3200 DEATHS EACH DAY.
ROAD SAFETY IS NO ACCIDENT.
WWW.WHO.ORG/VIOLENCE_MOTOR_PREVENTION
The United Nations General Assembly has Passed Eight Resolutions on Road Safety since 1966

The most recent, 2008, resolution begins by Underlining the importance for Member States to continue using the World Report on Road Traffic Injury Prevention as a framework for road safety efforts and implementing its recommendations by paying particular attention to five of the main risk factors identified, namely, the non-use of safety belts and child restraints, the non-use of helmets, drinking and driving, inappropriate and excessive speed and the lack of appropriate infrastructure, and by paying particular attention also to the needs of vulnerable road users such as pedestrians, cyclists and motorcyclists, and users of public transport, and improving post-crash care for victims of road crashes.
Road Safety – Changing Views

OUTDATED VIEW
Road crashes are simply unfortunate accidents that just happen and there is little we can do

MODERN VIEW
Road crashes are system failures that can be managed and reduced in systematic ways
The Opportunity

Cross jurisdictional comparison
Safety Performance Indicators

The following SPIs will be compared

- Speed related fatalities
- Alcohol impaired fatalities
- Motorcycle fatalities
- Pedestrian fatalities
- Vehicle occupant fatalities
Motor Vehicle Fatalities where speed was a contributing factor

- **Austria**

- **The Netherlands**

- **Germany**

- **British Columbia**
Automated Enforcement
Speeding sanctions

- **Swift** – France and the Netherlands have reduced the period between detection and sanction

- **Automatic licence suspension** – France, NSW, Denmark, Japan and Ontario

- **Criminal Offence**: Japan (40 km/hr) and France (repeat offenders)
Runter Vom Gas!
Success in France
Motor vehicle fatalities where alcohol was a contributing factor

Japan

Australia

Germany

British Columbia
Detection

- Mandatory alcohol testing to all vehicle drivers involved in an injury accident
- Random alcohol screening, any driver, anytime in the Netherlands, Australia, Sweden and Switzerland
- Alcohol testing for drivers stopped for other traffic offence (speeding, seat belt use, …)
Maximum sanctions and Penalties for BAC over 0.05 – 0.08 for a first offence

- **Japan**: 3 years in jail and 300,000 yen (equivalent to $3400)
- **Netherlands**: The police issue a fine, approximately € 220
- **Germany**: 500 euros (approximately $770 Can) and up to 3 months driving suspension
- **New South Wales**: BAC .05-0.08 $1100 fine and 3-6 months driving suspension
- **B.C.**: 3 day license suspension, 3 day Vehicle Impoundment, and $450 (increase for subsequent offences)
BAC over 80 mg first offence

- **Japan**
  - 3 years in jail and 300,000 yen (equivalent to $3400)

- **Netherlands**
  - 300 euros and 6 months disqualification
  - 42 hours task, 21 days
  - imprisonment + 18 months disqualification (depending on BAC)

- **Germany**
  - 500 euros (approximately $770 Can) and up to 3 months driving suspension

- **New South Wales**
  - $2200 fine and 6 - unlimited months driving suspension, 9 months in jail

- **B.C.**
  - $3750, 90 day driving suspension, and 30 day VI (doesn’t include criminal code conviction)
Programs

- Intensive publicity campaigns
- Education and Rehabilitation
- Alcohol interlock

How much will your next drink cost you?
Motorcycles
British Columbia motorcycle fatalities
Japan motorcycle fatalities
<table>
<thead>
<tr>
<th>Licence to obtain desired</th>
<th>Already obtained a licence</th>
<th>Skills training hours</th>
<th>Department training time</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT motorcycle licence only (Can ride any size of motorcycle)</td>
<td>None</td>
<td>29</td>
<td>26</td>
</tr>
<tr>
<td>Must be at least 17 years old and 10 months</td>
<td>Driver's licence (4 wheel)</td>
<td>24</td>
<td>1</td>
</tr>
<tr>
<td>AT small motorcycle driver licence only</td>
<td>AT small motorcycle driver licence only</td>
<td>18</td>
<td>0</td>
</tr>
<tr>
<td>Only a small motorcycle driver licence</td>
<td>17</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Motorcycle driver licence</td>
<td>Ten</td>
<td>0</td>
</tr>
<tr>
<td>Motorcycle driver licence AT Limited</td>
<td>Nine</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Motorcycle driver licence (subject to 400 cc or smaller)</td>
<td>None</td>
<td>Fifteen</td>
<td>26</td>
</tr>
<tr>
<td>Must be at least 15 years old and 10 months</td>
<td>Driver's licence (4 wheel)</td>
<td>13</td>
<td>1</td>
</tr>
<tr>
<td>AT small motorcycle driver licence only (restricted to 125 cc or smaller)</td>
<td>None</td>
<td>Nine</td>
<td>26</td>
</tr>
<tr>
<td>Must be at least 15 years old and 10 months</td>
<td>Driver's licence (4 wheel)</td>
<td>8</td>
<td>1</td>
</tr>
</tbody>
</table>
Pedestrians
Pedestrian fatalities

France

The United Kingdom

Sweden

British Columbia
Safety Measures

• Public Education
• Segregated pedestrian lanes
• Safer crosswalks
• Reduced Speed
• Right turn bans
Cross walks
Reduced speed limit

- Germany
- Australia
- The Netherlands
- Switzerland
- Sweden
- UK
Infrastructure

- Safe systems approach
- Traffic calming
Vehicle Occupants

- Improvement in vehicle occupant fatalities everywhere
- Improvements in vehicle safety standards
- Vehicle inspections
- Older vehicles
- Seatbelt reminders
Summary of progress

Rolling averages MV fatalities

- Austria
- Australia
- France
- Germany
- Japan
- Switzerland
- the Netherlands
- Denmark
- Sweden
- United Kingdom
- Canada
- British Columbia
- Ontario

- 1998-1996 average
- 2001-1999 average
- 2004-2002 average
- 2007-2005 average
There is a long list of proven road crash countermeasures that are simply not utilized or largely under-utilized (Dr. Narelle Haworth, Centre for Accident Research and Road Safety, Queensland University of Technology, Australia)
Further Fatality & Injury Reductions are Possible

“There is something of a hiatus between the production of scientific knowledge and the use that politicians and policy makers make of that knowledge. On the one hand, Dutch and Swedish research shows that the number of fatal casualties per year could be reduced by 65% in the Netherlands (Wegman, 2001) and even by 80% in Sweden and Norway (Elvik, 2003) by using the cost-effective measures that have already been researched.” (Wegman, SWOV Fact Sheet, January 2009)
Solutions

- Improving road safety is done by:
  - Making it a public priority;
  - Increasing public education and awareness in relation to it; and
  - Implementing a number of crash countermeasures working from the point of view that:
    - Crash countermeasures focus on the person, roadway and vehicle;
    - Crash countermeasures work to prevent crashes, reduce the impact on human trauma when crashes occur or do both; and
    - Human error will always exist and the unexpected will occur.
A Safe Systems Approach

- Enforcement of road rules
- Understanding crashes and risks
- Education and information
- Safe Roads and Roadside
  - Safe Vehicles
  - Safe Speeds
  - Human Tolerance to Physical Force

Leading to alert and compliant road users

Working to prevent crashes that result in serious injury or death

Admission to the system (e.g., licensing of vehicles and people)
Public Awareness

Public Awareness – direct and indirect benefits

Influence road user behaviours, e.g., public awareness campaigns can provide information about road crash contributing factors, the consequences of crashes and provide coping responses to prevent the problems.

Create support and demand for road user interventions, e.g. legislation, police enforcement, penalties, etc.

Create support and demand for policies and programs that ensure safer vehicles on the roads.

Create support and demand for road engineering and design-based measures, many of which are low cost.
Hit at 40 mph
There is an 80% chance I'll die.

Hit at 30 mph
There is an 80% chance I'll live.

It's 30 for a reason.
Speeding – What’s the big deal?

Speeding – everybody does it. It’s not a big deal.
Or is it? Look at the facts and then decide.

Just the facts
Speed is a factor in all fatal and serious injury crashes.
Each year 640 BC children are injured by vehicles as they walk or ride their bicycles. Eight children are killed.
What’s the connection to speeding? Simply put, the faster a vehicle is moving, the more damage it will cause.

How will your speed affect the outcome if you hit him?

Speed: 30 km/h
Outcome: 90 % chance of SURVIVING

Speed: 50 km/h
Outcome: 80% chance of BEING KILLED

30 % of BC’s traffic fatalities are vulnerable road users: pedestrians, cyclists and motorcycle riders.
The faster the vehicle is moving upon impact, the greater the chance the impact will be above the limits of human tolerance.

Do you know what’s around the corner? Can you predict when a child will run out onto the road in front of you?

Will you be able to stop in time?

Speeding – What’s the big deal?

Think you can stop on a dime? Think again.

Reaction time – Time required to see a situation, decide whether to react and then to put your foot on the brake pedal. It takes about 1 to 1.5 seconds to react. The faster your vehicle is moving, the farther it will travel during that 1 to 1.5 seconds.

Braking distance – Distance your vehicle travels from the time you apply the brakes to when your vehicle comes to a stop. The faster your vehicle is moving, the farther it will travel before it stops.

Reaction time + Braking distance = Total stopping distance

Total stopping distance – The faster your vehicle is moving, the greater the distance it will travel before stopping. And, the faster you are driving, the less likely you are to avoid a crash – no matter how good a driver you are.

What are the consequences of driving just 10 km/h faster?

<table>
<thead>
<tr>
<th>Speed (km/h)</th>
<th>Reaction Time</th>
<th>Braking Distance</th>
<th>Total Stopping Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>10</td>
<td>35</td>
<td>45</td>
</tr>
<tr>
<td>70</td>
<td>9</td>
<td>30</td>
<td>39</td>
</tr>
<tr>
<td>60</td>
<td>8</td>
<td>25</td>
<td>33</td>
</tr>
<tr>
<td>50</td>
<td>7</td>
<td>20</td>
<td>27</td>
</tr>
<tr>
<td>40</td>
<td>6</td>
<td>15</td>
<td>21</td>
</tr>
</tbody>
</table>

(Anti-lock brakes (ABS) allow you to brake and steer at the same time, but they don’t reduce your total stopping distance.)

Speeding – Is it really worth it?

- It doesn’t really get you there all that much quicker.
- You’ll spend more on gas.
- You risk fines and penalty points.
- And… you increase the risk for children and other vulnerable road users.

Your Local Police

BCAA Traffic Safety Foundation
www.bcaatsf.ca

This information is designed to assist general information only. Getting involved in personal legal or professional advice or be relied on in any intra or inter personal, medical, or legal advice. It is not intended, in any manner to, or other matters in the subsection.
Driver and Road User

- Public Awareness Campaigns Designed to:
  - Change individual road user behaviours; and
  - Change the way that road crashes are viewed and characterized and assist the public in understanding that road crash outcomes can be significantly reduced – will lead to even more support for changes
Proven Countermeasures

Road User

Enhanced Road Safety Legislation & Penalties
Reduced speed limits
Raising the minimum age of licensing
Raising the minimum age of drinking
Enforcement and intervention of problem drivers
Police enforcement of speed
Police enforcement of seat belts, child restraints & helmets
Police enforcement of impaired driving
Reducing BAC levels for all drivers
Driver licence suspension
Automated speed enforcement
Automated speed enforcement where there are pedestrian/vehicle mix especially children re: school and playground zones
Automated intersection violation enforcement
Graduated Licensing Programs
Hours of Service limits for motor carrier drivers
Safe Community Programs
Public awareness & education
Teaching children aged 5 – 16 on the right way to cross the street & cycling proficiency
Enhanced visibility of vulnerable road users
Legislation
Police Enforcement

4 Days + 13 Traffic Units = Lots of Bad Luck for Aggressive Drivers
Proven Countermeasures

Road Design

- Speed calming measures
- Separation of pedestrians and cyclists from motorized traffic
- Improved pedestrian crossings
- Environmental streets
- Grade-separated crossings for pedestrians
- Road safety audits
- Roundabouts
- Pedestrian only crossing lights
- Extending all red period
- Abolishing permission to turn right on red
- Variable message and feedback signs
- Intersection design & controls
- Improving sight distances
- Clear zones
- Rumble strips
- Lane width and shoulder width
- Guard rails and crash cushions
- Traffic/lane separation
- Controlled animal crossings and other measures
- Treated curves (signs, markings, painted barriers)
- Road lighting
- Deformable lamp posts
- Treatments at train level crossings
Advanced Greens, PUFFINS & Pedestrian Islands
Splitter Islands
Urban/Rural Speed Thresholds or Gateways
Raised Intersections & Raised Pedestrian Crossings
Proven Countermeasures

Vehicle

- Increasing the scope of application of the Canadian Motor Vehicle Safety Act - applying standards to vehicles to 25 years old

- Further evolving standards in the Canadian Motor Vehicle Safety Act in many areas including vehicle/vehicle crash compatibility, new applications of intelligent transport systems and other enhancements

- Adopting pedestrian protection for Canadian vehicles

- Regulating after-market modifications

- Examining ways to reduce crash involvement of older vehicles
The European Commission has stated that if all cars were designed to be equal in standard to the best car currently available in each class, then an estimated 50 per cent of all fatal and disabling injuries could be avoided.

A vast number of scientific studies have proven that significant reductions in motor vehicle fatalities and injuries can result from improved vehicle design. In fact, research conducted in the UK found that the greatest contribution to motor vehicle fatality reduction between 1980 and 1996 was the result of improved vehicle safety standards.

Similarly, research from the United States suggests that fatality reduction since the mid 1990s in the United States is predominately due to the improved safety of the vehicle fleet.
Passive pedestrian protection

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Vehicles Not Road Worthy, Not Meeting Canada’s Safety Standards or Subject to After-Market Modifications
A 2007 poll conducted by EKOS Research Associates asked Canadian drivers about how concerned they were about a number of broad societal issues (e.g., national security, global warming, the state of the economy) to get a sense of where road safety registers as a public concern. Road Safety registered as the fourth top concern:

- The price of gas at the pump
- The state of the health care system
- Climate Change/Global Warming
- The safety of road travel
- The state of the economy
- National security/risk of terrorist attacks
- Crime in their community
- The safety of air travel

54 per cent of Canadians polled were concerned about road travel and another 23 per cent somewhat concerned
Summary

- Road safety related human trauma represents a leading public safety and public health problem.

- There are multiple and varied solutions to the problem, many proven and relatively low cost crash countermeasures that are not implemented or are grossly under-implemented. It is possible to make much further progress in reducing human trauma from road crashes - solutions include the driver, road design and vehicle standards.

- Increasingly road safety is being viewed in an entirely different way: as an issue that can be managed by making the overall system safer and less dangerous. We have to design systems so that normal human error and “the unexpected” can occur without necessarily killing or seriously injuring road users.

- For these reasons only a multi-sector or partnership approach can achieve significant reductions to human trauma from road crashes. At the same time responsibility for the system belongs to the state for ownership and accountability.

- Many jurisdictions throughout the world have and continue to achieve significant reductions in the level of human trauma from road crashes.

- Public awareness initiatives can achieve both behavioural changes and enhanced public support and demand for solutions that involve the road user, the roadway and the vehicle.

- Road safety is viewed as a significant issue by the public.