Report on Motor Vehicle Crashes in Northern BC

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About This Report

This Report is a collaborative document in which data from a variety of agencies with overlapping mandates and geographical jurisdictions has been brought together to help paint a picture of the Motor Vehicle Crash issue in Northern BC. It is in no way intended to be the definitive document in relation to this important topic. Rather, it is intended as a starting point for discussion and action by agencies, governments and citizens who share the goal of reducing injuries and deaths on Northern roads.

Each of the data sources we have used has its inherent limitations and is restricted to those events that are reported. As an example, many crashes that occur, either because they are "minor" or because they occur on a bush road, may not be reported at all. Additionally, the reasons for collecting information will have a bearing on the number of events reported; for example, reporting crashes to ICBC for the purposes of insurance claims may capture more events than reporting to the RCMP where people may be motivated to avoid detection.

In some cases the numbers in this report will not "add up" reflecting the differing mandates and geographical boundaries within which they were collected.

Nevertheless, we feel there is value in bringing this data together on this important issue. The recommendations at the end represent directions that are based on the contents of the Report and on the expertise of the individuals who have worked together on it. They should not be seen as the end point of comprehensive and detailed work, but rather as reasonable points of departure for the detailed and specific work that still needs to be done.

We would like to dedicate the Report to the memory of friends and families that have been lost to Motor Vehicle Crashes and to the hope that fewer and fewer will die preventable deaths on Northern Roads.
Foreword –At the Crossroads

People living in Northern BC are two and a half times more likely to die in a Motor Vehicle Crash than are their counterparts across the province. This translates into about 70 deaths a year within the Northern Health Authority or 46 more than the “expected” number. The majority of these deaths are to young people and people in the prime of their lives. By contrast the total number of deaths attributable to SARS in all of Canada was 41 and the number of deaths from West Nile Virus in 2004 was 24. Imagine a fully loaded 747 airliner crashing into BC Place stadium killing all on board and injuring everyone in the stadium. That is what Motor Vehicle crashes do in BC every year.

Surprisingly, while we respond vigorously to communicable disease threats such as West Nile Virus, SARS, or meningitis, we have not really addressed Motor Vehicle Crashes as a health issue with a high potential for prevention. We treat the victims in our offices, emergency departments and hospitals, and while there are many good examples of projects and initiatives that seek to make drivers and roads safer, most people accept the significant risks of driving in the North with the kind of fatalism that is captured by the word “accident”.

This report documents the impact of MVC’s in terms of lives and dollars, and, just as importantly, in terms of the untold impact on families and communities where the loss of sons and daughters resonates for years and across generations. It also talks about community development and the evidence that tells us that, while no one agency or sector holds a cure, individuals, groups, agencies and governments working together can and will make a difference. Jim Playfair, the assistant coach of the Calgary Flames, spoke at the Truck Safe Summit in Prince George this past June, and talked about the philosophy that took a no-name team to the 7th game of the Stanley Cup finals..."We decide who wins".

Motor Vehicle Crashes are preventable. We as health professionals, road safety agencies, professional drivers and citizens, can decide to work together to prevent them. It is not unrealistic to expect that we will see a 30% reduction in MVC mortality and morbidity in the North by the time the Winter Olympic Games take place in BC in 2010. That means 18 fewer deaths each year. This Report will serve as a baseline to measure our progress toward that goal.
Northern BC is at a crossroads in many ways. We can expect ever increasing volumes of commercial traffic as economic development proceeds. Our growing and aging population will continue to share the highways with all of this traffic. The “endemic epidemic” of Motor Vehicle Crashes in the North could get worse. But we can design and build a healthier outlook than that and we can choose a healthier road. It is my expectation and hope that this Report, the newly developed Northern Motor Vehicle Crash Reduction Task Force, The Crash Reduction Conference and the development of Community-based initiatives flowing out of the Conference will be signposts that mark a significant change in the way we think about our roads, our risks, and what it might take to make the safe return of our family and friends more certain when they venture out on Northern Roads.

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PGRH Emergency Dept      Vital Statistics BC
First Nations and Inuit Health Branch Ministry of Health
Public Health

Road traffic injuries are a major but neglected public health problem, requiring concerted efforts for sustainable and effective prevention ~WHO 2004

Shared Responsibility

No one agency or sector holds a cure, but individuals, groups, agencies and governments working together can and will make a difference.
~ David Bowering, CMO, NHA

“RoadHealth”

Northern Health’s crash reduction campaign 2005-2010. Our goal is a 30% reduction in deaths and injuries due to motor vehicle crashes by 2010.

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Introduction - Road Safety is a Public Health Issue

What is “public health”?

The World Health Organization defines health positively as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity". Public health is the approach to medicine that is concerned with the health of the community as a whole. Public health is community health. It has been said that: "Health care is vital to all of us some of the time, but public health is vital to all of us all of the time."

While public health involves many professional disciplines such as medicine, dentistry, nursing, optometry, nutrition, social work, environmental sciences, health education, health services administration, and the behavioral sciences, its activities focus on entire populations rather than on individual patients.

The BC Ministry of Health has established a framework for the Core Functions of Public Health consisting of four Core Programs and Four Public Health Strategies:

Programs:

Health Improvement
Disease, Injury, and Disability Prevention
Environmental Health
Health Emergency Management

Strategies:

Health Promotion
Health Protection
Preventive Interventions
Health Assessment and Disease Surveillance

It isn’t difficult to imagine how these programs and strategies can and should be applied to the problem of motor vehicle crashes.
If the overall mission of public health is to “fulfill society’s interest in assuring conditions in which people can be healthy”, working together across the North to reduce the incidence of death and injury due to motor vehicle crashes should be a public health priority. Northern Health has clearly recognized this and, in consultation with individuals and communities in the North, has included the goal of reducing injuries and deaths from Motor Vehicle Crashes in its Strategic Plan.

How does road safety link to public health?

Motor vehicle crashes are the cause of more than 30% of deaths due to external causes in the North, and eat up more 20% than of NH’s total direct health care costs. Motor vehicle crashes are our leading single cause of death from unintentional injuries. And they are preventable. For many years the RCMP, the Insurance Corporation of BC (ICBC) and Worksafe BC(formerly the WCB) have been making substantial efforts to improve road safety and reduce the number of crashes, as well as campaigning to reduce the severity of injuries occurring in crashes. Utilizing a combination of education, enforcement and engineering, these efforts have had positive results – fewer people dead and injured. Indeed, motor vehicle safety has been listed as second among the top 10 public health achievements of the 20th century:

Improvements in motor-vehicle safety have resulted from engineering efforts to make both vehicles and highways safer, and from successful efforts to change personal behavior (e.g., increased use of safety belts, child safety seats, and motorcycle helmets and decreased drinking and driving). These efforts have contributed to large reductions in motor-vehicle-related deaths.2

However, as positive as that reduction has been, here in northern BC age adjusted injury and death rates from motor vehicle crashes are still more than double those of the rest of the province. At least weekly we hear of yet another fatal crash on northern roads. Most of these are caused by poor

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Did you know?

Driving for 17 hours in a day produces the same level of impairment as a .05 blood alcohol reading.

~New England Journal of Medicine, Sept, 1997
choices made by drivers: consumption of alcohol or drugs, excessive speed, failure to wear seatbelts and fatigue.

Environmental conditions such as weather and road conditions also contribute as does mechanical failure in poorly maintained vehicles. In the coming years the north will be faced with a 48% increase in elderly drivers, whose reaction times, vision and other health issues may impair their abilities.

Road Health

Road safety speaks to reducing the overall number of crashes, and reducing the numbers of deaths and injuries resulting from those crashes. But there is a more comprehensive approach to road safety – “road health”. Many drivers, particularly commercial drivers, suffer from other health related issues that may impair their ability to make safe driving decisions: fatigue, lack of exercise, improper diet, chronic disease, and so on. Factors like too many hours on the road in a stretch, use of stimulants to stay awake, eating junk food to stay awake, too much sitting in one position, and others, contribute to poor driver health, over and above any personal medical issues the driver might have.

Road health is about more than getting there safely – it’s about being healthy and making healthy choices both on and off the road. It is the recognition that the people travelling on our roads constitute a kind of community. Just as is the case in a traditional community structure, policy decisions made by those who govern have an effect on safety; the environment and design factors have an effect on safety; the choices that individuals make, whether healthy or not, have an effect on safety; and, the attitude that people take with respect to their own health and the health of their community, has an effect on safety. And, as in any community, the people who form the community of road users can work together to make their community healthier and, as a consequence, safer.
Who are “road users”?  
The roads are shared by all users – private and motor vehicles, public transportation, cyclists and pedestrians. All road users share the responsibility for road safety, not just drivers.
Background

The Cost of Unintentional Injuries in Canada

The economic and social consequences of road crashes in Canada are profound - estimated to be $25 billion a year. This figure includes not only the direct and indirect costs but the estimated costs of pain and suffering.

*The Economic Burden of Unintentional Injury in Canada* estimates that the total annual cost of unintentional injuries in Canada is $8.7 billion dollars. More than $4.2 billion of the total is in direct cost to the health care system. Approximately $4.5 billion is the indirect cost of loss of productivity due to impairment, disability and premature death.

Direct Costs

Over 2 million preventable injuries in 1995 accounted for more than $4.2 billion in direct health care costs in Canada. Motor vehicle crashes contributed 9% or $375 million of these direct costs.

Indirect Costs

The 54,913 preventable injuries that led to permanent disability or death amount to $4.5 billion in indirect costs. Permanent disability causes the greatest losses in productivity, amounting to more than $2.7 billion or 60 per cent of indirect costs. Injuries causing death accounted for $1.8 billion.

Motor vehicle crashes causing permanent disability cost $329 million or 12 per cent of the $2.7 billion. With $8.7 billion being spent on injuries every year, Canadians have every financial incentive to take preventive action.

Injury Prevention Cuts Costs

How much money could injury prevention programs save Canadians? The following cost-cutting strategies illustrate how targeting the most costly causes of injury combined with the most vulnerable
population groups can generate real savings to Canadians.

Preventing motor vehicle crash injuries and fatalities

Wearing seat belts and installing air bags can reduce motor vehicle injuries by 61 per cent. It is estimated that mortality can be reduced by 20 per cent through a reduction in drunk driving. Reducing speed limits by 10 km an hour could lead to a 15 per cent decrease in mortality, with a corresponding reduction in severe injuries.

A 10 per cent reduction in crashes could be achieved by improving road design and maintenance. Based on this assumption there would be 1,100 fewer deaths each year. Buckling up, driving sober, slowing down and looking first on the roads could lead to 2,800 fewer hospitalizations, 19,000 fewer injuries treated outside a hospital setting and over 750 fewer injuries leading to permanent disability. The net savings to Canadians would amount to over $500 million annually.  

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**Did you know?**

It is estimated that every child safety seat saves $1620 in direct medical costs and other costs. Every bicycle helmet saves $474 in direct medical costs and other costs.

~Washington State Health Department, 2002
Hospitalization Rates due to Motor Vehicle Crashes

Age Standardized hospitalization due to motor vehicle crashers per 100,000 persons
Source: Morbidity Database – acquired through the Health Data Warehouse; Average yearly rates 1991 – 2001

The red line reflects the BC average rate for hospitalization due to motor vehicle crashes. The northern region’s rate is significantly higher than the provincial average.

Motor Vehicle crashes cost not only the health care system, but also cost each driver in increased insurance premiums, each business in increased WCB premiums, and society at large with losses in productivity and potential years of life.
Note: this table refers only to the cost of automobile insurance claims and does not include other costs. As well, ICBC is not the sole automobile insurer in the province, and claims covered by private insurers are not reflected on the above graph.
The area covered by Northern Health is shaded green in the map above. However, ICBC, RCMP and WCB’s “north” regions begin slightly south of NH’s, at 100 Mile House, rather than in Quesnel. For the purposes of this Report, statistics from ICBC and WCB will be inclusive of their respective area boundaries... Data from the BC Coroner’s Service “North District” includes the area from Williams Lake north. While data from similar but not identical regions is useful in depicting the issue of MVC’s in the North, precise comparisons between the data sets may not always be possible.

Northern Health’s boundaries cover 63% of the geography of British Columbia, with over 153,000 kms of roadway. Within the NH boundaries are four Ministry of Highways Districts – Fort George, Peace, Bulkley-Stikine, and Skeena.
Northern BC Roads

Roads in Northern BC fall under many classifications and jurisdictions; provincial highways, municipal roads, city streets, forest service roads, resource roads, and private roads, each with differing levels of maintenance requirements and policing.

Sharing these roads, and the uses they are put to, is a major issue. Roads designed for resource use to haul industrial materials and machines quickly become new exploration avenues for RV users, ATV users, snowmobilers, fishers and hunters, creating congestion and risk. Most resource roads are radio controlled, and industry has established road safety policies, albeit inconsistently. Commercial/industrial drivers carry radios and are skilled at negotiating resource roads. However, many private motorists are not used to the rough conditions or sharing the roads with huge industrial vehicles, and may not be equipped properly to be on them. Multiple uses and users of resource roads greatly increase the risk of crashes.

Maintenance

As well, the increasingly heavy use of public roads by industry has exacerbated the breakdown of BC’s aging roads. The Ministry of Transportation & Highways estimates it now spends 30-40% of its annual budget to upgrade public roads for industry, and is under increasing pressure to bring main feeder roads up to year-round industrial capability, which would eliminate the weight restrictions normally faced in the spring resulting from “break up”.

Jurisdictional issues

Another challenge around northern BC roads is jurisdiction- whose responsibility is road maintenance? So-called “bush” roads, which are gravel roads built for forest harvesting, are under the jurisdiction of the Ministry of Forests, and maintenance is the responsibility of the licensee (the company harvesting the timber). The Ministry of Highways has no responsibility for those roads, nor are they patrolled by police.
Northern Highways Districts

- **Bulkley-Stikine Highways District**
  - 1520 kms hard surface road
  - 1610 kms gravel surface
  - 256 structures (bridges, etc)
  - 24 rest areas

- **Skeena Highways District**
  - 672 kms hard surface road
  - 253 kms gravel surface
  - 178 structures (bridges, etc)
  - 5 rest areas

- **Fort George Highways District**
  - 3475 kms hard surface road
  - 4156 kms gravel surface
  - 197 structures (bridges, etc)
  - 35 rest areas

- **Peace Highways District**
  - 4768 kms hard surface road
  - 7984 kms gravel surface
  - 295 structures (bridges, etc)
  - 6 rest areas
There’s no such thing as an “accident”

For the purpose of this report, and the associated Motor Vehicle Crash Reduction Task Force and “RoadHealth” campaign, the word “crash” will be used, rather than “accident”.

There are no such things as an “accident”. [Canadians] do not see the risk in their everyday lives. If they do not see the risk, they cannot take measures to navigate that risk in order to prevent potential injury.

Why can’t Canadians see the risk in their lives? The problem stems from a universal misunderstanding and misuse of the word ‘accident.’ Injuries sustained by falls or motor vehicle crashes are not seen as the result of predictable events but rather the result of ‘accidents’ or ‘acts of fate’. Yet when someone suffers from heart disease or cancer, high cholesterol and smoking are identified as the predictable causes. It is time to acknowledge that injuries are predictable and preventable. Injuries are not accidents, and investing in injury prevention can save money and lives [italics mine].

- SmartRisk Foundation, 2004

Other sources also discuss the psychological implications of using the word “accident” rather than “crash”:

The opportunities to reduce harm will increase if we keep uppermost in our thinking that “the fault … is not in our stars, but in ourselves”.  

-British Medical Journal

Crashes are preventable. Many factors contribute to crashes occurring, but they, too, are largely preventable by making good behavioral choices – observing the rules of the road, driving at a safe speed, not consuming drugs or alcohol prior to driving, getting enough rest, having proper tires,
etc. The risk from those factors over which a driver has no control, such as inclement weather, poor road conditions, unexpected appearance of wildlife, or dangers presented by other drivers can also be reduced with due care & attention.

“Everything is connected... no one thing can change by itself.”

- Nelson Mandela, “The Long Road to Freedom”
Crash Data

How many fatal crashes do we have in the North?
While the numbers vary from year to year, the North consistently experiences more fatal crashes per capita than anywhere else in the province, by more than double, as illustrated in the graph below. Real numbers, over the past 10 years, indicate that while we have made some headway, it’s still unacceptable. Up to the end of September this year, the RCMP report 49 fatalities.

<table>
<thead>
<tr>
<th>Year</th>
<th>Deaths</th>
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<tbody>
<tr>
<td>1995</td>
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<td>92</td>
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<td>2003</td>
<td>79</td>
</tr>
<tr>
<td>2004</td>
<td>75</td>
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</tbody>
</table>

SOURCE: RCMP North District

The above graph indicates that with 1.0 being the BC average for crash mortality rates, all areas of the Northern Health region experience much higher fatality rates than the rest of the province. The Northeast Health Services Delivery Area (Peace-Liard area) is over 2.5 times the provincial average.
Potential Years of Life Lost

We know intuitively that Motor Vehicle crashes exact a heavy toll on younger members of the population. Every community in Northern BC has been devastated by this toll. In fact, in British Columbia MVCs are the leading cause of death for persons in the 10 - 24 yr. old age group (Source: BC Vital Statistics Annual Report 2002). We can quantify the impact of Motor Vehicle Crashes and other deaths on youth by using a set of statistics that incorporate the concept of Potential Years of Life Lost (PYLL).

**PYLL** is the number of years of life “lost” when a person dies before age 75. Thus if you die at age 50 you have lost 25 Potential Years of Life.

The **PYLLI** is the ratio of the *actual* number of years lost occurring to residents of a geographic area compared to the *expected* number of years lost. A PYLLI value greater than 1.00 (to the right of the red line) indicates that deaths for specific cause are claiming more years of potential life than would be expected. In the accompanying graph, the yellow stars indicate PYLLI values that are both statistically significant and high.

All areas of Northern Health and parts of the Interior Health Authority have values that are significantly higher than expected. People living in the Northeast of the province have the highest PYLLI values in British Columbia, indicating that Motor Vehicle Crashes are exacting a high toll in terms of potential years of life lost. In general, this means that the burden is experienced mostly by young people.

**PYLL by Health Service Delivery Area**
Between 1999 – 2003, there were 533 deaths as a result of motor vehicle crashes in the corridor running from the Thompson-Cariboo-Shuswap through to northern BC.

Over 90 % of these deaths occurred in persons less than 75 years of age. If one considers 75 years to be a reasonable estimate of life expectancy, these 533 deaths claimed 17,817 potential years of life. Males accounted for 72% of these deaths or 386 of the 533 deaths resulting from motor vehicle crashes.

Summary for the period 1999 – 2003:
Northwest HSDA:  68 deaths were the result of MVAs
Northern Interior HSDA:  158 deaths were the result of MVAs
Northeast HSDA:  79 deaths were the result of mVAs
Thompson Cariboo Shuswap:  225 deaths were the result of MVAs
Who is involved in crashes?

Motor vehicle crashes affect everyone living in the north. Some groups are particularly vulnerable, such as children & youth, First Nations, and forestry-based truckers. Males are more likely to be killed in a motor vehicle crash in every age group.
Children

Motor vehicle crashes (MVCs) are a leading cause of injury, death and hospitalization in children and youth. In children older than one year of age, MVCs are the leading cause of injury death.\(^{(1)}\)

In Canada in 1996, 543 \((6.8/100,000)\) children under age 20 died as a result of MVCs:

- Traffic mortality rates were highest among youth aged 15-19 years \((17.9/100,000)\).
- The traffic mortality rates were uniformly higher among boys than girls.
- Half of the MVC-related deaths involved motor vehicle occupants \((70.6\% \text{ of them were aged 15-19})\)
- 17.5\% of those who died were pedestrians \((33.7\% \text{ aged 5-9 and } 33.7\% \text{ aged 15-19}), 3.7\% \text{ of the motor vehicle deaths involved bicyclists (45.0\% \text{ of them were aged 10-14})}\)
- 3.7\% of those who died were motorcyclists all of whom were aged 15-19.\(^8\)

\(^8\) Health Surveillance Update on Canadian Children and Youth

1 in 4 crashes in which a child is killed is alcohol related. 68\% of children who died in alcohol related crashes were riding with drinking drivers. The average blood alcohol count (BAC) among these drivers was .13 (legal limit is .08)

For all child passenger deaths, child passenger restraint use decreases as both the child’s age and the BAC of the child’s driver increased. Only 32\% of children killed in crashes involving drinking drivers were restrained at the time of the crash.\(^9\)

Add to this the vulnerability of children walking or playing or riding their bicycles along roadways and it is easy to see how motorized vehicles threaten children’s safety.

\(^9\) Did you know?

1 in 4 crashes in which a child is killed are alcohol related. 68\% of children who died in alcohol related crashes were riding with drinking drivers, and the majority were not restrained by seatbelts or child safety seats.

- Journal of the American Medical Association, Feb 2004, p934
Youth

Youth are much more likely than other age groups to have serious injuries, especially in motor vehicle crashes. In fact, road crashes are the leading cause of death in youth. Not surprisingly, the risk of injury increases with behaviors such as driving after the use of drugs or alcohol.

- Only half of all BC youth (58%) report always wearing a seatbelt when driving or riding in a car (compared to a provincial average of 88%).
- 8% admit rarely or never wearing a seatbelt, and girls are more likely (57%) to wear a seatbelt all the time than boys (53%).

In the Adolescent Health Survey conducted by the McCreary Centre Society (survey of 25,838 high school students, aged 12-18), 16% of licensed youth drivers said they drove after using alcohol at least once in the past month. More than a third (41% of boys and 31% of girls) said they drove after drug or alcohol use at least once in their lives, and more than a fifth rode with a drinking driver once or more in the past month. Over 40% of Grade 12 drivers admitted that they have driven after alcohol use.10

Inexperience and excessive speed are also major contributing factors to the number of youth killed in crashes. Add to that mix our northern winter road conditions, the above mentioned use of alcohol and drugs, the resistance to wearing seatbelts, and the belief that “it won’t happen to me” (stage of psychological development), and you have a recipe for disaster.

Youth are bombarded with advertisements, publicity campaigns, school presentations, education programs, special speakers, and all kinds of messaging about drinking & driving, and seat belt use. Yet the evidence indicates that somehow the risks are not being taken seriously and personal application isn’t being made. Areas that need to be examined are role modeling by parents and other

Did you know?

Road crashes are the leading cause of death for persons age 10 to 24.

Source: Transport Canada - Child Injury Division, Health Protection Branch, Health Canada
drivers, young driver training and education, and how we communicate with and engage youth.

**Aboriginal Peoples**

Motor vehicle crashes, including snowmobile and ATV crashes, account for 40 per cent of unintentional injury fatalities among Aboriginal people. In Canada as a whole, automobile-related deaths in Aboriginal people are several times higher than in the general population.

Motor Vehicle Crashes are a major contributor to the relatively poor health status and lower life expectancies experienced by Aboriginal people in BC. While the determinants of health such as income and education and social control clearly underlie health outcomes including, motor vehicle injuries and deaths, some factors more specific to the North are worth considering.

**Distance from health care facilities & urban centres**

In common with other Northerners, Aboriginal people often have to drive long distances to carry out daily and weekly activities and when crashes do occur, they are likely to be at considerable remove from emergency response and treatment facilities.

**Off-road vehicle use**

Aboriginal people in parts of the North are also heavy users of vehicles like ATVs and skidoos. ATVs are dangerous because of their high centre of gravity, a design flaw that makes them roll over easily. Skidoo crashes are often caused by operation in unsafe ice and snow conditions and by the fact that skidoos are difficult to maneuver and to see when they are driven on public roads.

**Youth inexperience**

Younger aboriginal drivers, have the same increased risks as other young drivers such as inadequate driver training, driving and “partying”, speeding, and careless driving, but these risks can be exacerbated by isolation, poor road conditions and poverty which can be associated with poor vehicle maintenance and repair.

*Did you know?*

A recent study in British Columbia showed that Aboriginal peoples were 9.3 times more likely to die due to motor vehicle accident injuries than other residents of the province.
Alcohol
Alcohol also appears to play a major role. Young drivers, males in particular, are more likely to drive after consuming alcohol. The National Survey on Drinking and Driving reported that in fatal crashes involving young Aboriginal males, more than 80 per cent of the drivers had been drinking. Alcohol was also a significant factor in pedestrian deaths (68 per cent of the pedestrians and 28 per cent of the drivers had been drinking). The contribution of alcohol documented by these studies is twice as great as that seen for all Canadians (42 per cent in 1985).11

Isolation
The 63 First Nations communities of Northern BC are spread across a massive geographic area, and many are only accessible by resource roads, which are poorly maintained and rarely policed. Crashes involving wildlife are also more common on so-called “bush roads”. Inadequate vehicle maintenance is not only related to poverty but to the reality that many smaller, remote communities have no mechanical services available. Gravel and forest service roads are rough, and increase the likelihood of mechanical breakdown for all vehicles. It has been noted that on reserve especially, vehicles may be overloaded, seat belts a not utilized, and children not properly secured in child safety seats. Access to the nearest town which acts as a service centre to the First Nations community can be a challenge for many First Nations people who don’t own a reliable vehicle.

Men at Risk
Although there have been significant decreases in Motor Vehicle Crash deaths for both Status Indians and other populations BC during recent years, motor vehicle crashes remain the single largest cause of External death for both populations. Moreover, males are disproportionately represented in crash fatalities. In both populations, at both the provincial and local levels, males account for at least 2/3rds of Motor Vehicle crash fatalities. In British Columbia, from 1992 – 2002, for both Status Indians and other residents, two- thirds of Motor Vehicle Crash fatalities occurred in Males. (66.5% of Status Indian and 69.9% of other resident deaths).
Northwest: Status Indian persons:
Motor Vehicle Crashes were the 11th leading cause of death;
Claimed the lives of 46 people; 34 males and 12 females;
Lost 2,015 Potential Years of Life.
Age Standardized Mortality Rate = 2.0

Other residents in this area:
Motor Vehicle Crashes were the 12th leading cause of death;
Claimed the lives of 120 people; 98 males and 22 females;
Lost 5,166 Potential Years of Life.
Age Standardized Mortality Rate = 1.8

Northern Interior: Status Indian persons:
Motor Vehicle Crashes were the 4th leading cause of death;
Claimed the lives of 58 people; 37 males and 21 females;
Lost 2,400 Potential Years of Life.
Age Standardized Mortality Rate = 5.5

Other residents in this area:
Motor Vehicle Crashes were the 10th leading cause of death;
Claimed the lives of 298 people; 217 males and 81 females;
Lost 12,023 Potential Years of Life.
Age Standardized Mortality Rate = 2.1

Northeast Status Indian persons:
Motor Vehicle Crashes were the 2nd leading cause of death.
Claimed the lives of 29 people; 18 males and 11 females;
Lost 1,003 Potential Years of Life.
Age Standardized Mortality Rate = 9.4

Other residents in this area:
Motor Vehicle Crashes were the 9th leading cause of death.
Claimed the lives of 131 people; 105 males and 26 females;
Lost over 5,601 Potential Years of Life.
Age Standardized Mortality Rate = 2.1

Thompson- Cariboo- Shuswap Status Indian persons:
Motor Vehicle Crashes were the 3rd leading cause of death.
Claimed the lives of 98 people; 66 males and 32 females.
Lost 4,265 Potential Years of Life.
Age Standardized Mortality Rate = 5.8

Other residents in this area:
Motor Vehicle Crashes were the 9th leading cause of death.
Claimed the lives of 417 people; 294 males and 123 females;
Lost 15,825 Potential Years of Life.
Age Standardized Mortality Rate = 2.2

Motor Vehicle and Other Deaths as a Percentage of Deaths due to External Causes
North Central BC 1992 - 2002

Motor Vehicle crashes account for greater than 30% of deaths due to external causes in North Central British Columbia for both persons with Status and for the rest of area populations. The above data includes the Thompson-Cariboo-Shuswap Health Services Delivery Area.

Note:
Age Standardized Mortality Rates (ASMR) allow for direct comparison between populations with different age structures. The following graph notes Ages Standardized Mortality Rates for Motor Vehicle Fatalities, comparing Status Indian Persons and Other area residents over a 10 year span, from 1992-2002.
Age Standardized Mortality Rates for Motor Vehicle Fatalities by Health Service Delivery Area
Status Indian Persons and Other area residents
1992 - 2002


Age Standardized Mortality Rate (ASMR) per 10,000 population

For all areas in BC, the Status Indian ASMRs for Motor Vehicle crashes were higher than those for other residents in the same geographic area – The Northeast had the widest gap in rates and also the highest ASMR for Status Indians. Note: Age standardized mortality rates (ASMR), allow for direct comparison between populations with different age structures.

In the Northern Health Authority:

<table>
<thead>
<tr>
<th>Age Standardized Mortality Rates - MVTA 1991 - 1999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
</tr>
<tr>
<td>Status Indians</td>
</tr>
<tr>
<td>Rest of area</td>
</tr>
</tbody>
</table>

It is of interest, that the Northwest which has the highest proportion of Aboriginal people in BC (24% compared with the provincial average of 5.1%), has MVC mortality rates in Status Indians that are among the lowest.

- Status Indian Persons
- Other Northern Residents
- BC Residents Overall

Vulnerable Road Users

Cyclists

B.C. Facts (Source: Motor vehicle Branch)
• In 1993 there were 2,039 reportable bicycle accidents; 2,068 in 1994. (A bicycle crash involving a motor vehicle is reportable in British Columbia if it results in injury or death or aggregate property damage of $25 or more)

• In 1993 there were 1,916 cyclists injured and 10 fatalities; in 1994 there were 1,926 injured with 9 fatalities;

• Males represented 74% (1993) and 76% (1994) of those injured; and

• Males represented 90% (1993) and 80% (1994) of cyclist fatalities.

Major contributing Factors
Historically, most fatal accidents have occurred in clear, dry, and daylight conditions in the spring or summer months. Most notably, 8 of the 10 cyclists killed in 1993 were not wearing bicycle helmets. In 1994 the figure was 66% of fatal bicycle accidents in which the cyclist was not wearing a helmet.

Many of these accidents occurred in driveways, on bike paths, as well as on roadways. Indeed, bicycle accidents are one of the most common causes of head injuries in children. 12

Unfortunately, over the past few years, a trend toward decreasing helmet use among both children and adult cyclists has been reported in many Northern communities

Five Top Contributing Factors Assigned to Cyclists (Source: Motor Vehicle Branch, 1994)
• Driving without due care: 13.0%
• Failing to yield the right of way: 10.1%
• Driving on wrong side of road: 7.2%
• Ignoring traffic control device: 4.5%
• Rider inexperience: 3.4%
Five Top Contributing Factors Assigned to Motor Vehicle Drivers involved in crashes with cyclists (Source: Motor Vehicle Branch)

- Failing to yield to right of way: 16.44%
- Driving without due care: 9.67%
- Improper turning: 2.27%
- Visibility impaired: 2.22%
- Weather conditions: 2.03%

Pedestrians
- The majority of pedestrian fatalities (64%) occur at night.
- High pedestrian Blood Alcohol Count (>0.08) were found in 32% of casualties.
- Most (>75%) pedestrian fatalities occur at non-intersections.
- About 1 in 5 pedestrian fatalities are the result of hit-and-runs.
- Nearly 2/3rds of all pedestrian fatalities occur on urban roadways. More than 2/3rds of pedestrian fatalities are males.

Pedestrian fatalities & injuries 1992-2001 Canada
The chart on the next page displays pedestrian fatalities and injuries by type of traffic control device over a 10-year period.

Did you know?
- The majority of pedestrian fatalities (64%) occur at night.
- Most (>75%) pedestrian fatalities occur at non-intersections.
- Nearly 2/3rds of all pedestrian fatalities occur on urban roadways.
- More than 2/3rds of pedestrians killed are males.

-Annals of Emergency Medicine, Oct 2003;p.479
Pedestrian Fatalities and Injuries by Type of Traffic Control Device. (1992-2001 Average)

The greatest number of pedestrians were fatally injured in collisions with automobiles (57 percent), followed by light trucks and vans (25 percent), heavy trucks (10 percent), and buses (3.0 percent). Among pedestrians injured, 75 percent were involved in collisions with automobiles, 17 percent with light trucks and vans, 2 percent with buses, and 2 percent with heavy trucks.

Commercial Drivers

The major economic growth currently being experienced in the forest, mining, gas & oil and exploration sectors of Northern BC is translating into higher volumes of traffic and increased incidents of commercial crashes, especially those which involve collisions between commercial and private vehicles. E Division (BC) RCMP Inspector Norm Gaumont believes that commercial drivers are involved in 50% of all crashes in BC.13

Seat belts- lack of seat belt wear. A mythology exists among many truckers that wearing a seatbelt will hinder them from escaping their trucks in a crash. As a result, in many crashes involving commercial vehicles, the wrecked truck still contained “livable life space”, but the driver was deceased. By self-report, only about 30% of truck drivers wear their seatbelts.
**Alcohol & Drugs**- crash investigations are finding an increasing amount of drugs and alcohol as causal factors in commercial crashes. Autopsy toxicology reports indicate that a large number of commercial driver who died in crashes were legally impaired by alcohol, marijuana, cocaine and/or crystal meth.

**Fatigue**- Driver fatigue is a major concern in the commercial vehicle crash picture. It is one of the 4 top causal factors. One of the issues that drivers constantly refer to is rates of pay, which translates into drivers over-extending themselves, log book violations, vehicle maintenance issues, and fatigue.

**Speed**- excessive speed and aggressive driving contribute to all crashes, but even more to commercial vehicles because of vehicle weights and the subsequent increased amount of time and distance needed to stop safely. Other factors related to speed include overdriving the headlights, night driving, and road conditions. Driving the posted road speed is still dangerous when road or weather conditions are poor.

In collisions, the sheer size of some trucks puts car occupants at a disadvantage. Many drivers are intimidated when they must share the road with large trucks, and not without reason. According to BCAA, people in passenger vehicles account for 98% of the deaths in fatal two-vehicle crashes involving a car and a truck over 10,000 pounds. However, the survey found that in most cases, police, survivors or witnesses identified at least one unsafe act by the car driver.

A maneuver by a car near a large truck may be more dangerous than the same maneuver near another car. Similarly, a large truck may perform a maneuver that carries low risk of a crash near another truck in the traffic stream, but a higher risk when performed near a smaller vehicle.

A study by the University of Michigan Transportation Research Institute, found that
drivers who get involved in fatal crashes probably drive the same way around trucks as they do around other cars. It identified five driving behaviors that were factors in most of the fatal crashes:

- failing to stay in the lane or running off the road;
- failing to yield the right of way;
- driving too fast for conditions or above the speed limit;
- failing to obey signs and signals;
- driver inattention.
Where do crashes happen?

Rural vs. Urban

Most of Northern BC is considered “rural”, which for the traveling public means a number of things: longer distances to medical care, inadequate communications infrastructure, and longer wait times to get help if a crash occurs.

The chart below illustrates that though there are far more crashes in urban areas than in rural regions, the ratio of fatalities to injuries demonstrates that collisions in rural areas are more likely to be fatal than in urban areas. One in every 136 (1:136) crashes in an urban area of Canada resulted in a fatality in 2002, according to Transport Canada, compared to 1 in 25 crashes in rural areas (1:25). Reasons for the increased fatality rates in rural areas include the higher rates of speed traveled on highways, increased public interface with commercial and resource vehicles, emergency response times, distance to hospitals, and multiple victims in a single crash.

Injuries & Fatalities in Canada by Location

<table>
<thead>
<tr>
<th>Location</th>
<th>Fatal</th>
<th>Personal Injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban 1</td>
<td>805</td>
<td>109,405</td>
</tr>
<tr>
<td>Rural 2</td>
<td>1,599</td>
<td>40,206</td>
</tr>
<tr>
<td>Not stated</td>
<td>29</td>
<td>2,224</td>
</tr>
<tr>
<td>Total</td>
<td>2,433</td>
<td>151,835</td>
</tr>
</tbody>
</table>

1 Urban includes: (a) metropolitan roads and streets and other urban areas, or (b) a speed limit at the collision site of 60 km/h or less.

2 Rural includes: (a) primary or secondary highways, as well as local roads, or (b) a speed limit at the collision site exceeding 60 km/h.
Prince George, highlighting top crash sites and traffic flows

The top 3 crash sites in the Northern Health region are on the Highway 97 and Highway 16 arteries going in and out of Prince George, highlighted by the thick red lines. Prince George truly acts as a “hub” for traffic. All southbound traffic to Vancouver and other southern destinations from the North, Northeast, Northwest, and even Alaska flows through Prince George.

Hwy 97
8,000 head north from PG every day

Hwy 16 E, 5,000 vehicles/day head east from Prince George

Hwy 16 W
18,000 vehicles/day head west from Prince George

Hwy 97
23,000 + vehicles/day head south from Prince George

The top crash zone on Hwy 97 south is from Plett Road into the city of Prince George. Coming from Hwy 16 west, it goes from Beaverly into the city. And the stretch of Hwy 97 from the Old Summit Lake Rd to Bear Lake is the most dangerous north of Prince George.

11 of the 22 pedestrian incidents in the north in 2004 occurred in Prince George.
Highest Crash Locations in Northern BC

The following map and crash location data is based on numbers of crashes, rather than on rates. Sparsely populated areas of the north may not have high numbers of crashes even though the risk remains high and these areas will not be reflected on the map below.

Data provided by the RCMP North Division – Traffic Services, 2005. – used with permission. Note: Greater Prince George / Fraser Fort George is excluded as it is highlighted on the preceding page & map.
<table>
<thead>
<tr>
<th>Location ID</th>
<th>Location Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>16(1502)3</td>
<td>Polymar Creek to Terrace w</td>
</tr>
<tr>
<td>16(1501)</td>
<td>Terrace to Legate Creek e</td>
</tr>
<tr>
<td>16(1505)1</td>
<td>Masset to Tlell</td>
</tr>
<tr>
<td>16(1520)4</td>
<td>Slackin Rd. to Hankin St., Smithers</td>
</tr>
<tr>
<td>16(1515)1</td>
<td>Highway 37 to Gitsegukla</td>
</tr>
<tr>
<td>16(1520)1</td>
<td>New Hazelton to Moricetown</td>
</tr>
<tr>
<td>16(1550)3</td>
<td>McMaster Road -west of Fraser Lake</td>
</tr>
<tr>
<td>27(1563)3</td>
<td>Stuart River Bridge to Sumne Road</td>
</tr>
<tr>
<td>27(1563)1</td>
<td>Highway 16 – Vanderhoof to Ft. St. James</td>
</tr>
<tr>
<td>16(1540)1</td>
<td>Route 35 to Priestly Pitt Road</td>
</tr>
<tr>
<td>16(1550)1</td>
<td>Priestly Hill to McMaster Road (Topley)</td>
</tr>
<tr>
<td>97(1145)7</td>
<td>Quesnel Hydraulic road to Barkerville turnoff</td>
</tr>
<tr>
<td>97(1145)6</td>
<td>Edwards Road to Quesnel Hydraulic Road</td>
</tr>
<tr>
<td>97(1150)3</td>
<td>Cottonwood River Bridge to Meadow Creek</td>
</tr>
<tr>
<td>97(1130)1</td>
<td>Highway 97 S. to Highway 24</td>
</tr>
<tr>
<td>97(1140)4</td>
<td>Highway 97 Lac La Hache to Maze Lake</td>
</tr>
<tr>
<td>97(1130)5</td>
<td>Highway 97 to Anahim Lake</td>
</tr>
<tr>
<td>97(1183)5</td>
<td>Hewitt Road to Route 97</td>
</tr>
<tr>
<td>97(1183)4</td>
<td>Prophet River to Hewitt Road</td>
</tr>
<tr>
<td>97(1183)2</td>
<td>Sekani Hill</td>
</tr>
<tr>
<td>97(1180)1</td>
<td>100 Street Atkin Crescent Road</td>
</tr>
<tr>
<td>97(1178)1</td>
<td>249 Road/ 30 mile to 100 Street</td>
</tr>
<tr>
<td>97(1180)2</td>
<td>157 Road to Historical 101 mile</td>
</tr>
</tbody>
</table>
Intersections and parking lots are also the scenes of many crashes. People cut corners, try to get through yellow lights, change lanes in intersections and so on. Parking lots don't seem to have “rules” and there is so much to watch for while seeking that parking place – pedestrians, other vehicles coming and going, vehicles backing up, and often, poor visibility and inadequate space.

It has been observed that most crashes in intersections occur within the first two seconds of a light changing to green – drivers coming from the wrong direction trying to make a last second “sneak” through the intersection before the oncoming traffic gets moving. It would make sense for the first driver at the intersection to count to 2 after the light changes before starting to move.
**When do crashes happen?**

Crash Trends in the North – by month 2002-2005

<table>
<thead>
<tr>
<th>Year</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>Aug</th>
<th>Sept</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>1852</td>
<td>1435</td>
<td>1560</td>
<td>1098</td>
<td>1114</td>
<td>1322</td>
<td>1308</td>
<td>1270</td>
<td>1219</td>
<td>1485</td>
<td>1650</td>
<td>1625</td>
<td>16938</td>
</tr>
<tr>
<td>2003</td>
<td>1827</td>
<td>1449</td>
<td>1490</td>
<td>1052</td>
<td>1111</td>
<td>1185</td>
<td>1220</td>
<td>1180</td>
<td>1177</td>
<td>1490</td>
<td>1814</td>
<td>1789</td>
<td>16784</td>
</tr>
<tr>
<td>2004</td>
<td>1829</td>
<td>1260</td>
<td>1153</td>
<td>929</td>
<td>1051</td>
<td>1096</td>
<td>1186</td>
<td>1138</td>
<td>1120</td>
<td>1523</td>
<td>1602</td>
<td>1709</td>
<td>15596</td>
</tr>
<tr>
<td>2005</td>
<td>1864</td>
<td>1151</td>
<td>1145</td>
<td>999</td>
<td>1098</td>
<td>986</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7243</td>
</tr>
</tbody>
</table>

**SOURCE: ICBC**

**Winter Driving**

From this data, several trends become evident:

- January is consistently the worst month for crashes, followed by December and November
- Crash levels have slowly decreased over the past few years
- The winter “shoulder” months (October/March) are higher than summer months, possibly due to seasonal weather and road condition transitions.

The number of crashes involving heavy commercial vehicles is also affected by seasons – the winter log hauling season, and as the graph below clearly illustrates, “break-up” - the months of April & May when fewer forestry related vehicles are on the road.

**Average Number of Monthly Incidents involving vehicles in excess of 10,900 GVW in North Central BC 1996 - 2004**
The above graph illustrates the number of Emergency Room visits to the Prince George Regional Hospital for MVCs over a period of two years, broken down monthly. The winter months are consistently heavier than spring and summer months.
**Why do crashes happen?**

**Contributing Factors:**

During the period 1996 – 2005 there 22,122 Motor vehicle incidents in Northern BC where contributing factors were noted:

- **Unsafe speed** was noted as a contributing factor in 6704 incidents
- **Alcohol** was noted as a contributing factor in 5800 incidents
- **Weather** was noted as a contributing factor in 5084 incidents
- **Following too closely** was noted as a contributing factor in 1981 incidents
- **Ignoring Traffic Control** was noted as a contributing factor in 1248 incidents
- **Fatigue** was noted as a contributing factor in 1222 incidents
- **Illegal Drugs** were noted as a contributing factor in 83 incidents


**Top 3 Contributing Factors to Motor Vehicle Incidents during a calendar year based on 22,122 cases recorded from 1996 - 2005 in North Central BC**

![Graph showing monthly incidents of motor vehicle crashes with categories for Unsafe Speed, Alcohol, and Weather.]

SOURCE: ICBC Monthly TAS Report
“Booze, belts & speed”

According to a veteran RCMP officer, the top 3 contributing factors to injuries and fatalities due to motor vehicle crashes are “booze, belts and speed”. Impaired drivers still wreak havoc on our roadways. People still don’t put their seat belts on. And people still drive too fast for road conditions, traffic conditions and regulations, and their own levels of skill and control.

Sadly, or fortunately, depending on how one views it, these same three factors are entirely changeable, through enforcement, education and engagement. People need to take personal responsibility for how fast they drive, the conditions in which they drive, and whether or not they utilize the devices that have been resoundingly proven to save lives and reduce injuries.

Not Just Booze

A M.A.D.D. Canada report (2004) states 14% of Canadians reported using cannabis in the past year, double the rate reported in 1994 (7.4%). Reported youth rates show almost 30% of 15-17 year olds and just over 47% of 18-19 year olds used cannabis in the past year. (Health Canada, November 2004)

In British Columbia, autopsies on 227 fatally injured drivers found 31% positive for only alcohol, 9% positive for drugs and 11% positive for both.

In Ontario, 1996 and 1997 surveys found people reporting driving within an hour of cannabis use in the past 12 months was 1.9% among the entire population; however, 9.3% among 18-19 year olds. Among cannabis users, the percentage reported driving within an hour of cannabis use was 22.8% (13.4% female and 28.2% male).

In Quebec, a study of fatally injured drivers (April 1999 to November 2001) indicated 22.6% were positive for only alcohol, 17.8% were positive for only drugs, and 12.4% were positive for both.
During the 3 year period from January 2001 – December 2003), 14,645 road side suspensions were issued in Northern BC. The majority (12,300 or 84 %) of these were issued to males and over half of these 12,300 suspensions were issued to men between the ages of 16 and 35 years of age.

Females accounted for only 2,345 (16%) of the 14,645 suspensions. However, they shared a pattern with their male counterparts in that more than half of the suspensions were issued to women between the ages of 16 and 35 years of age.

In both genders, the 21 – 25 year age group accumulated the most suspensions.
Weather
In Northern British Columbia we seem to experience two driving seasons – winter and summer. The spring and the fall seasons are transitional, and depending on location and elevation, can still experience severe winter or summer conditions. Indeed, because Northern Health covers such a vast geographic area, a driver can encounter both sets of conditions in the same day!

Fog, severe rain and wind storms, and sticky wet snow are the main weather experiences of the Northwest, often limiting visibility and making road conditions treacherous.

The Northeast experiences bitter cold, strong winds, and dry blowing snow. The wind and snow blowing across the roads can “polish” a snow or ice covered roadway, like a sheet of glass, making it extremely slippery.

In the Northern Interior area, around Prince George, fog, heavy rains, sticky wet snow, or dry blowing snow, and freezing rain are all common occurrences. A driver must be prepared to deal with every situation.

According to enforcement and investigative agencies, drivers tend to put too much faith in their 4-wheel drives, their tires and their headlights. RCMP members cite many incidences of people overdriving their headlights (going faster than what their headlights can illuminate ahead), or relying on 4 wheel drive in order to maintain normal summer speeds on winter condition roads.

Proper vehicle maintenance becomes critical for safe driving in severe weather conditions. All season radial tires just are not sufficient for driving on snow and ice. Proper tires, inflated to proper pressures, are absolutely necessary – they are the vehicle’s only contact with the road. Windshield wipers in poor condition reduce visibility, thereby increasing risk.

Driving to suit weather and road conditions

Did you know?
Allowing yourself enough time for a journey when the road conditions are less than ideal can save lives.

A good rule of thumb, give yourself 7 minutes more time to reach your destination for every 10kms/hr you need to slow down to get there safely.
requires common sense, and discretion on the part of the driver, to assess the risk of travel, and the rates at which travel would be safe. The RCMP/Ministry of Highways closes roads upon occasion when conditions are very severe, but even though a road may be open, there still can be treacherous sections, or unexpected slippery spots (shade, over bridges, etc).

Ultimately it is the driver’s responsibility to decide if travelling is safe, at what speed, in what condition of vehicle, and at what time of day. Sometimes the best decision would be to delay the travel rather than take the risk. Unfortunately, inexperienced drivers don’t have the appropriate knowledge and judgement needed to safely drive in harsh conditions, and as a result, are more likely to end up in crashes.

Following too closely
Following too closely is listed among the top 3 contributing factors to crashes in many of the communities in Northern BC (See Appendix, Profiles of Crashes by Community). The distances needed to stop safely depend on the speed of travel and the reaction time of the driver and the weight of the vehicle being driven. Drivers need to be aware of the distance they need between themselves and the vehicles or obstacles in front of them.

<table>
<thead>
<tr>
<th>Travelling Speed</th>
<th>Reaction Time from Decision to Stop</th>
<th>Stopping Distance</th>
<th>Speed of Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>80 km/h</td>
<td>22 meters</td>
<td>34 meters</td>
<td>No impact</td>
</tr>
<tr>
<td>85 km/h</td>
<td>24 meters</td>
<td>38 meters</td>
<td>No impact</td>
</tr>
<tr>
<td>90 km/h</td>
<td>25 meters</td>
<td>43 meters</td>
<td>No impact</td>
</tr>
<tr>
<td>100 km/h</td>
<td>28 meters</td>
<td>47 meters</td>
<td>44 km/h</td>
</tr>
<tr>
<td>110 km/h</td>
<td>31 meters</td>
<td>63 meters</td>
<td>77 km/h</td>
</tr>
<tr>
<td>120 km/h</td>
<td>33 meters</td>
<td>76 meters</td>
<td>96 km/h</td>
</tr>
</tbody>
</table>

SOURCE: Mission Possible@Work, ICBC

**Did you know?**

At 100 kmph it takes 100 meters for a loaded tractor-trailer unit to stop.

A straight truck (less than 33,000 lbs) needs 95 meters to stop.

A smaller commercial vehicle, such as a 5 ton cargo van, needs 65 meters to stop safely at 100 km/ph speeds.

Empty trucks actually require greater distances to stop because empty vehicles have less traction and are more likely to bounce or have the wheels lock up.

- Stopping Power, by Paul Hartley
There are three things that add up to total stopping distance: *Perception Distance + Reaction Distance + Braking Distance = Total Stopping Distance*

- **Perception distance.** This is the distance the vehicle travels from the time the eyes see a hazard until the brain recognizes it. The perception time for an alert driver is about 3/4 second. At 90 kmph, the vehicle travels 60 feet in 3/4 second.

- **Reaction distance.** The distance traveled from the time the brain tells the foot to move from the accelerator until the foot is actually pushing the brake pedal. The average driver has a reaction time of 3/4 second. This accounts for an additional 60 feet traveled at 90 kmph.

- **Braking distance:** The distance it takes to stop once the brakes are put on. At 90 kmph on dry pavement with good brakes it can take a heavy vehicle about 170 feet to stop. It takes about 4 1/2 seconds.

- **Total stopping distance:** At 90 kmph it will take about 6 seconds to stop and the vehicle will travel about the distance of a football field. (60 + 60 + 170 = 290 feet).

The effect of speed on stopping distance:

*Whenever speed is doubled, it takes about four times as much distance to stop and your vehicle will have four times the destructive power in a collision.* High speeds increase stopping distances greatly. Slowing down a little gains a lot in reduced braking distance.

- www.drivingrules.net
Ignoring Traffic Controls
Stop means stop. Yet every day drivers “roll through” stop signs, try to rush through a late yellow light at an intersection, and otherwise ignore the traffic controls that are put in place to regulate traffic flow.

Roadways are engineered to be travelled at certain speeds. Exceeding those speeds increases the risk of losing control of the vehicle. Curves often have control signs indicating the maximum safe speed at which the curve should be negotiated, yet drivers will “cut to the inside” or try to take the corner as fast as they can.

Construction zones are flagged a good distance before the actual location of the work being done in order to give the driver plenty of warning of obstruction, narrowing to single lane traffic, slowdowns or possible delays. Yet every year crashes occur in construction zones, when a vehicle approaches a construction area too quickly, or smashes into a line-up of vehicles waiting to get through. The ultimate irony in drivers ignoring traffic controls are the deaths of “flag-persons”, the traffic controllers who stand in the roadway to direct traffic.

Fatigue
Driving long hours can make a person feel tired, sleepy, irritable, depressed, or giddy. Fatigued persons tend to react more slowly, fail to respond to things going on around them, are unable to respond correctly, are not able to concentrate, exercise poor judgement, and have a greater tendency to take risks.\(15\)

The long distances and hours many northerners drive create potential dangers due to driver fatigue. An article in the New England Journal of Medicine, “The Perils of Drowsy Driving”, states that “studies have identified fatigue as the leading cause of truck crashes”.\(16\)

The U.S. National Highway Traffic Safety Administration has long recognized drowsy driving as a “significant and complex public health problem”.

Did you know?
A "microsleep”, one of those naps that last 4 or 5 seconds, is long enough for you to travel more than the length of a football field at highway speed.
~ Worksafe Alberta: Exhausted or Drunk, Behind the Wheel it Makes No Difference
threat. The effect of lost sleep accumulates over time and does not dissipate. This means that with the same insufficient amount of sleep each day, the strength of the tendency to fall asleep while driving progressively increases.

A study of long-haul truckers and sleep deprivation concludes, “long-haul truck drivers obtained less sleep than is required for alertness on the job.” Other studies have shown that drivers who drive long distances over long periods of time (1 year or more) are more likely to experience daytime fatigue, daytime tiredness, unrestorative sleep, hypertension and overweight.

Sleep apnea is a condition in which breathing stops or hypoventilation occurs during sleep. People with sleep apnea are typically overweight, have loud irregular snoring, and are tired during the day because of their disturbed sleep patterns. The relationship between sleep apnea and traffic accidents has been found to be significant, even when other circumstances such as alcohol consumption, age, body-mass index, driving experience, sleep schedule, use of drugs and personal driving history are factored in. Study results show that the rate of crashes among persons with sleep apnea is three to four times the rate among persons without the condition. Unfortunately, an estimated 80% of cases of sleep apnea are undiagnosed.

Many of the North’s professional drivers, particularly logging truck drivers, work upwards of 12 hours per day. Worksafe BC and the BC Forest Safety Council’s Forestry Trucksafe Initiative are currently surveying logging truck drivers in order to identify issues and strategies to reduce trucker fatigue.

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Did you know?

Truck driver fatigue is a contributing factor in 30-40% of commercial truck crashes.

28% of surveyed drivers admitted falling asleep at the wheel during the previous month and one-third of those same drivers admitted falling asleep at the wheel as many as three to six times during the previous month.

The risk of a crash effectively doubles from the eighth to the tenth hour of driving, and doubles again from the tenth to the eleventh hour of driving alone.

-University of Michigan Traffic Research Institute
Wildlife

Interaction with wildlife is part of northern living. Drivers are well aware of the dangers presented by wildlife crossing the road, yet crashes involving wildlife continue at an average rate of 3000 per year. The numbers below reflect reported animal crashes in the north by month for the past 4 years.

<table>
<thead>
<tr>
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<th>Jan</th>
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An Average Year: Past wildlife-vehicle collision records demonstrate that in a typical year in BC*:

- 3 people are killed
- 247 motorists are injured
- 9,300 wildlife vehicle accident claims are received by ICBC. This number increased to 10,200 claims in 2003.
- $20 million dollars is spent by ICBC on vehicle damage claims, plus additional costs for personal injury and "swerve to miss" claims.
- $600,000 is spent by the Ministry of Transportation for highway clean-up
- 4,300 animals are recorded as killed
- 13,000 animal deaths go unrecorded

*All figures are mathematical averages, obtained from past records of the Insurance Corporation of British Columbia and the British Columbia Ministry of Transportation.

- www.wildlifeaccidents.ca
A Concern for Wildlife

Northern BC has some of the highest risk highways for wildlife-vehicle collisions in BC. 7 out of the 10 highest ranked stretches of highway in BC for moose-vehicle collisions are in north/central BC (data from the Ministry of Highways).

A detailed study of animal caused fatalities from the BC Vital Statistics Agency of BC (1969-1997) says that during that time, moose were the single greatest cause of animal-vehicle collision fatalities. 59% of all moose related fatalities in BC occurred in or around Prince George. An additional 20% of the fatalities were on Highways 16 near Terrace and Smithers.

Some estimates are that there is a human fatality in one out of every 500 moose vehicle collisions.

In British Columbia, the number of wildlife-vehicle collisions is increasing and creating serious implications for the conservation and management of all BC’s wildlife, including many rare and endangered species.
BC Ministry of Transportation (MoT) statistics show that from 1992 to 2002, 45,096 animals were reported killed on BC highways. MOT estimates that this number may represent only 25% to 35% of the real number of wild animals killed. The actual total of wild animals killed in the ten year period from 1992 to 2002 could be as high as 128,846 or more.

Approximately 80% of wildlife-vehicle collisions involve deer. Moose, elk, bears, coyotes and other wildlife make up the remaining 20%. Collisions with smaller wildlife species are extremely common, but as they cause less damage to private property or human life, they rarely appear in official statistics.

**Common factors of road stretches with high numbers of wildlife-vehicle collisions include:**

- Where creeks and drainages intersect roads
- Good habitat and forage near the roadside
- Water source nearby
- Long, wide, straight stretches of road

The first three factors are self evident. The availability of forage and water close to the road is likely to increase the presence of animals.

The fourth factor is more troublesome. One assumption is that when there are good road conditions - long, wide and straight - motorists tend to feel safer and more confident, and therefore accelerate. This increase in speed reduces the reaction time of the driver when an animal is seen on the road.

- Courtesy of www.wildlifeaccidents.ca
Distractions

Driving requires alertness and concentration. Yet on long trips drivers tend to add extra activities to their trip to relieve boredom, or to help them stay awake. Studies show that distractions of any kind, even talking to passengers in the vehicle, reduces concentration and slows reaction time. With new technologies being added to vehicles, the number of activities requiring the driver’s attention has increased, to the point where drivers are paying attention to everything but the road.

Distractions in cars are considered the cause in 25 percent of the more than 6.3 million auto crashes in the US. According to NHTSA, "distraction was most likely to be involved in rear-end collisions in which the lead vehicle was stopped and in single-vehicle crashes." What makes distraction such a problem is the confluence of the distraction, such as eating, and the unexpected occurrence of events on the road, such as a sharp curve or a driver stopped ahead of you.

According to a State Farm Insurance Survey, eating while driving ranks as the No. 2 driving distraction. Fifty-seven percent of drivers surveyed say they eat and drive. The No. 1 distraction noted by 62 percent of surveyed drivers is tuning the radio, and No. 3, noted by 56 percent of drivers, is turning around to talk with passengers. Interestingly, only 29 percent of drivers surveyed listed talking on a cell phone as a distracting activity.

Cell phones

The risk of a crash when using a cell phone is 4.3 times greater than the risk when a cell phone is not being used, according to a 1997 study. Cell phone use has proliferated since 1997, and several countries have banned the use of cell phones while driving. Not only is the risk present during the actual call, but this same study of 26,798 calls found that the risk is considerably increased close to the time around the call itself (4.8 for calls placed within 5 minutes of the crash, compared to 1.3 for calls placed more than 15 minutes before the call).
The use of hands-free technology offered no safety advantage over hand-held units. But the cell phones came in handy post-crash, to call for help!

**DVD players**

New technologies designed to keep the vehicle's passengers entertained, such as DVD players, may have made driving with children a little more pleasant, but have increased the levels of distraction. When the DVD play is installed for viewing by passengers in the rear of the driver, the distraction is mainly the sound. However, more often DVD players are being installed in the front of the vehicle, so the person in the passenger seat can watch as well. The driver ends up watching the screen as well, rather than the road, and concentration (and reaction time) is seriously diminished.

**On Board computers**

Sometimes that which is meant to help actually hurts, and this can be the case with onboard computers/GPS systems. Looking at the dashboard screen to follow directions on an electronic map takes the driver's attention off the road, and may put the vehicle where it really wasn’t intended to go, such as in the ditch, rather than at the destination. If you are driving in the North in the winter when even a momentary swerve onto the shoulder can lead to your tires catching in soft snow, the risk is increased.

Hand held devices (PDA’s) are also becoming a more common distraction as they have the capability to receive and send email almost everywhere. Doing business via email is pervasive in today’s culture, and it seems handy and efficient to email at the same time as driving. But it is a distraction that can cause the driver to lose concentration on the road ahead and the environment surrounding the vehicle.

**Sound systems**

Today’s sound systems are more complex and louder than ever. Tuning a radio or satellite radio, installing cd’s or cassettes, searching for the

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**Did you know?**

There are three things that add up to total stopping distance:

- Perception Distance +
- Reaction Distance +
- Braking Distance =

Total Stopping Distance
desired track, adjusting volumes, all take the driver’s eyes and attention off the road. To offset this concern, many automobile designers are now installing volume and search controls in the steering wheel.

Volume levels are of particular concern. Often one can hear a vehicle coming long before one sees it—and it's not the sound of the vehicle’s engine that’s heard. So called “boom boxes” have volume and base level capabilities far beyond what’s necessary to hear the music. And the driver and passengers inside can’t hear what’s going on outside their vehicle, such as the air horn of a commercial truck, a train whistle, or the sirens of emergency vehicles.

**Eating**

Eating while driving means that the driver does not have one, or even both, hands on the wheel. Hot food and beverages spill, and drivers react by trying to clean up, even while driving. The automatic human response is to jerk away and tend to the injury.

More than 70% of drivers surveyed by State Farm Insurance said they eat while they drive. Vehicles with standard transmissions require one hand working the shifter. If the driver has food in one hand, and the other on the shifter, what’s holding the wheel?

The quality of food eaten during travel is also a concern. Too many carbohydrates and sugar contribute to high blood sugar levels which are quickly followed by low blood sugar and sleepiness. Too much caffeine and salt contributes to high blood pressure. Too much cholesterol (greasy food) contributes to heart disease. Many crashes are attributed to emergent health events such as strokes and heart attacks, and the driver’s diet and lifestyle are major contributing factors to those events. For commercial drivers, or drivers whose job requires a great deal of road travel, nutrition and exercise are key to road safety and road health.

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**Did you know?**

One man in the US had so many accidents related to food on his driving record. That a “restraining order” had been issued against having anything edible within his reach while driving.

- Insure.com
What's next?

“WE ARE FACING THE “PERFECT STORM”

- FORESTRY TRUCKSAFE, BC FOREST SAFETY COUNCIL

The “interface” between the traveling public and the north’s major resource industries (forestry, oil & gas and mining) will continue to increase for the next decade as the circumstances of the mountain pine beetle infestation brings unprecedented volumes of traffic in the forest harvesting and transportation sector, coupled with tremendous increases in the oil & gas industry as well as a revitalization of northern BC’s mining activities due the world’s unrelenting demand for resources.

- Logs are being hauled farther and spending more time on highways, often criss-crossing to reach mills in both directions.

- The annual harvest of beetle killed timber in BC will increase by over 5 million m$^3$. Each increase of a million cubic metres means 22,000 additional log loads, two extra contractors with 30 operators, fuel trucks and low-beds on an already taxed road system.

- Oil and gas exploration is increasing resource road use @ 80-120 loads per rig movement.

- The Winter Olympics in 2010 are fuelling a large push to increase tourism in the north half of BC.

- Resource roads were not designed for the current levels of use and highways were not designed for the increased weights. (hence the “ruts” in heavily traveled areas)

- The seasons for hauling are compressed because of reduced winter ground in beetle killed areas and stumpage rate strategies.

Did you know?

A recent informal survey of Hwy 97 north from Cache Creek to Prince George counted commercial trucks southbound. Trucks from the forestry sector counted more than double all other commercial vehicles combined:

- 70 Log trucks
- 54 Chip trucks
- 91 Lumber trucks
- 215
- 101 All others

Over 452 kms, that works out to one truck every 2.2 kms. At 100 kmph, that’s one every 1.6 minutes!
• More money in oil and gas, and retirements is lowering the proportion of experienced driver numbers.

• Bigger trucks; more axles and heavier loads.

• Inconsistent radio protocols.

• Unresolved road maintenance issues.
Northern Health has identified reducing fatalities and injuries due to motor vehicle crashes as a key priority in its Core Services document. Northern Health is committed to following through with the directives given by its constituents during Northern Health’s 2004 community consultation process. Strong feedback with respect to “decreasing rates of morbidity statistics” and “increasing focus on… disease/injury prevention”, has lead to a decision by the NH Board to focus on motor vehicle injury as an organizational priority. This decision is reflected in Northern Health’s 2004-2008 Strategic Plan:

"Goal 2 - High Quality Health Services
Objective 11 - Motor Vehicle Accidents: During the period 2004-2008, a downward trend in Potential Years of Life Lost due to motor vehicle accidents will be established."

Objectives:

- Deliver on a Northern Health Strategic Plan objective to follow up on motor vehicle injury reduction initiatives in the North
- Develop a sustainable network of partners to address this issue in Northern BC on an ongoing basis
- Identify initial collaborative strategies/opportunities to reduce injuries from motor vehicle crashes in the Northern Health region
- Raise public awareness of motor vehicle crashes as an important public health issue, a campaign known as “RoadHealth”.24

In June of 2005, the Northern Motor Vehicle Crash Reduction Task Force was convened. To date, Northern Health’s partners in the Task Force include ICBC, the RCMP, Worker’s Compensation Board, the BC Forest Safety Council’s Trucksafe Initiative, Ministry of Highways, and BC Coroner’s Service. More partners will be added to the Task Force as stakeholders from the oil & gas, mining, and transportation industries are identified and become part of the momentum.

Best practices world-wide demonstrate that only such broad-based, multi-sectoral partnerships are sustainable and effective long-term.
Road Health

The first step of moving forward with the RoadHealth campaign is a conference, in partnership with other major stakeholders, focused on identifying strategy to reduce motor vehicle crashes in Northern B.C, to be held in October 2005. It is anticipated that the conference will lead to the formation of an alliance of stakeholders working in partnership on a series of motor vehicle crash reduction strategies. The coordination of this conference also meets operational goals of Northern Health’s 2004-2008 Strategic Plan—responsiveness and development of working partnerships.

The second stage of the RoadHealth campaign will involve provision of small grants to community groups or collaboratives that target specific risks, patterns or behaviours in their community, with the goal of reduction of crashes, whether through prevention education, or removal of particular hazards, raising awareness, or other such efforts. A granting process will be designed to welcome initiatives from community groups, which will include processes for accountability and communication, but also outcome-measures based evaluation. Northern Health and its partners recognize that communities know their own needs best, and that each community within Northern Health’s jurisdiction is unique and has its own specific needs.

The granting program will continue for several years, with a final evaluation, in the form of another Medical Health Officer’s report in 2010. This report will be used as the data baseline by which to measure improvement and outcomes. In 2010 another Conference will be convened to evaluate the results.

Northern Health also has 3 full time Injury Prevention Coordinators, one in each Health Services Delivery Area. They work to raise awareness and develop injury prevention campaigns throughout the region, as well as instructing the public in the proper installation and use of child safety seats and helmet use.

As well, Northern Health co-sponsors the P.A.R.T.Y. (Prevent Alcohol and Risk Related Trauma in Youth) program, which takes Grade 10 students through the local Emergency Department and speaks to youth about the risks and consequences of alcohol use, speeding and other high-risk behaviours. Every year hundreds of students participate in this program. There are P.A.R.T.Y. programs running in several northern communities, including Prince George, Hazelton, Houston, Burns Lake, Vanderhoof, Smithers and Fort St John/Dawson Creek.
Community Crash Reduction Challenge

In 2004 in British Columbia, approximately 400 people were killed and 78,000 people were injured in motor vehicle crashes on our roads. On average:

- There is a car crash every two minutes in BC.
- Someone is injured every seven minutes.
- At least one person dies per day.

For 31 days in October — Oct. 1 to Oct. 31, 2005 — communities large and small can participate in the Challenge and help raise awareness of the magnitude of crashes involving their citizens.

Road Improvement Program

We analyze traffic problems and contribute money to road improvements that will make B.C. roads safer for all users. One new traffic innovation is the roundabout, which can help reduce serious crashes. Find out how to safely navigate roundabouts from our RoadSense Tips.

Safer City program - Making road safety a priority in your community.

Everyone benefits from safer roads. We can help make our roads safer by coordinating all road safety initiatives within a community, factoring in road safety when making community decisions, and encouraging active community consultation and participation in road safety matters.

MISSION POSSIBLE @ Work – road safety for employees

MISSION POSSIBLE @ Work is a workplace road safety educational program that helps employees reduce their risk while driving.

Last year, approximately 248,000 crash incidents and 78,000 injuries were reported to ICBC. Whether crashes occur on or off the job, one thing’s for sure, the financial costs to companies can be staggering. Employers may end up paying for:

- wages for temporary workers and for those in recovery
- recruitment and training costs
higher insurance premiums
legal expense

ICBC is also an active part of Traffic Safety Committees in each sub-region of the north: Bulkley Valley, the Peace, Prince George, Quesnel, Skeena.

ICBC supports C.A.R.S. groups in 25 high schools throughout the North region.

Child Safety Seat Clinics & Education

ICBC works with public health, first responders and others to educate the public about proper use and installation of child safety restraints. In the north there are 37 trained car seat technicians and over 200 educators.

Get a Grip Program

“Get a Grip” is a program where tire shops and car dealerships engage in education about proper winter tires in areas where there is snow during the winter.

Operation Red Nose

Operation Red Nose is a free volunteer driving service for motorists who are impaired or do not feel fit to drive their own vehicle. Since 1996, ICBC and Autoplan Brokers of B.C. have supported the positive program -- considered to be the ‘original safe ride home’ program in Canada.

In 2004, 2774 safe rides were provided to BC motorists this past holiday season. Operation Red Nose operated in eight regions in the province throughout the month of December/2004.

Get Home Safe Program

We've all seen or heard the phrase, Get Home Safe. It refers to designating a driver, finding an alternate ride home, or staying put when it's not safe for you to drive.

If your group or organization is hosting a large event where alcohol will be served, be sure to pick up a copy of ICBC's Get Home Safe Community Kit. It includes posters, table cards, CounterAttack buttons, designated driver stickers, brochures, clipsheets and fact sheets. It's based on an event that would attract about 250 people.
To obtain a Get Home Safe kit, contact your ICBC regional Loss Prevention office.

**Speedwatch**

Speed Watch is a community-based volunteer program designed to help reduce speed-related crashes by making drivers more aware of the actual speeds they are traveling.

Volunteers, trained by the police, use portable radar equipment and an electronic digital board to monitor speeds in neighborhoods where local residents have reported incidents of unsafe speed to the police. Often these are school and playground zones. Drivers get instant feedback, as their speed is displayed on the reader board as they pass by. The volunteers keep records and return these to the police to help with enforcement planning.
In terms of prevention the BC Coroners Service is currently looking at the development of provincial prevention strategies around the deaths specifically of those under 19 years who die in crashes and are not wearing seat belts. This remains a major issue for those interested in prevention of injury and death in MV crashes of young people.

We have made recommendations in the past around other significant preventive issues:

- Proper tires fitted on vehicles, this has been specifically targeted towards proper winter tires, properly installed on vehicles in the north when driving in winter conditions.
- Highway design and speed ratings on certain segments.
- Fatigue and the use of rumble strips both on the sidelines of the highway and in the centre lane.
- Increased and coordinated enforcement of off road, industrial road users, both commercial and recreational
- Increased enforcement of commercial vehicles mechanical condition and driving behaviours.

While we have made recommendations around all these issues at one time or another it remains obvious that much more can still be done. In summary, there remains a need for a concerted coordinated prevention and education effort.
The RCMP have developed a Traffic Services Strategic Framework. The goal is safe roadways, to stop death and injury.

The Strategic Priorities are:
1) Impaired driving
2) Rural seat belt wear rates
3) High risk driving behaviour
4) Intersection controls
5) Unsafe speed
6) Criminal interdiction

Strategic Objectives:
1) prevention and education
2) public safety centred problem solving
3) intelligence-led service
4) quality investigations
5) enforcement balance to risk in public safety

The RCMP are an integral part of the Vision 2010 project being undertaken across Canada, with the goal of reducing deaths and injury due to motor vehicle crashes by 30% over the next five years.

For more information, see www.tc.gc.ca/roadsafety/vision/menu.htm or www.rcmp-grc.gc.ca
The provincial TruckSafe Strategy is a common sense, community-based strategy that relies on partnerships to eliminate or reduce serious injuries and deaths resulting from truck collisions or incidents.

Coordinated by WorkSafeBC (WSBC), TruckSafe will also develop a sustainable safety network of practical, cost-effective and workable solutions for improving the safety of the truck driver, the truck, its loads, and the roads for all types of trucking. TruckSafe will create independent project teams made up of partners at the federal, provincial, municipal, community and industry levels.

According to WSBC, in the five years from 2000 through to 2004, there were 21,700 time loss claims, including 116 fatalities and 533 serious injuries, resulting in more than 650,000 productive work days lost. These injuries and fatalities cost the BC trucking industry $101 million in workers' compensation costs alone.

The term "truck driver" represents a broad range of transport occupations from log haulers, heavy transport operators, and owner/operators to couriers, public school bus drivers and the bread deliverer.

Over the past several years WSBC has consulted extensively with industry associations, labour unions, and municipal, provincial, and federal governments and agencies to develop a strategy that would support Road Safety 2010, a national initiative focused on making Canada's roads the safest in the world and the BC Road Safety Plan that identifies strategies and actions that will substantially reduce serious injuries and deaths on B.C.'s roads.

For more information see www.worksafebc.ca
Objectives of the Forestry TruckSafe Initiative

To develop a comprehensive action plan to promote safe drivers, safe vehicles, safe resource roads, safe conduct on public highways, and vehicle safety awareness generally in the forest sector.

Longer-term objectives: In terms of the more specific results that need to be considered, the Council set out a number of objectives for participants to consider and add to. These must be achieved if the initiative is to be considered a success. They include:

- **A significant reduction in serious accidents and fatalities directly and indirectly involving forestry vehicles:** Whether on public highways or resource roads, a principal result of the TruckSafe Initiative will be safer roads, safer drivers, fewer accidents and fewer injuries and fatalities.

- **Better and more effective administration of forestry infrastructure:** An expected outcome will be:
  - solutions that will provide for better methods to ensure the proper construction and maintenance of resource roads
  - better communications on and administration of the resource roads
  - better management of the interface between resource roads and public highways and the administration of public highways, particularly in areas of high forestry vehicle use.

- **Better trained, effective and confident drivers:** One focus of the initiative will be the need to develop a stable and confident workforce. This will be done through training and by developing programs to deal with issues related to driver effectiveness and safety.

- **Elimination of duplication, overlap and underlap of jurisdictions affecting vehicle and road safety in the industry:** The Summit will assist in developing approaches to deal with jurisdictional issues and sort out responsibilities for safety.

For more information, see [www.bctrucksafe.org](http://www.bctrucksafe.org)
Enform (formerly Canadian Petroleum Safety Council)
Enform is an industry driven initiative to enhance the safety and training of Canadian petroleum industry workers.

For more information, see www.psc.ca

Community-based Groups

Traffic Safety Committees are active in the communities of: Quesnel, Prince George, Smithers, Peace/Liard (Ft St John, Dawson Creek, Chetwynd, Ft Nelson, Tumbler Ridge, Terrace & District, and the Lakes District (Burns Lake, Houston, Vanderhoof, Fraser Lake).

P.A.R.T.Y. (Prevent Alcohol and Risk-Related Trauma in Youth)

The P.A.R.T.Y. (Prevent Alcohol and Risk-Related Trauma in Youth) Program is a one-day, in-hospital, injury awareness and prevention program for youth age 16 and older. Developed in 1986 at Sunnybrook and Women’s Hospitals, this program is a vital component of the growing community effort to reduce death and injury in alcohol, drug and risk-related crashes and incidents.

The goal of P.A.R.T.Y. is to provide young people with information about trauma (injury) that will enable them to recognize potential injury-producing situations, make prevention-oriented choices, and adopt behaviours that minimize unnecessary risk. Twice weekly during the school year, the P.A.R.T.Y. program is offered to groups of 35-40 students, accompanied by a teacher or adult leader.

Students follow the course of injury from occurrence, through transport, treatment, rehabilitation and community re-integration. They interact with a team of health care professionals and EMS that includes a paramedic, a police officer, nurses, a physician and social worker.

The students are given information about:

- basic anatomy and physiology,
- the mechanics of injury,
- the effect that alcohol or drugs have on decision making, risk assessment, concentration and co-ordination,
- the nature of injuries that can be repaired, and those that cannot, and
- the effect of injury on families, finances and future plans.

The P.A.R.T.Y. team also includes people who have been injured, some
still in acute care, others in rehabilitation, and some returned home. They provide a personal perspective on the challenge of dealing with injury and "putting one's life back on track."

The program concludes with a challenge to the participants to become individually and collectively committed to promoting behaviours and activities that minimize the risk of injury. Students report that the experience is "eye-opening and positive", and "a must for all young people".

For further information, see www.party.org

C.A.R.S. (Youth Counter Attack & Road Sense)

This non-profit organization links secondary school road safety groups across BC under a common vision: to prevent youth car crashes.

Youth are the key strength of C.A.R.S. BC. Its road safety activities are developed and delivered by youth for youth. Teens have tremendous influence among their peers and are mostly likely to be the source of attitude change.

Many secondary schools throughout the province have their own C.A.R.S. BC groups - run by youth, for youth - to raise awareness of road safety issues. Autoplan brokers support C.A.R.S. BC, helping youth make smart choices on the road. Find out more on the C.A.R.S. BC website. The following northern high schools participate in the C.A.R.S. program.

| Peter Skeene Ogden, 100 Mile House | Duchess Park Secondary School, Prince George |
| Lakes District Secondary School, Burns Lake | Kelly Road Secondary School, Prince George |
| Chetwynd Secondary School, Chetwynd | Prince George Secondary School |
| South Peace Secondary, Dawson Creek | Charles Hays Secondary School |
| North Peace Secondary, Fort St John | Corelieu Secondary, Quesnel |
| Houston Secondary | Quesnel Senior Secondary |
| Mount Elizabeth Secondary School, Kitimat | Bulkley Valley Christian School, Smithers |
| MacKenzie Secondary School | Smithers Secondary School |
| McBride Secondary | Caledonia Senior Secondary, Terrace |
| Nisga'a Elementary Secondary School, New Aiyansh | Nechako Valley Secondary School, Vanderhoof |
| College Heights Secondary, Prince George | Williams Lake Secondary |
| DP Todd Secondary, Prince George | |

For more information, see www.carsbc.org
Way to Go! School Program provides school communities with support to promote alternative transportation to elementary and middle schools. The primary focus for the program is to ensure that traffic safety becomes a priority in each and every community, and that pedestrian education, bicycle safety education and driver safety awareness is always included in the structure and organization of a school.

The elementary school years are an important time for children to learn about making safe choices on the road. Through our Way to Go! Program, the Autoplan Broker Road Safety Program is helping to provide the resource materials and tools that parents and communities need to develop traffic safety awareness making the school journey safer, healthier and more environmentally responsible.

For more information, see www.waytogo.icbc.bc.ca

Northern BC Brain Injury Community Association

The three existing northern Brain Injury service agencies (PG Brain Injured Group, Bulkley Valley Brain Injury Association and Peace Country Society for Acquired Brain Injury) have joined together to work collaboratively on the issues of education, prevention and support for persons who have acquired brain injuries, forming the Northern British Columbia Brain Injury Community Association. Their northern capacity building plan includes setting up support groups in Prince Rupert, Terrace, Burns Lake, Quesnel, Chetwynd, Vanderhoof and Fort St John.

For further information see www.pgbig.ca

M.A.D.D. (Mothers Against Drunk Driving)

Mothers Against Drunk Driving (MADD Canada) is a non-profit, grassroots organization that is committed to stopping impaired driving and supporting the victims of this violent crime. At the heart of MADD Canada is our volunteers who include not only mothers, but fathers, friends, business professionals, experts in the anti-impaired driving field and concerned citizens who want to make a difference in the fight against impaired driving.

The current trends of drug use and increased drug impaired driving in Canada are disturbing. MADD Canada wants the public to know the risks and what can be done to combat drug impaired driving. With this awareness campaign, we hope to convey the significance of the problem.
- particularly with young Canadians, who are most likely to toke and drive and who pose the greatest risk to themselves and all other motorists on our roads.

Currently the only MADD program in the north is located in Prince George.

For more information, see www.madd.ca

**Wildlife-Vehicle Accident Prevention Program**

WVAPP was formed in 2001, as a partnership between the British Columbia Conservation Foundation (BCCF) and the Insurance Corporation of British Columbia (ICBC), in response to the increasing number and severity of wildlife-vehicle collisions in BC. BCCF was founded in 1969 under the guidance of the BC Wildlife Federation, and is a non-profit registered charity dedicated to the conservation and stewardship of BC’s ecosystems and species.

To fulfill the WVAPP mission statement, projects are implemented in the following program areas:

1. Issue Awareness: Drawing public attention to the issue of wildlife-vehicle collisions.
   - Media Attention
   - Magazine / newspaper / radio / billboard advertising
   - Bumper Stickers, key chains and other promotional material

2. Public Safety / Driver Education: Providing useful information to the driving public, enabling them to adjust their driving habits and to be safer on the road.
   - Driver Education
   - Brochures
   - Rest Stop Area Signage
   - Website Outreach

3. Research / Implementation: Providing support for testing and implementation of wildlife-vehicle collision mitigation techniques.
   - Location of Badger Crossing Signage (an endangered species in BC)

For further information, see www.wildlifeaccidents.ca
What Works?

Best Practices worldwide

Great Britain is the world leader when it comes to road safety and reduction of mortality and injury rates due to motor vehicle crashes. The countries ranked “Top 10” for motor vehicle safety are Great Britain, Sweden, Netherlands, Norway, Canada, Finland, Australia, Denmark, US and Switzerland. Interestingly, of the top 6 countries, 3 are Scandinavian countries, which have climates, geography, vegetation, wildlife and resources similar to that of Northern BC, proof that crash reduction is possible even on northern winter mountainous rural and resource roads.

Each of these countries base their numbers on “billion vehicle kilometres travelled”. Canada’s goal is to have the world’s safest roads. Our goal in the north of BC is to match Canada’s goal of a 30% reduction in crashes by 2010.

So what are the world leaders doing? What works?

Great Britain

**National Target:** 40% reduction in people killed or seriously injured in traffic crashes by 2010. 50% reduction in children younger than 16.

- Year-round road safety public awareness campaign called “THINK!”, focussed on child safety, vulnerable road users (cyclists & pedestrians), drinking and driving, seat belts, teenage drivers and speed reductions.

- Most useful aspect of THINK! is that it raises awareness of many issues under one umbrella, maximizing the overall road safety message (similar to ICBC’s strategy)

- THINK! is a program of RoadSafe, a road safety partnership of leading companies in the motor and transport industries in Britain, the Government and road safety professionals. It aims to reduce deaths and injuries caused by road accidents and promote safer driving.

- For more detailed information, please see:  
  [www.roadsafe.com](http://www.roadsafe.com) or [www.thinkroadsafety.gov.uk](http://www.thinkroadsafety.gov.uk)
Sweden

**National Target:** 50% decrease in the number of road users killed in 2007 when compared with 1996.

- Long term goal is called “Vision Zero” – no deaths or serious injuries in motor vehicle crashes
- Action plan focuses on special safety measures for the most dangerous roads, and safer traffic movement in built-up areas
- Emphasizes road user responsibility, safer cycling conditions, and compulsory use of studded winter tires.
- Road safety plan is managed by NTF, the Swedish National Society for Road Safety. NTF is an umbrella organisation and consists of 24 county road safety federations, 70 national, interest and professional organisations and hundreds of local voluntary associations
- Puts greater responsibility on road traffic system designers and includes the development of alternative forms of financing for new roads.
- For more details please see: [www.ntf.se/english/default.asp](http://www.ntf.se/english/default.asp)

The Netherlands

**National Target:** 30% fewer road deaths and 25% fewer injuries requiring hospital care by 2010 compared with 1998 totals.

- Involves greater sharing of costs and responsibilities among national, provincial, municipal governments and the private sector.
- National targets are broken into regional targets
- Activities include modifying road user behaviour, improving road and motorway infrastructure, improving driver training, enhancing police enforcement and reinforcing a “safety culture”.
Norway

**National Target:** 200 or fewer road user fatalities by 2012, compared to 433 in 2001

- Adopting Sweden’s Vision Zero target
- Activities include removal of roadside hazards, improved curves, rumble strips on centre lines, improved winter operations, and increased road safety audits.
- Adopting measures to regulate driver behaviour, such as reducing speed limits on dangerous roads, lowering the legal blood alcohol content limit to .02, and increasing demerit points, resulting in direct out-of-pocket costs to offenders.
- Increased enforcement on seatbelt use, drinking & driving, and automatic speed controls
- More inspections of commercial vehicles
- Improved traffic education: compulsory training for novice drivers, better training for current drivers, compulsory first aid training and motorcyclist training.
- Greater emphasis on knowledge building through research and analysis.

Canada

**National Target:** 30% decrease in the number of road users killed or seriously injured by 2008-2010, compared to figures of 1996-2001.

- Sub-target areas include seatbelts, drinking driving, speeding, safer intersections, rural roads, commercial vehicles, young drivers & riders, vulnerable road users (cyclists, pedestrians) and high risk drivers:
  - 95% rate of seat belt compliance
  - 95% rate of use of appropriate child restraints
  - 40% decrease in the number of fatally or seriously injured unbelted occupants
  - 40% decrease in road users fatally or seriously injured in crashes involving drinking drivers
- 40% decrease in the number of road users fatally or seriously injured on rural roadways (defined as roads where the speed limit is 80-90 km/h)
- 20% decrease in the number of road users killed or seriously injured in speed or intersection related crashes

- Road Safety Vision 2010 is a non-profit organization comprising representatives of the provincial, territorial and federal governments of Canada, which makes decisions on administrative and operational matters dealing with the licensing, registration and control of motor vehicle transportation and highway safety on a national level. Partners include the Ministries of Highways in every province, and the RCMP.

**Common themes among world leaders’ road safety strategies**

- **Engineering** - road design, removal of hazards, enhancing signage, rumble strips, safety of curbs, road maintenance

- **Enforcement** - seat belts, speeding, drunk driving, targeted strategies based on research, child safety seats

- **Education** – improved driver training & certification, proper use of child safety seats, helmet use, pedestrian awareness, cyclist awareness, commercial driver certifications, seat belt use

- **Engagement & collaboration** - coalitions of government, public and private sectors, and citizens; sharing responsibilities for the roads among road users; partnering on every aspect of transportation, from engineering, cost sharing and usage.

- **Research** - building a repository of information, research and analysis for sharing best practices and outcomes of specific strategies.

- **Promotion of a culture of road safety** - in the words of the BC Forest Safety Council’s Trucksafe motto, “unsafe is unacceptable”. When the general population begins to embrace a culture of road safety, and further to that, “road health”, pressure builds on government, industry and every road user group to come up with solutions, both legislative or regulatory, and in the area of personal behaviour changes.
Summary of Recommendations

This list of recommendations is by no means comprehensive, rather, it reflects the informed opinions of several individuals and agencies who contributed to this report. They are intended to be starting points for discussion and collaboration with all of those effected by motor vehicle crashes in the north.

From the Chief Medical Officer, Northern Health:

1. Establishment and maintenance of a Northern Regional interagency coalition to support and sustain Crash Reduction initiatives in the North through 2010 and beyond.

2. Establishment and maintenance of interagency/community coalitions to reduce MVCs in Northern communities. Crash reduction coalitions should include aboriginal representation and link to Crash reduction initiatives in First Nation Communities.

3. Reduced winter speed limits.

4. School based driver education to include winter driving instruction.

5. Signage on high crash sections of road and an increase in the use and placement of continuously updated road condition information signs.

6. Provincial leadership to develop safety standards and enforcement on resource roads.

7. Public education and awareness programs focussing on safely sharing roadways with
commercial vehicles and on winter driving techniques.

8. Enhancements to the Regional system of trauma care including formal linkages between northern physicians and the Provincial Ambulance service to improve response times, stabilization and treatment and, when needed timely referral and transport to tertiary trauma care.

9. Increased attention to the health of commercial transport drivers including hours of work, safety training, mandatory seatbelt use, nutrition and fatigue.

10. Continued and enhanced enforcement of existing laws relating to drinking and driving, speed, and vehicle safety. This work should be targeted as much as possible to high risk sections of road and to high risk times of day, month and year. There should also be an increase in enforcement when road conditions are poor.

11. Given the current high rate of crashes and the impact they have on families and communities critical stress debriefing and counselling should be offered following all severe MVCs.

12. Increased attention should be paid to the need for improvements on Northern highways including passing lanes, multiple lanes, and well maintained rest areas that are open year round. The priorities for improving Northern roads should be established in light of the observed patterns of crashes with urgent attention being given to the highest crash zones.

“The time to act is now. Road safety is no accident. It requires strong political will and concerted, sustained efforts across a range of sectors. Acting now will save lives”

- World Report on Road Traffic Injury Prevention, World Health Organization 2004
From the Regional Coroner:

- Proper tires should be fitted on vehicles. This is specifically targeted towards proper winter tires, correctly installed on vehicles in the north when driving in winter conditions.

- Highway design and speed ratings on certain segments need to be reviewed.

- Fatigue issues need to be addressed, Use of rumble strips both on the sidelines of the highway and in the centre lane.

- Increased and coordinated enforcement of off-road and resource road users, both commercial and recreational.

- Increased enforcement of commercial vehicles mechanical condition and driving behaviours.

From the Northern Road Safety Manager, ICBC:

- The public’s attitude toward road safety needs to change. We need to stop finger pointing and take personal responsibility for our driving choices

- Wear your seatbelt

- If you drink, don’t drive!

- Mandatory driver re-training and license upgrading for people that have been involved in several crashes

- Graduated licensing for commercial drivers
From the BC Forest Safety Council -

- Better and more effective administration of forestry infrastructure
- Work together with government and industry for solutions that will provide for better methods to ensure the proper construction and maintenance of resource roads;
- Better communications on and administration of the resource roads;
- Better management of the interface between resource roads and the public highways and the administration of the public highways, particularly in areas of high forestry vehicle use.
- Better trained and effective drivers: the need exists for driver training and programs to deal with issues related to driver effectiveness and safety.
- Elimination of duplication, overlap and underlap of jurisdiction affecting vehicle and responsibilities for road safety in the industry.

From RCMP North District Traffic Services:

- Get education to the individual driver
- Drivers need to be aware of the risk factors
- Be aware of night driving – Animals on the road, overdriving headlights, the elements, visibility of road lines
- Slow down, buckle up, don’t drink and drive
- Have different speeds for night and day driving
- Have slower posted speeds in high crash areas
- Place industry-based controls on resource road
- In the major animal movement season (the rut) put up signs with reflector ‘eyes’ to heighten awareness of animal corridors
From Wildlife-Vehicle Accident Prevention: Program:

- Educating agencies that are impacted by collisions with wildlife. MoT, MoE, RCMP, ICBC, federal government departments, trucking associations, BCAA, tourists, highways maintenance contractors and driving instructors.

- Increased public awareness and education for motorists on how to anticipate and avoid wildlife hazards on the road.

- Collecting and sharing data so that there are no missed areas. Currently, collisions within city limits, on rural roads, and on the Alaska Highway are not counted in provincial totals.

- Identification of “hot spots” for wildlife collisions and study of contributing factors to these “hot spots”.

- Identification of priority “hot spots” and development of mitigation methods for these areas

Recommendations from the Journal of American Medical Association Vol 281(22) 9 June 1999, pp 2080-2082 Centers for Disease Control & Prevention:

The challenge for the 21st century is to sustain and improve motor-vehicle safety. Future success will require augmentation of the public health approach to:

1. Expand surveillance to better monitor nonfatal injuries, detect new problems, and set priorities;

2. Direct research to emerging and priority problems;

3. Implement the most effective programs and policies; and
(4) strengthen interagency, multidisciplinary partnerships. Key public health activities will be to:

- Continue efforts shown to reduce alcohol-impaired driving and related fatalities and injuries
- Promote strategies such as graduated licensing that discourage teenage drinking and other risky driving behaviours such as speeding and encourage safety belt use
- Enhance pedestrian safety, especially for children and the elderly, through engineering solutions that reduce exposure to traffic and permit crossing streets safely and by encouraging safer pedestrian behaviours, such as crossing streets at intersections, and increasing visibility to drivers and driver awareness of pedestrians
- Accommodate the mobility needs of persons aged >65 years – a population that will almost double by 2030 – through a combination of alternative modes of transportation (eg: walking and better public transportation) and development of strategies to reduce driving hazards
- Encourage the 30% of the population who do not wear seat belts to use them routinely
- Encourage proper use of age-appropriate child-safety seats and booster seats, especially for older children who have outgrown their child seats but are too small for adult lap-shoulder belts
- Conduct biomechanics research to better understand the causes of nonfatal disabling injuries, in particular brain and spinal cord injuries, as a foundation for prevention strategies
- Develop a comprehensive public health surveillance system at the federal, provincial, and local levels that track fatal and nonfatal motor-vehicle-related injuries and other injuries and diseases (ie: outpatient and emergency department visits, hospitalizations, disabilities and deaths) as a basis for setting prevention and research priorities.25

A small group of thoughtful people could change the world. Indeed, it’s the only thing that ever has.
-Margaret Mead
Influencing personal choices

The Probability of Loss Triangle demonstrates the pyramid effect that begins with people making risky behaviour choices. The laws of probability show that for every 9600 risk-taking behaviours, there will be 600 misses, there will be 30 incidents of property damage, 10 injuries, and 1 fatality.

When calculations are made in reverse, based on current NH crash figures, the results are staggering. The 77 fatalities of 2004 means that there were an incredible 42,600 near misses, resulting from 739,200 risk taking behaviour choices! These are choices made by everyday drivers, passengers and pedestrians – you and me. We need to change our attitude towards safety, health, and make different choices.

Advertising and awareness campaigns have proven effective over time. But youth, the highest risk group, have become desensitized to media campaigns. In order to reach them, innovative, personally engaging and involving approaches must be taken.
The following is a list of web-based resources that contain valuable information regarding motor vehicle crash prevention strategies, best practices and success stories from around the world and across Canada.

**Crash Prevention Information**
- [www.smartriskfoundation.ca](http://www.smartriskfoundation.ca)
- [www.canadian-health-network.ca](http://www.canadian-health-network.ca)
- [www.icbc.com](http://www.icbc.com)
- [www.rcmp-grc.gc.ca](http://www.rcmp-grc.gc.ca)
- [www.phac-aspc.gc.ca](http://www.phac-aspc.gc.ca)
- [www.tc.gc.ca/roadsafety](http://www.tc.gc.ca/roadsafety)
- [www.carsp.ca](http://www.carsp.ca)
- [www.ccmta.ca](http://www.ccmta.ca)
- [www.driveandstayalive.com](http://www.driveandstayalive.com)
- [www.tsf-bcaa.com](http://www.tsf-bcaa.com)

**Wildlife Crashes**
- [www.wildlifeaccidents.ca](http://www.wildlifeaccidents.ca)

**Children & Youth**
- [www.roadsafe.ca](http://www.roadsafe.ca)
- [www.sadd.org](http://www.sadd.org)
- [www.partyprogram.com](http://www.partyprogram.com)
- [www.carsbc.org](http://www.carsbc.org)

**Impaired Driving Prevention**
- [www.madd.org](http://www.madd.org)
- [www.sadd.org](http://www.sadd.org)
- [www.rrid.org](http://www.rrid.org)
- [www.icbc.com](http://www.icbc.com)
- [www.cancelled.ca](http://www.cancelled.ca)

**Commercial Vehicles**
- [www.safety-council.org](http://www.safety-council.org)
- [www.worksafebc.ca](http://www.worksafebc.ca)
- [www.bcforestsafe.org](http://www.bcforestsafe.org)

**Best Practices**
- [www.safespeed.org](http://www.safespeed.org) (UK)
- [www.thinkroadsafety.gov.uk](http://www.thinkroadsafety.gov.uk) (UK)
- [www.ntf.se/engl/english.htm](http://www.ntf.se/engl/english.htm) (Sweden)
References


5. SMARTRISK FOUNDATION, www.smartrisk.ca


10. Adolescent Health Survey II, The McCreary Centre Society, Vancouver, BC. www.mcs.bc.ca


13. RCMP E Division, North District Traffic Services Strategic Framework Review, 2004

14. www.madd.ca

15. Fatigue and Safety in the Workplace, Worksafe Alberta Health and Safety Bulletin


20 "Sleep and Sleep-Disordered Breathing in Commercial Long Haul Truck Drivers", Ricardo Stoohs et al., Stanford Sleep Disorders Clinic and Research Center, California, 1994.


22 http://info.insure.com/auto/badfood402.html


24 Northern Health Strategic Plan 2004-2008


Centers for Disease Control & Prevention
Appendix

- Community Crash Profiles (ICBC)
Burns Lake Crash Profile

Population: 2,016

*Five-year average for the period October 1 to 31:*

**Crash Rates: (per 10,000 population):**
Burns Lake: 139.0
North/Central: 44.2
BC: 53.5

<table>
<thead>
<tr>
<th>Top 10 Crash Locations</th>
<th>Top 10 Injury Locations</th>
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</thead>
<tbody>
<tr>
<td>1 Hwy 16 &amp; Hwy 35</td>
<td>Hwy 16 &amp; Hwy 35</td>
</tr>
<tr>
<td>2 3rd Ave &amp; Hwy 16</td>
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<tr>
<td>3 1st Ave &amp; Centre St</td>
<td>8th Ave &amp; Centre St</td>
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<tr>
<td>4 8th Ave &amp; Centre St</td>
<td>Centre St &amp; Francois Lake Dr &amp; Hwy 16</td>
</tr>
<tr>
<td>5 Babine Rd &amp; Hwy 16</td>
<td>3rd Ave &amp; Carroll St</td>
</tr>
<tr>
<td>6 Centre St &amp; Francois Lake Dr &amp; Hwy 16</td>
<td>4th Ave &amp; Hwy 16</td>
</tr>
<tr>
<td>7 Hwy 35 &amp; Pioneer Way</td>
<td>5th Ave &amp; Centre St</td>
</tr>
<tr>
<td>8 Francois Lake Dr &amp; Hwy 35</td>
<td>800 Blk Babine Cres</td>
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<td>9 1st Ave &amp; Hwy 16</td>
<td>9th Ave &amp; Centre St</td>
</tr>
<tr>
<td>10 Eagle Creek Rd &amp; Hwy 35</td>
<td>900 Blk Centre St</td>
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</table>

**Top 3 contributing factors to crashes in Burns Lake:**
Alcohol
Speed
Weather
Chetwynd Crash Profile

Population: 2,722

Five-year average for the period October 1 to 31:
Crash Rates: (per 10,000 population):
Chetwynd: 136.3
North/Central: 44.2
BC: 53.5

<table>
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<tr>
<th>Top 10 Crash Locations</th>
<th>Top 10 Injury Locations</th>
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<td>Hwy 29 &amp; Jackfish Lake Rd</td>
</tr>
<tr>
<td>3 50th Ave &amp; 50th St</td>
<td>50th Ave &amp; 51st St</td>
</tr>
<tr>
<td>4 50th Ave &amp; 51st St</td>
<td>4800 Blk Hwy 97</td>
</tr>
<tr>
<td>5 4800 Blk Access Rd</td>
<td>47th Ave &amp; 51st St</td>
</tr>
<tr>
<td>6 4700 Blk Wabi Cres</td>
<td>Dokkie Subdiv &amp; Hwy 97</td>
</tr>
<tr>
<td>7 46th St &amp; Hwy 97</td>
<td>46th St &amp; 47th Ave</td>
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<tr>
<td>8 Hwy 29 &amp; Jackfish Lake Rd</td>
<td>4700 Blk 48th St</td>
</tr>
<tr>
<td>9 52nd St &amp; Access Rd</td>
<td>48th Ave &amp; 50th St</td>
</tr>
<tr>
<td>10 49th Ave &amp; 50th St</td>
<td>53rd St &amp; Access Rd</td>
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</tbody>
</table>

Top 3 contributing factors to crashes in Chetwynd:
Alcohol
Speed
Weather
Dawson Creek Crash Profile
Population: 11,290

Five-year average for the period October 1 to 31:

Crash Rates: (per 10,000 population):
Dawson Creek: 78.5
North/Central: 44.2
BC: 53.5

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<tr>
<th>Top 10 Crash Locations</th>
<th>Top 10 Injury Locations</th>
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<td>103rd Ave &amp; 8th St</td>
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<td>4 17th St &amp; Alaska Ave</td>
<td>8th St &amp; Alaska Hwy</td>
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<tr>
<td>5 102nd Ave &amp; 8th St</td>
<td>10th St &amp; 110th Ave &amp; 8th St</td>
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<td>6 15th St &amp; Alaska Ave</td>
<td>105th Ave &amp; 8th St</td>
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<tr>
<td>10 104th Ave &amp; 10th St</td>
<td>15th St &amp; 96th Ave</td>
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Top 3 contributing factors to crashes in Dawson Creek:
Alcohol
Ignoring Traffic Control
Speed
Fort Nelson Crash Profile

Population: 4,694

Five-year average for the period October 1 to 31:
Crash Rates: (per 10,000 population):
Fort Nelson: 75.3
North/Central: 44.2
BC: 53.5

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<th>Top Crash Locations</th>
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<td>Airport Dr &amp; Alaska Hwy</td>
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<td>50th St &amp; Alaska Hwy &amp; Liard St</td>
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<tr>
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<td>50th Ave &amp; Alaska Hwy &amp; Simpson Trail</td>
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<td>5100 Blk 50th Ave</td>
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<tr>
<td>9 Alaska Hwy &amp; Nahanni Dr</td>
<td>50th Ave &amp; Airport Dr</td>
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</tbody>
</table>

Top 3 contributing factors to crashes in Fort Nelson:
Alcohol
Fatigue
Speed
Fort St. James Crash Profile

Population: 5,208

Five-year average for the period October 1 to 31:
Crash Rates: (per 10,000 population):
Fort St. James: 46.2
North/Central: 44.2
BC: 53.5

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<thead>
<tr>
<th>Top 10 Crash Locations</th>
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</tr>
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<td>Douglas Ave &amp; Elm St</td>
</tr>
<tr>
<td>4 Hwy 27 &amp; Necoslie Rd</td>
<td>100 Blk Stuart Dr</td>
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<tr>
<td>5 100 Blk Stuart Dr</td>
<td>200 Blk 4th Ave</td>
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<td>10 500 Blk Fir St</td>
<td>Germansen Landing Rd &amp; Tachie Rd &amp; Takla Rd</td>
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Top contributing factors to crashes in Fort St James:
Alcohol
Speed
Fort St. John Crash Profile

Population: 19,936

*Five-year average for the period October 1 to 31:*

**Crash Rates: (per 10,000 population):**
Fort St. John: 79.0
North/Central: 44.2
BC: 53.5

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<tr>
<th>Top 10 Crash Locations</th>
<th>Top 10 Injury Locations</th>
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<td>5 100th St &amp; 93rd Ave</td>
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<td>10 96A St &amp; 96th St &amp; Alaska Hwy</td>
<td>104th St &amp; 107th St &amp; Alaska Hwy</td>
</tr>
</tbody>
</table>

**Top 3 contributing factors to crashes in Fort St John:**
Alcohol
Ignoring Traffic Control
Speed
Fraser Lake Crash Profile

Population: 1,366

*Five-year average for the period October 1 to 31:*

**Crash Rates: (per 10,000 population):**
Fraser Lake: 90.7
North/Central: 44.2
BC: 53.5

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<tr>
<th>Top Crash Locations</th>
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<tr>
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<tr>
<td>3 Endako Ave &amp; Nadina Cres &amp; Tunasa Cres</td>
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<td>4 0 Blk Chowsunket St</td>
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</tr>
<tr>
<td>9 Nadina Cres &amp; Nadina Dr</td>
<td>0 Blk Nadina Pl</td>
</tr>
</tbody>
</table>

**Top 3 contributing factors to crashes in Fraser Lake:**
Alcohol
Fatigue
Speed
Gitwinksihlkw Crash Profile
Population: 232

*Five-year average for the period October 1 to 31:*

Crash Rates: (per 10,000 population):
Gitwinksihlkw: 68.5
North/Central: 44.2
BC: 53.5

Granisle Crash Profile
Population: 366

*Five-year average for the period October 1 to 31:*

Crash Rates: (per 10,000 population):
Granisle: 81.5
North/Central: 44.2
BC: 53.5

Top contributing factor to crashes in Granisle:
Alcohol
Hazelton Crash Profile

Population: 354

*Five-year average for the period October 1 to 31:*

Crash Rates: (per 10,000 population):
Hazelton: 173.7
North/Central: 44.2
BC: 53.5

<table>
<thead>
<tr>
<th>Top Crash Locations</th>
<th>Top Injury Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 4600 Blk Hwy 62</td>
<td>4600 Blk Hwy 62</td>
</tr>
<tr>
<td>2 2nd Ave &amp; Cordova St</td>
<td>2nd Ave &amp; Cordova St</td>
</tr>
<tr>
<td>3 5000 Blk 2nd Ave</td>
<td>5000 Blk 2nd Ave</td>
</tr>
<tr>
<td>4 2nd Ave &amp; Hwy 62</td>
<td>2nd Ave &amp; Hwy 62</td>
</tr>
<tr>
<td>5 4th Ave &amp; Hastings St</td>
<td>4th Ave &amp; Hastings St</td>
</tr>
<tr>
<td>6 4500 Blk Hwy 62</td>
<td>4500 Blk Hwy 62</td>
</tr>
</tbody>
</table>
Houston Crash Profile

Population: 3,666

*Five-year average for the period October 1 to 31:*  
Crash Rates: (per 10,000 population):  
Houston: 63.1  
North/Central: 44.2  
BC: 53.5

<table>
<thead>
<tr>
<th>Top 10 Crash Locations</th>
<th>Top 10 Injury Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1   Hwy 16 &amp; Tweedie Ave</td>
<td>Hwy 16 &amp; Tweedie Ave</td>
</tr>
<tr>
<td>2   Buck Flats Rd &amp; Hwy 16</td>
<td>Benson Ave &amp; Hwy 16</td>
</tr>
<tr>
<td>3   Butler Ave &amp; Hwy 16</td>
<td>11th St &amp; Butler Ave</td>
</tr>
<tr>
<td>4   Benson Ave &amp; Hwy 16</td>
<td>Hwy 16 &amp; Morice River FSR</td>
</tr>
<tr>
<td>5   11th St &amp; Butler Ave</td>
<td>11th St &amp; Poulton Ave</td>
</tr>
<tr>
<td>6   3500 Blk 11th St</td>
<td>Buck Flats Rd &amp; Lund Rd</td>
</tr>
<tr>
<td>7   Hwy 16 &amp; Morice River FSR</td>
<td>9th St &amp; Hwy 16</td>
</tr>
<tr>
<td>8   Buck Flats Rd &amp; Lund Rd</td>
<td>Buck Flats Rd &amp; Teer Rd</td>
</tr>
<tr>
<td>9   Hwy 16 &amp; Nadina Ave</td>
<td>Pearson Rd &amp; Sullivan Way</td>
</tr>
<tr>
<td>10  3100 Blk Hagman Cres</td>
<td>Hungry Hill Way &amp; Hwy 16</td>
</tr>
</tbody>
</table>

Top 3 contributing factors to crashes in Houston:  
Fatigue  
Ignoring Traffic Control  
Weather
Hudsons Hope Crash Profile

Population: 1,156

*Five-year average for the period October 1 to 31:*

Crash Rates: (per 10,000 population):
Hudsons Hope: 64.9
North/Central: 44.2
BC: 53.5

<table>
<thead>
<tr>
<th>Top 10 Crash Locations</th>
<th>Top 10 Injury Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1   Hwy 29</td>
<td>Hwy 29</td>
</tr>
<tr>
<td>2   Beattie Dr &amp; Kyllo St</td>
<td>Beattie Dr &amp; Kyllo St</td>
</tr>
<tr>
<td>3   Beryl Prairie Rd &amp; Canyon Dr</td>
<td>10100 Blk Canyon Dr</td>
</tr>
<tr>
<td>4   11000 Blk Beattie Dr</td>
<td>Beryl Prairie Rd &amp; Canyon Dr</td>
</tr>
<tr>
<td>5   Canyon Dr &amp; Forfar St</td>
<td>10000 Blk Dudley Dr</td>
</tr>
<tr>
<td>6   10500 Blk Beattie Dr</td>
<td>9900 Blk Dudley Dr</td>
</tr>
<tr>
<td>7   10100 Blk Canyon Dr</td>
<td>10000 Blk Kyllo St</td>
</tr>
<tr>
<td>8   10000 Blk Dudley Dr</td>
<td>11000 Blk Beattie Dr</td>
</tr>
<tr>
<td>9   10000 Blk Kyllo St</td>
<td>Canyon Dr &amp; Forfar St</td>
</tr>
<tr>
<td>10  9900 Blk Dudley Dr</td>
<td>10500 Blk Beattie Dr</td>
</tr>
</tbody>
</table>

Kincolith Crash Profile

Population: 326

*Five-year average for the period October 1 to 31:*

Crash Rates: (per 10,000 population):
Kincolith: 30.6
North/Central: 44.2
BC: 53.5
Kitimat Crash Profile

Population: 10,449

Five-year average for the period October 1 to 31:

Crash Rates: (per 10,000 population):
Kitimat: 34.3
North/Central: 44.2
BC: 53.5

<table>
<thead>
<tr>
<th>Top 10 Crash Locations</th>
<th>Top 10 Injury Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Haisla Blvd &amp; Lahakas Blvd</td>
<td>Haisla Blvd &amp; Lahakas Blvd</td>
</tr>
<tr>
<td>2 800 Blk Haisla Blvd</td>
<td>800 Blk Haisla Blvd</td>
</tr>
<tr>
<td>3 Haisla Blvd &amp; Kuldo Blvd</td>
<td>Haisla Blvd &amp; Hwy 37 &amp; Kitamaat Village Rd &amp; Nalabila Blvd</td>
</tr>
<tr>
<td>4 Haisla Blvd &amp; Hwy 37 &amp; Kitamaat Village Rd &amp; Nalabila Blvd</td>
<td>Hwy 35 &amp; Hwy 37 &amp; Kitimat FSR</td>
</tr>
<tr>
<td>5 Hwy 35 &amp; Hwy 37 &amp; Kitimat FSR</td>
<td>Haisla Blvd &amp; Tsimshian Blvd</td>
</tr>
<tr>
<td>6 Haisla Blvd &amp; Tsimshian Blvd</td>
<td>Columbia Ave &amp; Kuldo Blvd</td>
</tr>
<tr>
<td>7 Columbia Ave &amp; Kuldo Blvd</td>
<td>Columbia Ave &amp; Cranberry St &amp; Quatsino Blvd</td>
</tr>
<tr>
<td>8 0 Blk Carswell St</td>
<td>Hawk St &amp; Kingfisher Ave &amp; Mallard St</td>
</tr>
<tr>
<td>9 Gyrfalcon Ave &amp; Kingfisher Ave &amp; Nightingale St</td>
<td>Albatross Ave &amp; Kingfisher Ave</td>
</tr>
<tr>
<td>10 0 Blk Swan St</td>
<td>Babine St &amp; Columbia Ave</td>
</tr>
</tbody>
</table>

Top 3 contributing factors to crashes in Kitimat:
Alcohol
Following too close
Weather
## Mackenzie Crash Profile

Population: 5,444

*Five-year average for the period October 1 to 31:*
Crash Rates: (per 10,000 population):
- Mackenzie: 43.3
- North/Central: 44.2
- BC: 53.5

<table>
<thead>
<tr>
<th></th>
<th>Top 10 Crash Locations</th>
<th>Top 10 Injury Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>200 Blk Centennial Dr</td>
<td>200 Blk Centennial Dr</td>
</tr>
<tr>
<td>2</td>
<td>300 Blk Crooked River Cres</td>
<td>MacKenzie Blvd &amp; Stuart Dr</td>
</tr>
<tr>
<td>3</td>
<td>MacKenzie Blvd &amp; Stuart Dr</td>
<td>Centennial Dr &amp; Skeena Dr</td>
</tr>
<tr>
<td>4</td>
<td>Centennial Dr &amp; Skeena Dr</td>
<td>MacKenzie Blvd &amp; Pioneer St</td>
</tr>
<tr>
<td>5</td>
<td>0 Blk McIntyre Dr</td>
<td>400 Blk MacKenzie Blvd</td>
</tr>
<tr>
<td>6</td>
<td>400 Blk MacKenzie Blvd</td>
<td>Centennial Dr &amp; Selwyn Dr</td>
</tr>
<tr>
<td>7</td>
<td>200 Blk MacKenzie Blvd</td>
<td>McIntyre Dr &amp; Reynolds Rd</td>
</tr>
<tr>
<td>8</td>
<td>MacKenzie Blvd &amp; Pioneer St</td>
<td>800 Blk MacKenzie Blvd</td>
</tr>
<tr>
<td>9</td>
<td>0 Blk Alberta Dr</td>
<td>Firth Cres &amp; MacKenzie Blvd</td>
</tr>
<tr>
<td>10</td>
<td>McIntyre Dr &amp; Reynolds Rd</td>
<td>Ospika Cres &amp; Selwyn Dr</td>
</tr>
</tbody>
</table>
### Masset Crash Profile

Population: 965

**Five-year average for the period October 1 to 31:**

Crash Rates: (per 10,000 population):
- Masset: 80.1
- North/Central: 44.2
- BC: 53.5

<table>
<thead>
<tr>
<th>Top Crash Locations</th>
<th>Top Injury Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Collison Ave &amp; Main St</td>
<td>Collison Ave &amp; Main St</td>
</tr>
<tr>
<td>2 300 Blk Eagle Ave</td>
<td>300 Blk Eagle Ave</td>
</tr>
<tr>
<td>3 Collison Ave &amp; Harrison Ave</td>
<td>Collison Ave &amp; Harrison Ave</td>
</tr>
<tr>
<td>4 2100 Blk Harrison Ave</td>
<td>Cook St &amp; Harrison Ave</td>
</tr>
<tr>
<td>5 Cook St &amp; Harrison Ave</td>
<td>Delkatla St &amp; Harrison Ave</td>
</tr>
<tr>
<td>6 1900 Blk Collison Ave</td>
<td>Masset Cemetery Rd &amp; Tow Hill Rd &amp; Wandeville St</td>
</tr>
<tr>
<td>7 Delkatla St &amp; Harrison Ave</td>
<td>1900 Blk Collison Ave</td>
</tr>
<tr>
<td>8 Masset Cemetery Rd &amp; Tow Hill Rd &amp; Wandeville St</td>
<td>100 Blk Raven Ave</td>
</tr>
<tr>
<td>9 100 Blk Raven Ave</td>
<td>Harrison Ave &amp; Main St</td>
</tr>
</tbody>
</table>
McBride Crash Profile
Population: 741

*Five-year average for the period October 1 to 31:*

Crash Rates: (per 10,000 population):
McBride: 108.7
North/Central: 44.2
BC: 53.5

New Aiyansh Crash Profile
Population: 746

*Five-year average for the period October 1 to 31:*

Crash Rates: (per 10,000 population):
New Aiyansh: 31.9
North/Central: 44.2
BC: 53.5

<table>
<thead>
<tr>
<th>Top Crash Locations</th>
<th>Top Injury Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Aiyansh Rd &amp; Nass FSR &amp; Nass Rd &amp; Skateen Ave</td>
<td>Aiyansh Rd &amp; Nass FSR &amp; Nass Rd &amp; Skateen Ave</td>
</tr>
<tr>
<td>2 Robinson St &amp; Skateen Ave</td>
<td>Robinson St &amp; Skateen Ave</td>
</tr>
<tr>
<td>3 Adams Cres &amp; Gosnell Cres &amp; Tait Ave</td>
<td>Adams Cres &amp; Gosnell Cres &amp; Tait Ave</td>
</tr>
</tbody>
</table>

Top 3 contributing factors to crashes in New Aiyansh:
Alcohol
Fatigue
Speed
New Hazelton Crash Profile

Population: 763

Five-year average for the period October 1 to 31:

Crash Rates: (per 10,000 population):
New Hazelton: 61.6
North/Central: 44.2
BC: 53.5

<table>
<thead>
<tr>
<th>Top 10 Crash Locations</th>
<th>Top 10 Injury Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 11th Ave &amp; McBride St</td>
<td>11th Ave &amp; McBride St</td>
</tr>
<tr>
<td>2 10th Ave &amp; Churchill St</td>
<td>10th Ave &amp; Churchill St</td>
</tr>
<tr>
<td>3 College St &amp; Hwy 16</td>
<td>College St &amp; Hwy 16</td>
</tr>
<tr>
<td>4 10th Ave &amp; McLeod St</td>
<td>10th Ave &amp; McLeod St</td>
</tr>
<tr>
<td>5 3300 Blk Fielding St</td>
<td>3300 Blk Fielding St</td>
</tr>
<tr>
<td>6 10th Ave &amp; Bowser St</td>
<td>10th Ave &amp; Bowser St</td>
</tr>
<tr>
<td>7 Birch Rd &amp; Hwy 16 &amp; Ross Lake Rd</td>
<td>11th Ave &amp; Bowser St</td>
</tr>
<tr>
<td>8 5th Ave &amp; Churchill St</td>
<td>5th Ave &amp; Churchill St</td>
</tr>
<tr>
<td>9 4100 Blk 10th Ave</td>
<td>10th Ave &amp; Kelly St</td>
</tr>
<tr>
<td>10 3900 Blk Pugsley St</td>
<td>4100 Blk 10th Ave</td>
</tr>
</tbody>
</table>

Top contributing factors to crashes in New Hazelton:
Alcohol
Fatigue
Port Edward Crash Profile

Population: 658

Five-year average for the period October 1 to 31:

Crash Rates: (per 10,000 population):
Port Edward: 44.5
North/Central: 44.2
BC: 53.5

<table>
<thead>
<tr>
<th>Top Crash Locations</th>
<th>Top Injury Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Boundary Dr &amp; Harbourview Dr &amp; Nelson Ave</td>
<td>Boundary Dr &amp; Harbourview Dr &amp; Nelson Ave</td>
</tr>
<tr>
<td>2 200 Blk Pacific Ave</td>
<td>200 Blk Pacific Ave</td>
</tr>
<tr>
<td>3 Alder Ave &amp; Oceanview Dr</td>
<td>Alder Ave &amp; Oceanview Dr</td>
</tr>
</tbody>
</table>

Top contributing factor to crashes in Port Edward:
Alcohol
Pouce Coupe Crash Profile

Population: 862

Five-year average for the period October 1 to 31:

Crash Rates: (per 10,000 population):
Pouce Coupe: 115.9
North/Central: 44.2
BC: 53.5

<table>
<thead>
<tr>
<th>Top 10 Crash Locations</th>
<th>Top 10 Injury Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 52nd Ave &amp; 53rd St</td>
<td>52nd Ave &amp; 53rd St</td>
</tr>
<tr>
<td>2 8th St &amp; Adams Rd &amp; Rd 217</td>
<td>8th St &amp; Adams Rd &amp; Rd 217</td>
</tr>
<tr>
<td>3 Hwy 2</td>
<td>Hwy 2 &amp; unnamed lane</td>
</tr>
<tr>
<td>4 17th St &amp; Adams Rd &amp; Rd 219</td>
<td>50th Ave &amp; 51st St</td>
</tr>
<tr>
<td>5 4700 Blk 56th Ave</td>
<td>50th St &amp; 52nd Ave</td>
</tr>
<tr>
<td>6 4800 Blk 47th Ave</td>
<td>50th St &amp; 55th Ave</td>
</tr>
<tr>
<td>7 4800 Blk 49th Ave</td>
<td>17th St &amp; Adams Rd &amp; Rd 219</td>
</tr>
<tr>
<td>8 4900 Blk 55th Ave</td>
<td>4700 Blk 56th Ave</td>
</tr>
<tr>
<td>9 4900 Blk 50th Ave</td>
<td>4800 Blk 47th Ave</td>
</tr>
<tr>
<td>10 4900 Blk 49th Ave</td>
<td>4800 Blk 49th Ave</td>
</tr>
</tbody>
</table>

Top contributing factor to crashes in Pouce Coupe: Speed
Prince George Crash Profile

Population: 77,721

Five-year average for the period October 1 to 31:

Crash Rates: (per 10,000 population):
Prince George: 61.3
North/Central: 44.2
BC: 53.5

<table>
<thead>
<tr>
<th>Top 10 Crash Locations</th>
<th>Top 10 Injury Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Domano Blvd &amp; Hwy 16</td>
<td>Domano Blvd &amp; Hwy 16</td>
</tr>
<tr>
<td>2 15th Ave &amp; Patricia Blvd &amp; Victoria St</td>
<td>15th Ave &amp; Patricia Blvd &amp; Victoria St</td>
</tr>
<tr>
<td>3 Ferry Ave &amp; Hwy 16</td>
<td>Ferry Ave &amp; Hwy 16</td>
</tr>
<tr>
<td>4 Cariboo Hwy &amp; Hwy 16</td>
<td>Cariboo Hwy &amp; Hwy 16</td>
</tr>
<tr>
<td>5 15th Ave &amp; Cariboo Hwy</td>
<td>15th Ave &amp; Cariboo Hwy</td>
</tr>
<tr>
<td>6 15th Ave &amp; Ospika Blvd</td>
<td>15th Ave &amp; Ospika Blvd</td>
</tr>
<tr>
<td>7 5th Ave &amp; Ospika Blvd</td>
<td>5th Ave &amp; Ospika Blvd</td>
</tr>
<tr>
<td>8 Massey Dr &amp; Westwood Dr</td>
<td>Cowart Rd &amp; Hwy 16 &amp; Vance Rd</td>
</tr>
<tr>
<td>9 3rd Ave &amp; Victoria St</td>
<td>John Hart Bridge</td>
</tr>
<tr>
<td>10 Cowart Rd &amp; Hwy 16 &amp; Vance Rd</td>
<td>13th Ave &amp; Winnipeg St</td>
</tr>
</tbody>
</table>

Top 3 contributing factors to crashes in Prince George:
Alcohol
Following too close
Speed
**Prince Rupert Crash Profile**

Population: 15,020

*Five-year average for the period October 1 to 31:*

Crash Rates: (per 10,000 population):
Prince Rupert: 28.5
North/Central: 44.2
BC: 53.5

<table>
<thead>
<tr>
<th>Top 10 Crash Locations</th>
<th>Top 10 Injury Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 3rd Ave &amp; McBride St</td>
<td>3rd Ave &amp; McBride St</td>
</tr>
<tr>
<td>2 5th Ave &amp; McBride St</td>
<td>5th Ave &amp; McBride St</td>
</tr>
<tr>
<td>3 3rd Ave &amp; 4th St &amp; Fulton St</td>
<td>3rd Ave &amp; 4th St &amp; Fulton St</td>
</tr>
<tr>
<td>4 2nd Ave &amp; McBride St</td>
<td>2nd Ave &amp; McBride St</td>
</tr>
<tr>
<td>5 Hwy 16 &amp; Prince Rupert Blvd</td>
<td>Hwy 16 &amp; Prince Rupert Blvd</td>
</tr>
<tr>
<td>6 6th Ave &amp; Summit Ave &amp; Taylor St</td>
<td>2nd St &amp; 3rd Ave</td>
</tr>
<tr>
<td>7 2nd Ave &amp; 5th St</td>
<td>3rd Ave &amp; 5th St</td>
</tr>
<tr>
<td>8 2nd Ave &amp; 2nd St</td>
<td>3rd Ave &amp; 7th St</td>
</tr>
<tr>
<td>9 3rd Ave &amp; 5th St</td>
<td>7th Ave &amp; McBride St</td>
</tr>
<tr>
<td>10 2nd Ave &amp; 3rd St</td>
<td>8th Ave &amp; McBride St</td>
</tr>
</tbody>
</table>

**Top 3 contributing factors to crashes in Prince Rupert:**
Alcohol
Following too close
Speed
Queen Charlotte Crash Profile

Population: 1,877

Five-year average for the period October 1 to 31:

Crash Rates: (per 10,000 population):
Queen Charlotte: 44.8
North/Central: 44.2
BC: 53.5

<table>
<thead>
<tr>
<th>Top 10 Crash Locations</th>
<th>Top 10 Injury Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 200 Blk 3rd Ave</td>
<td>200 Blk 3rd Ave</td>
</tr>
<tr>
<td>2 800 Blk Hwy 33</td>
<td>800 Blk Hwy 33</td>
</tr>
<tr>
<td>3 600 Blk 3rd Ave</td>
<td>600 Blk 3rd Ave</td>
</tr>
<tr>
<td>4 3200 Blk 3rd Ave</td>
<td>3200 Blk 3rd Ave</td>
</tr>
<tr>
<td>5 1200 Blk Cemetery Rd</td>
<td>3rd Ave &amp; Hwy 16</td>
</tr>
<tr>
<td>6 900 Blk 3rd Ave</td>
<td>3rd Ave &amp; Alder St</td>
</tr>
<tr>
<td>7 800 Blk 2nd Ave</td>
<td>1200 Blk Cemetery Rd</td>
</tr>
<tr>
<td>8 700 Blk 1st Ave</td>
<td>900 Blk 3rd Ave</td>
</tr>
<tr>
<td>9 600 Blk 7th St</td>
<td>800 Blk 2nd Ave</td>
</tr>
<tr>
<td>10 600 Blk Hwy 33</td>
<td>700 Blk 1st Ave</td>
</tr>
</tbody>
</table>
Quesnel Crash Profile
Population: 10,417

Five-year average for the period October 1 to 31:

Crash Rates: (per 10,000 population):
Quesnel: 127.5
North/Central: 44.2
BC: 53.5

<table>
<thead>
<tr>
<th>Top 10 Crash Locations</th>
<th>Top 10 Injury Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1   Hwy 97 &amp; Maple Dr</td>
<td>Hwy 97 &amp; Maple Dr</td>
</tr>
<tr>
<td>2   Carson Ave &amp; Front St</td>
<td>Carson Ave &amp; Front St</td>
</tr>
<tr>
<td>3   Moffat Bridge</td>
<td>Moffat Bridge</td>
</tr>
<tr>
<td>4   Carson Ave &amp; Davie St &amp;</td>
<td>Carson Ave &amp; Davie St &amp;</td>
</tr>
<tr>
<td>Kinchant St</td>
<td>Kinchant St</td>
</tr>
<tr>
<td>5   Carson Ave &amp; McLean St</td>
<td>Carson Ave &amp; McLean St</td>
</tr>
<tr>
<td>6   Anderson Dr &amp; Lewis Dr &amp;</td>
<td>Anderson Dr &amp; Lewis Dr &amp;</td>
</tr>
<tr>
<td>Marsh Dr</td>
<td>Marsh Dr</td>
</tr>
<tr>
<td>7   Reid St &amp; St Laurent Ave</td>
<td>Carson Ave &amp; Reid St</td>
</tr>
<tr>
<td>8   Carson Ave &amp; Reid St</td>
<td>Front St &amp; St Laurent Ave</td>
</tr>
<tr>
<td>9   Abbott Dr &amp; Anderson Dr &amp;</td>
<td>Front St &amp; Shepherd Ave</td>
</tr>
<tr>
<td>Doherty Dr</td>
<td></td>
</tr>
<tr>
<td>10  Front St &amp; St Laurent Ave</td>
<td>Barlow Ave &amp; Front St</td>
</tr>
</tbody>
</table>

Top 3 contributing factors to crashes in Quesnel:
Alcohol
Ignoring Traffic Control
Speed
Smithers Crash Profile
Population: 5,637

Five-year average for the period October 1 to 31:

Crash Rates: (per 10,000 population):
Smithers: 84.5
North/Central: 44.2
BC: 53.5

<table>
<thead>
<tr>
<th>Top 10 Crash Locations</th>
<th>Top 10 Injury Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Hwy 16 &amp; King St</td>
<td>Hwy 16 &amp; King St</td>
</tr>
<tr>
<td>2 Hwy 16 &amp; Queen St</td>
<td>Hwy 16 &amp; Queen St</td>
</tr>
<tr>
<td>3 Bulkley Dr &amp; Hwy 16 &amp; Toronto St</td>
<td>Bulkley Dr &amp; Hwy 16 &amp; Toronto St</td>
</tr>
<tr>
<td>4 Hwy 16 &amp; Main St</td>
<td>Hwy 16 &amp; Main St</td>
</tr>
<tr>
<td>5 Broadway Ave &amp; Main St</td>
<td>3rd Ave &amp; Main St</td>
</tr>
<tr>
<td>6 3rd Ave &amp; Queen St</td>
<td>Hwy 16 &amp; Manitoba St</td>
</tr>
<tr>
<td>7 2nd Ave &amp; Main St</td>
<td>Hwy 16 &amp; Raceway Rd</td>
</tr>
<tr>
<td>8 1st Ave &amp; Main St</td>
<td>Anderson Rd &amp; Hwy 16 &amp; Scotia St</td>
</tr>
<tr>
<td>9 3rd Ave &amp; Main St</td>
<td>8th Ave &amp; Columbia Dr</td>
</tr>
<tr>
<td>10 Hwy 16 &amp; Tatlow Rd</td>
<td>9th Ave &amp; Main St</td>
</tr>
</tbody>
</table>

Top 3 contributing factors to crashes in Smithers:
Alcohol
Following too close
Speed
Stewart Crash Profile
Population: 715

Five-year average for the period October 1 to 31:

Crash Rates: (per 10,000 population):
Stewart: 39.9
North/Central: 44.2
BC: 53.5

<table>
<thead>
<tr>
<th>Top 10 Crash Locations</th>
<th>Top 10 Injury Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 5th Ave &amp; Brightwell St</td>
<td>5th Ave &amp; Brightwell St</td>
</tr>
<tr>
<td>2 5th Ave &amp; Conway St</td>
<td>5th Ave &amp; Conway St</td>
</tr>
<tr>
<td>3 100 Blk 7th Ave</td>
<td>500 Blk 7th Ave</td>
</tr>
<tr>
<td>4 5th Ave &amp; Vancouver St</td>
<td>8th Ave &amp; Conway St</td>
</tr>
<tr>
<td>5 300 Blk 5th Ave</td>
<td>100 Blk 7th Ave</td>
</tr>
<tr>
<td>6 400 Blk 10th Ave</td>
<td>600 Blk 6th Ave</td>
</tr>
<tr>
<td>7 500 Blk 7th Ave</td>
<td>3rd Ave &amp; Conway St</td>
</tr>
<tr>
<td>8 3rd Ave &amp; Conway St</td>
<td>5th Ave &amp; Vancouver St</td>
</tr>
<tr>
<td>9 8th Ave &amp; Conway St</td>
<td>300 Blk 5th Ave</td>
</tr>
<tr>
<td>10 600 Blk 6th Ave</td>
<td>400 Blk 10th Ave</td>
</tr>
</tbody>
</table>
Taylor Crash Profile

Population: 1,287

*Five-year average for the period October 1 to 31:*

Crash Rates: (per 10,000 population):
- Taylor: 88.7
- North/Central: 44.2
- BC: 53.5

<table>
<thead>
<tr>
<th>Top 10 Crash Locations</th>
<th>Top 10 Injury Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Alaska Hwy &amp; Birch Ave</td>
<td>Alaska Hwy &amp; Birch Ave</td>
</tr>
<tr>
<td>2 10500 Blk 101st St</td>
<td>10500 Blk 101st St</td>
</tr>
<tr>
<td>3 9600 Blk 97th St</td>
<td>9600 Blk 97th St</td>
</tr>
<tr>
<td>4 10700 Blk 100th St</td>
<td>10700 Blk 100th St</td>
</tr>
<tr>
<td>5 9700 Blk Birch Ave</td>
<td>103rd Ave &amp; Alaska Hwy</td>
</tr>
<tr>
<td>6 98th Ave &amp; 98th St</td>
<td>9700 Blk Birch Ave</td>
</tr>
<tr>
<td>7 9800 Blk Spruce St</td>
<td>98th Ave &amp; 98th St</td>
</tr>
<tr>
<td>8 Alaska Hwy &amp; Cherry Ave</td>
<td>9800 Blk Spruce St</td>
</tr>
<tr>
<td>9 Alaska Hwy &amp; highway ramp</td>
<td>Alaska Hwy &amp; Cherry Ave</td>
</tr>
<tr>
<td>10 10100 Blk 101st St</td>
<td>Alaska Hwy &amp; highway ramp</td>
</tr>
</tbody>
</table>

Top contributing factors to crashes in Taylor:
- Alcohol
- Speed
Telkwa Crash Profile
Population: 1,417

*Five-year average for the period October 1 to 31:*

Crash Rates: (per 10,000 population):
- Telkwa: 135.0
- North/Central: 44.2
- BC: 53.5

<table>
<thead>
<tr>
<th>Top 10 Crash Locations</th>
<th>Top 10 Injury Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Coalmine Rd &amp; Dogwood Ste</td>
<td>4th St &amp; Hankin Ave</td>
</tr>
<tr>
<td>2 4th St &amp; Hankin Ave</td>
<td>4th St &amp; Hwy 16 &amp; Tower St</td>
</tr>
<tr>
<td>3 4th St &amp; Hwy 16 &amp; Tower St</td>
<td>Coalmine Rd &amp; Skillhorn Rd</td>
</tr>
<tr>
<td>4 Coalmine Rd &amp; Skillhorn Rd</td>
<td>Hankin Ave &amp; Riverside St</td>
</tr>
<tr>
<td>5 1600 Blk Tower St</td>
<td>Hunter Ave &amp; Hwy 16</td>
</tr>
<tr>
<td>6 Hwy 16 &amp; Raymond Rd</td>
<td>Chapman Rd &amp; Pinewood Rd &amp; Tatlow Rd</td>
</tr>
<tr>
<td>7 Babine Lake Rd &amp; Hwy 16 &amp; Laidlaw Frtg</td>
<td>Boundary Rd &amp; Woodmere Rd</td>
</tr>
<tr>
<td>8 Morris Rd &amp; Skillhorn Rd</td>
<td>7800 Blk Lawson Rd</td>
</tr>
<tr>
<td>9 Jackpine Rd &amp; Skillhorn Rd</td>
<td>Hislop Rd &amp; Tyhee Lake Rd</td>
</tr>
<tr>
<td>10 Cottonwood St &amp; Fir St</td>
<td>4th St &amp; Hope Ave</td>
</tr>
</tbody>
</table>

Top contributing factors to crashes in Telkwa:
- Alcohol
- Speed
Terrace Crash Profile
Population: 12,565

Five-year average for the period October 1 to 31:

Crash Rates: (per 10,000 population):
Terrace: 59.6
North/Central: 44.2
BC: 53.5

<table>
<thead>
<tr>
<th>Top 10 Crash Locations</th>
<th>Top 10 Injury Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Kalum St &amp; Lakelse Ave</td>
<td>Kalum St &amp; Lakelse Ave</td>
</tr>
<tr>
<td>2 Kalum St &amp; Keith Ave</td>
<td>Kalum St &amp; Keith Ave</td>
</tr>
<tr>
<td>3 Keith Ave &amp; Kenney St</td>
<td>Keith Ave &amp; Kenney St</td>
</tr>
<tr>
<td>4 Kalum St &amp; Park Ave</td>
<td>Kalum St &amp; Park Ave</td>
</tr>
<tr>
<td>5 Eby St &amp; Hwy 16</td>
<td>Eby St &amp; Hwy 16</td>
</tr>
<tr>
<td>6 Eby St &amp; Lazelle Ave</td>
<td>Eby St &amp; Lazelle Ave</td>
</tr>
<tr>
<td>7 Eby St &amp; Lakelse Ave</td>
<td>Keith Ave &amp; Tetrault St</td>
</tr>
<tr>
<td>8 Keith Ave &amp; Tetrault St</td>
<td>Lakelse Ave &amp; Sparks St</td>
</tr>
<tr>
<td>9 Lakelse Ave &amp; Sparks St</td>
<td>Hwy 16 &amp; Munroe St</td>
</tr>
<tr>
<td>10 Eby St &amp; Walsh Ave</td>
<td>4600 Blk Lakelse Ave</td>
</tr>
</tbody>
</table>

Top 3 contributing factors to crashes in Terrace:
Alcohol
Fatigue
Speed
Tumbler Ridge Crash Profile

Population: 2,461

*Five-year average for the period October 1 to 31:*

Crash Rates: (per 10,000 population):
Tumbler Ridge: 64.8
North/Central: 44.2
BC: 53.5

<table>
<thead>
<tr>
<th>Top 10 Crash Locations</th>
<th>Top 10 Injury Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Bullmoose Rd &amp; Hwy 29</td>
<td>Bullmoose Rd &amp; Hwy 29</td>
</tr>
<tr>
<td>2 Hwy 29 &amp; Hwy 52</td>
<td>Hwy 29 &amp; Hwy 52</td>
</tr>
<tr>
<td>3 100 Blk Chamberlain Cres</td>
<td>200 Blk Southgate St</td>
</tr>
<tr>
<td>4 200 Blk Southgate St</td>
<td>100 Blk Ash Cres</td>
</tr>
<tr>
<td>5 Monkman Way &amp; Willow Dr</td>
<td>Spruce Ave &amp; Willow Dr</td>
</tr>
<tr>
<td>6 100 Blk Ash Cres</td>
<td>MacKenzie Way &amp; Pioneer Dr &amp; Pioneer Loop</td>
</tr>
<tr>
<td>7 100 Blk Steeprock Close</td>
<td>100 Blk Wolverine Ave</td>
</tr>
<tr>
<td>8 400 Blk Bergeron Dr</td>
<td>400 Blk Bergeron Dr</td>
</tr>
<tr>
<td>9 100 Blk Spieker Ave</td>
<td>100 Blk Bergeron Dr</td>
</tr>
<tr>
<td>10 100 Blk Bergeron Dr</td>
<td>100 Blk Spieker Ave</td>
</tr>
</tbody>
</table>

Top contributing factors to crashes in Tumbler Ridge:
Alcohol
Fatigue
Vanderhoof Crash Profile
Population: 4,649

*Five-year average for the period October 1 to 31:*

Crash Rates: (per 10,000 population):
Vanderhoof: 88.2
North/Central: 44.2
BC: 53.5

<table>
<thead>
<tr>
<th>Top 10 Crash Locations</th>
<th>Top 10 Injury Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 1st St &amp; Burrard Ave</td>
<td>1st St &amp; Burrard Ave</td>
</tr>
<tr>
<td>2 Blackwater Rd &amp; Hwy 16 &amp;</td>
<td>Blackwater Rd &amp; Hwy 16 &amp;</td>
</tr>
<tr>
<td>McDonald Rd</td>
<td>McDonald Rd</td>
</tr>
<tr>
<td>3 Burrard Ave &amp; Stewart St</td>
<td>Burrard Ave &amp; Stewart St</td>
</tr>
<tr>
<td>4 5th St &amp; Clark Ave</td>
<td>4th St &amp; Hwy 16 &amp; Recreation Ave</td>
</tr>
<tr>
<td>5 4th St &amp; Hwy 16 &amp; Recreation Ave</td>
<td>5th St &amp; Clark Ave</td>
</tr>
<tr>
<td>6 Burrard Ave &amp; Columbia St</td>
<td>Burrard Ave &amp; Columbia St</td>
</tr>
<tr>
<td>7 Church Ave &amp; Stewart St</td>
<td>Braeside Rd &amp; Hwy 27 &amp; Northside Rd</td>
</tr>
<tr>
<td>8 Burrard Ave &amp; Loop Rd &amp;</td>
<td>Hwy 16 &amp; Hwy 27</td>
</tr>
<tr>
<td>Northside Rd</td>
<td></td>
</tr>
<tr>
<td>9 Braeside Rd &amp; Hwy 27 &amp;</td>
<td>Burrard Ave &amp; Louvain St</td>
</tr>
<tr>
<td>Northside Rd</td>
<td></td>
</tr>
<tr>
<td>10 Hwy 16 &amp; Hwy 27</td>
<td>1st St &amp; Clark Ave</td>
</tr>
</tbody>
</table>

**Top 3 contributing factors to crashes in Vanderhoof:**
Alcohol
Fatigue
Speed
Wells Crash Profile
Population: 261

Five-year average for the period October 1 to 31:

Crash Rates: (per 10,000 population):
Wells: 137.4
North/Central: 44.2
BC: 53.5

<table>
<thead>
<tr>
<th>Top 10 Crash Locations</th>
<th>Top 10 Injury Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 3900 Blk Goldquartz Dr</td>
<td>3900 Blk Goldquartz Dr</td>
</tr>
<tr>
<td>2 3800 Blk Ski Hill Rd</td>
<td>3800 Blk Ski Hill Rd</td>
</tr>
<tr>
<td>3 3800 Blk Lowhee Dr</td>
<td>3800 Blk Lowhee Dr</td>
</tr>
<tr>
<td>4 Covey St &amp; Hwy 26</td>
<td>Covey St &amp; Hwy 26</td>
</tr>
</tbody>
</table>