

CANADA'S ROAD SAFETY TARGETS TO 2010



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TABLE OF CONTENTS

	Executive Summary	i
1	Background	1
2	Objectives	1
3	Canada's Vision	1
3.1	The Vision — An Evolutionary Process	1
3.2	Initiatives Adopted in Support of Road Safety Vision 2001	2
3.3	Canada's Performance	2
3.4	Canada's International Ranking	2
3.5	Trends Among the Top Ranked Countries	3
3.6	Trying to Explain Canada's International Ranking	4
3.6.1	Targets/Programs/Initiatives: Some Examples	4
3.6.2	Victim Mix	5
4	Making Roads Safer for Canadians: Enhancing the Vision With Targets	7
4.1	Time Frame for the Next Generation Vision/Targets	7
4.2	Target/Priority Setting	8
4.2.1	Enhance Existing Targets/Measures	8
4.2.1.1	National Occupant Restraint Program 2001 (NORP 2001)	8
4.2.1.2	Strategy to Reduce Impaired Driving 2001 (STRID 2001)	9
4.2.2	Establishing New National Targets for Road Safety Vision 2010	10
4.2.2.1	High-Risk Drivers	10
4.2.2.2	Young Drivers	11
4.2.2.3	Vulnerable Road Users	12
4.2.2.4	Commercial Vehicle Safety	13
4.2.2.5	Rural Road Safety	14
5	Factors Influencing the Vision	14
5.1	Improved Crash and Exposure Data	14
5.2	Safer Motor Vehicles	16
5.3	Enhanced Enforcement Initiatives	18
5.4	Road Infrastructure Initiatives	19
6	Discussion	20
7	Recommendations	21

Appendices

Annex A - Road Safety Vision Statements of OECD Member Countries

Annex C - Targets Proposed for Road Safety Vision 2010

Annex B - Road Safety Targets in OECD Member Countries

Acknowledgements

EXECUTIVE SUMMARY

- Canada's inaugural national road safety vision — “to have the safest roads in the world,” and plan, Road Safety Vision 2001, were adopted by the Council of Ministers of Transportation and Highway Safety in 1996.
- Initiatives undertaken in support of the Vision (1996-2001) have helped progress the plan's strategic objectives: heighten awareness of road safety issues among the general public, foster cooperation and collaboration among road safety agencies, provide more focused enforcement and improve data quality and collection practices.
- Canada's level of road safety during 1998, as measured by road users killed per registered motor vehicle, improved by almost 9% since the Vision was adopted in 1996. During the same three-year period, the actual number of road users killed and seriously injured decreased by 5% and 8%, respectively, over comparable 1996 figures.
- Although Canada's fatality rate per 10,000 motor vehicles registered decreased from 1.79 in 1996 to 1.63 during 1998, its international ranking among Organization for Economic Co-operation and Development (OECD) member countries decreased to 9th from 8th during 1996 and 1997 because some other countries achieved even more impressive gains during the same period.
- In October 2000, the Council of Ministers for Transportation and Highway Safety approved a longer term successor plan, called Road Safety Vision 2010, to carry forward the work of Canada's inaugural national road safety plan.
- Road Safety Vision 2010 will retain the Vision and its strategic objectives, and also include an overall national target and sub-targets (to be monitored annually and revised in 2006, if necessary).
- The targets approved as part of Road Safety Vision 2010 are intended to provide road safety stakeholders with broad-based benchmark data of key road safety indicators, against which intervention efforts can be measured.
- The national target calls for a 30% decrease in the average number of road users killed and seriously injured during the 2008-2010 period over comparable 1996-2001 figures.
- The sub-targets include:
 - minimum seat belt wearing rates of 95% and proper use of child restraints by all motor vehicle occupants; (National Occupant Restraint Program 2010);
 - a 40% decrease in the number of unbelted fatally or seriously injured occupants (National Occupant Restraint Program 2010);
 - a 40% decrease in the percent of road users fatally or seriously injured in crashes involving a drinking driver (Strategy to Reduce Impaired Driving 2010);
 - a 20% reduction in the number of road users killed or seriously injured in speed and intersection related crashes;
 - a 20% decrease in the percent of drivers who commit three high-risk driving infractions (two if they are alcohol-related) within a two-year time frame;
 - a 20% decrease in the number of young drivers/riders (those aged 16-19 years) killed or seriously injured in crashes;
 - a 20% decrease in the number of road users killed or seriously injured in crashes involving commercial carriers;
 - a 30% decrease in the number of vulnerable road users (pedestrians, motorcyclists and cyclists) killed or seriously injured, and;
 - a 40% decrease in the number of road users fatally or seriously injured on rural roadways.
- In addition to the adoption of quantitative targets, the successor plan also recommends the adoption of graduated licensing schemes in all jurisdictions; the use of innovative community policing protocols; public education campaigns to promote safe cycling; and enhancements to crash and exposure data capture, transfer and linkage.
- Achievement of these targets would reduce Canada's road fatality total to fewer than 2,100 by 2010.

1 Background

In the late 1980s, road safety targets were a fairly unique phenomenon found in only a few developed countries. Today, most advanced countries have either a road safety vision or targets or a combination of both in place to help make road travel safer. The well documented success, both quantitatively and qualitatively, of target setting initiatives in countries such as Great Britain has made the practice of adopting targets almost a necessity among countries that are seriously committed to improving their level of road safety. Summaries of the visions and road safety targets adopted in Organization for Economic Co-operation and Development (OECD) member countries are found in Annexes A and B in the Appendices.

2 Objectives

Canada adopted its inaugural Road Safety Vision in 1996. The objectives of this paper are to report upon the improvements in the level of road safety that have occurred in Canada to date as a result of programs and initiatives implemented in support of the Vision and to propose the adoption of a successor plan that is augmented by specific targets. It is hoped that the inclusion of targets with the successor plan will garner broad buy-in from road safety stakeholders and the general public alike as well as provide Canada's road safety community with the impetus to achieve its vision of having the world's safest roads.

3 Canada's Vision

Canada's Vision is to make our roads the safest in the world. The Vision was adopted by the Canadian Council of Motor Transport Administrators (CCMTA) and officially endorsed by all ministers of Transportation and Highway Safety in 1996. The Vision is a national effort that is supported by all levels of government as well as key public and private sector stakeholders. The strategic objectives of the current five-year plan, known as Road Safety

Vision 2001, aim to raise public awareness of road safety issues, improve communication, cooperation and collaboration among road safety agencies, toughen enforcement measures and improve national road safety data collection and quality.

3.1 The Vision — An Evolutionary Process

Canada's foray into road safety goal setting occurred because road safety experts felt that although considerable improvement had occurred during the previous thirty years, travel on Canadian roads could still be made much safer. Consequently, a broad range of initiatives that focused on road users, road networks and vehicles were enhanced or initiated following the adoption of the Vision in order to make travel on Canadian roads safer.

Some of the more notable milestones that were adopted in Canada due to the efforts of the Canadian road safety community during the three decades prior to the introduction of the Vision were drinking driving laws, key Canadian motor vehicle safety standards (e.g. front occupant crash protection, daytime running lights) mandatory seat belt use laws, the National Occupant Restraint Program (NORP) and the Strategy to Reduce Impaired Driving (STRID). These road user and vehicle initiatives combined with jurisdictional road infrastructure improvements and less obvious factors such as improvements in the field of health care contributed largely to a more than halving of the peak number of fatalities during the period despite a more than doubling of vehicles on the road.

However, despite these improvements, it was felt that Canada's level of road safety was stagnating during the early 1990s. The national seat belt usage rate remained almost unchanged at about 90% while alcohol use among fatally injured drivers and pedestrians remaining fairly constant at close to 40%.

It was felt that the shared nature of federal-provincial/territorial responsibilities for road safety in Canada would benefit from a more uniform and focused approach to the planning of a national

road safety program. The adoption of Road Safety Vision 2001 is still the Canadian road safety community's most comprehensive national effort to date at making Canadian roads safer.

3.2 Initiatives Adopted in Support of Road Safety Vision 2001

Initiatives undertaken by Canada's road safety stakeholders have made Canadian roads safer.

The two most stellar programs that are currently in place to support the Vision are the National Occupant Restraint Program 2001 and the Strategy to Reduce Impaired Driving 2001. Both programs have extensive buy-in from all provinces and territories. These initiatives existed prior to the adoption of the Vision and both added "2001" to their program names to reflect their support of the Vision. The objectives of NORP 2001 remained unchanged from its predecessor, NORP, — 95% seat belt usage rate and proper use of child restraints by all light duty vehicle occupants. The goal of STRID 2001 was expanded to include a 20% decrease over average 1990-1995 totals in the percent of road users killed or seriously injured in crashes where alcohol was involved. Until very recently, these two initiatives were the only two national programs with clearly defined targets.

Other important initiatives that have been undertaken since the adoption of the Vision in 1996 include the creation or enhancement of nationally representative task forces, committees and/or project groups on such diverse subjects as high-risk drivers, commercial vehicle safety, data management, new road safety research, integrating road safety considerations into road design and operations, and speed and intersection safety.

National public safety agencies such as the Canadian Association of Chiefs of Police have relied heavily on the guiding principles of the Vision to develop road safety messages that help raise awareness of topical issues not only among its own membership but also among the general public.

Jurisdictional- or community-specific initiatives that were undertaken to make road use safer and which at the same time are consistent with the guiding principles of the Vision include programs governing graduated licensing, school bus safety, designated community safety zones, winter driving, holiday congestion and cyclist and pedestrian safety.

Federal government research findings and voluntary technological improvements made by industry to enhance existing motor vehicle safety standards (e.g. less aggressive air bags to provide improved protection for smaller or out of position occupants) or comply with proposed new regulations (e.g. industry improving the side door strength of passenger vehicles in anticipation of a side impact regulation) have made road travel safer for motor vehicle occupants. Promotional initiatives, such as Car Time 1-2-3-4, have also supported the Canadian road safety community's goal of having the world's safest roads.

3.3 Canada's Performance

The number of road users killed and seriously injured in traffic crashes during 1998 were lower by 5% and 8%, respectively, than 1996 levels when the Vision was adopted. And Canada's "level of road safety," as measured by "deaths per registered vehicle" decreased by almost 9% during the same period.

3.4 Canada's International Ranking

Canada's road fatality rate in 1998 improved to 1.63 per 10,000 motor vehicles registered from 1.79 in 1996, when the Vision was adopted. Despite two successive years of fatality rate improvements, Canada's international road safety ranking decreased slightly.

In 1998, Canada ranked 9th, down from 8th in 1996 and 1997 among the 29 member countries of the Organization for Economic Co-Operation and Development (OECD). In 1998, the Netherlands and Germany, whose road safety rank was identical to Canada's in 1997, achieved the most impressive gains over the previous year. The

safety improvements realized in Germany during 1998, where the focus of road safety initiatives was on rural roads and moped/motorcycle riders, enabled it to displace Canada as the country with the 8th best road safety record. Countries whose fatality rate in 1998 ranked ahead of Canada's (1.63) were Sweden (1.18), Great Britain (1.25), Switzerland (1.37), Japan (1.40), Norway (1.42), Australia (1.46), the Netherlands (1.48) and Germany (1.57).

3.5 Trends Among the Top Ranked Countries

Providing a simple explanation of why Canada's "level of road safety" improved by almost 9% during the past two years and still lost ground to other countries can be viewed either as a simple or next-to-impossible task. The simple explanation is that the slight increases in seat belt and proper child restraint use and a modest decrease in the percent of drivers fatally injured who were legally impaired did not sufficiently outweigh the safety improvements made in other countries during the past two years. The less obvious explanation is that there are intangible factors at play that impact different countries in very different ways. Examples of these intangible factors that affect Canadians include country size, low population density, lack of public transportation alternatives and climate. These factors have effectively forced Canadians to rely heavily on motor vehicles as their primary means of transportation. Both explanations probably contributed to Canada's diminished ranking to varying degrees.

Table 1, which illustrates the percentages that each road user class comprised of total fatalities among the 13 "safest" nations during 1998, clearly reflects Canadians' (and Americans') greater reliance on passenger vehicles for transportation than other top ranked countries. However, this table also shows that the same factors mentioned above contributed largely to considerably different distributions of vulnerable and non-vulnerable (non-motor vehicle occupant) fatalities in other countries.

TABLE 1
Distribution of Traffic Fatalities By Road User Class (%)
Selected OECD Member Countries — 1998

COUNTRY	PEDESTRIANS	CYCLISTS	MOTORCYCLE/ MOPED RIDERS	MOTOR VEHICLE OCCUPANTS
SWEDEN	13.0	10.9	9.8	66.3
GREAT BRITAIN	26.5	4.6	14.6	54.3
SWITZERLAND	20.4	7.9	15.4	56.3
JAPAN	28.3	12.6	18.3	40.7
NORWAY	14.2	7.1	13.1	65.6
AUSTRALIA	18.1	2.5	10.3	69.1
NETHERLANDS	10.3	18.2	15.5	56.0
GERMANY	13.9	8.2	13.0	64.9
CANADA	14.1	2.7	5.8	77.4
FINLAND	15.5	13.5	6.3	64.8
ITALY	13.4	5.8	18.9	62.0
AUSTRIA	17.1	5.9	12.5	64.5
UNITED STATES	12.8	1.9	5.6	79.7

Source: International Road Traffic and Accident Data Base (IRTAD)

Table 2 provides a snapshot of fatality rates and corresponding road safety rankings for the top ranked countries in 1998 and where they were positioned in terms of "safest roads" at five-year intervals during the preceding 24 years. Clearly, there are some surprising and consistent patterns — the US being top ranked in 1975 and decreasing steadily during the intervening years, the steady improvements in Great Britain and Switzerland since 1990, and Sweden remaining at or very near the top during the entire period. The figures in this table also show that Canada's ranking has been gradually slipping from 6th in 1975 to its current 9th place ranking. This table also shows that in addition to the steady trend as described above for Sweden, some country's rankings were quite volatile. Five of the eight countries that

TABLE 2**Road Safety Ranking (Based on Fatality Rates Per 10,000 Motor Vehicles Registered)
Selected OECD Member Countries — 1975-1998**

COUNTRY	FATALITY RATE PER 10K MVRs							ROAD SAFETY RANKING				
	1975	1980	1985	1990	1995	1998	1975	1980	1985	1990	1995	1998
SWEDEN	3.76	2.49	2.17	1.79	1.31	1.18	3	2	2	2	1	1
GREAT BRITAIN	3.80	3.31	2.49	2.14	1.43	1.25	4	5	4	3	3	2
SWITZERLAND	5.85	4.47	2.73	2.45	1.68	1.37	8	10	6	10	4	3
JAPAN	4.28	2.73	2.38	2.36	1.76	1.40	5	3	3	8	5	4
NORWAY	3.61*	2.39	2.16	1.51	1.32	1.42	2	1	1	1	2	5
AUSTRALIA	5.82	4.32	3.23	2.31	1.84	1.46	7	9	12	5	6	6
NETHERLANDS	6.32	4.26	2.80	2.33	2.02	1.48	10	8	7	6	11	7
GERMANY	7.21	4.88	2.88	2.64	1.99	1.57	12	12	8	12	10	8
CANADA	5.31	4.00	2.95	2.34	1.96	1.63	6	6	9	7	8	9
FINLAND	7.19	4.01	3.15	2.90	1.99	1.73	11	7	11	11	10	10
ITALY	6.02	4.71	3.11	2.27	1.95	1.79	9	11	10	4	7	11
AUSTRIA	11.59	7.18	4.78	4.19	2.75	2.00	13	13	13	13	13	12
UNITED STATES	3.23	3.16	2.65	2.42	2.12	2.02	1	4	5	9	12	13

* Estimate. Source: International Road Traffic and Accident Data Base (IRTAD)

ranked ahead of Canada during 1998 also ranked behind Canada at some point during the 1985-1998 period. For countries such as Switzerland, Australia and Germany, it appears to be a case of gradually improving road safety records. For Japan and the Netherlands, it appears to be more a case of road safety records that were traditionally quite good, that slipped somewhat and then returned to their previous rankings following the implementation of some rigorous road safety interventions. An important point to be made here is that genuine and lasting improvements can and have been realized. Table 2 shows that varying levels of improvement occurred, at least in terms of lower fatality rates, at each five-year interval among all countries during the entire period examined.

3.6 Trying to Explain Canada's International Ranking

3.6.1 Targets/Programs/Initiatives: Some Examples

Most countries which introduced quantifiable targets have benefited greatly, as their fatality rates have improved at a faster pace than those countries who did not have them in place. Prime examples include Sweden, Great Britain, the Netherlands and Australia who are establishing their second or third generation targets in support of their objectives. As previously stated, Annexes A and B in the Appendices provide an overview

of vision statements and targets as well as a summary of initiatives or road safety plans adopted in OECD member countries.

As evidenced in Table 1, Sweden's international road safety position has always been at the forefront, ranking either first or second throughout the period examined. Despite its front-running position, Sweden, in 1989, decided that tough measures were necessary to stem the 20% fatality increase that occurred between 1982 and 1989. During the 1990 and 1994 period, the Swedes lowered their legal Blood Alcohol Concentration (BAC) limit to 20 mg%, increased the number of breath tests administered, introduced photo radar and doubled the price of gasoline. The net effect was a 35% decrease in fatalities during the period. Buoyed by the success of these initiatives, the Swedes in 1997 introduced their

Vision Zero strategy and corresponding targets (see Annexes A and B) to help them reach their ambitious objective.

Great Britain first introduced targets in 1987 to accelerate casualty reductions and to heighten awareness of road safety initiatives. The target reductions for fatalities and serious injuries established during the 1987 campaign, which focused on drinking-driving initiatives, increased seat belt use, changing public attitudes and road infrastructure improvements, were achieved before the target date of 2000. Great Britain's current road safety targets for 2010 focus on enhancing existing programs that were initiated for the inaugural target setting exercise, such as driver impairment (drinking-driving, drugs and fatigue), enforcement, vehicles and infrastructure as well as public education campaigns. The focus of new initiatives will be on improved standards for driver training and testing, motorcycle safety, child road safety, vulnerable road users and campaigns aimed at reducing the incidence of speeding.

Previous road safety targets established by the Netherlands achieved limited success. In 1996, several Dutch ministries jointly adopted a multi-faceted strategy called sustainable road safety. While the initiative will encompass a variety of activities including ambitious long term casualty reductions and programs focusing on drinking and driving and non-use of seat belts and speeding, the main thrust of the strategy is to establish partnerships at the national, regional and local levels to re-engineer the road network over a period of time, with a greater emphasis on safety. To date, the initiative has proven quite successful, as the Dutch fatality rate has decreased by 15% since the program's inception.

The steady improvements in Australia's fatality rate during the past decade enabled it to surpass both Canada and the Netherlands in its international ranking. Australia is similar to Canada in that responsibility for its road safety programs is shared between the federal and jurisdictional governments. Australia's improved safety rating has resulted from the initiatives adopted as part of their

1992 national strategy. Some of the main initiatives introduced were tougher regulations and enforcement measures, better roads, safer vehicles and an improved social consciousness among its road users. The objective of Australia's current road safety plan is to reduce the number of road fatalities per 100,000 population by 40% by 2010 (compared with 1999).

The four countries briefly mentioned have adopted what they perceive to be tough but achievable targets that have garnered broad political and societal "buy-in" and as a result have achieved considerably improved safety levels for road users.

3.6.2 Victim Mix

Among all countries found in Table 1, only the United States has a victim mix similar to Canada's. Approximately 80% of fatally injured road users in Canada and the US were motor vehicle occupants and a further 5-6% were victims of motorcycle/moped crashes. At the other end of the spectrum, only 41% of Japan's fatally injured road users were vehicle occupants. Table 1 also shows that more than one in four fatally injured road users in Japan and Great Britain were pedestrians, almost one in five were moped/motorcycle riders in Italy and Japan and almost one in five was a cyclist in the Netherlands. Clearly, these varied victim mixes have a considerable impact on the type and magnitude of road safety initiatives introduced in these countries. In spite of trailing only the United States in terms of its distribution of occupant fatalities to total fatalities, Canada ranked 5th among the 13 countries examined in terms of vehicles registered per population, with several countries following closely behind. So, the increased exposure to motor vehicle use one might have expected to have contributed to the higher proportions of occupant fatalities in Canada does not appear to exist. It should however be mentioned that a considerably more reliable measure of exposure to vehicle use would have been vehicle kilometrage data, if it were available in all countries examined.

CHART 1

Occupant Fatality Rates Per 10,000 Motor Vehicles Registered (Excluding Motorcycles) Selected OECD Member Countries — 1998

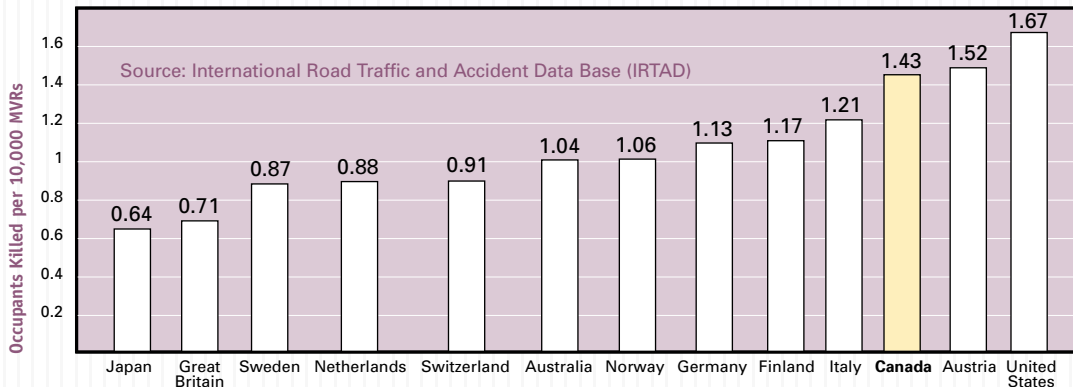


Chart 1 demonstrates that the eight countries whose “overall levels of road safety” currently are ranked ahead of Canada’s all have dramatically lower occupant fatality rates than Canada. Collectively, their average occupant fatality rate per 10,000 motor vehicles registered was 1.13 during 1998. As evidenced below, Canada’s occupant fatality rate during 1998, at 1.43 was considerably higher.

Canadian drivers exhibit considerably different seat belt usage patterns than drivers in other countries. Table 3 shows that, in Canada, driver seat belt use was considerably higher on urban roads than on rural roads. However, it must be mentioned the rural seat belt use figure was derived from only one province (Alberta) while the urban figure was derived from a nationally representative survey. All other countries that collected driver seat belt use information for more than one road type showed that usage rates were consistently higher on rural roads and/or motorways than on urban roads.

Although the initiatives undertaken under the auspices of NORP 2001 and STRID 2001 — Canada’s two most noteworthy national

road safety initiatives — have enhanced motor vehicle occupant safety in Canada, recently completed research has shown that close to 40% of fatally injured occupants were unbelted and almost the same proportion had consumed alcohol or were legally impaired at the time of crash involvement. Influencing this group of hard core high-risk road users has proven extremely difficult. The results of the recent rural seat belt use survey in southern Alberta which indicated that only 69% of light duty vehicle occupants were belted and the fact that approximately 80% of drivers are

TABLE 3

Seat Belt Use Among Drivers (%) According to Roadway Type Selected OECD Member Countries — 1998

COUNTRY	ROADWAY TYPE		
	URBAN	RURAL	MOTORWAY
GERMANY	90	94	97
JAPAN	87	N/A	94
SWEDEN*	85	87	97
NORWAY*	80	93	96
CANADA	92	69 ⁽¹⁾	N/A
GREAT BRITAIN*	88	N/A	N/A
FINLAND	84	93	N/A
SWITZERLAND	63	75	86
NETHERLANDS	67	80	80
AUSTRIA*	69	75	80
UNITED STATES	69	N/A	N/A

* Denotes 1997 data. Source: International Road Traffic and Accident Data Base (IRTAD)
⁽¹⁾ Data only available for 1999 from Alberta.

TABLE 4**Percent of Dead Drivers Who Were Legally Impaired
Selected OECD Member Countries — 1997/1998**

COUNTRY	% LEGALLY IMPAIRED	NOTES
JAPAN	5	Illegal BAC limit is $\geq 50\text{mg}\%$; law in place since 1970; dead driver figure is estimated based on DWI surveys which show 1% alcohol use among nighttime weekend drivers.
NETHERLANDS	8	Illegal BAC limit is $\geq 50\text{mg}\%$.
GERMANY	11	Illegal BAC limit is $\geq 50\text{mg}\%$; dead driver figure is downward biased due to under-recording of BAC tests for single vehicle crash victims.
SWEDEN	16	Illegal BAC limit is $\geq 20\text{mg}\%$.
GREAT BRITAIN	20	Illegal BAC limit is $\geq 80\text{mg}\%$.
FINLAND	24	Illegal BAC limit is $\geq 50\text{mg}\%$.
UNITED STATES	28	Illegal BAC limit is $80\text{mg}\%$ in 15 states & $100\text{mg}\%$ in 33 states.
CANADA	32	Illegal BAC limit is $\geq 80\text{mg}\%$.

Source: Peter Wilding; European Commission : The Comparability of Alcohol Injury Road Accident Statistics Between Member States and Their Interpretation in the CARE Database.

killed in areas designated as rural may in part help explain the large proportion of unbelted dead drivers as well as the overall distribution of occupant fatalities to total fatalities in Canada.

4 Making Roads Safer for Canadians: Enhancing the Vision with Targets

The general consensus among road safety professionals in many countries is that tough but achievable quantifiable targets are extremely useful devices that help elicit a broad “buy-in” from both politicians and the general population for the initiatives being adopted. Idealistic goal statements or visions, which are sometimes regarded with cynicism, serve as flash points for actions to help raise awareness of road safety issues and in the establishment of quantifiable targets to achieve goals.

Since the inception of the Road Safety Vision 2001 program, progress has occurred. Canada’s fatality rate has steadily

decreased on a per registered vehicle basis and the number of road users killed and seriously injured has also declined. In addition, the Canadian public has demonstrated an increased awareness of and interest in road safety issues since the program began. It is concluded that the vision and targets have been useful, and should continue. The introduction of additional quantifiable sub-targets which focus on the most highly visible road safety issues facing Canadian road safety stakeholders should help make road travel in Canada safer.

4.1 Time Frame for the Next Generation Vision/Targets

The time frame for the inaugural vision was five years — from 1996 until 2001. However, 2002 is rapidly approaching and the wheels must be set in motion for the smooth transition of a successor plan. The establishment of a nine-year successor plan for

the period 2002-2010, called Road Safety Vision 2010, should be undertaken to build upon the success of the existing program as well as to allow new programs to be effectively established and to support the introduction of targets in areas not previously addressed on a national scale. A nine-year time frame would provide the Canadian road safety community with an overriding theme for a sufficiently lengthy period to permit the development and implementation of new or enhanced strategies to help it achieve its goal. The targets should be closely monitored, reported upon, and adjusted if necessary at the midpoint of the successor plan, in 2006. At the present time, most of the OECD member countries whose road safety record is deemed to be better than Canada's have targets with lengthy time frames (approximately ten years or longer) in place for the achievement of their visions and/or targets.

4.2 Target/Priority Setting

The adoption of the Road Safety Vision 2001 initiative with the goal of having the safest roads in the world was the Canadian road safety community's first foray onto the international road safety stage. The establishment of an overall national target for reductions in fatalities and serious injuries within the time frame of the successor plan is the next logical step.

The recommended national target is that the average number of road users killed and seriously injured during the 2008-2010 period be 30% lower than comparable figures for the 1996-2001 period.

The sub-targets discussed in section 4 of this report in support of the national target recommend decreases in fatalities and serious injuries ranging from 20% to 40%. However, it must be mentioned that considerable overlap exists for all target reductions proposed and consequently the casualty reductions made within each target group will not be mutually exclusive. As a result, the recommended national target is somewhat lower than some of those discussed in the following section of this report.

4.2.1 Enhancing Existing Targets/Measures

Canada's two most significant national road safety initiatives — NORP 2001 and STRID 2001 — are already tied to quantifiable targets.

PROGRAM	TARGET
National Occupant Restraint Program 2001	To achieve a 95% seat belt wearing rate and proper child occupant restraint use among occupants of light duty vehicles by 2001.
	ACHIEVEMENT
	90.1% of light duty vehicle occupants were belted during 1999. The most recent figures on proper use of child restraints (1997) for children less than five years of age indicate that 67.7% were properly restrained.
PROGRAM	TARGET
Strategy to Reduce Impaired Driving 2001	To reduce the percent of road users killed and seriously injured in crashes involving drinking drivers by 20% over the 1990-1995 average baseline period.
	ACHIEVEMENT
	A 10.3% decrease has occurred in the percent of motor vehicle fatalities involving drinking drivers, from 39% in 1995 to 35% in 1997.

4.2.1.1 NORP 2001

Current Status: The current target calls for a 95% seat belt usage rate as well as proper child occupant restraint use among all light duty vehicle occupants by 2001. The current belt use rate among occupants surveyed in communities with 5,000 or more inhabitants is 90%. A 1997 national child restraint use survey found that 68% of children aged five years or younger were restrained in child restraint systems or seat belts. However, since that time, local safety organizations have conducted non-random clinical observations in various regions of the country to observe child restraint use patterns and to educate parents of the proper fitment

of child restraint systems. The more comprehensive observations derived from these clinics, which took place at off-road locations such as shopping malls, have shown that considerably lower percentages of children are properly restrained than reported in the national survey. A seat belt use survey conducted recently (1999) in rural southern Alberta showed that only 69% of occupants were belted. Concern has been expressed that similar disparities in belt wearing rates also exist in rural areas of other provinces. A recent study showed that 40% of all fatally injured occupants and 21% of those seriously injured were unbelted. The study also showed that approximately 80% of drivers killed and 63% of those seriously injured sustained their injuries in crashes that occurred in rural areas.

Future Potential Measures: The NORP 2001 Task Force is currently developing a promotional campaign primarily targeting young male non-wearers of seat belts on rural roadways. The objective of NORP 2001 — to get 95% of light duty vehicle occupants to wear seat belts and to properly restrain their children — should be restated as follows: to get a minimum of 95% of all motor vehicle occupants to wear seat belts and properly restrain their children. **However, annual national surveys in future should on occasion focus solely on rural designated sites to provide a more comprehensive indication of seat belt use.** If seat belt wearing rates in other provinces and territories are as disproportionately different between urban and rural areas, enforcement strategies should be realigned.

In addition to developing a new promotional strategy for young males on rural roads, the NORP 2001 Task Force should also consider adopting a target of a 40% decrease in number of unbelted fatally and seriously injured occupants over the average 1996-2001 figures, as part of its Vision 2010 agenda, given the substantial number of these victims that still do not wear seat belts.

4.2.1.2 STRID 2001

Current Status: The current objective of STRID 2001 is to reduce the percent of road users killed or seriously injured in crashes

involving alcohol by 20% by 2001, over average 1990-1995 figures. STRID 2001 has a very broad “buy-in” in all Canadian jurisdictions.

Several program initiatives were introduced or enhanced, since the Vision was adopted in 1996, that support the three core elements of STRID 2001 — enforcement and awareness, legislative initiatives and communications.

By 1998, all jurisdictions participated in focused enforcement and awareness campaigns targeting drinking and driving. For example, all jurisdictions participated in combined alcohol-related enforcement and awareness campaigns during the 1997 and 1998 Christmas seasons. By 1998, six jurisdictions had implemented a system of minimum licence suspensions for drivers convicted of drinking and driving. In some jurisdictions, the duration of these suspension increases incrementally upon subsequent convictions. During 1998, all Canadian jurisdictions initiated specific promotional activities to increase awareness of STRID 2001.

Currently, all jurisdictions carry out initiatives aimed at educating the police, crown prosecutors and the judiciary about the severity of the impaired driving problem. Eight jurisdictions currently have some form of mandatory assessment and treatment program in place for drinking drivers. Several jurisdictions also have vehicle seizure or impoundment programs in place and two have alcohol ignition interlock programs. In addition, several jurisdictions have administrative licence suspension programs in place for drivers who are charged with, but not yet convicted of, impaired driving.

In 1999, the House of Commons Standing Committee on Justice and Human Rights held public hearings across Canada and issued a report outlining several recommendations aimed at further deterring drivers from drinking and driving. Many of the principal recommendations of the report were subsequently passed into law. These included increasing penalties and sentencing options in the Canadian Criminal Code and raising the maximum penalty for impaired driving causing death to life imprisonment.

Since the Vision's inception in 1996, progress has occurred as a result of the adoption or enhancement of the above-mentioned programs. During 1997, there was a 10.3% decrease in the number of fatalities resulting from crashes involving alcohol when compared with the 1995 figure. Target reductions for serious injuries have not yet been identified.

Future Potential Measures: The target adopted in 1995 (a 20% reduction in alcohol-related fatalities and serious injuries) should be enhanced because the proposed successor plan has a nine-year time frame. The 2010 target should call for a 40% decrease in serious casualties when compared with the 1996-2001 baseline period. The measure would continue to be challenging but hopefully achievable.

4.2.2 Establishing New National Targets for Road Safety Vision 2010

4.2.2.1 High-Risk Drivers

Current Status: High-risk drivers include those who drink and then drive, who speed excessively, run red lights and who do not wear their seat belts. This group of drivers accounts for a very considerable proportion of fatally and seriously injured drivers. A recent Transport Canada study showed that almost 40% of dead drivers and 18% of those seriously injured were unbelted. Preliminary results of coroners' Blood Alcohol Concentration (BAC) tests for 1998 show that 32% of fatally injured drivers were legally impaired (over 80 mg%), more than two-thirds of which had BACs in excess of 150 mg%. Furthermore, excess speed or speed inappropriate for driving conditions were cited as contributing factors for approximately 25% of all single vehicle fatal crashes. These types of high-risk driving behaviour are not mutually exclusive but rather involve a considerable amount of overlap. The Task Force on High Risk Drivers is currently developing an operational definition of a high-risk driver to facilitate the identification of these individuals at the jurisdictional level. Four national task forces that

operate within the framework of the Canadian Council of Motor Transport Administrators (CCMTA) — NORP 2001, STRID 2001, High Risk Drivers and the Task Force on Speed and Intersection Safety Management (SISM) — are actively pursuing initiatives aimed at curtailing high-risk driving behaviour.

Future Potential Measures: Recently, the **Task Force on Speed and Intersection Safety Management (SISM)** proposed the establishment of five-year targets of a 5%-10% reduction in speed-related crashes and a 5%-10% decrease in intersection-related crashes (crashes that occur at any controlled intersections, both urban and rural, electronic or signed). The High Risk Driver Task Force proposed the establishment of both short- and long-term targets to reduce the incidence of high-risk driving behaviour. The short term goal is that all jurisdictions be able to identify their high-risk driver population by the end of 2001. The long term target, which has a time frame of 10 years, calls for a 20% decrease in the percentage of drivers who commit three "high-risk driving" infractions (two if they are both alcohol-related) within a two-year time frame.

The four above-mentioned task forces are each striving to promote programs that will positively influence high-risk road users. And yet, only two of these task forces — NORP 2001 and STRID 2001 — operate within the framework of Road Safety Vision 2001. **The Task Force on High Risk Drivers and the newly formed Task Force on Speed and Intersection Safety Management (SISM) should operate within the framework of Road Safety Vision 2010, and realign the time frames of their targets to be congruent with those established within the framework of the renewed Vision.** The broader the achievement of target objectives within the renewed national road safety plan, the greater the likelihood of a broad "buy-in" among the general public. The Task Force on Speed and Intersection Safety Management may also wish to consider coordinating their activities with the National Committee on Uniform Traffic Control — a traffic engineering committee that operates within the framework of the Transport Association of Canada. This committee is responsible for the guidelines con-

tained within the Manual of Uniform Traffic Control Devices, which covers areas such as traffic signs, traffic signals, pavement markings and the establishment of speed limits. In order to better target high-risk drivers, the Task Force on Speed and Intersection Safety Management may wish to enhance their programs by establishing targets that call for similar percentage decreases in fatalities and serious injuries due to crashes involving speeding and running red lights/stop signs as the targets established for crash reductions. As stated previously, because of the extended time frame of the proposed new safety plan, these task forces may wish to consider doubling the objectives of their targets to 20% reductions in fatalities and serious injuries, in order to be consistent with the proposed objectives for other targets established as part of the longer term successor plan.

A complication regarding the establishment of targets by these four task forces is that there is a considerable amount of overlap, and gains made within each group will by no means be mutually exclusive. Regardless, if each of these task forces achieves its targeted reductions for fatally and seriously injured road users over established baseline totals, there will no doubt be considerable improvement in Canada's level of road safety.

4.2.2.2 Young Drivers

Current Status: Young drivers, defined as drivers aged 16 to 19 years of age, comprise slightly more than 10% of fatally injured drivers and almost 13% of those seriously injured, but only 5% of all licensed drivers. A recent study on unbelted drivers showed that almost 46% of young drivers who were fatally injured in crashes and almost 22% of those who were seriously injured were not wearing seat belts at the time of collision. Furthermore, more than 18% of fatally injured young drivers and approximately 8% of those who suffered serious injuries were both unbelted and had been drinking or were impaired (minimum estimates derived from Traffic Accident Information Data File).

The graduated licensing system, a program that enables novice drivers to acquire driving skills gradually in low-risk driving situations, is the most prominent young drivers program in place in Canada. Currently, not only young drivers, but novice passenger vehicle drivers and motorcycle riders in six provinces encompassing 80% of Canada's population must participate in a two-tiered licensing schedule, with inherent driving restrictions and one or more "driving tests," depending on the jurisdiction, before full driving privileges are granted. Preliminary evaluation studies conducted in some provinces with graduated licensing schemes have shown the program to be very effective. Collision rates among novice drivers fell between 19 and 31%. These rates included a 24% decrease for crashes involving fatalities or injuries in one province; in another, fatalities and injuries among beginner drivers decreased by 28 and 10%, respectively. Undoubtedly, the reduced exposure novice drivers encountered to high-risk driving situations due to inherent driving restrictions built into graduated licensing schemes contributed, at least in part, to the decreased casualty figures.

Future Potential Measures: The documented successes of graduated licensing systems is a matter of public record. Some of the provinces who have not yet adopted a system of graduated licensing, have similar but less comprehensive programs in place. At least one province is considering revising its Highway Traffic Act as it relates to novice drivers so that it has a form of graduated licensing and another is holding consultation sessions to consider adopting the program. **Road Safety Vision 2010 should make the establishment of graduated licensing schemes in all provinces and territories a national priority.**

The success of graduated licensing schemes notwithstanding, as already stated, young drivers continue to account for more than 10% of all drivers fatally injured and almost 13% of those seriously injured. There is still room for improvement, in particular among 18- and 19- year-old victims, who continue to represent approximately two-thirds of these young fatally injured drivers. Making

allowances for improvements already realized in jurisdictions with graduated licensing programs, it is suggested that a more modest target of a 20% decrease over the baseline period (1996-2001) in the number of young drivers killed or seriously injured would still be an ambitious but achievable target.

4.2.2.3 Vulnerable Road Users

Current Status: Vulnerable road users, which include pedestrians, cyclists and motorcycle/moped riders have consistently accounted for approximately 20% of road users killed and seriously injured annually.

Among pedestrian casualties, two problem areas stand out. Among fatally injured pedestrians, older victims — those aged 65 or older — consistently represented approximately 30% of all fatally injured pedestrians (1993-1997 average). This group of road users accounted for an average of 12% of Canada's population during this five-year period. Among those seriously injured, the problem is most prevalent among young victims — those aged 15 years or younger — who during the 1993-1997 period, accounted for more than 28% of all seriously injured pedestrians. Young pedestrians accounted for approximately 18% of the country's population during the 1993-1997 period. Apart from age considerations, more than 38% of fatally injured pedestrians who were struck and killed and tested for alcohol consumption during the 1993-1997 period had BACs that exceeded 80 mg%.

The major problem area among cyclist casualties is with young riders — those 15 years of age or younger. During the 1993-1997 period, this age group accounted for slightly more than 39% of cyclists killed and almost 45% of those seriously injured.

Both motorcyclist fatalities and motorcycle registrations followed steady downward trends during the 1993-1997 period. However, the actual fatality rate per registered motorcycle declined by approximately 40% during this period, from 6.40 in 1993 to 3.76 during 1997. In spite of the overall improvements in the number of

motorcyclist casualties and casualty rates, there is still cause for concern among this group of road users. Young motorcycle riders (those aged 19 years or younger) accounted for slightly more than 19% of total motorcyclist fatalities and slightly more than 22% of those seriously injured in crashes. These figures are approximately twice as high as the comparable age distribution of young motor vehicle drivers killed and seriously injured in crashes. Alcohol impairment was also a prominent characteristic among dead motorcyclists. During the 1993-1997 period, an average of almost 34% of motorcycle operators who were killed in crashes and tested for alcohol consumption were legally impaired. On a positive note, the percentage of fatally injured motorcyclists who were legally impaired decreased steadily during this five-year period, from 42.4% during 1993 to 26.5% during 1997.

Future Potential Measures: At present, national initiatives or programs promoting vulnerable road user safety do not exist. The creation of public awareness campaigns targeting both young (15 years and under) and older (65 years or over) pedestrians as well as awareness among motorists of these groups would probably benefit these vulnerable sub-groups. **Public education campaigns promoting cyclist helmet wearing and safe cycling practices would not only improve safety among cyclists when involved in crashes but also raise awareness of this group of road users among the motoring public.** Promotional campaigns aimed at deterring drinking and riding among motorcyclists as well as at raising motorists' awareness of this less conspicuous form of motorized transportation, particularly at intersections, would probably help improve motorcyclist safety.

Quantitative targets of 30% decreases in the number of fatally or seriously injured motorcyclists and pedestrians for 2010, over 1996-2001 average totals, should be established. Increased enforcement, interventions and national awareness campaigns should help reduce the high incidence of alcohol impairment among these fatally injured victims. The fairly large numbers of young cyclist casualties in relation to all cyclists killed and serious-

ly injured suggests that these casualties resulted from kids acting like kids. The adoption of a public awareness and education campaign in support of safe cycling practices should be established. A target of a 30% reduction over 1996-2001 average fatality and serious injury totals among this group of victims is suggested.

4.2.2.4 Commercial Vehicle Safety

Current Status: Road-user fatalities and serious injuries resulting from crashes involving commercial carriers in Canada during the past five years have remained relatively constant at approximately 18% and 8%, respectively. Over the same time period, however, domestic truck activity, based on tonne-kilometres of goods transported, has increased by almost 50%. However, during 1997, the most recent year for which there is data, both fatalities and serious injuries increased, to 22% and 10%, respectively. Commercial vehicle drivers involved in multi-vehicle collisions are considerably less likely to have committed driving infractions than the other involved drivers. Commercial vehicle operators who were killed in crashes were also much less likely to have been drinking or to have been impaired than any other vehicle operator.

The National Safety Code (NSC), which consists of fifteen operational standards is the national template for provincial and territorial governments to regulate truck and bus safety. It is anticipated that recent and proposed changes to several of the National Safety Code standards will continue to strengthen the safety performance of commercial vehicle transportation. Important amendments to NSC standards under active development include those governing load securement and hours of service.

Amendments to the Motor Vehicle Transport Act, 1987 were recently introduced in Parliament (Bill C-28). The revised Act will base the new safety regime for extra-provincial carriers upon National Safety Code Standard # 14 (Safety Rating). This standard will enable provincial governments to issue Safety Fitness Certificates to commercial carriers with safe operating records.

Future Potential Measures: The annual *Canadian Vehicle Use Survey* became operational in 1999, and will, in the future, provide annual estimates of the amount of road travel by various vehicle types across Canada. This report will furnish excellent baseline indicators for commercial carriers to establish targets relating to casualties per kilometre of travel. The information collected during the three years prior to the adoption of a successor plan to Road Safety Vision 2001 should be used to provide baseline information for the establishment of target reductions based on travel data.

The large disparity in charges laid under provincial highway traffic acts against drivers of other vehicles (47% average during the past five years) involved in collisions with commercial vehicles as opposed to drivers of commercial vehicles (20%) suggests that other drivers lack awareness of how to safely operate their vehicles around large trucks. Promotional information such as the video entitled "The No Zone," which was produced and marketed at trade shows by the American Trucking Association, and provides operators of passenger vehicles with safe driving tips when they encounter commercial vehicles should be more extensively promoted.

The improved level of safety that is likely to result from the recently adopted and pending amendments to the National Safety Code — specifically those relating to the assignment of safety ratings to all bus and truck carriers operating in Canada and those pertaining to facility audits — the examination of motor carriers' safety practices and record keeping — should make achievable a 20% decrease, over average 1996-2001 totals, in the number of road users killed or seriously injured in crashes involving commercial vehicles an achievable goal. Canada's target should also be compared with target reductions for crashes involving commercial vehicles established in the United States by the US Department of Transportation. The United States goal is to reduce the number of truck-related fatalities in the US by at least 50% by 2010. The US DOT was allocated an additional \$70 million to help finance a number of programs established to help accomplish their goal.

4.2.2.5 Rural Road Safety

Current Status: A recently published report by the Organization for Economic Co-operation and Development (OECD) identified rural road safety as a major problem area among member countries and indicated that an increasing proportion of total traffic fatalities was occurring on rural roads. The authors of the report noted that recent decreases in traffic casualties throughout OECD member countries were occurring more rapidly in urban areas than in rural ones. The report identified three principal collision configuration types as contributing to approximately 80% of all fatalities occurring on rural roads. These were: single vehicle crashes, particularly “run off the road” occurrences, which accounted for approximately 35% of fatal rural road crashes; head-on collisions (almost 25% of fatal collisions on rural roads); and collisions at intersections (approximately 20% of fatal crashes on rural roads). The authors of the report also cited as a problem the general lack of explicit safety policies or targets designed for rural roads in most OECD member countries.

In Canada, almost 58% of all motor vehicle occupants killed and 44% of those seriously injured suffered their injuries in crashes on rural roads. Rural roads include all undivided roadways with a posted speed limit of 80 km/h or 90 km/h. Non-use of seat belts, alcohol use, and speed, particularly among victims of single vehicle crashes, have been identified as safety-related issues in a large percentage of these occurrences. Other noteworthy issues that have been cited as potentially affecting rural road safety include the difficulty and expense police agencies encounter in enforcing traffic laws on low volume rural roads, as well as the increased response time required by emergency vehicles to attend to serious crashes in rural areas.

Future Potential Measures: The NORP 2001 Task Force is currently developing promotional initiatives aimed at young male non-wearers of seat belts on rural roads. The Canadian Association of Chiefs of Police (CACP)-sponsored Operation Impact Committee

is developing key messages which focus on the major issues affecting rural road safety for use by front-line officers for its annual Operation Impact initiative.

Transport Canada is currently developing a national framework for rural road safety. Following a determination of the magnitude of the problem and an assessment of the programs already in place in the jurisdictions, reasonably inexpensive short- and medium-term initiatives incorporating safe road and roadside design elements along with enforcement initiatives aimed at modifying unsafe rural road user behaviour, will be identified to address specific problem areas.

Target reductions of 40% decreases in the number of fatality or seriously injured road users on rural roads, over average 1996-2001 figures, should be established for the renewed Vision during the 2002-2010 period. If progress is also realized in all of the other safety-related areas which affect the rural road setting and for which targets have been established, these targets should be achieved.

5 Factors Influencing the Vision

The renewed Vision, with its inherent targets, will require more than the commitment of road safety stakeholders and the general public if its objective of having the world’s safest roads is to be realized. Better crash and exposure data, technological advancements that make motor vehicles safer, more efficient use of police enforcement resources and improvements in road design and operations will each have to play a positive role in the achievement of this objective.

5.1 Improved Crash and Exposure Data

Current Status: Producing relevant, timely and standardized national traffic collision data has been a long standing objective of researchers and analysts across Canada. The information gleaned from Transport Canada’s national Traffic Accident Data File (TRAID) has proven useful for research and analyses purposes, for

the development of new motor vehicle safety standards and in the development of safety programs. Retroactive data quality enhancements were made to TRAIID in recent years, thereby improving its usefulness. However, in an effort to improve the timeliness of the data and to transfer responsibility for data quality issues to the jurisdictions as well as to incorporate new data elements, Transport Canada in partnership with the provinces and territories developed a template for a second generation data file. Called the National Collision Data Base (NCDB), the database is now operational and contains useful data elements not contained in TRAIID (e.g. use of daytime running lights, more comprehensive descriptions of vehicle types involved in crashes and vehicle identification numbers (VINs)). However, timeliness of data availability continues to be an issue due to unforeseen operational difficulties in some jurisdictions.

The National Data Task Force was formed in 1997 to further develop and implement a framework for a Canadian Road Safety Information Management System, facilitate linkages among road safety-related data-bases as well as make road safety data more complete and comprehensive. The principle accomplishments of the task force to date include the establishment of a protocol for linking databases of interest to road safety professionals, particularly exposure and medical data; a review of collision report forms; the development of a feasibility study for a National Vehicle Classification System; the development of a methodology for a rural road seat belt use survey; and the development of a risk analysis and evaluation system model which allows for the estimation of different types of road travel risk.

In 1999, the first annual *Canadian Vehicle Use Survey* was carried out by Statistics Canada on behalf of Transport Canada. The survey was conducted primarily to obtain annual estimates of the amount of road travel across Canada. The survey includes data on the annual number of kilometres driven by all major vehicle types; age and sex of drivers; number of passengers carried; time of day and season; road types travelled; and volume and type of

goods transported by commercial vehicles. The information obtained from the inaugural survey became available for analysis purposes in the Fall of 2000.

In partnership with selected provincial governments, public insurance companies and police agencies, Transport Canada is currently conducting a feasibility study of a computer- and communications-based system called the "System for Technological Applications in Road Safety" (STARS). This multifaceted technological platform, which was developed primarily as a tool for police forces in Québec, has many potential uses including the automated on-site collection of all traffic collision data; access to licence, registration and insurance files; ticketing and on-site collection of fines using bank credit cards; and scheduling court appearances.

Protocols are currently being established in all Canadian jurisdictions for uniform collection and transfer procedures for motor carrier data, which will be used for the assignment of safety fitness ratings.

An infrastructure database, called the Canadian Highway Information System (CHIS), which will use a Geographic Information System (GIS) platform to provide road infrastructure-related data, is currently being developed by Transport Canada and its jurisdictional partners. CHIS will contain road data such as lane and shoulder widths, surface type and conditions, traffic volumes and traffic collision sites (according to crash severity levels) for national and primary roadways.

Future Potential Measures: The traffic collision data contained in the National Collision Data Base (NCDB) enables Transport Canada to monitor national road safety trends. The enhanced information contained in NCDB, in particular the Vehicle Identification Number (VIN), which is currently provided by five jurisdictions, enables Transport Canada to utilize this detailed vehicle characteristic information to more comprehensively analyze crash involvement rates and effectiveness of various types of vehicle safety systems, and if deemed necessary, to facilitate the development of new or enhancement of existing motor vehicle safety regulations.

Linking trauma data with crash and related exposure data will facilitate the development of trauma-based regulatory initiatives and enable a more accurate estimation of traffic collision costs to be made. The risk analysis and evaluation system model will, in time, enable the assessment of the relative likelihood of a collision occurring, as well as the likely impact of targeted countermeasures against the identified risk to be made.

Information generated from the *Canadian Vehicle Use Survey* will provide road safety experts with risk management indicators, to help develop and implement more informed safety initiatives, programs and policies. This information will also enable more accurate interprovincial and international road safety comparisons to be made. Vehicle travel data collected during the 1999-2001 period should be used as baseline data to develop fatality and serious injury target reductions, on a per kilometre basis, for both general (roadway type), crash configurations (single versus multi-vehicle) and specific (vehicle types) indicators.

Current protocols to collect census national traffic collision data have proven successful at generating quality, if not timely, data. The STARS feasibility study is intended to provide a national focus for the development of uniform automated data collection performance standards. Should the provincial and police agency partners involved in the study decide that the adoption of STARS or a variation of the technology would be beneficial and feasible, it would provide police agencies in those jurisdictions with a tool that quickly identifies high-risk road users, improves the efficiency, quality and timeliness of traffic collision data collection procedures and facilitates data interchange for the development of regional, jurisdictional and national road safety programs. **Should the feasibility study demonstrate that STARS is useful and compatible in all jurisdictions involved in the study, serious consideration should be given to the adoption of this technology in all Canadian jurisdictions.**

Data collected and analyzed for the purpose of assigning motor carrier safety performance ratings should ensure that all com-

mercial carriers will operate according to industry- and regulator-accepted conventions for safety performance criteria.

Linking road infrastructure and exposure information from the Canadian Highway Information System (CHIS) database with crash data from TRAUD or NCDB will enable federal and provincial-territorial governments to perform black spot analyses on these major roadways as well as incorporate safer road design features and investments on a more cost-efficient basis.

Vehicle registration data should continue to be used to benchmark Canada's road safety progress internationally. In addition, vehicle travel data should also be used to make international road safety comparisons for the Road Safety Vision 2010 initiative, even though approximately half of the OECD member countries cannot provide comparative data.

Serious consideration should be given to the creation and adoption of a standard national traffic collision report form within the time frame of the successor plan. The adoption of a standard report form would in all likelihood result in more complete reporting of information as well improved data quality, consistency and usefulness.

5.2 Safer Motor Vehicles

Current Status: The Motor Vehicle Safety Regulations (MVSR) stipulate the safety performance of a wide range of characteristics for vehicles commonly used on Canadian roads. There are currently over 60 regulations covering equipment such as tires, brakes and seat belts. These regulations are constantly being refined and improved, as is evidenced by the approximately 35 regulatory amendments currently underway.

The principal regulation-related activities currently being conducted or sponsored by Transport Canada focus on frontal crash and lateral impact protection, commercial trailer rear underride protection, new child seat attachment requirements, school bus protection and improved alternative fuel safety requirements. In addition, the Department is working closely with its US counterpart, the

National Highway Traffic Safety Administration (NHTSA) to develop additional regulations such as door retention, improved rear impact fuel safety integrity and new tire testing requirements.

The Department is currently revising its regulated crash testing requirements for frontal impact protection to include not only testing with properly positioned average adult male dummies, but also children and small statured females, in both in- and out-of-position seating configurations. It is expected that the updated regulations combined with significant improvements in sensing and air bag technologies will provide improved protection to children and small females who are involved in frontal collisions. It is anticipated that these new requirements will be in place by 2004.

The Department has also recently entered into a formal agreement with vehicle manufacturers to improve occupant protection during lateral impact collisions. The improvements will result from redesigned vehicle doors and the installation of side door air bags that are appropriate not only for adults but also out-of-position children.

As part of Transport Canada's efforts to further protect occupants involved in lateral impact collisions, the Department is also developing a new regulation which will use an entire family of more human-like dummies and new testing barriers to better replicate larger Sports Utility Vehicle (SUV) and light truck collisions. It is expected that this new regulation will be in place prior to 2010 and that manufacturers will voluntarily comply with the new requirements prior to their effectiveness date. Current estimates indicate that up to 31% of fatally injured road users and 25% all those seriously injured were involved in lateral impact collisions. These motor vehicle enhancements combined with public education and awareness campaigns alerting motorists of the high number of serious occupant casualties that occur each year as a result of lateral impact collisions, should have a longer term positive effect in reducing the number of motor vehicle occupants killed or seriously injured in these types of crashes.

The exemplary safety record of school bus transportation notwithstanding, Transport Canada is currently researching the effective-

ness of passive restraint systems for pre-school aged and small statured children. The Department is also planning to work with NHTSA to develop a school bus seat which will be capable of providing both active (three-point seat belts) and passive (energy absorbing seats) protection.

Analyses of fatal collisions involving passenger vehicles striking the rear of commercial vehicles is currently taking place in support of a rear impact underride guard regulation. The regulation is intended to ensure that rear impact protection devices installed on new Canadian-registered trailers are effective in minimizing injuries and fatalities. It is anticipated that a proposed federal regulation for rear impact protection will be published in 2001 and will be in place before the end of 2003.

Transport Canada is currently developing new child restraint vehicle anchoring system requirements. The new system will require that a solid anchoring point be available at the base of the seat. This system will provide significantly improved protection to children in child seats who become involved in traffic collisions.

The Department is currently upgrading regulations governing fuel system integrity so that federal and provincial requirements will be harmonized. The Department, in conjunction with NHTSA, is also developing future testing requirements for gasoline, diesel and liquid fuelled vehicles which will require that vehicles be capable of withstanding an 80 km/hr impact from the rear with minimal fuel leakage. The current regulation mandates a collision speed of 50 km/hr.

The world motor vehicle regulatory bodies recently agreed to develop global regulations. This agreement, referred to as the Global Agreement, was completed under the auspices of the United Nations. Regulations developed under this agreement will be referred to as Global Technical Regulations (GTRs). Canada hopes to make use of this process to incorporate enhanced safety requirements of regulations found in other countries, for example, European vehicle lighting requirements, to strengthen comparable Canadian vehicle safety standards.

Future Potential Measures: Intelligent Transportation Systems (ITS) that are beginning to enter the marketplace are expected to significantly reduce collisions and casualties. Such systems are capable of identifying risky traffic situations and in turn warning drivers. In many instances, these computer devices can activate such vehicle functions as the brakes, steering and throttle without driver input. They do this by sensing abnormal motion of the vehicle, improper inputs of the driver, sensing the proximity of other vehicles, unprotected road users, unsafe road surfaces or atmospheric conditions. This information can be assimilated from either on-board equipment or from sensors installed at the roadside.

ITS are expected to become increasingly cost-effective, safety-capable and available over the coming decade. Advanced safety vehicle systems such as adaptive cruise control (ACC), night vision, backup obstacle detection are already being offered on some new vehicle models. Other ITS safety control systems such as adaptive lane departure warning, control, “stop and go” low speed cruise control and obstacle avoidance will soon be available. These technologies promise to significantly reduce the number of motor vehicle crashes in the future.

The safety benefits of these systems notwithstanding, the Department is conducting research to ensure that these new technologies do not adversely affect inexperienced or older (60+ years) drivers’ ability to safely operate vehicles. This research is driven by concerns that such factors as increasing driver distraction, workload or propensity for error, particularly among the growing older driving population, may contribute to increased collision involvement.

5.3 Enhanced Enforcement Initiatives

Current Status: For the past several years, police services across the country, under the leadership of the Canadian Association of Chiefs of Police (CACP), have supported the NORP 2001 and STRID 2001 initiatives in their efforts to reduce the incidence of high-risk

driving behaviour. Proactive national strategies and public education initiatives have helped raise awareness of road safety issues among the general public. The foremost example of a CACP-led national undertaking is Operation Impact. Operation Impact’s first mandate is to provide front-line police officers with detailed briefing packages that increase their awareness of high-risk driving behaviours. In turn these front-line police officers, from approximately 2,000 police service locations nation-wide, use this risk management information to educate the general public to the dangers of such high-risk driving behaviours as non-use of seat belts and driving after drinking. Operation Impact’s key messages are: “the greatest threat to public safety is the impaired driver,” and “the most effective way to save your life is to buckle up.”

The *Traffic Safety Best Practices Data Base*, housed on Transport Canada’s road safety web page (www.tc.gc.ca/roadsafety) contains a broad range of traffic safety strategies that, for the most part, were jointly developed by police officers and their communities. The database supports community-based service delivery of police services by providing easy access to proven multi-disciplinary strategies that can be adapted to address national, provincial and local priorities.

Traditionally, Canada’s police services have focused a considerable portion of their enforcement activities on detecting speeding motorists. Recognizing a need to introduce problem solving strategies, and to more representatively allocate resources based on collision causing behaviours, the CACP partnered with the RCMP, Transport Canada and provincial agencies, on a pilot project in Southern Alberta which is examining the delivery of quality traffic policing services within a community-based environment. In the early phases of the project, baseline examinations showed that 70% of enforcement activity was speeding-based, while excessive speed was a contributing factor in less than 20% of fatal collisions. Other high-risk driving behaviours such as impaired driving and non-use of seat belts received significantly less enforcement attention. The pilot project is intended to provide a model that can match

police response and resource deployment to attack those high-risk behaviours that lead to death and injury.

Future Potential Measures: Police services should be provided with a concise annual report that summarizes the most relevant road safety issues and outlines the usefulness and frequency of occurrence of the most important data elements found in jurisdictional crash data files. The objective of a report of this nature is to ensure that the enforcement community is equipped with current risk management information and to demonstrate the importance of quality data for road safety research and strategy development. Transport Canada and the Canadian Association of Chiefs of Police should strengthen their relationship to ensure that risk management information is delivered to police executives and front-line officers in the most appropriate means for the particular group. In addition, Operation Impact's national communications network (front-line police locations across the country) should regularly make use of the local media (newspapers, radio and television) to disseminate information among Canadians that raises awareness of emerging or topical road safety issues as well as of the goal and targets of the Vision initiative.

Government agencies responsible for the administration and possible future revision of drinking-driving laws in Canada must find ways to streamline the drinking-driving charge process and close legal loopholes that discourage front-line police officers from laying DWI charges because of concerns over the low likelihood of obtaining a conviction and the unmanageable time requirements for processing these charges.

The protocols established as part of the Traffic Services Pilot Project, which is currently taking place in Alberta, should be encouraged, widely disseminated and considered for adoption in communities throughout Canada.

If target reductions are to be achieved for the various initiatives proposed, then either a realignment of resources with a greater emphasis on traffic services must be implemented or the ministries

responsible for police services must increase the size of the traffic services component of their enforcement agencies.

5.4 Road Infrastructure Initiatives

Current Status: Although all aspects of road design, construction, maintenance and operation are administered by the provinces and territories, national guidelines are also developed by the Chief Engineers Council, a nationally representative committee that operates within the framework of the Transportation Association of Canada (TAC). A number of manuals and guidelines that focus on roadway design and traffic operations were recently published by TAC, specifically the Manual of Uniform Traffic Control Devices, the Geometric Design Guide for Canadian Roads, and Neighbourhood Traffic Calming. The Geometric Design Guide for Canadian Roads has been updated to include sections on the explicit evaluation of safety for the majority of the design elements, as well as for the general philosophy of the document. A new TAC committee, called the Road Safety Sub-Committee, that deals with the integration of road safety considerations into road design and traffic operations was also recently formed.

Under the Canadian Strategic Highway Research Program (C-SHRP), research has been conducted on long-term pavement performance. Research results have been transferred to practicing communities to support better investment and intervention strategies for maintenance and rehabilitation of highways.

Future Potential Measures: The current focus of the above-mentioned Road Safety Sub-Committee is to raise awareness of road safety issues for the TAC membership, to promote safety conscious, knowledge-based road and street engineering and operations, and to identify and prioritize road safety issues. This committee is currently developing national guidelines for *road safety audits*, continuous road-shoulder *rumble strips*, and formulating infrastructure-related input for the national rural road safety strategy. Road safety audits, an explicit review of the design

function, will facilitate the integration of safety features in new road designs. Rumble strips, which have been shown to reduce single vehicle run-off collisions by 20%, with benefit-cost ratios of 30:1 and higher, have already proven to be an economical infrastructure safety measure that has been successfully implemented in other countries.

The Geometric Design Committee of TAC is also funding the development of national guidelines for restoration, rehabilitation, resurfacing and reconstruction of existing roads to provide safe, cost-effective design improvements to roads which would be too expensive to rebuild to “new” design guidelines as specified in the Geometric Design Guide for Canadian Roads.

Another source of infrastructure improvements may be the federal government, as it is investigating various safety evaluation methods, such as black spot analysis, as criteria for identifying roadway improvement programs funded through federal-provincial agreements. Part of this activity is the development of the Canadian Highway Information System by Transport Canada, discussed previously in Section 5.1. Improved crash and exposure data will provide the necessary roadway and collision data to carry out these evaluations.

Recent research has shown that about 30% of all collisions involve infrastructure factors. While many of these collisions are directly attributable to specific roadway factors, it must also be recognized that inadequate design or operational problems can also contribute to driver error. Future efforts must ensure that infrastructure measures are compatible with driver behaviour and expectations.

The problems cited in both urban (intersection- and speed-related) and rural road crashes (single vehicle, head-on and intersection-related) can be diminished through infrastructure improvements. Examples of road design improvements that have been very successful in decreasing crashes and casualties in other countries include flattening horizontal curves — where increases in radius of curvature led to decreases in related crash types — and lane

and shoulder widening — which resulted in decreases of related crash types.

Targets relating to infrastructure safety have previously been identified within the rural road safety, speed and intersection safety, and vulnerable road user initiatives.

6 Discussion

Can we reach our targets and goals and thereby progress toward our ambitious vision? If we look back at traffic fatality data in Canada during the previous ten years — from 1989 until 1998 — few would have predicted that despite ever increasing traffic, the number of road users killed would be more than 30% lower in 1998 than during 1989. If we assume that annual fatality decreases will occur at a similar rate for the duration of the successor plan, fewer than 2,100 road users would die annually in crashes on Canadian roads by 2010 — a very impressive feat indeed.

At present, Canada’s road safety record is ranked 9th among OECD member countries. Most countries that rank among the safest in the world have adopted tough road safety initiatives that have filtered throughout their societies. The Canadian road safety community faces a major challenge. Achieving the goal of having the world’s safest roads will not be an easy task. However, a broad “buy-in” for the successor plan and its inherent targets by politicians, road safety stakeholders and the general public can go a long way toward improving road safety above its current level in Canada. The proposed targets are broad-based and have a sufficiently long time frame for strategies to be developed and adopted so that impressive reductions in the number of road users killed and seriously injured can be realized.

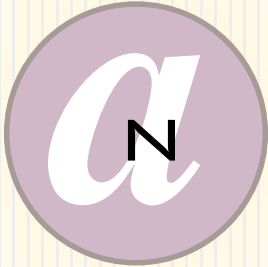
A complete list of the proposed targets, their current status and expected benefits if target objectives are achieved is summarized in Annex C of the Appendices. Of course, it must be reiterated that a great deal of overlap exists for all target reductions proposed for the successor plan and consequently the casualty

reductions made within each target group will not be mutually exclusive. Still, if substantial casualty reductions occur among several of the target groups identified, Canada's level of road safety will no doubt improve considerably.

7 Recommendations

- Canada's road safety community has retained the vision of having the world's safest roads by adopting a successor plan to the current Vision, Road Safety Vision 2001, for a further nine year time frame and renamed it Road Safety Vision 2010.
- Road Safety Vision 2010 includes an overall national target as well as an increased number of tough but achievable sub-targets that should generate both interest and real commitment by Canada's major road safety stakeholders and the general public to help achieve its goal.
- The national target calls for a 30% decrease in the average number of road users killed or seriously injured during the 2008-2010 period over comparable 1996-2001 figures.
- The following sub-targets, which will be benchmarked against comparable 1996-2001 baseline data, were adopted:
 - minimum seat belt wearing rates of 95% and proper use of child restraints by all motor vehicle occupants;
 - a 40% decrease in the number of unbelted fatally or seriously injured occupants;
 - a 40% decrease in the percent of road users fatally or seriously injured in crashes involving a drinking driver;
 - a 20% reduction in the number of road users fatally or seriously injured due to speed- or intersection-related crashes;
 - a 20% decrease in the percent of drivers who commit three high-risk driving infractions (two if they are alcohol-related) within a two year time frame;
- a 20% decrease in the number of young drivers/riders (those aged 16-19 years) killed or seriously injured in crashes;
- a 20% decrease in the number of road users killed or seriously injured in crashes involving commercial carriers;
- a 30% decrease in the number of vulnerable road users (pedestrians, motorcyclists and cyclists) killed or seriously injured; and
- a 40% decrease in the number of road users fatally or seriously injured on rural roadways.
- The national priorities identified in this report — graduated licensing schemes, innovative community policing protocols, public education initiatives promoting cyclist helmet wearing and safe cycling practices and enhancements to crash and exposure data capture, transfer and linkage — should be adopted in all jurisdictions within the time frame of Road Safety Vision 2010.
- The progress of the targets adopted in support of the renewed Vision will be monitored and reported upon at the mid-point of the successor plan, in 2006, and the targets revised, if necessary.
- Where possible, vehicle travel data from the *Canadian Vehicle Use Survey*, which became available in the Fall of 2000, should be used to make rate-based measurements for all targets and sub-targets adopted.
- Vehicle travel data should also be used to make inter-provincial/territorial comparisons of progress achieved for the targets established. For example, if sub-targets were introduced, kilometrage data could be used to compare casualty rates according to jurisdictional roadway types, vehicle types driven, and driver age categories.

- Vehicle registration and vehicle travel data should both be used to make comparisons of Canadian road safety levels with those in other OECD member countries.
- The adoption of all targets outlined in this report by all jurisdictions is recommended. However if this is not feasible, a viable alternative in some jurisdictions may be the adoption or maintenance of targets where the largest opportunities for improvements to jurisdiction-specific problems could be realized.
- Transport Canada should develop a methodology to set targets for crash frequency and injury reductions through new and improved Canadian Motor Vehicle Safety Standards (CMVSS), and if feasible, to set such targets for 2010.
- Transport Canada should continue to provide a national leadership role and monitoring function among public and key private sector road safety stakeholders and the general public in support of the initiatives and targets adopted to achieve the Vision.

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ANNEX ROAD SAFETY VISION STATEMENTS OF OECD MEMBER COUNTRIES

COUNTRY	VISION	ROAD SAFETY PROGRAM OBJECTIVES
Australia	Safe road use for the whole community.	No level of road trauma should be accepted as inevitable. The priority given to road safety should reflect the high value that the community as a whole places on the preservation of human life, and the prevention of serious injuries. All safety measures that can be justified in terms of overall community benefits should be implemented.
Austria	To have a road safety level that is comparable to the levels found in the top third countries in the European Union.	To reduce fatalities and injuries through the implementation of targeted programs and initiatives.
Belgium	None specified.	To improve collision data quality and collection practices and increase data sharing.
Canada	To have the safest roads in the world.	To raise public awareness of road safety issues; to improve communication, cooperation and collaboration among road safety agencies; to toughen enforcement measures; and to improve national road safety data collection and quality.
Czech Republic	None specified.	To reduce traffic fatalities, serious injuries and injury producing collisions through educational, engineering, legislative and enforcement initiatives.
Denmark	One accident is too many.	To reduce traffic fatalities, serious injuries and injury producing collisions.
Finland	None specified.	To have continuous improvements in road safety, whereby Finland's safety level will approach that of Sweden and Norway.
France	None specified.	To introduce broad-based road safety programs that focus primarily on human behaviour and will result in traffic fatality and injury reductions.
Germany	None specified.	The federal government advocates citizenship responsibility for road safety. If these measures fail, enforcement initiatives are introduced.
Great Britain	None specified.	To reduce casualties and to raise the profile of road safety; to establish integrated safety policies across different modes of transportation.
Greece	None specified.	To establish broad-based road safety programs that focus on both non-vulnerable and vulnerable road users in order to reduce fatalities and injuries.
Hungary	None specified.	To reduce the number of fatalities and serious injuries.
Iceland	None specified.	To reduce the number of fatalities and serious injuries; to improve safety among vulnerable and young road users.
Italy	None specified.	To reduce the number of fatalities and serious injuries; to introduce broad-based national road safety promotional campaigns; to improve data collection, quality and sharing.

ANNEX  ROAD SAFETY VISION STATEMENTS OF OECD MEMBER COUNTRIES

COUNTRY	VISION	ROAD SAFETY PROGRAM OBJECTIVES
Ireland	None specified.	To reduce the number of fatalities and serious injuries; establishing common and coordinated priorities and increased cooperation amongst road safety agencies and ministries.
Japan	None specified.	To reduce traffic fatalities to zero; to make national and regional governments, motorists and private stakeholders responsible for road safety.
Luxembourg	None specified.	To reduce the number of fatalities and serious injuries; to raise awareness of road safety initiatives through public education campaigns and research initiatives.
Mexico	None specified.	To reduce the number of fatalities and serious injuries; promote bus and truck safety.
Netherlands	Sustainable road safety.	Adapt road safety networks to the limitations of road user capabilities; require vehicles to be equipped with devices that make driving easier; inform and educate road users.
New Zealand	To create a safety culture in New Zealand that delivers land transport safety outcomes that achieve world best practice.	To set and ensure compliance with safety standards at reasonable cost that are based on best practice; to improve partnership efficiencies; to optimize the level and mix of safety funding; to catalyze innovation in road safety activities, research and management; and to demonstrate leadership in all aspects of road safety.
Norway	Vision Zero.	To establish road safety programs whereby, in the long term, no one is killed or seriously injured in a traffic collision.
Poland	None specified.	To reduce the number of fatalities and serious injuries; to improve data quality and collection practices.
Spain	None specified.	To reduce the number of fatalities and serious injuries; to bolster road safety development by improving human-, mechanical- and infrastructure-related factors.
Sweden	Vision Zero.	To establish road safety programs whereby, in the long term, no one is killed or seriously injured in a traffic collision.
Switzerland	Vision Zero.	To establish road safety programs whereby, in the long term, no one is killed or seriously injured in a traffic collision.
Turkey	None specified.	To reduce the number of fatalities and serious injuries by strongly promoting defensive driving and awareness practices.
United States	None specified.	To reduce the number, rate, and severity of motor vehicle crashes; to enable states and communities to solve their unique traffic safety problems; to identify new approaches in the behavioural, vehicular, and program delivery areas in order to reduce the number of fatalities and serious injuries.

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COUNTRY	TARGET(S)	PROGRAMS/INITIATIVES PROPOSED/IMPLEMENTED TO HELP ACHIEVE TARGETS
Australia	To reduce the number of road fatalities per 100,000 population by 40% from 9.3 in 1999 to no more than 5.6 in 2010.	Use new technology (ITS) to reduce human error: ensure seat belt use; maintain safe following distances between vehicles; prevent speed limits from being exceeded; monitor driver alertness; automatically notify emergency services of serious crash locations; improve vehicle compatibility and occupant protection: vehicle safety standards and design improvements; improve the safety of roads (black spot programs): use crash cost estimation for economic evaluation of road improvement options; conduct road safety audits; improve traffic engineering measures to create safer urban environments for pedestrians and cyclists; and reduce roadside hazards; improve the equity of road users: in particular for young and old road users as well as vulnerable and rural road users; apply international best practice in road safety benchmarking; evidence based improvement to road safety programs and policy: comprehensive research for a more thorough understanding of causal factors and consequences of road crashes and the effects of existing and potential countermeasures; improve driver training and licensing practices: improved training and testing procedures for novice drivers; continue and enhance existing road safety measures: particular attention will be given to speed management; alcohol and drug abuse; use of restraints and helmets.
Austria	To reduce the annual number of traffic fatalities by 40% and injuries by 20% by 2005 over 1998 figures.	Speed enforcement: demerit system introduced; speed limit for novice drivers; 80 km/h speed limit on rural roads; seat belts: public education campaigns; increased penalties for non-wearers; compulsory use for truckers; improved driver education and re-education; alcohol and drugs: lower the legal BAC limit to .05 mg%; zero BAC limit for young drivers; no drugs; standardized penalties for drunk drivers across Austria; periodical medical check-ups for all drivers; road safety measures for elderly road users; conspicuity: daytime running lights; increased safety among vulnerable road users; revision of right-of-way rules for cycle paths; more pedestrian zones and cyclist paths.
Belgium	None specified.	Measures in place to improve road safety include: licence suspension for excess and inappropriate speed and excess alcohol; photo radar; speed limiters on heavy goods vehicles; pedestrian and cyclists safety programs; reform of collision reporting system being considered to address data quality, consistency and sharing issues and to facilitate evaluation exercises.
Canada	Two measurable targets are intrinsic to Canada's goal of having the safest roads in the world. They include: the National Occupant Restraint Program 2001 (NORP 2001), which has as its objective 95% seat belt use and proper child restraint use among all light duty vehicle occupants by 2001;	NORP 2001: national seat belt use survey monitors Canada's progress toward its goal; national (CACP's Operation Impact and Car Time 1-2-3-4 video) and jurisdictional campaigns promoting proper and increased seat belt and child restraint use; NORP 2001 Task Force developing a promotional campaign primarily targeting young male non-wearers on rural roads; consideration being given to conducting periodic rural seat belt use surveys; STRID 2001: minimum licence suspensions for drivers convicted of DWI; administrative licence suspensions for drivers charged with DWI; education initiatives to educate police, crown prosecutors and the judiciary about the severity of the impaired driving problem; mandatory assessment and treatment programs; vehicle impoundment and ignition interlock programs; increased penalties and sentencing options in the Canadian Criminal Code and raised maximum penalty for impaired driving causing death to life imprisonment; high-risk drivers: initiatives aimed at identifying jurisdictional high-risk driving population

COUNTRY	TARGET(S)	PROGRAMS/INITIATIVES PROPOSED/IMPLEMENTED TO HELP ACHIEVE TARGETS
Canada (continued)	and the Strategy to Reduce Impaired Driving 2001 (STRID 2001), which has the goal of reducing the percent of road users killed or seriously injured in crashes involving drinking drivers by 2001 by 20% over the 1990-1995 baseline level.	introduced, and targets to reduce HRD recidivism established; speed and intersection safety : task force established and targets set to address problem; novice drivers : 80% of population now governed by laws for novice drivers; enforcement : template for community policing protocol being established; police integrating public education strategies (Operation Impact) with enforcement initiatives; commercial vehicle safety : recent revisions to the National Safety Code (safety rating) continue to make commercial vehicle transportation safer; motor vehicle enhancements : principle focus is with frontal crash protection research, side impact protection research, rear underide guard protection on commercial trailers and anti-lock brake systems for light duty vehicles; enhanced system of anchoring child restraint systems in vehicles; and safety-oriented systems incorporating degrees of "intelligence" through sensing elements, computation and control or warning systems on new vehicles; a national framework for rural road safety is being developed; infrastructure initiatives : development of national guidelines for road safety audits and rumble strips; crash and exposure data : improved national crash data file; data linkage protocols established; automated on-site collection of traffic collision and related data being tested; first annual national vehicle use (kilometres travelled) survey; jurisdiction/community initiatives : graduated licensing; school bus safety; designated community safety zones; winter driving; holiday congestion and cyclist and pedestrian safety.
Czech Republic	To reduce the number of fatalities per million inhabitants to less than 70 by 2010.	Vehicles : harmonize with European Union (EU) regulations; introduce daytime running lights; mandatory use of child restraints; drivers : introduce penalty points system; driver re-education; EU standardized speed limits; roads : introduce road safety audits; integrate road safety into design of new roads; introduce traffic calming measures in built-up areas and public transportation alternatives; improving vulnerable road user safety; education : broad-based public education campaigns focusing on road safety in general and specific programs focusing on excess speed and young male drivers in particular; enforcement : introduce photo radar; reduce speed limits on motorways, in built-up areas and in urban centres to EU recommended levels.
Denmark	A 40% decrease in the number of road users killed or seriously injured by 2012 over 2000 totals.	Automatic speed controls; red light cameras; improved police data collection practices (electronic).
Finland	To reduce traffic fatalities to 250 by 2005 and have serious injury reductions that parallel the decreases that occurred in Finland during the 1990s.	Curbing the growth in traffic : land use planning; improving the standard of and promoting the use of public transportation services; increase taxes for vehicle ownership; improved road safety in built-up areas : improved, increased pedestrian/cyclist paths and underpasses; speed limits based on volumes of pedestrian and cyclist traffic; increased surveillance in areas with high pedestrian traffic; improve interaction among road users : continuous traffic education; increase bicycle helmet, reflectors, seat belt use; mandatory training for moped riders; increase minimum age for motorcycle licensing; improve driver education; introduce high-risk driver interventions; introduce elderly driver programs; reduce drinking/driving : public education campaigns; treatment for recidivists; ignition interlocks; increased police enforcement; reduce run-off-road and head-on crashes : improve wintertime road maintenance; varying speed limits depending on road conditions.

COUNTRY	TARGET(S)	PROGRAMS/INITIATIVES PROPOSED/IMPLEMENTED TO HELP ACHIEVE TARGETS
France	None specified.	Road safety initiatives have focused primarily on human behaviour: demerit points for failure to wear seat belts; introduced stringent law related to speed exceeding 40 km over the posted limit; and intense media campaigns focusing on belt use and drinking and driving; research initiatives focusing on rural road safety.
Germany	None specified.	The current focus of road safety interventions is on initiatives that aim to decrease the number of crashes involving vulnerable road users, young drivers and heavy goods vehicles as well as collisions that occur on rural roads, particularly those involving road side hazards.
Great Britain	A 40% reduction in the number of people killed or seriously injured in traffic collisions; a 50% reduction in the number of children killed or seriously injured; and a 10% reduction in the slight casualty rate, expressed as the number of people slightly injured per 100 million vehicle kilometres travelled by 2010 when compared with 1994-1998 average figures.	Enhance existing programs that were initiated for the inaugural target setting exercise in 1987: driver impairment (drinking-driving, drugs and fatigue), enforcement, vehicles and infrastructure as well as public education campaigns; new initiatives: improved standards for driver training and testing; motorcycle safety; child road safety; vulnerable road users; infrastructure initiatives; increased enforcement; and campaigns aimed at reducing the incidence of speeding.
Hungary	A 25-30% decrease in the number of road users killed or seriously injured by 2000 compared with 1992 figures.	Introduced: 50 km/h speed limit in built-up areas; DRL on main roads outside built-up areas; mandatory use of rear seat belts on rural roads; public education campaigns; increased police enforcement; revisions to Highway Code; improved technical equipment for police; traffic education programs in elementary schools; mandatory speed limiters for commercial vehicles transporting hazardous materials; improvements to roads infrastructure; mandatory helmet wearing for moped riders; use of cell phones prohibited while driving; introduction of standardized signing for cyclists and pedestrians.
Ireland	To reduce the number of fatalities and serious injuries on Irish roads by a minimum of 20% by 2002 below 1997 levels; to reduce the incidence of speeding by 50% from 1997 levels; to increase seat belt wearing rates to 85%; to reduce the number of fatal crashes occurring during "dark" lighting conditions by 25%.	New measures: the use of automatic speed detection systems, including fixed speed cameras; evidential breath testing for drink driving; extend on-the-spot fines for non-use of seat belts and other offences; develop a penalty point system that specifically targets recidivism of high-risk driving behaviour; enhanced measures: public education programs for school children; expanded road safety research; upgrade IT systems relevant to road traffic enforcement; introduce computerized driver licensing records; vehicle safety inspections introduced; and improvements to road infrastructure.

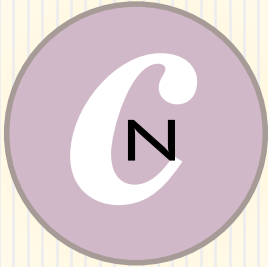
ANNEX ROAD SAFETY TARGETS IN OECD MEMBER COUNTRIES

COUNTRY	TARGET(S)	PROGRAMS/INITIATIVES PROPOSED/IMPLEMENTED TO HELP ACHIEVE TARGETS
Italy	None specified.	Reforms being considered to traffic collision data collection system to improve data quality and data sharing.
Japan	To reduce total fatalities by 1,500 by 2010 below 2000 figure; to reduce the number of collisions involving commercial vehicles by 20%, with an implied fatality reduction of 170.	Improve roads infrastructure and safety facilities; public education programs; improve safety features of vehicles; effective traffic regulation and control; improve emergency rescue and medical treatment services; conduct road safety research, in particular for their aging population; develop safety measures based on intelligent transportation systems (ITS).
Netherlands	(a) 750 or fewer fatalities and 14,000 or fewer hospitalized victims by 2010; (b) a 25% decrease in total casualties in 2000 when compared with the 1985 total; supplementary targets: a decrease to 100 in 2000 of alcohol-related fatalities; 90% passenger car seat belt use by 2000; speeding to account for no more than 10% of citations.	Initial road safety programs aimed at reducing drinking-driving, speeding, hazardous citations; improving cyclist and heavy vehicle safety; concerns over not achieving goals resulted in adoption of supplementary road safety plan advocating sustainable road safety: the main focus of sustainable road safety in short term was to improve traffic law enforcement; to improve roads infrastructure; to increase effectiveness of programs, decentralization of traffic safety policies was agreed to in 1994 by principal agencies involved.
New Zealand	To reduce traffic deaths to 420 by 2001.	Lowering highway speed limits to 90 km/h; raising minimum driving age to 17; achieving a 98% front seat belt wearing rate; achieving optimistic results from compulsory breath testing and speed camera programs; reducing motorcycle fatalities to 8% of road toll.
Norway	To have 200 or fewer traffic fatalities by 2012.	Current measures include: improvements to roads and road environment; increased police surveillance; improved driver education and information; programs aimed at improving road user behaviour; increased sanctions; use of mobile phones while driving prohibited; increased road safety research.
Poland	None specified.	Introduced new traffic collision data collection system which emphasized data quality improvements.
Spain	None specified.	Increase public education campaigns; monitor and control of selected offences; improve road infrastructure; undertake studies on crashes and preventative measures; improved vehicle inspection programs; improved traffic control devices and road user assistance; adoption of international standards and development of national regulations; legal BAC limit decreased to .05 and to .03 for professional and novice drivers, respectively.

ANNEX ROAD SAFETY TARGETS IN OECD MEMBER COUNTRIES

COUNTRY	TARGET(S)	PROGRAMS/INITIATIVES PROPOSED/IMPLEMENTED TO HELP ACHIEVE TARGETS
Sweden	Year 2007: 50% reduction in fatalities and serious injuries over 1996 totals; ultimate long term goal, as part of Vision Zero initiative, is that no one be killed or seriously injured within the road transportation system.	Introduce programs aimed at reducing drinking and driving, speeding and other driving offences; no exemptions for non-use of seat belts; create safer road environment in urban and rural areas; improved emergency medical response; safer vehicle designs; and crash and medical data linking.
Switzerland	Government: long term target of 350 or fewer fatalities; and a maximum of 5 fatalities/100,000 inhabitants; bfu (Swiss National Safety Council): (a) intermediate target (2010) of 350 or fewer fatalities; and (b) long term (2020) target that no one die or be seriously injured in traffic collisions (Vision Zero).	Decrease legal BAC level to .05 mg%; increased traffic education initiatives focusing on seat belt use and air bags; introduced graduated licensing scheme; new legislation pertaining to prescriptions and non-prescription drugs; promote the use of public transportation; pedestrian safety initiatives; increased use of roundabouts in urban areas; improve roads infrastructure and technology of roads; and increase enforcement.
Turkey	None specified.	Road safety promotional initiatives focusing on defensive driving measures: seat belt use and proper use of child restraints; pedestrian awareness; nighttime driving; proper vehicle maintenance; random roadside (vehicle registration and DWI checks).
United States	Reduce total fatalities and injuries by 20% below 2000 levels by 2008; reduce fatalities involving commercial vehicles by 50% by 2010.	Introduced: crash avoidance and driver vehicle performance initiatives and advanced technologies to augment vehicle handling and stability; alcohol- and drug-impaired driving initiatives; public information and education initiatives aimed at high-risk drivers; programs targeting red light running, speeding, unsafe lane changes, and ignoring rail-highway grade crossing gates; expand efforts to define and measure HRD problem, develop and test countermeasures; initiatives focusing on teenagers; expand biomechanics research particularly for children and the elderly; enhance research of advanced occupant restraint systems; new car assessment programs which evaluate front and side impact protection performance; research on aging road users, including education, licensing practices, and crash protection.

Note: OECD member countries for which road safety targets or road safety initiatives supporting improvements in road safety were not available were excluded from this table.

A N  E X



TARGET	CURRENT STATUS OF BENCHMARK DATA (1996-1997/1998-1999 DATA)	EXPECTED BENEFITS IF TARGET OBJECTIVES ARE ACHIEVED
30% decrease in the average number of road users killed and seriously injured during the 2008-2010 period over comparable 1996-2001 figures.	killed (1996-1999 data): 3,014; seriously injured (1996-1998 data): 19,206.	* 904 fewer road users killed and 5,762 fewer seriously injured.
Minimum 95% seat belt and proper child restraint use.	1996-1999 data: 89.1% of light duty vehicle occupants were restrained.	115 fewer occupants killed in 2010 if seat belt use gradually increases to 95%.
40% decrease in the number of unbelted fatally and seriously injured occupants.	1996-1997 data: killed: 906 seriously injured: 2,921	362 fewer occupants killed and 1,168 fewer seriously injured.
40% decrease in the percent of road users fatally or seriously injured in crashes involving alcohol.	1997 data (STRID report) killed: estimated 1,071 road users killed in crashes involving alcohol; seriously injured: 3,613.	428 fewer road users killed and 1,445 fewer seriously injured.
20% reduction in the number of fatalities and serious injuries resulting from speed and intersection-related crashes.	1996-1997 data: intersection related: killed: 801 seriously injured: 7,497 speed related: killed: 525 seriously injured: 2,046	Intersection related: 160 fewer road users killed and 1,499 fewer seriously injured; speed related: 105 fewer road users killed and 409 fewer seriously injured.
20% decrease in the percent of drivers who commit three high-risk driving infractions (two if they were alcohol-related) within a two year time frame.	Provinces/territories must first identify high risk driver population.	Estimated reductions will be based on information provided by jurisdictions.

* Due to the considerable overlap among targets, the casualty reductions specified if the 30% overall national target achieved (904 fewer road users killed and 5,762 fewer seriously injured) are considerably lower than the aggregate reductions specified for each individual target (2,110 fewer road users killed and 9,200 fewer seriously injured).

TARGET	CURRENT STATUS OF BENCHMARK DATA (1996-1997/1998-1999 DATA)	EXPECTED BENEFITS IF TARGET OBJECTIVES ARE ACHIEVED
20% decrease in the number of young drivers/riders (aged 16-19 years) killed or seriously injured in crashes.	1996-1997 data for all jurisdictions: motorcyclists/moped riders: killed: 14; seriously injured: 116; motor vehicle operators: killed: 143; seriously injured: 1,018.	3 fewer motorcycle/moped operators killed and 23 fewer seriously injured; 29 fewer motor vehicle drivers killed and 204 fewer seriously injured.
20% decrease in the number of road users killed or seriously injured in crashes involving commercial carriers.	1996-1997 data: killed: 610; seriously injured: 1,795.	122 fewer road users killed and 359 fewer seriously injured.
30% decrease in the number of vulnerable road users (pedestrians, motorcyclists and cyclists) killed or seriously injured.	1996-1997 data: pedestrians: killed: 434 seriously injured: 2,133 motorcyclists/ moped riders: killed: 123 seriously injured: 1,025 cyclists: killed: 64 seriously injured: 630	Casualty reductions by 2010: pedestrians: killed 130; seriously injured: 640 motorcyclists/moped riders: killed: 37 seriously injured: 308; cyclists: killed: 19; seriously injured: 189.
40% decrease in the number of road users fatally or seriously injured on rural roadways.	1996-1997 data: Rural roadways include roads with posted speed limits of 80-90 km/h; Killed: 1,499; seriously injured: 7,391.	Casualty reductions in 2010: killed: 600; seriously injured: 2,956.

This report was written by Paul Gutoskie of the Road Safety and Motor Vehicle Regulation Directorate of Transport Canada.
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- **Canadian Council of Motor Transport Administrators**

Standing Committee on Road Safety Research and Policies
Standing Committee on Drivers and Vehicles
Standing Committee on Compliance and Regulatory Affairs

- **Canadian Association of Chiefs of Police**

- **Transportation Association of Canada**

Chief Engineers' Council

- **National Public Safety Organizations**

A committee of national organizations committed to road safety

To find out more about national road safety programs and initiatives, call Transport Canada toll free at 1-800-333-0371 or (613) 998-8616 if you are calling from the Ottawa area, or e-mail comments or questions to roadsafetywebmail@tc.gc.ca.

You can also visit the Transport Canada Web site at www.tc.gc.ca/roadsafety

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