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Implementing the Recommendations of the
World Report on Road Traffic Injury Prevention

Country Guidelines for the Conduct of Road Safety Management Capacity Reviews and the Specification of Lead Agency Reforms, Investment Strategies and Safe System Projects

The World Health Organization (WHO) and the World Bank jointly issued the World Report on Road Traffic Injury Prevention on World Health Day 2004, dedicated by the WHO to the improvement of global road safety. The report's publication signaled a growing concern in the global community about the scale of the health losses associated with escalating motorization and a recognition that urgent measures had to be taken to sustainably reduce their economic and social costs. Implementing the report's recommendations has become a priority mandated in successive UN General Assembly Resolutions and these guidelines have been prepared to assist this task.

Road safety management systems have evolved in high-income countries over the last fifty years and the challenge for all countries will be to benefit from the lessons learned, to avoid perpetuating the unnecessary and unacceptably high level of deaths and injuries experienced on the world's roads. This will require low and middle-income countries to shift rapidly and decisively to what has been termed the *Safe System* approach which aims to eliminate road deaths and serious injuries, rather than chart a fatalistic pathway that accepts these impacts as an inevitable price of economic progress. The challenge for high-income countries will be to continue to innovate on the basis of sound safety principles and go beyond what is currently known to be effective, to achieve even higher levels of safety performance.

The findings of the World Report culminated in six overarching recommendations that set out the strategic initiatives necessary to improve country road safety performance. Implementing these recommendations will require capacity building at the global, regional and country levels to create the resources and tools necessary to target initiatives on a scale capable of reducing significantly and sustainably the huge economic and social losses arising from road deaths and injuries.

The guidelines presented in this report provide a pragmatic approach designed to overcome institutional capacity barriers and achieve sustainable results.

WORLD BANK GLOBAL
ROAD SAFETY FACILITY

Bliss
Breen

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Foreword

The *World Report on Road Traffic Injury Prevention,* jointly issued on World Health Day 2004 by the World Health Organization and the World Bank, highlights the growing public health burden of road deaths and makes a powerful case for urgent measures to address the problem as a global development priority. Its findings and recommendations provide a consensus-based blueprint for country, regional and global action and have subsequently been endorsed by United Nations General Assembly Resolutions 56/289, 60/5 and 62/244 (*Improving global road safety*) and World Health Assembly Resolution WHA 57.10 (*Road safety and health*). Efficient and effective implementation of the *World Report's* recommendations will require countries working in partnership with the international development community to scale up, refocus and harmonize their road safety activities, with an emphasis on managing for results. As an overarching priority institutional capacity building at global, regional and country levels must underpin this endeavor if improved country road safety performance is to be sustained in the longer-term. These guidelines provide a framework to direct such actions and are a revised and expanded version of the World Bank Transport Note TN1, *Implementing the Recommendations of the World Report on Road Traffic Injury Prevention*, which was first issued in April 2004.

The country guidelines set out a sequential process that is vital to success. The conduct of a safety management capacity review is a necessary first step in building a multi-sectoral framework for dialogue between all relevant partners and stakeholders at country, regional and global levels. Capacity review findings will specify the lead agency strengthening, long-term investment strategy and *Safe System* projects required to improve country safety outcomes on a sustainable basis. Safety interventions should target the highest concentrations of death and injuries on the road network to achieve rapid and demonstrable improvements. The absence of reliable death and injury data must not impede taking urgent action, but the building of countrywide data systems should be an immediate focus. Dialogue must also be initiated and sustained with international partners and stakeholders to foster global and regional partnerships that can scale up and accelerate the process of building the scientific, technological and managerial capacities required to prepare and implement innovative and cost-effective road safety programs at the country level.

The guidelines promote a *Safe System* approach to road safety and have been produced for use in any country irrespective of its development status or road safety performance. They draw on the *World Report* findings and provide a management framework to guide the implementation of its recommendations. Further updates are planned, based on the experience gained with their application in low, middle and high-income countries.

The authors are grateful to Professor Claes Tingvall and Professor Fred Wegman for reviewing the guidelines prior to publication and for their support and helpful advice.

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Executive Summary

Introduction

The World Health Organization (WHO) and the World Bank jointly issued the *World Report on Road Traffic Injury Prevention* on World Health Day 2004, dedicated by the WHO to the improvement of global road safety. The report's publication signaled a growing concern in the global community about the scale of the health losses associated with escalating motorization and a recognition that urgent measures had to be taken to sustainably reduce their economic and social costs. Implementing the report's recommendations has become a high priority for low and middle-income countries and the guidelines presented in this report have been prepared to assist this task.

Purpose of guidelines

The guidelines promote a *Safe System* approach to road safety and specify a management and investment framework to support the successful implementation of the *World Report* recommendations. They include practical procedures designed to accelerate knowledge transfer and sustainably scale up country investment to improve road safety results. They set out detailed steps for the conduct of country road safety management capacity reviews and the related specification of lead agency reforms, investment strategies and *Safe System* projects designed to overcome revealed safety management capacity weaknesses.

The guidelines have been prepared to assist country road safety professionals, World Bank and regional development bank staff, international consultants, community groups, private sector organizations, and all other global, regional and country partners and stakeholders undertaking country road safety investments.

Implementing the *World Report* recommendations

The findings of the *World Report* culminated in six overarching recommendations that set out the strategic initiatives necessary to improve country road safety performance:

1. Identify a lead agency in government to guide the national road safety effort.
2. Assess the problem, policies and institutional settings relating to road traffic injury and the capacity for road traffic injury prevention in each country.
3. Prepare a national road safety strategy and plan of action.
4. Allocate financial and human resources to address the problem.
5. Implement specific actions to prevent road traffic crashes, minimize injuries and their consequences and evaluate the impact of these actions.
6. Support the development of national capacity and international cooperation.

Implementing the recommendations of the *World Report* requires capacity building at the global, regional and country levels, to create the resources and tools necessary to target initiatives on a scale capable of reducing significantly and sustainably road deaths and injuries in low and middle-income countries.

At the country level implementation requires an integrated framework that treats the *World Report* recommendations as a totality and ensures that institutional strengthening initiatives are properly sequenced and adjusted to the absorptive and learning capacity of the country concerned.

Emerging global and regional initiatives aiming to assist the acceleration of knowledge transfer to low and middle-income countries and the scaling up of their road safety investments must be harmonized. Opportunities must also be taken to combine and leverage the weight and effectiveness of resources being mobilized to improve the results being achieved.

The guidelines presented in this report provide a pragmatic approach designed to overcome country capacity barriers and achieve sustainable results.

Key messages

The guidelines present the following key messages:

Poverty impacts

The social and economic losses from road deaths and injuries in low and middle-income countries are projected to be on a catastrophic scale with substantial poverty impacts. For this reason the guidelines focus on the requirements of low and middle-income countries, although they are also applicable to high-income countries.

Limited progress

While the *World Report* findings and recommendations set out a blueprint for concerted action in low and middle-income countries limited progress has been made on implementing them. Country safety management capacity weaknesses present a formidable barrier to progress and institutional mangement functions require strengthening. A clearly defined results focus is often absent. This reflects the lack of leadership of a targeted strategy that is owned by the government and relevant agencies, with responsibilities and accountabilities for its achievement being clearly specified and accepted. As a consequence coordination arrangements can be ineffective, supporting legislation fragmented, funding insufficient and poorly targeted, promotional efforts narrowly and sporadically directed to key user groups, monitoring and evaluation systems ill-developed, and knowledge transfer limited. Little is known about the results achieved. Likewise international development agencies are ill-prepared to act and global, regional and country road safety management capacity weaknesses must be systematically addressed as an urgent priority if sustainable success is to be evident over the coming decade. Otherwise road safety results in low and middle-income countries will continue to deteriorate in the face of rapid motorization and scaled-up road infrastructure provision.

Systematic response

Managing for improved road safety results at the country level must address three inter-related elements of the road safety management system: institutional management functions, interventions and results; with prime importance being placed on institutional management functions and more specifically the role of the lead agency. A reliance on addressing interventions alone will not suffice.

Focus on results

In managing for improved road safety results, the foremost and pivotal institutional management function is *results focus.* All the other institutional management functions are subordinate to this function and contribute to its achievement. A country's results focus can be interpreted as a pragmatic specification of its ambition to improve road safety and the means agreed to achieve this. In the absence of a clear focus on results all other institutional functions and related interventions lack cohesion and direction and the efficiency and effectiveness of safety initiatives can be undermined.

Safe System approach

Road safety management systems have evolved in high-income countries over the last fifty years and the challenge for low and middle-income countries will be to benefit from the lessons learned, to avoid the unnecessary and unacceptably high level of deaths and injuries experienced in high-income countries. This will require low and middle-income countries to shift rapidly and directly to a *Safe System* approach with a results focus which aims to eliminate road deaths and serious injuries, rather than chart a fatalistic pathway that accepts these impacts as an inevitable price of economic progress. The challenge for high-income countries will be to continue to innovate on the basis of sound safety principles and go beyond what is currently known to be effective, to achieve even higher levels of safety performance.

The shift to a *Safe System* approach is also well attuned to the high priority global, regional and country development goals of sustainability, harmonization and inclusiveness. A *Safe System* is dedicated to the elimination of deaths and injuries that undermine the sustainability of road transport networks and the communities they serve. Its focus on safer and reduced speeds harmonizes with other efforts to reduce local air pollution, greenhouse gases and energy consumption. And its priority to afford protection to all road users is inclusive of the most vulnerable at-risk groups such as pedestrians, young and old, cyclists and motorcyclists. These co-benefits of shifting to a *Safe System* approach further strengthen the business case for its implementation.

Ineffective plans

There has been a tendency for past technical assistance support provided to low and middle-income countries to prepare national action plans which simply detail the interventions that should be made to reduce road deaths and injuries with little consideration given to the institutional capacity and funding needed to deliver them. Such a response is neither appropriate nor effective. Countries are becoming more sensitized to the road safety problems they must address, in terms of being aware that they must improve the safety of road infrastructure, vehicles and

emergency medical response services, as well as road user behavior, and they are now seeking advice on how to do it. How to do it is the central issue, as just saying it should be done does not mean it can or will be done. Institutional management functions at the country level are increasingly becoming the center of attention and concern. This underscores the emphasis in these guidelines on mobilizing financial and human resources for capacity strengthening purposes, as country priorities are becoming more focused on building sustainable management systems and related financing functions.

Strengthening management capacity

Implementing the recommendations of the *World Report* requires account to be taken of the management capacity in the country concerned to ensure that institutional strengthening initiatives are properly sequenced and adjusted to its absorptive and learning capacity. The central issue is how to accelerate the necessary process of shifting from weak to strong institutional management capacity to govern the production of improved road safety results.

Capacity review

The conduct of a safety management capacity review is a vital first step in the process of a country taking the necessary actions to tailor the *World Report* recommendations to its unique circumstances and in determining its state of readiness to commit to the productive and sustainable steps necessary to bring its road safety outcomes under control. It also serves to identify related institutional responsibilities and accountabilities and provides a platform to reach an official consensus on country capacity weaknesses and how best to overcome them.

Role of lead agency

The *World Report* highlights the fundamental role of the lead agency in ensuring the effective and efficient functioning of the road safety management system. Responsible and accountable road safety leadership at country, state, provincial and city levels is vital to success. In the absence of such leadership with a sustained focus on results, efforts aimed at improving, for example, program coordination, decentralization and promotion will often be illusory and unsustainable. Likewise, action plans prepared without a designated agency mandated to lead their implementation and a realistic and sustainable funding base are likely to remain paper plans and make no positive impact on results.

Staged investment

Countries wishing to improve their road safety performance must be well organized to manage the achievement of improved results in a systematic way. Institutional management functions must take the highest priority as they are the foundation on which road safety management systems are built: they produce the interventions that achieve the desired results. In practice the process of institutional strengthening must be staged. During the formative stages emphasis must be put on improving the focus on results and related inter-agency coordination. As these institutional management functions become more effective the remaining management functions are in turn strengthened.

Learning by doing

Sustained long-term investment is the key to improving country road safety results. This requires a staged process to investment that addresses revealed capacity weaknesses by first building a core capacity to bring targeted safety outcomes under control, then scaling up investment to accelerate this capacity strengthening and the achievement of improved results across the national road network. It must be grounded in practice by a learning by doing process backed with sufficient targeted investment to overcome the barriers presented by weak institutional capacity. An example of this approach is provided by the World Bank's shift to *Safe System* road safety projects which aim to anchor country capacity building efforts in systematic, measurable and accountable investment programs that simultaneously build management capacity while rapidly achieving safety improvements in targeted high-risk corridors and areas.

Safe System project preparation

The overall sequencing of the project preparation process is crucial to successful implementation. The first priority is to prepare a project concept based on the findings of the country capacity review. This should be sufficiently comprehensive to outline all components, partnerships and targeted results. The second and third priorities are to reach consensus on the project management arrangements and the monitoring and evaluation procedures. The preparation of a detailed project design should only commence once agreement is reached on the overall project concept, the results it is trying to achieve and how these will be managed and measured.

Technical assistance

In situations where road safety management capacity is weak, strong reliance will be placed on recruiting external technical assistance support to help guide project implementation. It is crucial that this assistance is provided first and foremost in the form of a mentoring role to local

staff who will undertake the tasks concerned, rather than being seen as external expertise that has been hired to take responsibility for their delivery. This is particularly relevant to the overall strategic management of the project, but it also relates to more specialized technical tasks. Recognition of this priority will require a shift from the more common approaches of the past where external consulting teams would provide self-contained, expert services, leaving in many cases limited residual local capacity once the consulting teams departed. Emphasis should be placed on providing a more process orientated style of technical assistance where external experts work alongside local staff to help accelerate knowledge transfer and engender institutional capacity strengthening of a more sustainable nature.

These key messages are comprehensively addressed in the implementation guidelines.

Implementation guidelines

The recommendations of the *World Report* highlight safety management issues at the global, regional and country levels, and emphasize the building of institutional capacity to manage for results. In particular the recommendations emphasize the importance of implementing a systematic and sustained response to govern road safety outcomes at the country level, and place prime importance on the vital role of the lead agency in this process. These implementation guidelines focus on strengthening the road safety management system and place special emphasis on related lead agency responsibilities in ensuring institutional efficiency and effectiveness.

The guidelines specify an implementation process in two key stages:

Stage 1: Conduct country capacity review

This first stage addresses *World Report* recommendations 1–4 and guidelines are provided for the following key steps in the conduct of a capacity review:

1. Set review objectives
2. Prepare for review
3. Appraise results focus at system level
4. Appraise results focus at interventions level
5. Appraise results focus at institutional management functions level
6. Assess lead agency role
7. Specify investment strategy and identify *Safe System* implementation projects
8. Confirm review findings at high-level workshop
9. Finalize review report

Following the conduct of the country capacity review the second step in the process is to prepare safety projects to launch the identified investment strategy. Successful implementation hinges on designing projects that accelerate the transfer of road safety knowledge to strengthen the capacity of participating entities and rapidly produce results that provide benchmark measures to dimension a roll-out program. The focus of these guidelines is on the preparation of projects that implement the *establishment* phase of the investment strategy and build the institutional capacity and evidence base to roll out a larger program of initiatives in the investment strategy's *growth* phase.

Stage 2: Prepare and implement *Safe System* projects

This second stage addresses *World Report* recommendations 5 & 6 and guidelines are provided for the following key steps in preparing safety projects:

1. Set project objectives
2. Determine scale of project investment
3. Identify project partnerships
4. Specify project components
5. Confirm project management arrangements
6. Specify project monitoring and evaluation procedures
7. Prepare detailed project design
8. Highlight project implementation priorities

A core project objective is the achievement of quick and proven safety results in high-risk corridors and areas and the development of benchmark performance measures to dimension a national roll-out program of successful initiatives to the remaining high-risk corridors and areas. This places a high priority on ensuring that the monitoring and evaluation procedures are effective and that the focus on results to be achieved underpins the leadership and coordination of the project during its implementation. It also places a high priority on sustaining the emphasis on transferring good practices into the country concerned and accepting the challenges of innovation and learning by doing that this entails. The aim is to accelerate knowledge transfer and build country capacity in a targeted process that demonstrates when good practice measures are taken road safety performance can be dramatically improved. In this way the business case for higher levels of sustained investment can be prepared, built on a platform of strengthened country capacity and proven success.

Case studies

In Annexes 2–4 the guidelines provide in-depth case studies of institutional arrangements in five good practice countries (New Zealand, Great Britain, the Netherlands and Sweden, and the Australian States of Victoria and Western Australia) plus summary case studies of two transitional countries (Malaysia and Poland). These case studies merit close attention as such detailed material is largely absent in the available road safety literature.

Substantial investment in institutional capacity is vital to success and so far insufficient attention has been paid to the institutional benchmarks for good performance set by high-income countries. When considering the strategic policy challenges faced by low and middle-income countries this omission is critical and without directly addressing it little sustained success can be anticipated.

The case studies highlight the importance of the lead agency role in directing the national road safety effort and are instructive in their own right in terms of illustrating the institutional complexity and scale of investment evident in high-income countries where safety outcomes are successfully managed and performance shows continuous improvement. The case studies also show that the effective delivery of core institutional management functions can be achieved with varied lead agency structural and procedural forms and no preferred model for this can be identified and promoted.

The complexity of institutional arrangements in high-income countries can be viewed as a surrogate indicator of success and the commitment to sustained road safety investment. For low and middle-income countries seeking to successfully and rapidly go down this development path the guidelines provide an integrated framework to commence the process, whereas for high-income countries they can be used to guide ongoing reforms.

1

Introduction

The World Health Organization (WHO) and the World Bank jointly issued the *World Report on Road Traffic Injury Prevention* (Peden et al, 2004)[1] on World Health Day 2004, dedicated by the WHO to the improvement of global road safety. The report's publication signaled a growing concern in the global community about the scale of the health losses associated with escalating motorization and a recognition that urgent measures had to be taken to sustainably reduce their economic and social costs.

1.1 Projected country losses

The *World Report* sets out available country data on deaths and injuries from road crashes. It also presents projected future country losses worldwide, if systematic and large-scale measures are not urgently taken to prevent them. Globally these deaths and injuries already create unacceptable public health, economic and social development losses. Every year more than 1 million people are killed and up to 50 million more injured or disabled on the world's roads.

World Bank projections indicate that global road fatalities will increase by more than 65 percent between the years 2000 and 2020, unless intensified safety interventions are implemented, with this trend varying across regions of the world (Table 1). Fatalities are predicted to increase by more than 80 percent in low and middle-income countries, but decrease by nearly 30 percent in high-income countries (Kopits, Cropper, 2003).[2]

Road deaths and injuries were projected by the path-breaking *Global Burden of Disease Study* to be the third leading contributor by 2020 to the global burden of disease and injury (Murray, Lopez, eds, 1996).[3] This finding alerted the global community to the sheer scale of the emerging public health crisis unfolding on the world's roads. Revised estimates of global health losses from road traffic injuries indicate that road crash deaths and injuries in low and middle-income countries are now projected to be the 4th largest cause of healthy life years lost by the total population in 2030, compared with malaria (15th) and tuberculosis (26th). More specifically, globally road deaths are projected to be the leading cause of health losses for children (age 5–14) by 2015, and the second cause for men by 2030 (Loncar, Mathers, 2005).[4] These latter impacts are sufficient to generate alarm and justify accelerated measures to address them.

The *World Report* highlights road safety as a social equity issue. Low and middle-income countries already bear about 90 percent of the current burden of road deaths and injuries and they will experience the greatest growth in casualty rates over the coming decades. A large proportion of crash victims in these countries will continue to be their more vulnerable road users such as pedestrians and

Table 1: Predicted road traffic fatalities

World Bank Region	% change 2000–2020
South Asia	144%
East Asia & Pacific	80%
Middle East & North Africa	68%
Latin America & Caribbean	48%
Europe & Central Asia	18%
Sub-total	**83%**
High-income countries	–28%
Global total	**66%**

Source: Kopits, Cropper, 2003.

cyclists. Road crashes have a disproportionate impact on the poor who experience limited access to post-crash emergency care and face costs and loss of income that can push families further into poverty. Crude estimates of the economic costs of road deaths and injuries put them at an average of 1 percent of GNP for low-income countries, compared with 1.5 percent for middle-income countries and 2 percent for high-income countries. These costs could be significantly higher, especially if under-representation of deaths and injuries in available statistics and the social costs of pain and suffering were fully accounted for.

1.2 Blueprint for action

Since its publication the *World Report* has received wide acclaim and it has motivated and provided a focus and framework for global, regional and country initiatives to reduce road deaths and injuries. A key message of the *World Report* is that road crash costs in low and middle-income countries are substantially avoidable, because successful programs in high-income countries over the last thirty years have demonstrated that road deaths and injuries are predictable and preventable. However, making the connection between this knowledge and effective action remains a challenge as the scale of investment in the prevention of road deaths and injuries is in no way commensurate with its growing public health priority in low and middle-income countries.

The *World Report* provides a blueprint for action to address the escalating crisis on the world's roads. It emphasizes that road safety is a responsibility shared by government, industry, business, nongovernmental organizations and international agencies, with participation by people from many disciplines and the wider community. It also highlights the complex and hazardous nature of the road transport system which must be understood holistically and designed and operated to compensate for human vulnerability and fallibility. *Vision Zero* in Sweden and *Sustainable Safety* in The Netherlands are promoted by the *World Report* as leading examples of good practice and what has become termed the *Safe System* approach that all countries should aspire too. Governments are invited to assess the current status of road safety in their respective countries and the *World Report* makes a set of recommendations to assist this process. Low and middle-income countries lacking sufficient resources to fully apply these recommendations are encouraged to seek partnerships with development organizations and related entities to assist their implementation.

1.3 Institutional capacity weaknesses

The findings and recommendations of the *World Report* have since been endorsed and promoted by successive UN General Assembly and World Health Assembly Resolutions calling for action (see Annex 1). However, little evident progress has been made on implementing the recommendations and over the coming decade this still remains to be done if the growing global road safety crisis is to be averted. Country safety management capacity weaknesses present a formidable barrier to progress and and international development agencies are ill prepared to act. Concerted action is required if sustainable success is to be achieved. (See Box 1.) The *World Report* recommendations highlight the need to address the core institutional management functions that produce road safety results and emphasize the key integration role played by the lead agency in orchestrating an effective and sustained national response.

Road safety management capacity weaknesses must be addressed as the highest priority, as current initiatives are insufficient to effect sustainable change. The challenge remains to generate the political will and associated global, regional and country leadership and resources required to successfully implement the *World Report* recommendations to achieve improved results. The mission and goals of the World Bank's Global Road Safety Facility (World Bank, 2007)[10] address this imperative and they have been endorsed by the UN General Assembly (see Annex 1). They have also been supported by the *Make Roads Safe* campaign of the Commission for Global Road Safety which is seeking donor support for a ten-year global, regional and country action plan to be implemented by the Facility. The Commission is showing strong leadership with its campaign which also calls for road infrastructure safety funding and related global and regional measures to address road safety as a sustainable development priority (Commission for Global Road Safety, 2006).[11] However, the international response so far falls well short of the funding commitment sought for the coming decade. Ongoing dialogue with the donor community is being scheduled to mobilize resources heading up to the First Global Ministerial Conference on Road Safety in the Russian Federation in November 2009, which

Box 1: Road safety management capacity weaknesses

Country capacity weaknesses present a formidable barrier to progress and the central issue is how to accelerate the necessary process of shifting from weak to strong institutional management capacity to govern the production of improved road safety results. These guidelines have been designed to assist this process and they are particularly relevant to helping overcome the acute institutional capacity weaknesses evident in low and middle-income countries (Bliss, 2004).[5] They are also relevant to high-income countries seeking higher levels of performance and can be used to guide the improvements in safety management capacity required to achieve it. For example, a recent review of road safety management capacity in Sweden revealed that achieving the level of ambition set by *Vision Zero* will require systematic reforms to overcome revealed capacity weaknesses (Breen, Howard, Bliss; 2008).[6]

Capacity weaknesses are not just confined to countries. Global and regional institutional capacity to address road safety priorities is also weak and requires strengthening. Knowledge and skills within the international and regional development banks are lacking and there has been limited investment in building road safety management capacity by the UN Regional Economic Commissions and other UN and development agencies. For example, small-scale initiatives have been taken by the Global Road Safety Partnership (established by the World Bank in 1999 as part of its Business Partners for Development program), especially through their Global Road Safety Initiative, but these have made no quantifiable impact (GRSP, 2007).[7] Other partners and stakeholders have coalesced under the auspice of the United Nations Road Safety Collaboration (UNRSC, 2008)[8] and new entities have emerged such as the International Road Assessment Programme (iRAP, 2007),[9] but again investment supporting this high priority initiative has been limited.

There is a growing global, regional and country demand for improved road safety which is becoming better focused and organized under the collective umbrella of the *World Report* findings and recommendations and the successive UN General Assembly Resolutions that have endorsed them (see Annex 1). Meeting this demand will require accelerated knowledge transfer and scaled-up investment to address directly the safety management capacity weaknesses underlying the poor and deteriorating road safety performance in low and middle-income countries.

was called for by the Commission for Global Road Safety and endorsed in the United Nations General Assembly Resolution 62/244 adopted on 31 March 2008 (see Annex 1). It is clear that sustained political will and a long-term investment program will be required to implement the *World Report* recommendations on a systematic basis that accelerates international and country efforts and scales up current responses.

Global and regional initiatives have heightened country awareness of road safety issues and there has been considerable transfer of relevant knowledge on safety interventions since the publication of the *World Report*. There have also been stronger calls for international support as evidenced, for example, by the Accra Declaration of African Ministers responsible for Transport and Health (Economic Commission for Africa and World Health Organization).[12] Countries are becoming more and more sensitized to the road safety problems they must address, in terms of being aware that they must improve the safety of road infrastructure, vehicles and emergency medical response services, as well as road user behavior, and they are now seeking advice on how to do it. Institutional management functions at the country level are increasingly becoming the center of attention and concern. This underscores the emphasis in these guidelines on mobilizing financial and human resources for capacity strengthening purposes, as country priorities are becoming more focused on building sustainable management systems and related financing functions.

1.4 Purpose of guidelines

The purpose of these guidelines is to promote a *Safe System* approach to road safety management and specify a management and investment framework to support the successful implementation of the *World Report* recommendations. The guidelines provide practical procedures designed for application at a country level to accelerate knowledge transfer and sustainably scale up investment to improve road safety results. They have been prepared to assist country road safety professionals, World Bank and regional development staff, international consultants, community groups, private sector organizations and all other global, regional and country partners and stakeholders supporting country road safety investments. Their emphasis on strengthening institutional results management capacity reflects the essence and intention of the *World*

Report recommendations. It also recognizes that strengthened road safety management is required for the successful implementation of the Good Practice Guidelines for interventions (helmets, drink driving, speed, and seat-belts) produced by the FIA Foundation for the Automobile and Society, the Global Road Safety Partnership, the World Bank, and the World Health Organization.[13, 14, 15, 16]

References

1. Eds. Peden M, Scurfield R, Sleet D, Mohan D, Hyder A, Jarawan E, Mathers C (2004). *World Report on Road Traffic Injury Prevention*, World Health Organization, Geneva.

2. Kopits E, Cropper M (2003). *Traffic Fatalities and Economic Growth.* 2003. Policy Research Working Paper Number 3035. The World Bank, Washington, DC.

3. Murray CJL, Lopez AD, eds. (1996). *The Global Burden of Disease: A Comprehensive Assessment of* Mortality and Disability From Diseases, Injuries and Risk Factors in 1990 and Projected to 2020. Harvard University Press, Boston.

4. Mathers C, Loncar D (2005). *Updated projections of global mortality and burden of disease, 2002–2030: data sources, methods, and results.* Evidence and Information for Policy Working Paper, World Health Organization, Geneva.

5. Bliss T (2004). *Implementing the Recommendations of the World Report on Road Traffic Injury Prevention,* Transport Note TN-1, The World Bank, Washington, DC.

6. Breen J, Howard E, Bliss T (2008). *Independent Review of Road Safety in Sweden*, Jeanne Breen Consulting, Eric Howard and Associates, and the World Bank.

7. Global Road Safety Partnership. (2007). *Annual Report*, Geneva, Switzerland.

8. United Nations Road Safety Collaboration. (2008). Geneva, Switzerland. http://www.who.int/roadsafety

9. International Road Assessment Program (2007). *Getting Organized to Make Roads Safe*, Basingstoke, United Kingdom.

10. World Bank Global Road Safety Facility (2007). *Strategic Plan 2006–2015*. The World Bank, Washington DC.

11. Commission for Global Road Safety (2006). *Make Roads Safe. A New Priority for Sustainable Development,* Commission for Global Road Safety, London.

12. Economic Commission for Africa and World Health Organization (2007). *Accra Declaration of African Ministers of Transport and Health,* Ministerial Round Table, African Road Safety Conference, Accra.

13. FIA Foundation for the Automobile and Society (2008). *Seat-belts and child restraints: a road safety manual for decision-makers and practitioners,* London.

14. Global Road Safety Partnership (2007). *Drinking and driving: a road safety manual for decision-makers and practitioners,* Geneva.

15. Global Road Safety Partnership (2008). *Speed management: a road safety manual for decision-makers and practitioners,* Geneva.

16. World Health Organization (2006). *Helmets: a road safety manual for decision-makers and practitioners,* Geneva.

2

World Report Recommendations

The findings of the *World Report* culminated in six overarching recommendations that set out the strategic initiatives necessary to improve country road safety performance (Peden et al, 2004).[1]

2.1 Recommendations

Recommendation 1

Identify a lead agency in government to guide the national road safety effort.

This recommendation stresses the importance of accountable institutional leadership which derives from a designated legal authority that confers the power to make decisions, manage resources and coordinate the efforts of all participating sectors of government.

Lead agencies can take different institutional forms, but they share common functions and resourcing requirements. They must be adequately funded and publicly accountable for their performance. They must also actively engage and collaborate with all groups in society that can contribute to improved safety outcomes. Their effectiveness is considerably enhanced by strong and sustained political support for the initiatives they promote.

The vital lead agency role in directing and sustaining the production of improved road safety results is outlined in section 3.2 and more detail is provided in Annex 2. Related institutional structures and processes are specified in Annex 3 and detailed country case studies are set out in Annex 4.

Guidelines to assess and strengthen the lead agency role are provided in section 4.2.6.

Recommendation 2

Assess the problem, policies and institutional settings relating to road traffic injury and the capacity for road traffic injury prevention in each country.

This recommendation complements the importance of the lead agency role and underscores the complexity of managing road network safety across institutional structures responsible for delivering and sustaining safety improvements. Before effective action can be taken institutional capacity to implement injury prevention measures must be appraised and weaknesses addressed.

Section 3 addresses the essential elements of the road safety management system and provides a framework for assessing institutional capacity to deliver improved road safety results and preparing projects to overcome identified capacity weaknesses. High quality data on road safety performance enhance the process of identifying safety problems. As a high priority cost-effective data systems consistent with international standards for recording and classifying road deaths and injuries should be established as part of the capacity building process.

Procedures and checklists to assist the conduct of a country safety management capacity review are provided in section 4.2.

Recommendation 3

Prepare a national road safety strategy and plan of action.

This recommendation further underscores the institutional complexities that must be addressed at the country level by highlighting the multisectoral and multidisciplinary dimensions of an effective national road safety strategy. Such a strategy must cover the safety requirements of all road users and engage all stakeholders across government, the private sector, nongovernmental organizations, the media and the general public. It should also be linked to strategies in other sectors (e.g., environment, health, urban planning) and set ambitious safety targets, complemented by a national program setting out specific interventions to achieve them within specified timeframes.

In countries where safety management capacity is weak the preparation of an effective national road safety strategy and related program of investment must be staged, first of all build the institutional capacity and knowledge necessary to sustain the delivery of a targeted program of reforms and interventions at the country level. This will require a progressively scaled-up program of institutional strengthening and targeted interventions to reach a stage where national initiatives can be managed and sustained on a long-term basis.

Guidelines for the specification of a staged investment strategy and the preparation of related safety projects are provided in sections 4.2.7 and 4.3.

Recommendation 4

Allocate financial and human resources to address the problem.

This recommendation complements the previous recommendation concerning the preparation of a national road safety strategy and the related institutional capacity required to underpin and sustain it. In countries where safety management capacity is weak, new funding will have to be found for the required level of investment to meet ambitious targets. Without adequate funding and skilled people institutional structures and processes are ineffective and national action plans remain paper plans.

Cost-benefit analysis has an important role to play in setting expenditure priorities for road traffic injury prevention. Training programs across a range of disciplines will be required to build the skills to develop and implement national road safety strategies. Participation in global and regional training networks and international conferences can help accelerate this knowledge transfer process and further strengthen country capacity.

Guidelines for the preparation of projects are provided in section 4.3 and these specifically address capacity building priorities with the promotion of a learning by doing model that accelerates knowledge transfer and achieves quick proven results that can generate benchmark measures to dimension an investment program to further roll out successful initiatives.

Recommendation 5

Implement specific actions to prevent road traffic crashes, minimize injuries and their consequences and evaluate the impact of these actions.

This recommendation summarizes the range of good practice interventions that could be considered by all countries. Specific country-based initiatives should be based on sound evidence, be culturally appropriate, and form part of a targeted national road safety strategy. They should also be evaluated for their effectiveness.

However, a focus on interventions alone has proved to be ineffective in terms of addressing poor road safety performance at the country level. Attention must be paid to all elements of the road safety management system, and in particular to institutional ownership and accountability for results, if sustainable improvements in road safety performance are to be assured.

Guidelines to assist the preparation of interventions are provided in section 4.3.4.

Recommendation 6

Support the development of national capacity and international cooperation.

This recommendation calls for a substantial scaling up of international efforts to build a global and regional partnership focused on strengthening capacity at the country level to deal with the growing road safety crisis.

United Nations agencies, development banks, nongovernmental organizations, multinational corporations, philanthropic foundations and donor countries and agencies all have an important role to play in increasing support for global road safety just as provided for other health problems of comparable magnitude.

Leadership, coordination and an ongoing process engaging relevant government ministers and donor agencies will be required to develop and endorse a global plan of action that is consistent with other global initiatives such as plans to achieve the Millennium Development Goals.

A framework for building global, regional and country capacity and creating the resources necessary to target initiatives on a scale capable of producing sustainable results is discussed in section 3.4.

2.2 Implementing the recommendations

The six *World Report* recommendations address the continuum of actions required to bring road safety outcomes within a country under control and must be treated as a totality to ensure their effective implementation. However, it cannot be assumed that countries and the international community inherently possess the political will and capacity to act upon them. The reality is far removed from this as evidenced by the limited increases in road safety investment at international and country levels since the *World Report* was released. It also cannot be assumed that partial implementation of the recommendations in the short term will be effective, however appealing signs of proliferating small-scale initiatives within a country and region might be. A sustained, systematic and scaled-up national effort is necessary and purposeful targeted investment is required for this.

At the country level account must be taken of existing institutional management arrangements and a staged process developed to ensure that institutional strengthening initiatives are properly sequenced and adjusted to the absorptive and learning capacity of the country concerned. For example, as noted with recommendations 3 and 4, past experience with the preparation of national action plans in low and middle-income countries has often resulted in 'paper plans' which have taken no account of country ownership and institutional delivery capacity and consequently have never been implemented. Likewise, as noted with recommendation 5, institutional ownership of interventions and accountability for their performance are vital to sustainable success.

At the global and regional levels account must be taken of emerging initiatives designed to assist the acceleration of knowledge transfer to low and middle-income countries and the scaling up of their road safety investments. It will be important to harmonize these initiatives and to actively seek partnership opportunities that can combine and leverage the weight and effectiveness of resources being mobilized to enhance their likelihood of achieving measurable improvements in road safety performance.

These guidelines present a targeted approach designed to overcome the institutional capacity barriers impeding the effective implementation of the *World Report* recommendations at global, regional and country levels. They build on the experience gained by the World Bank over the last thirty years in supporting road safety initiatives in low and middle-income countries and draw heavily on the practical lessons learned during this process. The ultimate goal is to improve country road safety performance rapidly and sustainably.

Successful road safety management systems in high-income countries are institutionally complex and require considerable and sustained investment, as evidenced in the case studies presented in Annexes 2–4 (see Box 2). The following section distils the lessons learned in high-income countries. It specifies the key elements of an effective road safety management system that underpins the guidelines provided for the comprehensive assessment of country road safety management capacity and specification of related lead agency reforms, long-term country investment strategies and implementation projects.

Road safety management systems have evolved over the last fifty years in high-income countries and these guidelines promote the *Safe System* approach (see section 3.1.4). The challenge for low and middle-income countries will be to benefit from what has been learned and accelerate their adoption and adaption of good practice to avoid the unnecessary and unacceptably high level of deaths and injuries resulting from the evolutionary pathway taken by high-income countries. The challenge for high-income countries will be to continue to innovate on the basis of sound safety principles and go beyond what is currently known to be effective, to achieve even higher levels of performance. The guidelines have been prepared to assist this process and they can be applied in any country, irrespective of its development status or road safety performance.

References

1. Eds. Peden M, Scurfield R, Sleet D, Mohan D, Hyder A, Jarawan E, Mathers C (2004). *World Report on Road Traffic Injury Prevention*, World Health Organization, Geneva.

Box 2: Institutional complexity and scale of investment

It is important to reflect on the level of political will and dedicated institutional effort to manage road safety results evident in high-income countries, as recognition of this was only implicitly stated in the *World Report* outside of its recommendations. Substantial investment in safety management capacity is vital to success and so far insufficient attention has been paid to the institutional benchmarks for good performance set by high-income countries. When considering the strategic policy challenges faced by low and middle-income countries this omission is critical and without directly addressing it little sustained success can be anticipated. Likewise aspirations for higher levels of performance in high-income countries require ongoing attention to be paid to the institutional management functions that underpin and drive the achievement of improved road safety results.

Case studies are provided in Annexes 2–4 to highlight the importance of the lead agency role in directing the national road safety effort. The case studies are instructive in their own right in terms of highlighting the institutional complexity and scale of investment evident in high-income countries where safety outcomes are successfully managed and performance shows continuous improvement.

3

Managing for Results

The recommendations of the *World Report* highlight safety management issues at the global, regional and country levels, and emphasize the building of institutional capacity to manage for results. In particular the recommendations emphasize the importance of implementing a systematic, sustained and accountable response to govern road safety results at the country level, and place prime importance on the vital role of the lead agency in this process. These implementation guidelines focus on strengthening the road safety management system and place special emphasis on related lead agency responsibilities in ensuring institutional efficiency and effectiveness.

3.1 Road safety management system

The road safety management system as depicted in Figure 1 can be viewed as three inter-related elements: *institutional management functions*, *interventions and results.* Managing for road safety results requires an integrated and accountable response to these system elements.

This road safety management system model derives from New Zealand's comprehensive 2010 target setting framework which linked desired results with interventions and related institutional implementation arrangements (Land Transport Safety Authority, 2000).[1] The New Zealand framework was adopted by the European Transport Safety Council (Wegman, 2001)[2] which highlighted its results management framework, and it was further elaborated by the Sunflower Project (Koornstra *et al.,* 2002)[3] which located the institutional implementation arrangements in the broader context of country 'structure and culture.' The first World Bank guideline concerning the implementation of the *World Report* recommendations (Bliss, 2004)[4] further used the framework to introduce prototype safety management capacity review tools. This updated guideline refines these tools and further defines the organizational manifestation of the Sunflower Project 'structure and culture' in terms of seven institutional management functions.

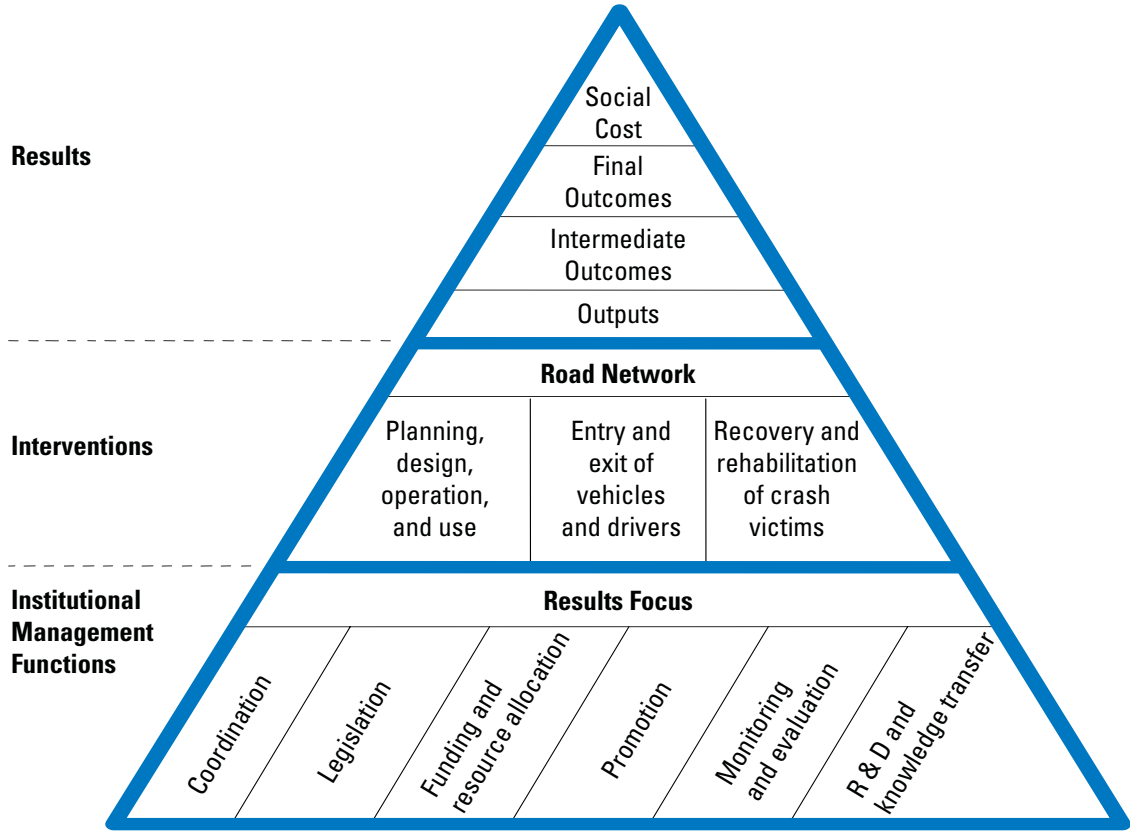
As defined the road safety management system has a number of generic characteristics that allow for its universal application to all countries, irrespective of their development status or road safety performance, as follows:

- ❏ It places an emphasis on the production of road safety and recognizes that safety is produced just like other goods and services. The production process is viewed as a management system with three levels: institutional management functions which produce interventions, that in turn produce results. Much of the day-to-day road safety debate is concerned with interventions alone and use of the management system opens up the discussion to the important and often neglected issues of institutional ownership and accountability for results.

- ❏ It is neutral to country structures and cultures which shape the way institutions function and goals are set and achieved. Any country can use this framework and adapt their road safety initiatives to it.

- ❏ It accommodates evolutionary development. This is illustrated by the evolving focus on results that has been evident in high-income countries through to its ulti-

Figure 1: Road safety management system



Source: Bliss and Breen, building on the frameworks of Land Transport Safety Authority, 2000; Wegman, 2001; Koornstra et al, 2002; Bliss, 2004.

mate expression in the *Safe System* approach (see section 3.1.4). In any particular phase of development the system can be used to review road safety management capacity and prepare related strategies and programs.

- It applies to any land use/transportation system and takes as given the current and projected exposure to risk arising from that system. However, it can also manage the land use/transport trade-offs by considering these as options in the desired focus on results and addressing them with interventions concerning the planning, design, operation and use of the road network and the entry and exit of vehicles and road users to this network.

- It takes the road network as its frame of reference and locates avoidable deaths and injuries in this network. The three intervention categories are defined in terms of the road network and have strong spatial dimensions. This distinguishes the system from earlier frameworks that emphasized safer roads, safer vehicles, and safer people, without locating them specifically in the network contexts where deaths and serious injuries occur. It focuses safety interventions on where the network fails, or is prone to failure, as is the case with other transport modes.

Consideration of all elements of the road safety management system and the linkages between them becomes critical for any country seeking to identify and improve its current performance levels. More specifically, assessing and strengthening country capacity in terms of these elements and linkages is critical to the successful implementation of the *World Report* recommendations.

3.1.1 Institutional management functions

Seven institutional management functions provide the foundation on which road safety management systems are built: they produce the interventions to achieve the desired long and medium-term road safety results (expressed as a vision and related performance targets) which have been agreed across the road safety partner-

ship at national, regional and local levels. Without effective institutional management across these functions a country has little chance of implementing successful road safety interventions and achieving desired results on a sustainable basis.

The institutional management functions are delivered primarily by the government entities producing interventions, but they are also delivered in government partnerships with civil society and business entities to achieve the desired focus on results (a more detailed description of these functions is provided in Annex 2).

(i) Results focus

In managing for improved road safety results, the foremost and pivotal institutional management function is *results focus*. All the other institutional management functions are subordinate to this function and contribute to its achievement. A country's results focus can be interpreted as a pragmatic specification of its ambition to improve road safety and the means agreed to achieve this ambition. In the absence of a clear and accountable focus on results all other institutional functions and related interventions lack cohesion and direction and the efficiency and effectiveness of safety initiatives can be undermined.

Results focus in its ultimate expression concerns a strategic orientation that links all actual and potential interventions with results, analyzes what can be achieved over time, and sets out a performance management framework for the delivery of interventions and their intermediate and final outcomes. It defines the level of safety that a country wishes to achieve expressed in terms of a vision, goals, objectives and related targets.

(ii) Coordination

Coordination concerns the orchestration and alignment of the interventions and other related institutional management functions delivered by government partners and related community and business partnerships to achieve the desired focus on results. It is addressed across four key dimensions:

- ❏ horizontally across central government
- ❏ vertically from central to regional and local levels of government
- ❏ specific delivery partnerships between government, non-government and business at the central, regional and local levels
- ❏ parliamentary relations at central, regional and local levels

To be effective, coordinating arrangements must allow for accountable decision-making at senior institutional levels. These arrangements must be appropriately resourced and include a dedicated secretariat in the lead agency to harmonize delivery arrangements across partner agencies to achieve road safety results and serve as a platform for mobilizing political will and resources.

(iii) Legislation

Legislation concerns the legal instruments necessary for governance purposes to specify the legitimate bounds of institutions, in terms of their responsibilities, accountabilities, interventions and related institutional management functions to achieve the desired focus on results.

This function ensures that legislative instruments for road safety are well-matched to the road safety task. Road safety legislation typically addresses land use, road, vehicle, and user safety standards and rules and compliance with them, as well as post-crash medical care. A mixture of specialist legislative and technical expertise is needed within government to develop and consult on legislation promoting enforceable standards and rules with due consideration to cost, effectiveness, practicality and public acceptability.

(iv) Funding and resource allocation

Funding and resource allocation concerns the financing of interventions and related institutional management functions on a sustainable basis using a rational evaluation and programming framework to allocate resources to achieve the desired focus on results.

This function seeks to ensure that road safety funding mechanisms are sufficient and sustainable. As part of this a rational framework for resource allocation supports the building of strong business cases for road safety investments based on cost-effectiveness and cost-benefit analyses. To achieve more ambitious performance targets countries may need to establish new funding sources and mechanisms.

(v) Promotion

Promotion concerns the sustained communication of road safety as a core business for government and society and emphasizes the shared societal responsibility to support the delivery of the interventions required to achieve the desired focus on results.

This function goes beyond the understanding of promotion as road safety advertising supporting particular interventions and addresses the overall level of ambition set by government and society for road safety performance.

(vi) Monitoring and evaluation

Monitoring and evaluation concerns the systematic and ongoing measurement of road safety outputs and outcomes (intermediate and final) and the evaluation of interventions to achieve the desired focus on results.

Periodic monitoring and evaluation of road safety targets and programs is essential to assess performance and to allow adjustments to be made. The establishment and sustainable funding of transport registries for drivers and vehicles, crash injury databases and periodic survey work to establish performance and exposure data is typically the responsibility of several different government agencies—transport, police, and health. In some countries government insurance departments or organizations and university departments also share responsibility. The organization of independent inspection, audit and review is also part of this function.

(vii) Research and development and knowledge transfer

Research and development and knowledge transfer concerns the systematic and ongoing creation, codification, transfer and application of knowledge that contributes to the improved efficiency and effectiveness of the road safety management system to achieve the desired focus on results.

This vital institutional management function has guided the design and implementation of national strategies that have sustained reductions in road deaths and injuries, in the face of growing mobility and exposure to risk. It aims to produce a cadre of international, national and local professionals who can contribute research-based approaches and knowledge to road safety policy, programs and public debate. Knowledge transfer must be grounded in practice by a learning by doing process, backed with sufficient targeted investment to overcome the barriers presented by the evident capacity weaknesses at the global, regional and country levels. Strong and sustained international cooperation will be required to mobilize knowledge transfer resources and support services to low and middle-income countries commensurate with the sheer scale of the global losses arising from escalating road deaths and serious injuries.

3.1.2 Interventions

Interventions are shaped to achieve the desired focus on results. As depicted in Box 3, they address the safe planning, design, operation and use of the road network, the conditions under which vehicles and road users can safely use it, and the safe recovery and rehabilitation of crash victims; and they set specific standards and rules to achieve this safety and aim to secure compliance with them.

These guidelines are designed to draw on the comprehensive findings on interventions presented in the *World Report* which they do not attempt to reproduce. For the purposes of specifying country investment strategies and related implementation projects, information on interventions should be sourced from the *World Report* and the comprehensive literature it cites.

3.1.3 Results

The final element of the road safety management system concerns the specification of the desired results and their expression as targets in terms of final outcomes, intermediate outcomes, and outputs, as shown in Box 4 (Bliss, 2004).[4] Targets define the desired safety performance endorsed by governments at all levels, stakeholders and the community. The level of safety is ultimately determined by the quality of the delivered interventions, which in turn are determined by the quality of the country's institutional management functions.

Good practice countries set quantitative outcome and intermediate outcome targets to achieve their desired results focus. They can also set related quantitative output targets in line with the targeted outcomes.

3.1.4 Evolution of results focus

Successive shifts in road safety management thinking and practices in high-income countries have been evident over the last fifty years. Rapid motorization and escalating road deaths and injuries began in many OECD countries in the 1950s and 1960s and concurrently the ambition to improve road safety outcomes began to grow.

Since the 1950s there have been four significant phases of road safety management which have become progressively more ambitious in terms of the results desired.

(i) Results Focus—Phase 1: Focus on driver interventions.

In the 1950s and 1960s safety management was generally characterized by dispersed, uncoordinated, and insuffi-

Box 3: Classification of interventions

Intervention types	Standards and rules	Compliance
Planning, design, operation and use of the road network.	Standards and rules cover the safe planning, design, construction, operation and maintenance of the road network; and govern how it is to be used safely by setting speed and alcohol limits, occupant restraint and helmet requirements, and restrictions on other unsafe behaviors.	Compliance aims to make road builders and operators, the vehicle and transport industry, road users and emergency medical and rehabilitation services adhere to safety standards and rules, using a combination of education, enforcement and incentives.
Conditions of entry and exit of vehicles and road users to the road network.	Standards and rules also address vehicle safety standards and driver licensing requirements.	
Recovery and rehabilitation of crash victims from the road network.	Standards and rules can also be set for the delivery of emergency medical and rehabilitation services to crash victims.	

Source: Bliss, 2004.[4]

Box 4: Safety targets

Final outcomes	Final outcomes can be expressed as a long term vision of the future safety of the road traffic system (e.g., as in *Vision Zero* and *Sustainable Safety*) and as more short to medium-term targets expressed in terms of social costs, fatalities and serious injuries presented in absolute terms and also in terms of rates per capita, vehicle and volume of travel.
Intermediate outcomes	Intermediate outcomes are linked to improvements in final outcomes and typical measures include average traffic speeds, the proportion of drunk drivers in fatal and serious injury crashes, seatbelt-wearing rates, helmet-wearing rates, the physical condition or safety rating of the road network and the standard or safety rating of the vehicle fleet.
Outputs	Outputs represent physical deliverables that seek improvements in intermediate and final outcomes and typical measures include kilometers of engineering safety improvements, the number of police enforcement operations required to reduce average traffic speeds and the number of vehicle safety inspections, or alternatively they can correspond to milestones showing a specific task has been completed.

Source: Bliss, 2004.[4]

ciently resourced institutional units performing isolated single functions (Trinca et al, 1988).[5] Road safety policies placed considerable emphasis on the driver by establishing legislative rules and penalties, supported by information and publicity, and expecting subsequent changes in behavior. It was argued that since human error mostly contributed to crash causation it could be addressed most effectively by educating and training the road user to behave better. Placing the onus of blame on the road traffic victim acted as a major impediment to the appropriate authorities fully embracing their responsibilities for a safer road traffic system (Rumar, 1999).[6]

The weaknesses inherent in this approach are increasingly evident, but its enduring appeal should not be underestimated and it often dominates and captures the public and political debate.

(ii) Results Focus—Phase 2: Focus on system-wide interventions.

In the 1970s and 1980s these earlier approaches gave way to strategies which recognized the need for a systems approach to intervention. Dr. William Haddon, an American epidemiologist, developed a systematic framework for road safety based on the disease model which encompassed infrastructure, vehicles and users in the pre-crash, in-crash and post crash stages (Haddon, 1968).[7] Central to this framework was the emphasis on effectively managing the exchange of kinetic energy in a crash which leads to injury, to ensure that the thresholds of human tolerances to injury were not exceeded. The scope of policy broadened from an emphasis on the driver in the pre-crash phase to also include in-crash protection (both for roadsides and vehicles) and post-crash care. This focused road safety management on a system-wide approach to interventions and the complex interaction of factors which influence injury outcomes. It underpinned a major shift in road safety practice which took several decades to evolve. However, the focus remained at the level of systematic interventions and did not directly address the institutional management functions producing these interventions or the results that were desired from them.

The strengths of this approach mask its inherent weakness as being viewed as embracing all the essential elements of the road safety management system, whereas the institutional context is not directly addressed. In many ways much of the contemporary debate on road safety is still bounded by the dimensions of the 'Haddon Matrix' which only addresses system-wide *interventions* and for this reason institutional management functions and the related focus on results still receive limited attention.

(iii) Results Focus—Phase 3: Focus on system-wide interventions, targeted results and institutional leadership.

By the early 1990s good practice countries were using intervention focused plans setting numerical outcome targets to be achieved with packages of system-wide measures based on the evidence generated from ongoing monitoring and evaluation. It had become clear that growing motorization need not inevitably lead to increases in death rates but could be reversed by continuous and planned investment in improving the quality of the traffic system. The United Kingdom, for example, halved its death rate (per 100,000 head of population) between 1972 and 1999 despite a doubling in motorised vehicles. Stronger expressions of political will were evident and institutional management functions were becoming more effective. Institutional leadership roles were identified, inter-governmental coordination processes were established and funding and resource allocation mechanisms and processes were becoming better aligned with the results required. Developments in Australasian jurisdictions (e.g., Victoria and New Zealand) further enhanced institutional management functions concerning results focus, multi-sectoral coordination, delivery partnerships, and funding mechanisms (WHO, 2004; Bliss, 2004; Wegman et al., 2006; Trinca et al., 1988).[8, 4, 9, 5] Accountability arrangements were enhanced by the use of target hierarchies linking institutional outputs with intermediate and final outcomes to coordinate and integrate multi-sectoral activities. This phase laid the foundation for today's good practice and reflects the state of development in many higher performing countries today.

The strengths of this approach can turn into weaknesses to the extent that the focus on safer people, safer vehicles, safer roads and safer systems diverts attention away from the road network where the actual deaths and injuries are incurred. Successful targeted plans have achieved large measurable gains in improved road user behavior and this success helped to reinforce the earlier approach which focused purely on driver interventions. The sharpened emphasis on setting ambitious but achievable targets could also inhibit innovation, to the extent that targets are bounded by what is deemed to be technically feasible and institutionally manageable, thus blunting the aspiration to go beyond what existing evidence suggests is achievable.

(iv) Results Focus—Phase 4: Focus on *Safe System* long-term elimination of deaths and serious injuries and shared responsibility.

By the late 1990s two of the world's best performing countries had determined that improving upon the ambitious targets that had already been set would require rethinking of interventions and institutional arrangements. The Dutch *Sustainable Safety* and Swedish *Vision Zero* strategies set a goal to make the road system intrinsically safe (Wegman et al., 1997; Tingvall, 1995; Committee of Inquiry into Road Traffic Responsibility, 1999).[10, 11, 12] The emphasis on effectively managing the exchange of kinetic energy in a crash to ensure that the thresholds of human tolerances to injury were not exceeded (as originally pro-

moted in Phase 2) was revitalized and given an ethical underpinning in the sense that road deaths and injuries were seen as an unacceptable price for mobility. The implications of this level of ambition are still being worked through in the countries concerned and elsewhere. These strategies recognize that speed management is central and have refocused attention on road and vehicle design and related protective features. The blame the victim culture is superseded by blaming the traffic system which throws the spotlight on the shared responsibility and accountability for the delivery of a *Safe System.*

For example, *Vision Zero* aims for an approach in which safe vehicle design delivers a protected occupant into a road system where conflict is minimized by design and energy transfer in crashes is safely controlled. In this system users comply with risk-averse behavioral norms created by education, enforcement and incentives. The emphasis is on the road users' right to health in the transport system and their right to demand safer systems from decision-makers and road and vehicle providers.

The strengths of this approach are becoming increasingly evident. What was previously seen as radical and unachievable by many road safety practitioners and policymakers has quickly become the benchmark and central debating point for analyses of what constitutes acceptable road safety results. The tools and accumulated practices used to support the results management framework for the *Safe System* approach are the same as those used in the past to prepare targeted national plans. Targets are still set as milestones to be achieved on the path to the ultimate goal, but the interventions are now shaped by the level of ambition, rather than vice versa. Innovation becomes a priority to achieve results that go well beyond what is currently known to be achievable. In moving forward the *Safe System* approach reinterprets and revitalizes what is already known about road safety, and raises critical issues about the wider adoption of interventions that have proven to be effective in eliminating deaths and serious injuries (e.g., median barriers). The question becomes one of how to introduce these proven safety interventions more comprehensively and rapidly, and indeed this question applies to all elements of the road safety management system with potential for improvement.

The shift to a *Safe System* approach is also well attuned to the high priority global, regional and country development goals of sustainability, harmonization and inclusiveness. A *Safe System* is dedicated to the elimination of deaths and injuries that undermine the sustainability of road transport networks and the communities they serve. Its focus on safer and reduced speeds harmonizes with other efforts to reduce local air pollution, greenhouse gases and energy consumption. And its priority to afford protection to all road users is inclusive of the most vulnerable at-risk groups such as pedestrians, young and old, cyclists and motorcyclists. These co-benefits of shifting to a *Safe System* approach further strengthen the business case for its implementation.

3.1.5 Conducting capacity reviews

Implementing the recommendations of the *World Report* requires account to be taken of the management capacity in the country concerned to ensure that institutional strengthening initiatives are properly sequenced and adjusted to its absorptive and learning capacity. The road safety management system outlined in section 3.1 provides the framework for the conduct of a comprehensive country safety management capacity review, and procedures for this are detailed in section 4.2. The central issue is how to accelerate the necessary process of shifting from weak to strong institutional management capacity to govern the production of improved road safety results. The conduct of such a capacity review is a vital first step in the process of a country taking the necessary actions to tailor the *World Report* recommendations to its unique circumstances and in determining its state of readiness to commit to the productive and sustainable steps necessary to bring its road safety outcomes under control. Such a review sets out an integrated multi-sectoral framework for dialogue with key partners and stakeholders on potential road safety investments and it assesses the level of government ownership of road safety results. It also serves to identify related institutional responsibilities and accountabilities and provides a platform to reach an official consensus on country capacity weaknesses and how best to overcome them.

Assessing safety management capacity first requires consideration of a country's results focus. The other institutional management functions are subordinate to this function and contribute to its achievement. Results focus can be interpreted as a pragmatic specification of a country's ambition to improve road safety and the means agreed to achieve this ambition. Without a clear focus on results the road safety management system lacks cohesion and the efficiency and effectiveness of related safety programs can be undermined. The lead agency plays a dominant role in determining the desired level of country safety performance and mobilizing the necessary investment to achieve it.

In alignment with the *World Report* recommendations, key deliverables of a country capacity review include an assessment of the lead agency role and related institutional strengthening initiatives, the specification of a long-term investment strategy to accelerate the process of shifting from a weak to high capacity safety management system, and the identification of related implementation projects.

3.2 Role of the lead agency

The first and crucial recommendation in the *World Report* concerned the identification of a lead agency in government to guide the national road safety effort, with the power to make decisions, manage resources and coordinate the efforts of all participating sectors of government. While implementing this recommendation at one level seems straightforward many complexities must be addressed. Road safety management is a multi-sectoral responsibility with government institutions making the dominant contribution. Civil society and business institutions also share road safety responsibilities, but these are anchored within the results focus set out and agreed in the national road safety strategy. In this broader context there is the strong possibility that shared road safety responsibilities will be submerged by competing interests. Hence effective organization to achieve desired road safety results requires strong leadership and in good practice countries this role is played by a lead governmental agency.

The lead agency plays a dominant role in most of the institutional management functions described in section 3.1.1, although in some instances it plays more of a guiding, encouraging or catalytic role. Details of the lead agency role are provided in Annex 2. The lead agency takes responsibility within government for the development of the national road safety strategy and its results focus—the overarching institutional management function. It usually also takes responsibility for horizontal inter-governmental coordination arrangements; vertical coordination of national, regional and local activities; coordination of delivery partnerships between government, professional, non-governmental and business sectors and parliamentary groups and committees; ensuring a comprehensive legislative framework; securing sustainable sources of funding and creating a rational framework for resource allocation; high-level promotion of road safety strategy across government and society; periodic monitoring and evaluation of road safety performance; and the direction of research and development and knowledge transfer.

A key deliverable of a country safety management capacity review is an assessment of the lead agency role and recommendations for strengthening revealed weaknesses. Guidelines for this are provided in section 4.2.6. While the lead agency role can be clearly defined in terms of its contribution to the effective delivery of core institutional management functions, organizationally it can take on varied structural and procedural forms and no single model for this can be promoted. Good practice examples are summarized in Annexes 3 & 4.

3.3 Country investment model

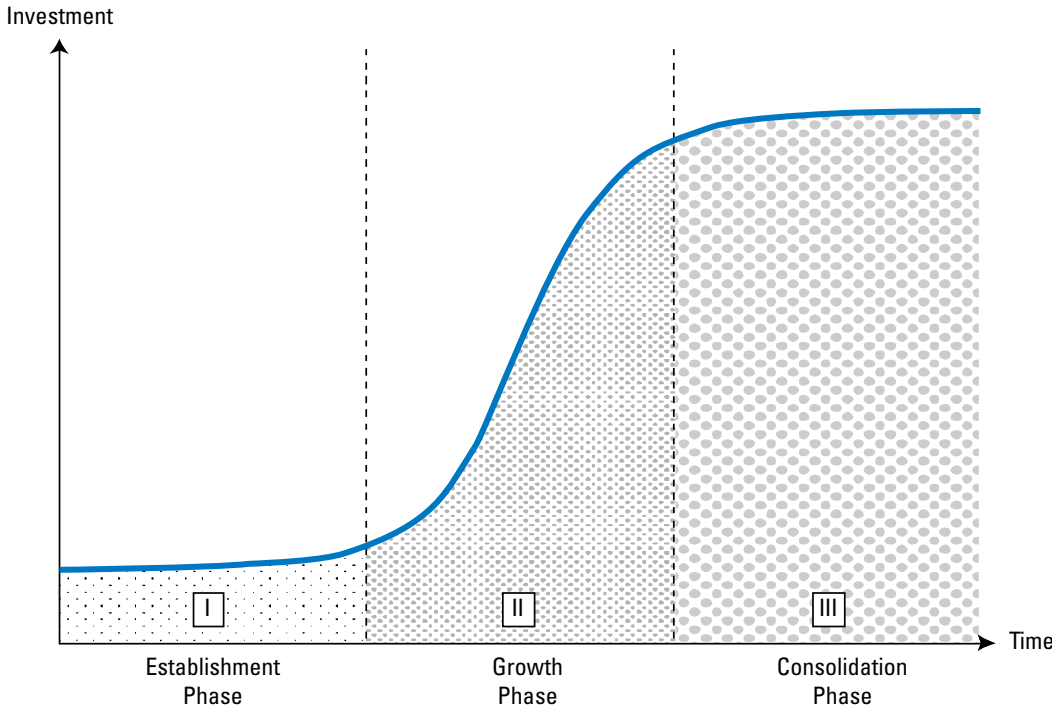
The other key deliverables of a country capacity management review addressing the *World Report* recommendations are the specification of a long-term investment strategy to accelerate the process of shifting from a weak to high capacity safety management system, and the identification of related *Safe System* implementation projects.

3.3.1 Building management capacity

Safety management capacity weaknesses in low and middle-income countries present a formidable barrier to progress and institutional management functions require strengthening. A clearly defined results focus is often absent and this reflects the lack of leadership of a targeted strategy that is owned by the government and relevant agencies and where responsibilities and accountabilities for its achievement are clearly specified and accepted. As a consequence coordination arrangements can be ineffective, supporting legislation fragmented, funding insufficient and poorly targeted, promotional efforts narrowly and sporadically directed to key road user groups, monitoring and evaluation systems ill-developed, and knowledge transfer limited. Interventions are fragmented and often do not reflect good practice. Little is known about the results they achieve (Bliss, 2004; World Bank Global Road Safety Facility, 2007).[4, 13] Building sustainable safety management capacity in these circumstances requires a long-term, staged investment strategy that clearly sets out the sequential priorities that must be addressed to achieve the desired focus on results.

Likewise safety management capacity weaknesses can also become evident in high-income countries, as their results focus shifts to even higher levels of ambition. For example, a recent review of road safety in Sweden highlighted the highly advanced nature of its road safety management system when benchmarked internationally, but still found that it required considerable strengthening to ensure the

Figure 2: Phases of investment strategy



Source: Adapted from Mulder and Wegman, 1999.

achievement of its ambitious goal of death and serious injury elimination (Breen, Howard & Bliss, 2008). Again a long-term investment strategy is required to implement the desired results focus. As with low and middle-income countries it must be designed to overcome revealed capacity weaknesses by first building a core capacity to bring targeted safety outcomes under control, then scaling up investment to accelerate this capacity strengthening and achievement of improved results across the national road network, and finally consolidating it, as depicted in Figure 2.

This staged approach to investment acknowledges the barriers imposed by weak safety management capacity and addresses the challenge of accelerating the necessary process of institutional strengthening required to effectively govern the production of improved road safety results. It recognizes the longer-term implications of immediate measures and plans for the necessary scaling up of investment required to achieve a sustainable path where safety outcomes are brought under control.

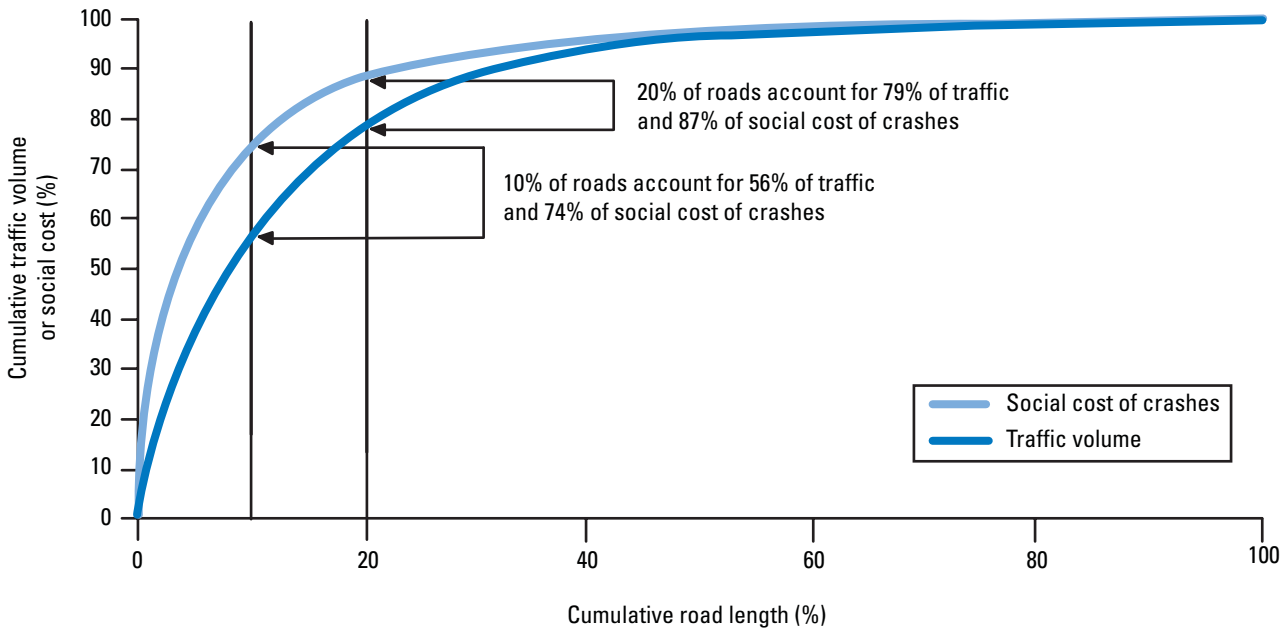
In effect the long-term investment strategy is implemented by a program of successive projects that build on the results achieved and the management capacity created in the process. The findings of the capacity review will influence the scale of funding available and assist the preparation of business cases for additional funding. Guidelines to assist the specification of a long-term investment strategy are presented in section 4.2.7.

3.3.2 Learning by doing

Successful implementation of the investment strategy hinges on designing projects that accelerate the transfer of road safety knowledge to participants, strengthen the capacity of participating partners and stakeholders, and rapidly produce results that provide benchmark measures to dimension a roll-out program. The focus of these guidelines is on the preparation of projects that implement the establishment phase of the investment strategy and build the institutional capacity and evidence base to roll out a large program of initiatives in the investment strategy's growth phase.

Accelerating the transfer of knowledge and strengthening capacity must be grounded in practice by a learning by doing process that is backed with sufficient targeted investment to overcome the barriers presented by evident

Figure 3: Targeting the network



Source: Land Transport Safety Authority, 2000.

weaknesses at the global, regional and country levels. This approach is exemplified by the World Bank's shift to *Safe System* road safety projects which aim to anchor country capacity building efforts in systematic, measurable and accountable investment programs (Bliss, 2004; World Bank Global Road Safety Facility, 2007).[4, 13] This shift in emphasis has particular relevance to low and middle-income countries, but is also pertinent to high-income countries seeking to break through current good practice performance barriers to make more rapid progress towards achieving the ultimate goal of death and serious injury elimination (Morsink et al, 2005).[16]

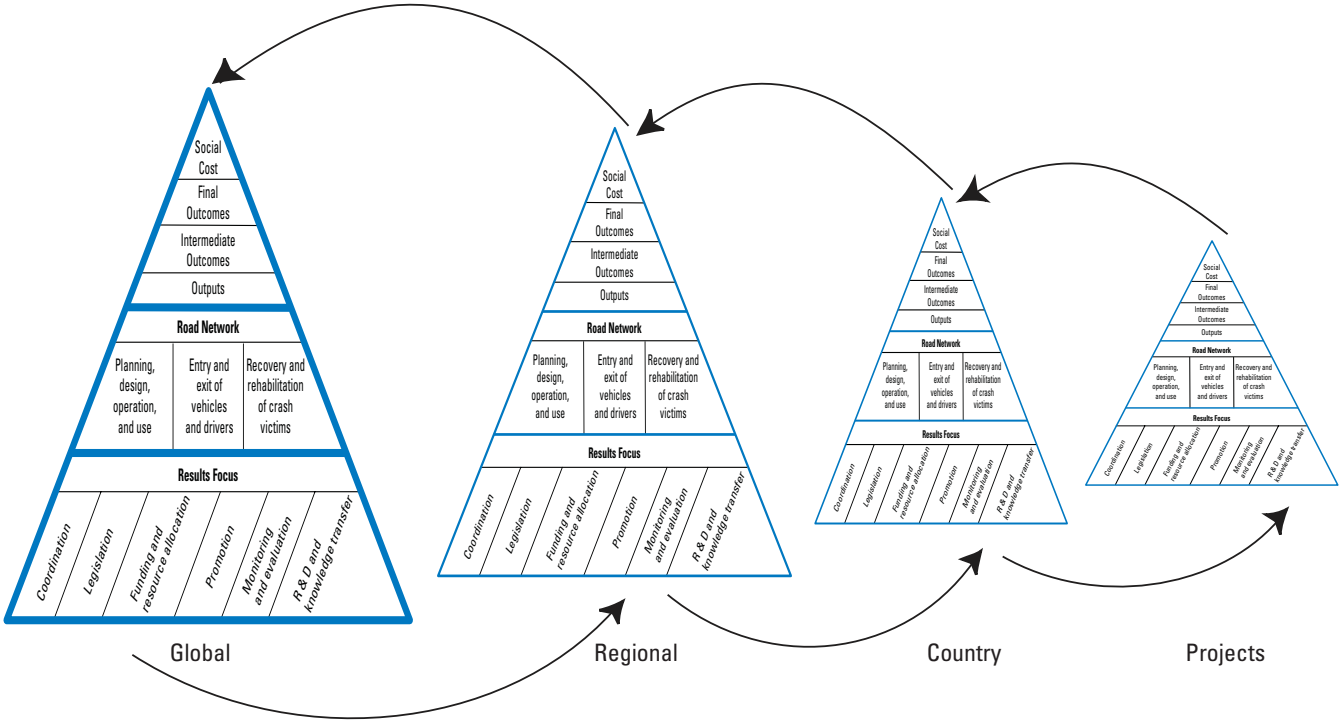
To produce rapid results projects must target high concentrations of death and injuries in the road network to maximize the scale and visibility of likely benefits and certainty of achieving them. By way of example, Figure 3 illustrates the situation on New Zealand's road network where nearly 90% of the social costs of road crashes are incurred on just 20% of the total network. This highlights the reality that the bulk of deaths and injuries are usually incurred on a small portion of the network and can be targeted accordingly. Similar situations can be found in low and middle-income countries where crash data are available and this finding simply reflects the concentration of traffic on key network corridors and areas where high speeds are experienced.

In the absence of quality crash data it is still possible to identify the most dangerous corridors by identifying high traffic volume, high speed corridors, where higher densities of fatal and serious injury crashes can be anticipated. More comprehensive safety rating measures of a road's protective qualities developed by the European Road Assessment Program and the International Road Assessment Program (EuroRAP 2005 & 2008; iRAP, 2008)[17, 18, 19] and related project identification and evaluation tools can also be used to identify high-risk corridors and related investment priorities (see section 4.3.4 (ii)).

Targeting high-risk corridors and areas with specific safety interventions provides the core *Safe System* project component and this should be supplemented with lead agency strengthening and related institutional reform initiatives, national policy reviews if required, and a monitoring and evaluation component. The findings of the country capacity review will help determine the scale and detailed nature of the project.

Key project attributes include government ownership, coverage of all elements of the road safety management system, adequate funding, agency accountability for results, and active promotion of the project by participating agencies with a sustained commitment to achieving its objectives and its extension beyond the first phase.

Figure 4: Building global, regional, and country road safety management capacity



Guidelines to assist the preparation of safety projects are provided in section 4.3.

3.4 Building global, regional and country capacity

Implementing the recommendations of the *World Report* requires capacity building at the global, regional and country levels, to create the resources and tools necessary to target initiatives on a scale capable of reducing significantly and sustainably the global health losses arising from escalating road deaths and injuries.

Global and regional safety management systems can be viewed in functional terms as being analogous to the road safety management system at the country level (as presented in section 3.1), just as well designed projects within countries can be viewed as addressing all elements of the road safety management system in a microcosm. Figure 4 depicts the capacity building relationships at the global, regional, country and project levels. Global and regional support and services flow to countries which in turn are deployed in programs and projects at the national and sub-national levels. Reciprocally improved project and program performance contributes to country, regional and global results.

Global and regional safety management capacity displays similar weaknesses to those evident in low and middle-income countries. In particular, with the exception of some regional target-setting initiatives there is an absence of a clear results focus and global and regional institutional responsibilities and accountabilities lack specification. In 2004 the UN General Assembly Resolution 56/289 assigned the World Health Organization the role of coordinating the road safety activities of UN agencies (see Annex 1) and this has resulted in the formation of the UN Global Road Safety Collaboration which has made progress on the advocacy front and is currently reviewing its coordination role. The World Bank Global Road Safety Facility has been established as a funding mechanism to strengthen global, regional and country safety management capacity and it is achieving success in addressing all elements of the road safety management system at these respective levels (World Bank, 2007).[13] However, its activities will require scaling up to be fully effective, as recommended by the Commission for Global Road Safety (Commission for Global Road Safety, 2006),[20] and the call for increased Fa-

cility funding support from the United Nations General Assembly Resolution 62/244 adopted on 31 March 2008 (Annex 1). Overall, with the exception of initiatives to harmonize global vehicle standards and conventions concerning road signs and markings, and the emergence of vehicle safety and road infrastructure rating tools, global and regional interventions at the country level are still small scale and built on an institutional base that requires considerable strengthening. In this regard the recent initiatives by the World Bank and regional development banks to harmonize their infrastructure safety policies and practices are promising.

3.5 An integrated implementation framework

The following guidelines provide an integrated framework for the implementation of the *World Report* recommendations. The emphasis is placed on strengthening the institutional functions that underpin effective road safety management systems.

Countries wishing to improve their road safety performance must be well organized to manage the achievement of improved results in a systematic way. Institutional management functions must take the highest priority as they are the foundation on which road safety management systems are built: they produce the interventions which achieve the desired results. In practice the process of institutional strengthening must be staged. During the formative stages the emphasis must be put on improving the focus on results and related inter-agency coordination. As these institutional management functions become more effective the remaining management functions are in turn strengthened. Eventually the road safety management system operates in a continuous improvement mode, driven to ever higher levels of road safety performance by the findings of the monitoring and evaluation and research and development and knowledge transfer functions.

The *World Report* highlights the fundamental role of the lead agency in ensuring the effective and efficient functioning of the road safety management system. Responsible and accountable road safety leadership at country, state, provincial and city levels is vital to success. In the absence of such leadership efforts aimed at improving, for example, program coordination, decentralization and promotion will often be illusory and unsustainable. Likewise, action plans prepared without a designated agency mandated to lead their implementation and a realistic and sustainable funding base are likely to remain paper plans and make no positive impact on results (see Box 5). Hence these guidelines address as a priority the first recommendation of the *World Report* which calls for the establishment of a lead agency to guide the national road safety effort, within a framework that integrates the five other recommendations (see section 2).

The guidelines place their emphasis on the requirements of low and middle-income countries, because the performance gap between the safety rich and the safety poor is widening and urgent action is required to close it. Case studies of the institutional arrangements in a selection of good practice high-income countries are presented in Annexes 2–4 to provide institutional benchmarks for low and middle-income countries seeking to implement the *World Report* recommendations. The situ-

Box 5: Investment and institutional capacity

Sustained long-term investment is the key to improving country road safety results and these guidelines set out a staged process to investment that addresses revealed capacity weaknesses by first building a core capacity to bring targeted safety outcomes under control, then scaling up investment to accelerate this capacity strengthening and achievement of improved results across the national road network. This must be grounded in practice by a learning by doing process backed with sufficient targeted investment to overcome the barriers presented by weak institutional capacity. An example of this approach is provided by the World Bank's shift to *Safe System* road safety projects which aim to anchor country capacity building efforts in systematic, measurable and accountable investment programs that simultaneously build management capacity while achieving rapid improvements in safety performance in targeted high-risk corridors and areas (see Box 4, section 4.3). An analogous approach can be found in the recent large scale, evidence-based reform of the Mexican health sector, where it was recognized that a key requirement was to bridge the divide between implementing good practice interventions and strengthening the institutional capacity to deliver them. Success was achieved by designing an investment strategy where targeted intervention priorities achieving measurable results were used to drive the health system's institutional reforms and strengthen its overall structure and functions (Frenk, 2007).[21]

ation in two middle-income countries where progress in managing road safety is being made is also summarized as it exemplifies what can be achieved once countries commit to achieving more ambitious results.

It is acknowledged that the institutional arrangements in high-income countries are complex and every effort has been made in these guidelines to simplify their presentation. The institutional management functions described in section 3.1.1 are generic and relate to all countries, irrespective of their development status or road safety performance. Form follows function and the emphasis in the case studies has been placed on identifying the various institutional forms that lead agencies can take to address the identified institutional management functions. The complexity of institutional arrangements in high-income countries can be viewed as a surrogate indicator of success and commitment to sustained road safety investment. For low and middle-income countries seeking to successfully and rapidly go down this development path the guidelines provide an integrated framework to commence the process, whereas for high-income countries they can be used to guide ongoing reforms.

References

1. Land Transport Safety Authority (2000). *Road Safety Strategy 2010: A Consultation Document*. National Road Safety Committee, Land Transport Safety Authority, Wellington.

2. Wegman F (2001). *Transport safety performance indicators*. Brussels, European Transport Safety Council.

3. Koornstra M, et al. (2002). *SUNflower: a comparative study of the development of road safety in Sweden, the United Kingdom, and the Netherlands.* SWOV, Dutch Institute for Road Safety Research, Leidschendam.

4. Bliss T (2004). *Implementing the Recommendations of the World Report on Road Traffic Injury Prevention*, Transport Note No. TN-1, World Bank, Washington DC.

5. Trinca G, Johnston I, Campbell B, Haight F, Knight P, Mackay M, McLean J, and Petrucelli E (1988). *Reducing Traffic Injury the Global Challenge*, Royal Australasian College of Surgeons.

6. Rumar K (1999). *Transport safety visions, targets and strategies: beyond 2000*. 1st European Transport Safety Lecture. European Transport Safety Council, Brussels. http://www.etsc.be/documents/etsl1.pdf

7. Haddon Jr W (1968). *The changing approach to the epidemiology, prevention, and amelioration of trauma: the transition to approaches etiologically rather than descriptively.* American Journal of Public Health, 58:1431–1438. 33. Henderson M. Science and society.

8. Eds. Peden M, Scurfield R, Sleet D, Mohan D, Hyder A, Jarawan E, Mathers C (2004). *World Report on Road Traffic Injury Prevention*, World Health Organization, Geneva.

9. Wegman F, Aarts L (2006). *Advancing Sustainable Safety*, Leischendam, SWOV, Dutch Institute for Road Safety Research, Leidschendam.

10. Wegman F, Elsenaar P (1997). *Sustainable solutions to improve road safety in the Netherlands.* SWOV, Dutch Institute for Road Safety Research, Leidschendam.

11. Tingvall C (1995). *The Zero Vision*. In: van Holst H, Nygren A, Thord R, eds. *Transportation, traffic safety and health: the new mobility. Proceedings of the 1st International Conference,* Gothenburg, Sweden Berlin, Springer-Verlag.

12. The Committee of Inquiry into Road Traffic Responsibility, (1999). Stockholm, Sweden.

13. World Bank Global Road Safety Facility (2009). *Strategic Plan 2006–2015*. The World Bank, Washington DC.

14. Breen J, Howard E, Bliss T (2008). *Independent Review of Road Safety in Sweden*, Jeanne Breen Consulting, Eric Howard and Associates, and the World Bank.

15. Mulder J, Wegman F (1999). *A trail to a safer country. Conceptual approaches to road safety policy,* SWOV, Dutch Institute for Road Safety Research, Leidschendam.

16. Morsink P, Oppe S, Reurings M, Wegman F (2005). *SUNflower+6: Development and application of a footprint methodology for the SUNflower+6 countries*, SWOV, Dutch Institute for Road Safety Research, Leidschendam.

17. European Road Assessment Program (2005). *From Arctic to Mediterranean, First Pan-European Progress Report*, Basingstoke, United Kingdom.

18. European Road Assessment Program (2008). *Making Europe's Roads Safer: EuroRAP 2007–2009 Initiatives*, Basingstoke, United Kingdom.

19. International Road Assessment Program (2007). *Getting Organized to Make Roads Safe*, Basingstoke, United Kingdom.

20. Commission for Global Road Safety (2006). *Make Roads Safe. A New Priority for Sustainable Development,* Commission for Global Road Safety, London.

21. Frenk J (2007). *Interactions with International Health Institutions: A Developing Country Perspective,* Global Health Network Global Economic Governance Program, University of Oxford, Oxford, United Kingdom.

4

Country Implementation Guidelines

At the country level implementing the recommendations of the *World Report* requires an integrated framework that treats them as a totality and ensures that institutional strengthening initiatives are properly sequenced and adjusted to the absorptive and learning capacity of the country concerned. Emerging global and regional initiatives aiming to assist the acceleration of knowledge transfer to low and middle-income countries and the scaling up of their road safety investments must also be harmonized and opportunities taken to combine and leverage the weight and effectiveness of resources being mobilized to improve the results being achieved.

These guidelines present a pragmatic approach designed to overcome the institutional capacity barriers impeding the effective implementation of the *World Report* recommendations, with the focus being on sustainably improving country road safety performance. They provide a framework for effective action and are a revised and expanded version of the guidelines presented in the World Bank Transport Note TN1, *Implementing the Recommendations of the World Report on Road Traffic Injury Prevention,* which was first issued in April 2004 (Bliss, 2004).[1] Their revision has taken account of the World Bank experience gained in trialing and evaluating their implementation in a range of countries (Wegman, Snoeren, 2005; Lawrence, 2006; Howard, Breen; 2006–2008).[2, 3, 4]

4.1 Implementation stages

Figure 5 illustrates the key steps in a staged, iterative implementation process.

Stage 1: Conduct country capacity review (*World Report* recommendation 2):

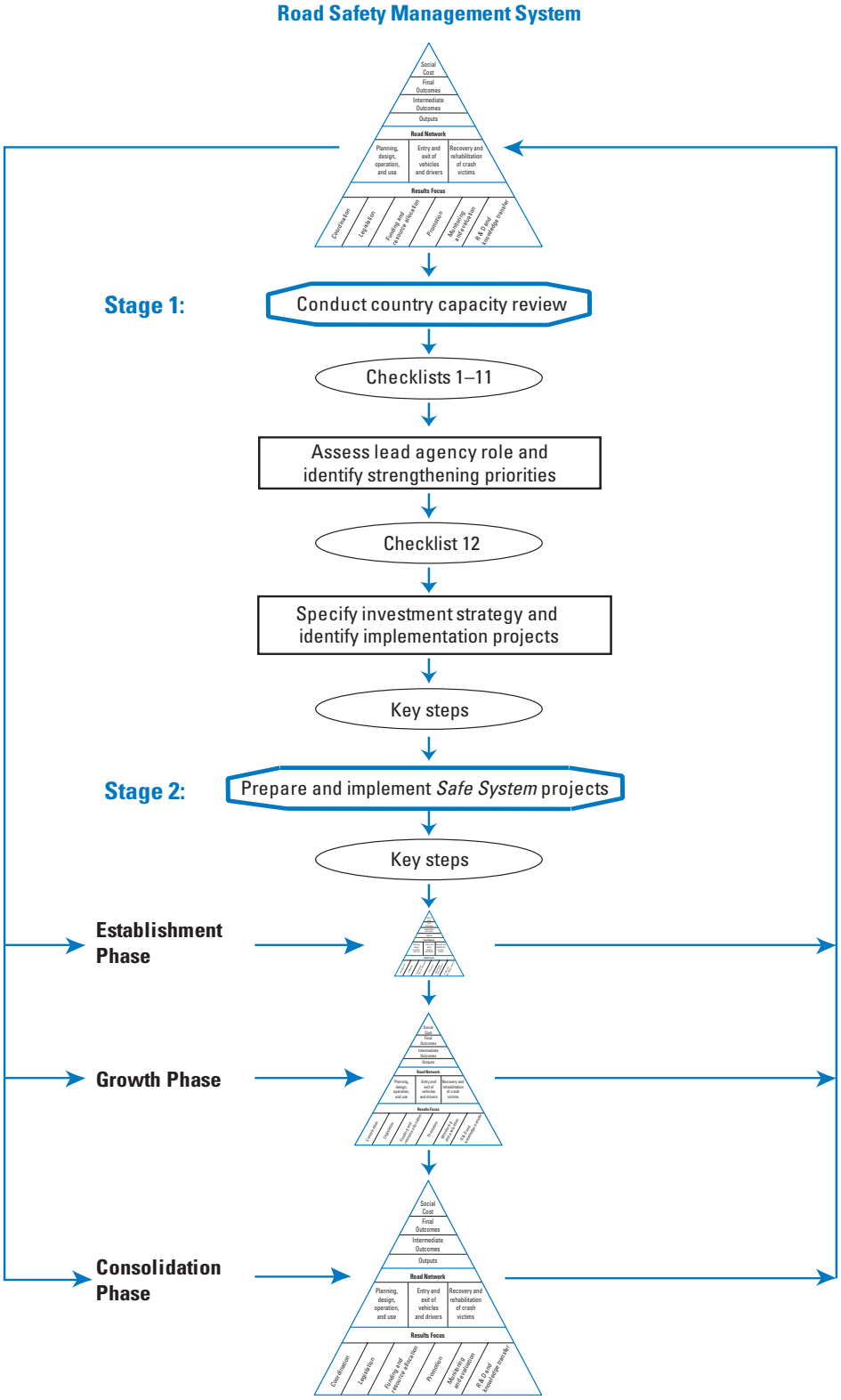
- ❑ Assess lead agency role (*World Report* recommendation 1).
- ❑ Specify investment strategy and identify projects to launch strategy (*World Report* recommendations 3 & 4).

Stage 2: Prepare and implement *Safe System* projects (*World Report* recommendations 5 & 6).

On its first iteration this two-stage process culminates in the preparation of projects designed to launch the investment strategy and to *establish* core safety management capacity and generate quick results in selected high loss sections of the road network.

Projects in the establishment phase generate the institutional capacity and performance benchmarks required to dimension a roll-out program for the *growth* phase of institutional capacity building. This second accelerated phase of investment aims to create sufficient capacity to sustain the third *consolidation* phase of investment required to bring safety outcomes fully under control, in accordance with the desired longer-term focus on results.

Figure 5: Implementation stages



4.2 Stage 1: Conduct country capacity review

Assessing and strengthening country road safety management capacity is critical to the successful implementation of the *World Report* recommendations. Country capacity weaknesses present a formidable barrier to success and the central issue is how to accelerate the necessary process of shifting from weak to strong institutional management capacity to govern the production of improved road safety results. Account must be taken of existing institutional management arrangements and a staged process developed to ensure that institutional strengthening initiatives are properly sequenced and adjusted to the absorptive and learning capacity of the country concerned.

The conduct of a capacity review is a vital stage in the process of a country taking the necessary actions to tailor the *World Report* recommendations to its unique circumstances and to determine its state of readiness to commit to the long-term reforms and investments necessary to bring its road safety outcomes under control.

A country capacity review is conducted through nine distinctive steps:

1. Set review objectives
2. Prepare for review
3. Appraise results focus at system level
4. Appraise results focus at interventions level
5. Appraise results focus at institutional management functions level
6. Assess lead agency role and identify capacity strengthening priorities
7. Specify investment strategy and identify *Safe System* implementation projects
8. Confirm review findings at high-level workshop
9. Finalize review report

The following guidelines cover each of these steps.

4.2.1 Set review objectives

Generic objectives of a country road safety management capacity review are to:

- ❏ Set out an integrated multi-sectoral framework for dialogue with country partners and stakeholders on potential road safety investments.
- ❏ Assess government ownership of safety results and identify related institutional responsibilities and accountabilites.
- ❏ Reach official consensus on road safety management capacity weaknesses and institutional strengthening and investment priorities to overcome them.
- ❏ Identify *Safe System* implementation projects to launch the investment strategy.

Specific terms of reference can be prepared to address these objectives in accordance with the capacity review procedures provided in these guidelines.

4.2.2 Prepare for review

Careful preparation for a country road safety management review is critically important to its ultimate success. Key requirements include:

(i) High-level management commitment

High-level country commitment to the review must be guaranteed, otherwise the review objectives cannot be achieved. The review should receive appropriate Ministerial and agency heads' endorsement, and their agreement to fully engage in the process and provide the necessary support required to ensure its success.

(ii) Composition of review team

The review must be conducted by experienced, internationally recognized road safety specialists with senior management experience at country and international levels. Expertise in particular aspects of the road safety management system will be important, but the most critical requirement is high-level experience with the overall strategic management and direction of national road safety programs. These skills are hard to source but they are vitally important to ensure that credible dialogue is achieved at the levels required to quickly achieve official consensus on the way ahead.

Experience has shown that a small review team can be effective and it is recommended that the core team be kept to a maximum of two senior road safety managers, to keep dialogue with country clients focused and efficient.

(iii) Pre-review inception report

It is essential that an inception report be prepared by the client country, prior to the review being conducted, to set out the basic elements of the road safety management system as defined and provide available data on road safety results and trends. This allows the review to get off to a quick start and avoids dissipating important resources in the collection of basic data and background institutional information that can be more efficiently prepared and provided by the client country. It also allows the review team to prepare in advance and sharpen the focus of their investigations. The inception report should be presented in an executive summary form and compile all relevant information that is readily available in accordance with the capacity review checklists.

(iv) Consultation schedule

A detailed consultation schedule should be prepared and this should be tightly managed locally to ensure a smooth flow of meetings and to reschedule them where necessary if availability of key officials and others changes. Access to relevant Ministers and Deputy Ministers and top ranking officials must be secured and given high priority. Ideally these meetings should be scheduled for the commencement and completion of the review, to ensure that the review team can gain an appreciation of national concerns and issues and address these in their review activities and finally report back on them. Transportation and high-quality interpreting services and other office amenities should be provided to support the work of the review team.

4.2.3 Appraise results focus at system level

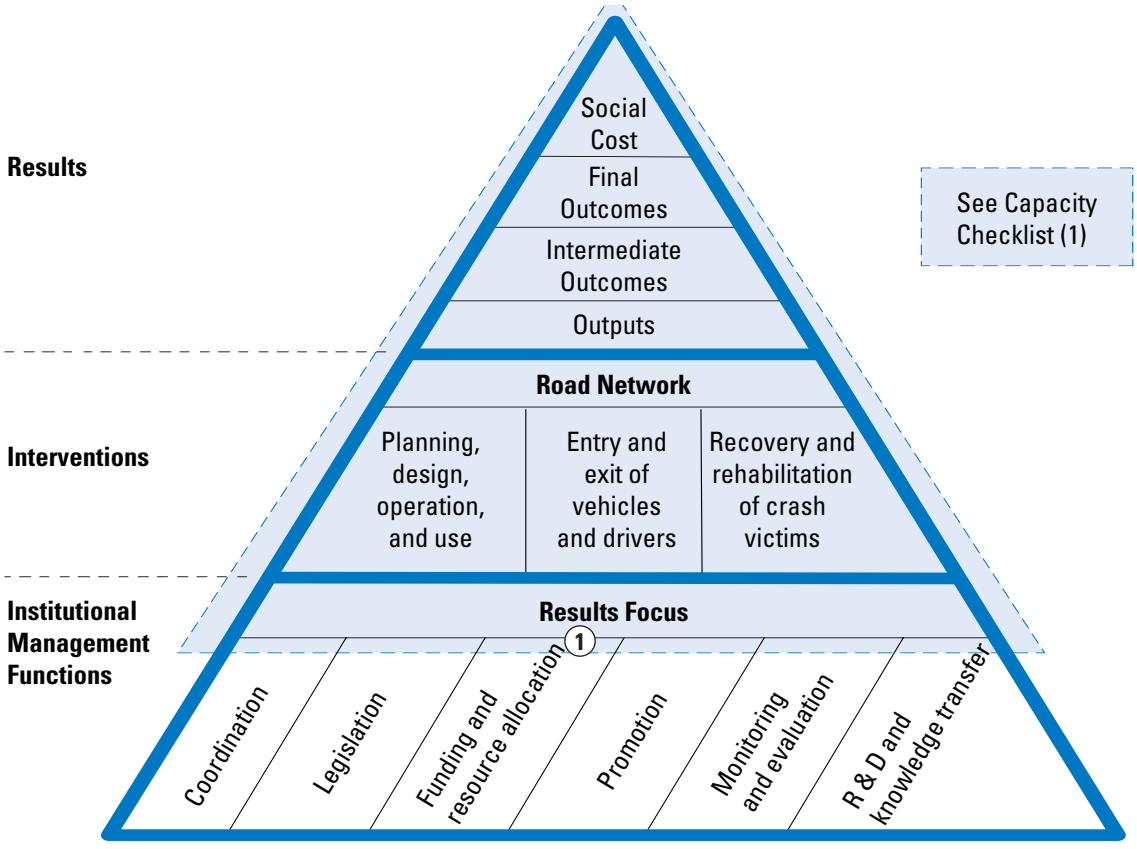
The road safety management system outlined in section 3.1 provides the framework for the conduct of a country safety management capacity review. Figure 6 highlights the appraisal of safety management capacity in terms of its results focus at the system level. The following Checklist 1 sets out this level of appraisal aggregated across the three categories of intervention.

Checklist 1 should be systematically applied and it provides the basis to further explore all relevant issues in more detail using Checklists 2–12. Detailed questions are not supplied for this first phase of analysis and the reviewers must use their knowledge and experience to probe issues in depth. For example, in questioning various sources of road safety performance data it will be important to explore issues such as the methods of collection, the quality assurance measures taken, and the fatal and injury crash reporting rates. These issues can be investigated in more depth in subsequent steps.

Following appraisal of results focus at the system level, capacity must then be assessed in terms of the country's results focus at the level of interventions, institutional management functions, and lead agency role, using the following Checklists 2–12. Ultimately the central issue to be addressed is how to accelerate the process of shifting from weak to strong institutional management capacity to govern the production of desired road safety results.

Checklist findings must be interpreted using expert safety management judgment. If the answers to questions are mainly 'no' or 'pending,' country capacity is clearly weak. With a high number of 'pending' or 'partial' situations, again capacity is weak, but signs of capacity strengthening are evident and should be acknowledged and encouraged. It is only when there is a predominance of 'yes' answers that capacity can be viewed as strong. It will be important to seek consensus on the assessment made for any particular element of the road safety management system being

Figure 6: Appraise results focus at system level



Checklist 1: Results focus at system level

Questions	Yes	Partial	Pending	No
Are estimates of the social costs of crashes available?				
Are data on road deaths and injuries readily available?				
Have the risks faced by road users been identified? Drivers? Passengers? Motor cyclists? Pedestrians? Cyclists? Children? Others?				
Has a national vision for improved road safety performance in the longer-term been officially set?				
Have national and regional targets been set for improved safety performance? Social cost targets? Final outcomes targets? Intermediate outcomes targets? Intervention output targets? At risk group targets? Industry targets? Other targets?				
Have all agencies responsible for improved safety performance been identified and are they formally held to account for their performance required to achieve the desired focus on results? Highways? Police? Transport? Planning? Justice? Health? Education? Others?				
Have industry, community and business responsibilities for improved roads safety performance been clearly defined to achieve the desired focus on results?				
Are regular performance reviews conducted to assess progress and make improvements to achieve the desired focus on results?				
Has a lead agency been formally established to direct the national road safety effort to achieve the desired focus on results?				
Is the lead agency role defined in legislation and/or policy documents and annual performance agreements to achieve the desired focus on results?				

Notes

It is important to probe the risks faced by different road user groups, assisted by available data from highway agencies, police, hospitals and other sources. It is also important to locate and rank those sections of the road network with the highest concentrations of deaths and injuries, across the hierarchy of urban roads and the hierarchy of inter-urban roads. Where data are deficient or simply unavailable extensive consultations with relevant groups may be required to identify user groups most at risk and to locate hazardous sections of the network. The best starting point for these discussions is within the health sector, particularly with the emergency services staff that attend to crash victims in the pre-hospital phase.

The issue of acceptable and achievable levels of safety and related responsibilities and accountabilities must be addressed at the highest agency and ministerial levels, especially across the transport and health sectors. In this dialogue it is important to identify and discuss the scale of the national health loss incurred by road crashes, compared to other causes of death and injury in the country concerned.

appraised. In workshop contexts this could take the form of generating a group scorecard to reflect received professional opinion in the country concerned. Note that an electronic checklist system to record reviewer responses is currently under development. This allows for the ready creation of scorecards and to improve the ranking of capacity the pilot version has extended the 'partial' response to low, medium and high degrees of partiality.

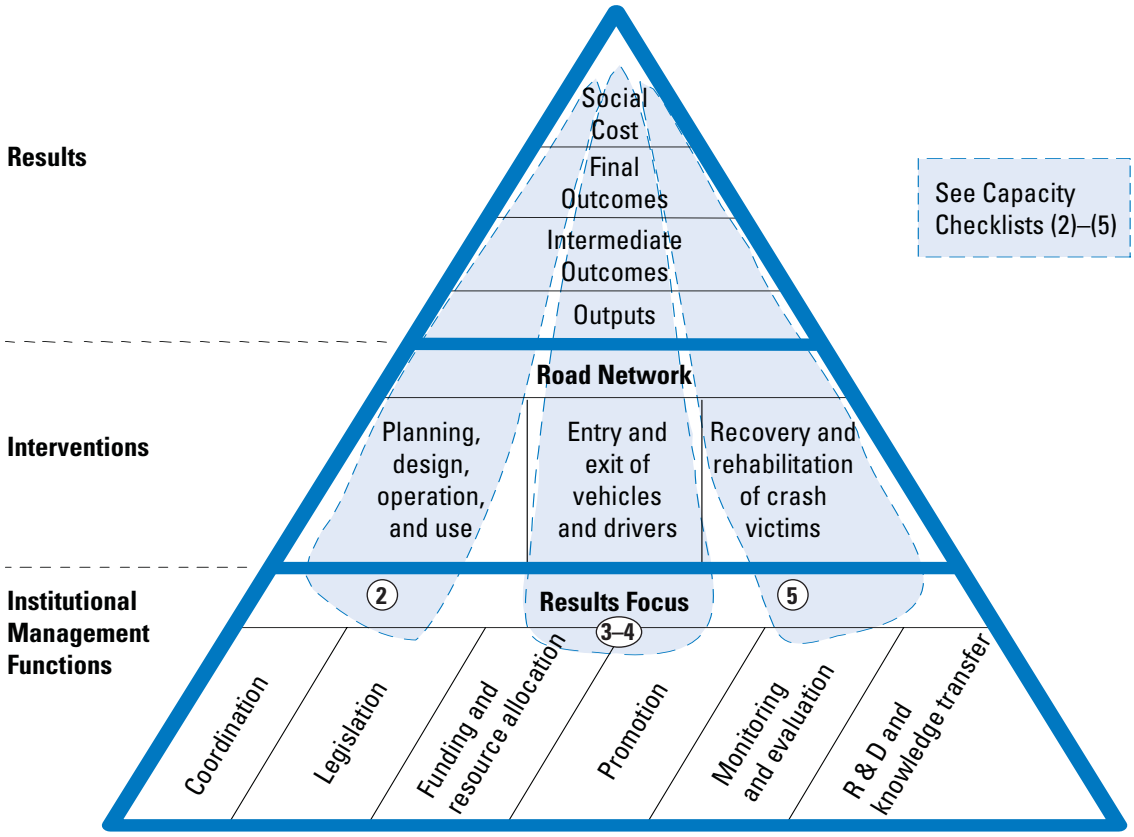
4.2.4 Appraise results focus at interventions level

Figure 7 highlights the phase of the capacity review process which appraises safety management capacity in terms of its results focus at the interventions level. The following Checklists 2–5 set out this level of appraisal across each of the three categories of intervention (see Box 1 in section 3.1.2).

Interventions address the safe planning, design and operation and use of the road network; the conditions under which vehicles and road users can safely use it; and the safe recovery and rehabilitation of crash victims; and they set specific standards and rules for this safety and aim to secure compliance with them.

It is important to work through the three broad categories of intervention and explore the linkages between the identified interventions and their outputs and their intended intermediate outcomes and final outcomes. This is one of the weaknesses of many national road safety action plans, in that they do not logically track through and quantify how prescribed interventions will contribute to improved results. The checklist questions provide for this level of analysis and should be carefully followed.

Figure 7: Appraise results focus at intervention level



Checklist 2: Planning, design, operation and use of the road network

Questions	Yes	Partial	Pending	No
Have comprehensive safety standards and rules and associated performance targets been set for the planning, design, operation and use of roads to achieve the desired focus on results? National roads? Regional roads? Provincial roads? City roads?				
Are the official speed limits aligned with *Safe System* design principles to achieve the desired focus on results? National roads? Regional roads? Provincial roads? City roads?				
For each category of roads (national, regional, provincial, city) are compliance regimes in place to ensure adherence to specified safety standards and rules to achieve the desired focus on results? Road safety impact assessment? Road safety audit? Road safety inspection? Black spot management? Network safety management? Speed management? Alcohol management? Safety belts management? Helmets management? Fatigue management?				
Do the specified safety standards and rules and related compliance regimes clearly address the safety priorities of high-risk road user groups to achieve the desired focus on results?				
Do the specified safety standards and rules and related compliance regimes compare favorably with international good practice?				

Notes

Each country will have its own defined road hierarchy and the road categories assessed must be adjusted to this. The checklist is indicative of the network coverage required.

Close attention should be paid to the safety standards that are set for road network design and the extent to which they are clearly defined within a hierarchy of roads and respond to identified road user risks.

It is also important to review if safety audits are conducted to ensure compliance with these standards and if network surveys and inspections are regularly carried out for safety maintenance and hazard identification purposes.

Police enforcement of safety standards and rules must be carefully examined. Particular attention should be paid to police operational practices targeting unsafe behaviors like speeding, drink-driving and the non-wearing of safety belts and helmets.

Likewise, police enforcement of the safety of commercial transport operations—both freight and passenger—must be reviewed.

It is most important to assess if the overall scale of police enforcement initiatives are sufficient to ensure effective compliance. Experience in good practice jurisdictions indicates that up to 20 percent of total police budgets are dedicated to strategic road policing activities, with the emphasis being on general deterrence operations.

The extent to which road user education and awareness campaigns are designed to support police enforcement initiatives should also be appraised.

Checklist 3: Entry and exit of vehicles to and from the road network

Questions	Yes	Partial	Pending	No
Have comprehensive safety standards and rules and associated performance targets been set to govern the entry and exit of vehicles and related safety equipment to and from the road network to achieve the desired focus on results? Private vehicles? Commercial vehicles? Public transport vehicles? Motor cycle helmets? Cycle helmets?				
For each category of vehicles and safety equipment (private, commercial, public, helmets) are compliance regimes in place to ensure adherence to the specified safety standards and rules to achieve the desired focus on results? Vehicle certification? Vehicle inspection? Helmet certification?				
Do the specified safety standards and rules and related compliance regimes and safety rating surveys clearly address the safety priorities of high-risk road user groups to achieve the desired focus on results?				
Do the specified safety standards and rules and related compliance regimes and safety rating surveys compare favorably with international good practice?				

Notes

In the case of entry and exit controls, safety standards and related compliance regimes for vehicles and road users should be thoroughly appraised.

Vehicle safety standards are important for vehicle users and vulnerable road users. Procedures for ensuring compliance with them, as a prerequisite for entry to the vehicle fleet, should be reviewed. These standards can relate to active safety features (e.g. electronic stability control, lighting and conspicuity) and passive safety features (e.g., side and frontal impact protection; pedestrian, cyclist and motorcyclist protection; and safety belts).

Standards promulgated by the world's leading vehicle safety jurisdictions—USA, Japan and Europe—provide a useful benchmark for assessing country policies. Safety ratings of new car performance in crash tests provide a useful reference point for assessing country fleet quality.

Checklist 4: Entry and exit of road users to and from the road network

Questions	Yes	Partial	Pending	No
Have comprehensive safety standards and rules and associated performance targets been set to govern the entry and exit of road users to and from the road network to achieve the desired focus on results? Private drivers and passengers? ○ Cars? ○ Heavy vehicles? ○ Mopeds? ○ Motor cycles Commercial drivers? Public transport drivers? ○ Taxis? ○ Buses? ○ Non-motorized vehicles?				
For each category of driver (private, commercial, public) are compliance regimes in place to ensure adherence to the specified safety standards and rules to achieve the desired focus on results? Driver testing? Roadside checks?				
Do the specified safety standards and rules and related compliance regimes clearly address the safety priorities of high-risk road user groups to achieve the desired focus on results? Young drivers? Older drivers? Commercial drivers? Public transport drivers?				
Do the specified safety standards and rules and related compliance regimes compare favorably with international good practice?				

Note

The extent to which driver licensing standards take account of the higher crash risks of novice drivers and older drivers should be carefully considered.

Checklist 5: Recovery and rehabilitation of crash victims from the road network

Questions	Yes	Partial	Pending	No
Have comprehensive safety standards and rules and associated performance targets been set to govern the recovery and rehabilitation of crash victims from the road network to achieve the desired focus on results? Pre-hospital? Hospital? Long-term care?				
For each category of post-crash service (pre-hospital, hospital, and long-term care) are compliance regimes in place to ensure adherence to the specified safety standards and rules to achieve the desired focus on results?				
Do the specified safety standards and rules and related compliance regimes clearly address the safety priorities of high-risk road user groups to achieve the desired focus on results?				
Do the specified safety standards and rules and related compliance regimes compare favorably with international good practice?				

Note

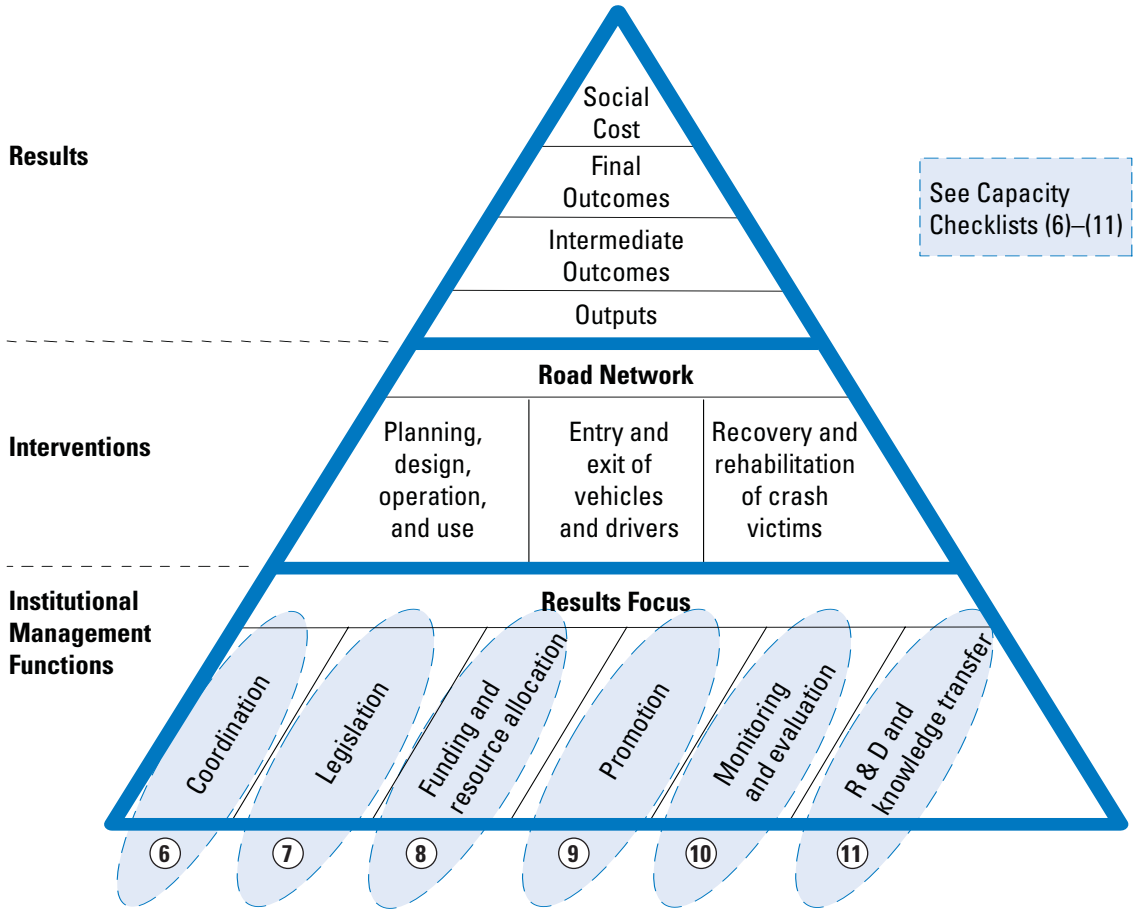
Post-crash services merit close attention, especially in low and middle-income countries where safety performance is poor and high benefit-cost returns can be anticipated from improved emergency and rehabilitation services.

4.2.5 Appraise results focus at institutional management functions level

Figure 8 highlights the phase of the capacity review process which appraises safety management capacity in terms of its results focus at the subordinate institutional management functions level. The following Checklists 6–11 set out this level of appraisal which address the crucial contribution of the subordinate institutional management functions to the desired focus on results, as described in section 3.1 and examined in depth in Annex 2.

It is important to work through each institutional management function and explore its linkages with the identified interventions and their desired focus on results. The checklist questions provide for this level of analysis and should be carefully followed.

Figure 8: Appraise results focus at institutional management functions level



Checklist 6: Coordination

Questions	Yes	Partial	Pending	No
Are interventions being coordinated horizontally across agencies to achieve the desired focus on results?				
Are interventions being coordinated vertically between national, regional, provincial and city agencies to achieve the desired focus on results?				
Have robust intervention delivery partnerships between agencies, industry, communities and the business sector been established to achieve the desired focus on results?				
Have parliamentary committees and procedures supporting the coordination process been established to achieve the desired focus on results?				

Note

National coordinating bodies may exist, but unless their membership includes agencies that are fully accountable and funded for road safety results, experience suggests they will be ineffective. More specifically, in good practice countries these coordinating bodies are usually the extension of accountable lead agencies that own and use them as platforms for mobilizing resources and coordinating and focusing multi-sectoral partnerships, in pursuit of agreed results.

Checklist 7: Legislation

Questions	Yes	Partial	Pending	No
Are legislative instruments and procedures supporting interventions and other institutional management functions sufficient to achieve the desired focus on results?				
Are legislative instruments and procedures supporting interventions and other institutional management functions regularly reviewed and reformed to achieve the desired focus on results?				

Note

Specialist skills will most likely be required to review road safety legislation. This will depend on the complexities of the legal codes and the extent to which they have been structured or restructured to consolidate previous legislation. Road safety legislation typically addresses road, vehicle and user safety standards and rules—and related compliance—but it has often evolved over time, without adequate cross-referencing.

Checklist 8: Funding and resource allocation

Questions	Yes	Partial	Pending	No
Are sustainable funding mechanisms supporting interventions and institutional management functions in place to achieve the desired focus on results? Central budget? Road fund? Tolls? Fees? Other sources?				
Are formal resource allocation procedures supporting interventions and institutional management functions in place to achieve the desired focus on results? Cost effectiveness? Cost benefit?				
Is there an official Value of Statistical Life and related value for injuries to guide resource allocation decisions?				
Are funding mechanisms and resource allocation procedures supporting interventions and institutional management functions sufficient to achieve the desired focus on results?				

Note

Identifying and quantifying total funding allocated to agencies for road safety can be difficult, particularly when it is embedded in broader sector budgets. However, it is important to seek high-level confirmation of budget sources, processes and levels.

Checklist 9: Promotion

Questions	Yes	Partial	Pending	No
Is road safety regularly promoted to achieve the desired focus on results? Overall vision and goals? Specific interventions? Specific target groups?				

Checklist 10: Monitoring and evaluation

Questions	Yes	Partial	Pending	No
For each category of roads (national, regional, provincial, city) are sustainable systems in place to collect and manage data on road crashes, fatality and injury outcomes, and all related road environment/vehicle/road user factors to achieve the desired focus on results?				
For each category of roads (national, regional, provincial, city) are sustainable systems in place to collect and manage data on road network traffic, vehicle speeds, safety belt and helmet wearing rates, to achieve the desired focus on results?				
For each category of roads (national, regional, provincial, city) are systematic and regular safety rating surveys undertaken to quality-assure adherence to specified safety standards and rules to achieve the desired focus on results? Risk ratings? Road protection scores?				
For each category of roads (national, regional, provincial, city) are systems in place to collect and manage data on the output quantities and qualities of safety interventions implemented to achieve the desired focus on results? Safety engineering treatments? Police operations? Educational activities? Promotional activities? Driver training? Vehicle testing? Emergency medical services?				
For each category of vehicles and safety equipment (private, commercial, public, helmets) are systematic and regular safety rating surveys undertaken to quality assure adherence to the specified safety standards and rules to achieve the desired focus on results? Vehicle safety rating? Helmet testing?				
For each category of post-crash service (pre-hospital, hospital, long-term care) are systematic and regular surveys undertaken to quality-assure adherence to the specified standards and rules to achieve the desired focus on results?				
Are regular surveys taken of road user and community attitudes to road safety interventions to achieve the desired focus on results?				
Are systems in place to monitor and evaluate safety performance against targets regularly to achieve the desired focus on results?				
Do all participating agencies and external partners and stakeholders have open access to all data collected?				

Checklist 11: Research and development and knowledge transfer

Questions	Yes	Partial	Pending	No
Has a national road safety research and development strategy been established to achieve the desired focus on results? Vehicle factors? Highway factors? Human factors? Institutional factors? Other factors?				
Has an independent national road safety research organization been established to achieve the desired focus on results? Vehicle factors? Highway factors? Human factors? Institutional factors? Other factors?				
Have demonstration and pilot programs been conducted to achieve the desired focus on results? Vehicle factors? Highway factors? Human factors? Institutional factors? Other factors?				
Are mechanisms and media in place to disseminate the findings of national road safety research and development to achieve the desired focus on results? Conferences? Seminars? Training? Journals? Other?				

4.2.6 Assess lead agency role and identify capacity strengthening priorities

The first and crucial *World Report* recommendation concerned the identification of a lead agency in government to guide the national road safety effort, with the authority to make decisions, manage resources and coordinate the efforts of all participating sectors of government. The vital lead agency role in directing and sustaining the production of improved road safety results is outlined in section 3.2 and more operational details are provided in Annex 2.

This phase of a country capacity management review requires an assessment of the lead agency role and recommendations for strengthening revealed weaknesses. It is closely related to the procedures and findings of the previous steps covered by Checklists 1–11. Checklist 1 presented in section 4.2.3 establishes whether or not a lead agency has been formally established to direct the national road safety effort. It also assesses if its role has been defined in legislation and/or policy documents and annual performance agreements to achieve the desired focus on results. To the extent that answers to these questions are in the affirmative it can be concluded that the country concerned is taking the issue seriously and building a sound platform for sustainable action. However, it cannot be assumed that the absence of a formal lead agency means that the lead agency functions are not being addressed. Informally elements of them may be being delivered and whether this is the case or not must be closely explored.

Country safety management capacity to deliver the lead agency role effectively must be reviewed and the following Checklist 12 addresses this phase of appraisal. The questions are directly linked to the detailed lead agency role as described in Annex 2 and close reference to this material is advised.

In good practice countries the lead agency (or the informal lead agency/agencies) plays a pre-eminent role in most institutional management functions as described in section 3.1.1, though sometimes it can adopt more of a guiding, encouraging or catalytic role. The lead agency takes responsibility within government for the development of the national road safety strategy and its results focus, the overarching institutional management function. It also usually takes responsibility for horizontal inter-governmental coordination arrangements; vertical coordination of national, regional and local activities; coordination of the necessary delivery partnerships between government partners and stakeholders, professional, non-governmental and business sectors and parliamentary groups and committees; ensuring a comprehensive legislative framework; securing sustainable sources of annual funding and creating a rational framework for resource allocation; high-level promotion of the road safety strategy across government and society; periodic monitoring and evaluation of road safety performance; and the direction of research and development and knowledge transfer.

As previously highlighted in section 4.2.3, checklist findings must be interpreted using expert judgment derived from extensive road safety management experience at the national level. If the answers to questions in Checklists 1–12 are mainly 'no' or 'pending,' country capacity is clearly very weak. With a high number of 'pending' or 'partial' situations, again capacity is weak, but signs of capacity strengthening are evident and should be acknowledged and encouraged. It is only when there is a predominance of 'yes' answers that capacity can be viewed as strong.

When specifically assessing lead agency capacity this same interpretive approach should be used and three broad levels of capacity can be identified, as follows:

(i) Weak lead agency capacity

If the answers to the lead agency questions in Checklist 1 are 'no,' 'pending,' or 'partial,' and mostly 'no' or 'pending' for all of the Checklist 12 questions, it can be said that a country's lead agency capacity is *weak*.

(ii) Basic lead agency capacity

If the answers to the lead agency questions in Checklist 1 are 'yes,' or 'yes' and 'no,' and mostly 'pending' or 'partial' for all of the Checklist 12 questions, it can be said that a country's lead agency capacity is *basic*.

Careful judgment will be required here. It may be reasonable to define a country's lead agency capacity as 'basic,' even if the answers to the lead agency questions in Checklist 1 are 'no,' if it is clear that informally the lead agency role is partially and effectively being delivered. In reality this judgment should be easy enough to make, as the 'weak' and 'advanced' capacity situations reflect extremes that can be clearly identified, with 'basic' falling in between these states.

(iii) Advanced lead agency capacity

If the answers to the lead agency questions in Checklist 1 are 'yes,' and mostly 'yes' and 'partial' for all of the

Checklist 12: Lead agency role and institutional management functions

Questions	Yes	Partial	Pending	No
Does the lead agency (or de facto lead agency/agencies) effectively contribute to the *results focus* management function? Appraising current road safety performance through high-level strategic review? Adopting a far-reaching road safety vision for the longer term? Analyzing what could be achieved in the medium term? Setting quantitative targets by mutual consent across the road safety partnership? Establishing mechanisms to ensure partner and stakeholder accountability for results?				
Does the lead agency (or de facto lead agency/agencies) effectively contribute to the *coordination* management function? Horizontal coordination across central government? Vertical coordination from central to regional and local levels of government? Specific delivery partnerships between government, non-government, community and business at the central, regional and local levels? Parliamentary relations at central, regional and local levels?				
Does the lead agency (or de facto lead agency/agencies) effectively contribute to the *legislation* management function? Reviewing the scope of the legislative framework? Developing legislation needed for the road safety strategy? Consolidating legislation? Securing legislative resources for road safety?				
Does the lead agency (or de facto lead agency/agencies) effectively contribute to the *funding and resource allocation* management function? Ensuring sustainable funding sources? Establishing procedures to guide the allocation of resources across safety programs?				
Does the lead agency (or de facto lead agency/agencies) effectively contribute to the *promotion* management function? Promotion of a far-reaching road safety vision or goal? Championing and promotion at a high level? Multi-sectoral promotion of effective interventions and shared responsibility? Leading by example with in-house road safety policies? Developing and supporting safety rating programs and the publication of their results? Carrying out national advertising? Encouraging promotion at the local level?				
Does the lead agency (or de facto lead agency/agencies) effectively contribute to the *monitoring and evaluation* management function? Establishing and supporting data systems to set and monitor final and intermediate outcome and output targets? Transparent review of the national road safety strategy and its performance? Making any necessary adjustments to achieve the desired results?				
Does the lead agency (or de facto lead agency/agencies) effectively contribute to the *research and development and knowledge transfer* management function? Developing capacity for multi-disciplinary research and knowledge transfer? Creating a national road safety research strategy and annual program? Securing sources of sustainable funding for road safety research? Training and professional exchange? Establishing good practice guidelines? Setting up demonstration projects?				

Note

Refer to Annex 2 for a detailed description of the role of the lead agency in the identified institutional management functions and related country case studies.

Checklist 12 questions, it can be said that a country's lead agency capacity is *advanced*.

It is likely that the findings of the capacity assessment of the lead agency role will mirror those for the country road safety management system as a whole. However, it is possible to envisage a situation where basic lead agency capacity is emerging in the context of weaker country safety management capacity, and hence lead agency capacity is ranked higher than overall country safety management capacity.

(iv) Identify lead agency strengthening priorities

The assessed capacity level can be used to identify lead agency strengthening priorities, as set out in Table 2.

The findings of the lead agency role assessment will be crucial to determining the priorities and scale of the country investment strategy and related implementation projects, as discussed in sections 4.2.7 and 4.3 below.

It is important that any initiatives designed to improve country road safety performance are centered on the lead agency role and driven from the fundamental objective of strengthening national leadership, in accordance with the priority given to this by the key and overarching *World Report* recommendation. Particular attention should be paid to the leadership required to provide effective program and project management and related inter-agency coordination functions.

The effective delivery of core institutional management *functions* can be achieved with varied lead agency structural and procedural *forms* and no preferred model for this can be identified and promoted. Good practice examples are summarized in Annexes 3 & 4.

Table 2: Lead agency strengthening priorities

Capacity level	Priority steps
Weak	Designate lead agency Establish and fully resource small lead agency secretariat Operationalize coordination groups Confirm national safety investment strategy Identify project(s) to launch investment strategy Implement, monitor and evaluate project(s) Prepare and approve national rollout program
Basic	Strengthen and refocus secretariat Strengthen and refocus coordination groups Upgrade national investment strategy Prepare quantitative performance targets Sharpen agency responsibilities and accountabilities
Advanced	Review lead agency functions, forms, structures and processes Reform and restructure lead agency Upgrade national investment strategy Set new, more ambitious performance targets

4.2.7 Specify investment strategy and identify *Safe System* implementation projects

This phase of the country capacity review addresses the third and fourth *World Report* recommendations which concern the specification of a long-term investment strategy to accelerate the process of shifting from a weak to high-capacity safety management system and related implementation options.

Safety management capacity weaknesses in low and middle-income countries present a formidable barrier to progress and generally institutional management functions require strengthening. Likewise, safety management capacity weaknesses can also become evident in high-income countries as their results focus shifts to even higher levels of ambition. In both these circumstances an investment strategy must be designed to overcome inherent capacity weaknesses by first establishing a core capacity to bring safety outcomes under control, then scaling up investment to accelerate this capacity building across the entire road network and finally consolidating it on a sustainable basis (see section 3.3.1).

This staged approach to scaling up investment acknowledges the barriers imposed by weak safety management capacity and addresses the challenge of accelerating the necessary process of institutional strengthening required to effectively govern the production of improved road safety results. In effect the long-term investment strategy is implemented by a program of successive projects that build on the results achieved and the management capacity created in the process.

Accelerating the transfer of knowledge and capacity strengthening must be grounded in practice by a learning by doing process backed with sufficient targeted investment to overcome the barriers presented by evident weaknesses at the global, regional and country levels. Successful implementation of the investment strategy hinges on designing projects that accelerate the transfer of road safety knowledge to participants, strengthen the capacity of participating partners and stakeholders, and rapidly produce results that provide benchmark measures to dimension a roll-out program.

(i) Identify funding sources

The focus of these guidelines is on the preparation of *Safe System* projects that implement the establishment phase of the investment strategy and build the institutional capacity and evidence base to roll out a large program of initiatives in the investment strategy's growth phase. This presupposes that sufficient funding is available and potential funding sources must be identified before the investment strategy is specified in any detailed way. In low and middle-income countries financing sources will include the World Bank and regional development banks. In all countries mainstream budgetary, road fund and fee for services processes could play a key role. It is important at the outset to determine the scope of the budget envelope and to plan future activities within these parameters. Capacity review findings will help influence the scale of funding available and assist the preparation of business cases for additional funding.

(ii) Determine sequencing of investments

Capacity review findings will also influence the sequencing of the long-term investment strategy required to accelerate the process of shifting from a weak to high capacity road safety management system.

For each element of the road safety management system (as described in section 3.1) a pathway from weak to strong capacity can be shaped in accordance with the establishment, growth and consolidation phases of the investment strategy, as described in section 3.3.1 and Figure 3. A generic framework to guide this phased investment process is set out in Table 3.

Target-setting tools will underpin the quantification of a long-term investment strategy and in the absence of high quality road safety data the estimation process will be necessarily crude. The suggested approach is to make strategic estimates of performance targets and investment needs, using available data, and then commence the process of their refinement with tactical investments and related monitoring and evaluation in high-risk demonstration corridors and urban areas. The evaluation findings will then provide an evidence base for the setting of more credible long-term national targets and the refinement of related investment needs.

In setting out a long-term investment strategy it is important to have a vision of where the country concerned aims to be in performance terms by the end of the planning horizon and a clear understanding of how this will be achieved. Such a vision will be shaped by the desire to bring safety results under control on a sustainable basis. The time frame for this must be realistic. For planning purposes it is recommended to consider three successive phases of around five years each covering the establishment, growth and consolidation of the investment strategy. This should be seen as indicative only as some coun-

Table 3: Sequencing of investments

	Capacity strengthening phase and examples of priority initiatives		
System element	**Establishment**	**Growth**	**Consolidation**
Results	Set quantitative performance targets for high-risk demonstration corridors and areas (see Table 4).	Set quantitative national targets (see Box 2).	Devolve national targets to regions, provinces and districts.
Interventions	Implement comprehensive multi-sectoral measures in targeted high-risk demonstration corridors and urban areas (see Boxes 4–7). Review and internationally benchmark national safety policies and interventions (see Box 1) and commence implementation of policy reforms.	Roll-out comprehensive multi-sectoral measures across remaining high-risk corridors and urban areas of total road network. Implement ongoing reforms of safety policies and interventions, and introduce new measures in accordance with international good practice.	Sustain comprehensive multi-sectoral measures across total road network and extend targeting to less risky roads. Review and internationally benchmark safety policies and interventions, and implement reforms.
Institutional management functions	Establish lead agency role and functions and related coordination arrangements (see Box 8). Manage, monitor and evaluate road safety results in high-risk demonstration corridors and areas. Review and internationally benchmark institutional management functions, and commence implementation of institutional reforms. Commission building or upgrading of national crash analysis system.	Strengthen and refocus lead agency role and functions and related coordination arrangements. Manage, monitor and evaluate road safety results across high-risk corridors and urban areas of total road network. Implement ongoing reforms of institutional management functions. Disseminate safety performance data from national crash analysis system and ensure open access to system by all partners and stakeholders.	Review and reform lead agency role and functions and related coordination arrangements. Extend performance monitoring and evaluation of safety results to less risky roads in network. Review and reform institutional management functions. Upgrade national crash analysis system and extend performance monitoring capabilities.

tries may wish to move faster in the establishment phase and where capacity is reasonable and able to be quickly built on this should be encouraged. However, it should be recognized that a 15 year timeframe to bring road safety results under control is ambitious and presents considerable challenges for low and middle-income countries.

In the *establishment* phase it is important to take control of the safety situation in targeted high-risk corridors and areas to demonstrate what can be achieved and to assemble the evidence base to dimension a roll-out program for the growth phase. It is also important during the establishment phase to undertake more detailed reviews of all areas of revealed capacity weakness and to build the necessary data management systems required to govern the total network. High priority reforms should also be implemented during this phase, especially those that will take time to realize their full benefits, such as improved vehicle safety standards.

In the *growth* phase key priorities are to put in place a robust performance management framework for all participating agencies, to roll-out targeted safety programs nationally and systematically across high-risk sections of the road network, and to implement all the findings of intervention benchmarking and policy reviews.

In the *consolidation* phase key priorities are to devolve the performance management framework to regions, provinces and districts and to take all the necessary measures to improve management and operational efficiency and effectiveness and seek opportunities for future safety innovations.

(iii) Identify *Safe System* projects to implement investment strategy

The focus of these guidelines is on the preparation of projects to implement the establishment phase of the investment strategy and build the institutional capacity and evi-

dence base to roll out a large program of initiatives in the investment strategy's growth phase.

Details of the projects will be determined by the capacity review findings. However, core components should be shaped by the examples provided in Table 3 which highlights the appropriate sequencing of investments through the identified phases required to efficiently and effectively accelerate the process of shifting a country from a weak to a high capacity road safety management system.

Guidelines to assist the specification and preparation of projects are provided in section 4.3 below.

4.2.8 Confirm review findings at high-level workshop

A workshop should be planned and scheduled as a formal part of the capacity review process with the objective of confirming and integrating the review findings from Checklists 1–12 and addressing any issues that may have remained unresolved or not been identified during the review process.

The workshop should seek to bring all parties together in a multi-sectoral context that allows all relevant elements of the road safety management system to be addressed in the spirit of a strategic partnership and shared responsibility that seeks to improve road safety results. In this type of workshop setting it would be useful to review and seek confirmation of the review findings and prepare a checklist scorecard which reflects the professional consensus view received (see section 4.2.3).

It is important that the workshop complements the broad objectives of the review as set out in section 4.2.1. It should put its main emphasis on exploring the role of the lead agency and the overall dimensions of a country investment strategy for the short, medium and long term, rather than creating expectations among key stakeholders for an early definition of projects that they may have specific interests in.

(i) Participants

All agencies and other stakeholders and partners consulted during the review process should be represented at the workshop. This representation should be at a senior, decision-making level, to ensure that relevant and binding agreements can be reached on the review findings and issues that may arise.

Every effort should be made to ensure that the actual officials and other representatives consulted during the review process agree to attend the workshop. Representatives replacing them must be fully briefed on the process that has preceded the workshop and the findings and understandings reached.

(ii) Procedures

The workshop should be designed to take the review process forward by corroborating what has been learned during this process and building on this to explore in more depth the institutional strengthening and investment priorities required to overcome identified road safety management capacity weaknesses.

It is important that the workshop be independently chaired, to assure all participants that the process is impartial and focused on the review objectives rather than the interests of any single stakeholder or coalition of stakeholders. For example, with past World Bank sponsored reviews it has been effective to have the workshop chaired by a high-level representative of the World Bank Country Office.

(iii) Reach official consensus on review findings

Prior to the workshop a first draft of the review findings should be prepared and a summary made available to participants at the workshop. It is envisaged that key findings would have been discussed with relevant partners and stakeholders prior to the workshop, as part of the process of preparing the draft.

In particular the draft review findings should assess the role of the lead agency and its capacity strengthening, if required, and outline a proposed investment strategy for further consideration and finalization to the extent possible at the workshop.

Every effort must be made at the workshop to reach an official consensus on the details of the review findings and the strategic direction to be taken by the country to improve its road safety results.

In particular it will be important to reach agreement on related institutional responsibilities and accountabilites, especially the lead agency role, and the institutional strengthening and program and project investment priorities to overcome agreed road safety management capacity weaknesses.

4.2.9 Finalize review report

A draft report presenting capacity review findings should be circulated during the last phase of the review to all participants and other relevant parties in the government for comments and approval. A final report can then be prepared and distributed.

4.3 Stage 2: Prepare and implement *Safe System* projects

Following the conduct of the country capacity review the second step in the process is to prepare safety projects to launch the identified investment strategy. Successful implementation hinges on designing projects that accelerate the transfer of road safety knowledge to strengthen the capacity of participating entities and rapidly produce results that provide benchmark measures to dimension a roll-out program.

The focus of these guidelines is on the preparation of projects that implement the *establishment* phase of the investment strategy and build the institutional capacity and evidence base to roll out a larger program of initiatives in the investment strategy's *growth* phase (see previous section 4.2.7 (ii), Table 3). As a general principle projects should have *Safe System* characteristics (see Box 6). They should be designed to cover all elements of the road safety management system, as specified in section 3.1 and Table 3 in section 4.2.7 (ii), and the design should reflect the shift in results focus to the elimination of death and serious injuries, as discussed in section 3.1.4 (iv).

The overall sequencing of the project preparation process is crucial to successful project implementation. The first priority is to prepare a project concept based on the findings of the country capacity review. This should be sufficiently comprehensive to outline all components, partnerships and targeted results. The second and third priorities are to reach consensus on the project management arrangements and the monitoring and evaluation procedures. The preparation of a detailed project design should only commence once agreement is reached on the overall project concept, the results it is trying to achieve and how these will be managed and measured.

Project preparation is conducted through eight distinctive steps:

1. Set project objectives
2. Determine scale of project investment
3. Identify project partnerships
4. Specify project components
5. Confirm project management arrangements
6. Specify project monitoring and evaluation procedures
7. Prepare detailed project design
8. Address project implementation priorities

The following guidelines cover each of these steps.

Box 6: Shifting to *Safe System* road safety projects

The guidelines build on the experience gained by the World Bank over the last thirty years in supporting road safety initiatives in low and middle-income countries and draw heavily on the practical lessons learned during this process. In recent years the World Bank has been shifting to *Safe System* road safety projects which aim to anchor country capacity building efforts in systematic, measurable and accountable investment programs that simultaneously build management capacity while achieving rapid improvements in safety performance for all road users.

Past projects were implemented as small components of larger road infrastructure and urban transport projects and were fragmented single sector initiatives with outcomes too small to be measured in any statistically significant way. While they were simple to prepare they were often one-off initiatives with no follow-up activities. *Safe System* projects on the other hand are preferably stand-alone, multisectoral initiatives targeting high-risk corridors and areas, with outcomes large enough to be reliably measured. A crucial feature of these projects is that their management arrangements should model the vital lead agency contribution to directing and sustaining the production of improved road safety results and be designed to maximize the potential for the lead agency to rapidly assert itself in this role and build its capacity accordingly. *Safe System* projects are complex to prepare and represent the first step in a longer program of initiatives designed to roll-out successful elements of the project to the wider road network. They are grounded in practice using a learning by doing process backed with sufficient targeted investment to overcome the barriers presented by weak institutional capacity. It was initially thought that the level of investment required for such projects would dictate a need for large stand-alone initiatives, but recent experience suggests that small components of larger road infrastructure and urban transport projects can be effective, providing they are designed to meet *Safe System* project objectives, as presented in these guidelines.

4.3.1 Set project objectives

For the establishment phase of the investment strategy project concepts should address core objectives. Related objectives can address specific capacity review findings more specifically where appropriate.

(i) Core objectives

Core project objectives can be broadly specified as follows:

- ❏ To accelerate the transfer of road safety knowledge to project participants.
- ❏ To rapidly strengthen the capacity of the lead agency and participating agencies and stakeholders.
- ❏ To achieve quick proven results and obtain benchmark performance measures to dimension a national roll-out program.

(ii) Related objectives

More specific project objectives concerning reforms of institutional management functions and interventions will be shaped by the capacity review findings.

4.3.2 Determine scale of project investment

The project concept should address the scale of the proposed project investment. This will be determined by available sources of funding, but investment should be sufficient to guarantee the achievement of at least the core project objectives.

Capacity review findings will help influence this budget decision, although normally the capacity review would not have been undertaken without first being linked to a funding commitment in principle that offered significant investment opportunities at a scale conducive to sustainable success (see section 4.2.7 (i)).

(i) Stand-alone versus component

Stand-alone road safety projects are preferable as they require more visible and accountable ownership and are more likely to ensure a level of investment that can achieve measurable results on a significant scale.

However, in low and middle-income countries where funding is scarce it is likely that road safety projects will often be components of larger road sector investments or just small stand-alone investments. Recent experience suggests these small projects can be effective providing they are properly designed to deliver on the core project objectives identified in section 4.3.1 (i) which reflect *Safe System* project characteristics (see Box 6).

(ii) Set project budgets

During the establishment phase of the investment strategy significant project budgets will be required to commence the process of bringing safety outcomes sustainably under control.

Large-scale stand-alone projects addressing multiple interventions will generally require budgets of at least $30 million and go as high as $100 million or more.

Projects on this scale addressing a narrow range of interventions such as systematic safety engineering programs targeting network hazards will also be effective, providing all elements of the safety management system relevant to their delivery are addressed.

Single multi-sectoral interventions addressing key safety behaviors such as speeding, motor cycle helmets or drink driving, or post-crash pre-hospital services, could be effectively delivered with budgets as low as $1–5 million, providing they are tightly targeted with their resources concentrated on small corridors or areas of the road network to ensure that measurable results can be achieved.

4.3.3 Identify project partnerships

It is important that the project is designed to maximize the opportunities to engage all relevant partners and stakeholders who share an interest in its outcomes and a potential to contribute to improving these. Key examples of possible partners are outlined below.

(i) Global and regional partners

Recommendation six of the *World Report* called for a scaling up of international efforts to build a global and regional partnership focused on strengthening capacity at the country level to deal with the growing road safety crisis and projects should be designed to maximize potential engagement with global and regional partners.

In particular, the FIA Foundation for the Automobile and Society, the Global Road Safety Partnership, the World Bank and the World Health Organization have collaborated to produce a series of good practice manuals to provide guidance to countries wishing to implement interventions recommended by the *World Report*, and potential partnerships with these organizations should be explored (see section 4.3.4 (ii), Improved safety behaviors).

(ii) Local research centers

In high-income countries road safety performance has been considerably enhanced by the independent contributions made by local research centers which have helped to guide the design and implementation of national strategies that have sustained reductions in road deaths and injuries (see section 4.3.6 (i)).

Opportunities should be sought to engage local research centers in project preparation and implementation. In particular, the independent conduct of the project monitoring and evaluation activities could be undertaken by a local research center and this would contribute to their in-house capacity building objectives as well as transferring knowledge and skills to participating agencies and building partnerships with them.

(iii) Community groups and NGOs

Projects should also be designed to maximize opportunities to engage community groups and NGOs active in the targeted corridors and areas to ensure that their specific contributions can be made and their capabilities further enhanced in the process.

Community groups and NGOs can help intensify community ownership of the project objectives and they are capable of achieving this effectively with relatively low budgets, providing they are well integrated into the project from the outset and can engage meaningfully in its ongoing management and implementation.

(iv) Private sector

Likewise projects should be designed to maximize opportunities to engage private sector organizations who are seeking to contribute knowledge and resources to improve road safety outcomes in the communities that they are working in.

Again it is important to find ways to integrate private sector partners into the project from the outset and to ensure their effective engagement in its ongoing management and implementation.

4.3.4 Specify project components

The project concept should address three broad components which will require clear identification, based on the findings of the capacity review. These relate to institutional capacity strengthening priorities, targeted interventions in high-risk corridors and areas, and policy reforms where weaknesses have been identified.

(i) Capacity strengthening priorities

Lead agency

An essential element of the project concept will be to create a central role for the lead agency that enables it to deliver effectively on its institutional management functions and build and strengthen its leadership and partnership capacity in the process. This role should be tightly defined and operationalized in the project management arrangements, as discussed in section 4.3.5.

It is important that any initiatives designed to improve country road safety performance are centered on the lead agency role and driven from the fundamental objective of strengthening national leadership, in accordance with the priority given to this by the key and overarching *World Report* recommendation.

Particular attention should be paid to the leadership required to provide effective project management and related inter-agency coordination functions.

Other institutional reforms

While the high priority concerns strengthening of the lead agency role, the findings of the capacity review will identify other priorities for institutional reform. Where relevant these can be addressed in the project design.

For example, a related project priority is the establishment of a monitoring and evaluation framework and the specification of baseline and ongoing performance measures and associated programs for their collection, collation and interpretation. Emphasis should also be placed on the development of national crash analysis systems.

Reform of national partnership coordination is also likely to be a high priority and this can be addressed in the project management arrangements (see section 4.3.5 below).

(ii) High-risk corridors and areas to be targeted

The project concept should identify the high-risk corridors and areas to be targeted by the project. To produce rapid results the project must target high concentrations of death and injuries in the road network to maximize the scale and of likely benefits and certainty of achieving them.

The bulk of road deaths and injuries are usually incurred on a small portion of national and city networks and can be targeted accordingly. This simply reflects the concentration of traffic on key network corridors and areas where high speeds are experienced (see section 3.3.2).

In the absence of quality crash data it is still possible to locate the most dangerous corridors by identifying high traffic volume, high speed corridors, where higher densities of fatal and serious injury crashes are known to occur and can be anticipated.

A summary of interventions that can be considered for implementation in the high-risk corridors and areas is provided in the *World Report* (WHO, 2004).[5] In accordance with the road safety management framework system discussed in section 3.1, the interventions should address the planning, design, operation and use of the network, and the recovery and rehabilitation of crash victims from the road network. The entry and exit of vehicles and drivers to the road network should be addressed as a policy reform issue (see section 4.3.4 (iii)).

Hence the focus of interventions in the high-risk corridors should be on improving the safety of infrastructure, road user behaviors and post-crash responses.

Infrastructure safety improvements

When crash data is limited traditional black spot elimination approaches to infrastructure safety improvements in high-risk corridors are ill-advised as it is difficult to assess their effectiveness in safety terms.

An improved approach is to identify hazardous locations in terms of the expected number of crashes and using before-and-after statistical analyses of the related infrastructure safety improvements (Elvik, 2007).[6] Over the last decade traditional black spot management has also been supplemented with a more systematic network analysis, called network safety management. However, both black spot and network safety methods are reactive and depend on several years of reliable crash data which can be difficult to find in low and middle-income countries.

Where reliable crash data are unavailable, a pro-active approach is recommended to assess the small proportion of the network where the majority of crash fatalities and serious injuries occur using a mixture of road inspection and available macro casualty and traffic flow data (see section 3.3.2). The International Road Assessment Program (iRAP, 2007)[7, 8] provides road safety inspection tools which systematically rate the safety of roads and identify related mass action infrastructure investment programs and likely safety benefits in term of lives saved, injuries avoided and economic returns (see Box 7).

Improved safety behaviors

General deterrence-based traffic safety enforcement and education measures in high-risk corridors should be developed to seek compliance with alcohol limits, seat-belt and helmet usage, and speed limits in the targeted corridors and areas (see Box 8). Good practice guidelines to assist the preparation of these interventions have been produced in partnership by the FIA Foundation for the Automobile and Society, the Global Road Safety Partnership, the World Bank and the World Health Organization, and they can be used to assist project preparation and implementation (World Health Organization, 2006; Global Road Safety Partnership, 2007 & 2008; FIA Foundation, 2008).[9, 10, 11, 12]

Other safety behaviors such as commercial driver fatigue and drugged driving may also be an issue in the identified high-risk corridors and these too should be targeted with general deterrence-based police operations.

Box 7: The International Road Assessment Programme (iRAP)

iRAP tools and procedures are used to prepare infrastructure safety programs in a systematic way. In broad terms they specify the safety of network sections inspected in terms of star ratings or protection scores which indicate how well in the event of common types of road crash (e.g., head-on crashes, hitting unforgiving roadside objects, brutal side impacts at road junctions, running over pedestrians) they protect road users from death and serious injury. These ratings are analogous to the safety ratings which indicate the crashworthiness of vehicles and they range from 1 star, which reflects poor safety quality, through to 5 star, which reflects high safety quality. iRAP tools then generate optional infrastructure programs to improve the safety ratings of the network sections inspected and the associated costs and benefits of doing so. These in turn provide systematic programs of network safety upgrading and ongoing monitoring and evaluation to ensure that the desired safety improvements are delivered. In this way the iRAP approach provides a transparent performance management framework that is easily understood by all parties concerned (road operators, road users, road funders, donors, politicians and community members) and which unambiguously puts the emphasis on assuring the health and safety of road users and providing objective measures of how well this is being achieved (iRAP, 2007).[7,8]

Box 8: General deterrence-based traffic safety enforcement

With the emergence of targeted safety programs (see section 3.1.4 (iii)) the approach to traffic safety enforcement shifted from an offender apprehension model to a general deterrence model where all road users were targeted. Traffic safety enforcement became focused on injury prevention measures and improved safety behaviors such as reduced speeds, less drink driving and increased wearing of safety belts and helmets were promoted as contributing to reduced deaths and injuries.

Traffic safety enforcement aims at controlling road user behavior by preventative, persuasive and punitive measures designed to achieve the safe and efficient movement of traffic. It consists of legislation and related road user penalties to govern the safe use of the traffic system, and traffic policing and coordinated social marketing campaigns targeting key safety behaviors aimed at ensuring road user compliance with safety standards and rules. Enforcement outcomes depend upon (1) the perceived risk of detection, (2) the severity of the punishment, and (3) the immediacy of the punishment. Drivers are deterred from offending to the extent that they think they will be caught, and then severely and swiftly punished. Offenders who are caught and punished may change their behavior as a result of the experience. Where this occurs, it is known as *specific deterrence.* But many others also change their behavior, not because of the punishment experience, but because of the threat of it. This is known as *general deterrence.*

Enforcement begins with observation. The aim is not so much to catch offenders but to deter them. Observation is of course costly. It would for instance be prohibitively expensive to observe all road traffic all the time, though this situation is changing with improved automated camera technologies. What is needed in targeted high-risk corridors is to make drivers think that they are being observed, or might be being observed, even when they are not. This can only be achieved through the use of general deterrence measures (Bliss et al., 1998).[13]

Box 9: Improved emergency medical and rehabilitation services

Effective post-crash care is characterized by efficient emergency notification, fast transport of qualified medical personnel, correct diagnosis at the scene, stabilization of the patient, prompt transport to point of treatment, quality emergency room and trauma care, and extensive rehabilitation services.

Post-crash care improvement must address the chain of interventions which can commence with bystanders at the scene of the crash, through to emergency rescue, care and trauma services, on to longer-term rehabilitation. In low and middle-income countries attention to pre-hospital care is important, especially in terms of training for first-responders, improving access to the emergency medical system, and coordinating emergency rescue services. Basic improvements in the hospital setting are also important, addressing human resources and trauma-related equipment, some of which is not expensive.

High returns can be expected from these interventions. For example, a data analysis of crash risks in India compared to Sweden indicated that while crash risks in terms of vehicle kilometres travelled were only 50% higher in India and casualties per crash 60% higher, the ratio of fatalities to injuries was 3.8 times higher which indicated that improvements in rescue systems and emergency medical care in India would be highly beneficial (Carlsson et al., 1990).[16]

Rehabilitation services are also an essential component of comprehensive post-hospital care. Related to this, third-party motor vehicle insurance schemes provide an important mechanism to fund essential services and reduce poverty impacts.

Improved post-crash response

Where existing services are poor significant benefits can accrue to improved pre-hospital and victim recovery services in the identified high-risk corridors and areas, and targeted programs should be developed to address this priority (see Box 9). Guidelines produced by the World Health Organization can be used to assist the preparation and implementation of these services (WHO, 2004 & 2005).[14, 15]

It is important that post-crash responses are integrated with the other preventative measures being taken in the targeted high-risk corridors and areas, as this will ensure

Table 4: Road safety performance measures

Category	Examples of possible measures
Risk exposure	• Traffic volumes by vehicle and road user type
Final safety outcomes	• Deaths and injuries recorded by police • Hospital data for road deaths and injuries recorded by health authorities • Other sources of death and injury registration
Intermediate safety outcomes	• Average vehicle speeds by road type, summer and winter • Front and back seat safety belt wearing rates, driver and passengers • Motor cycle helmet wearing rates, driver and pillion • Drug impairment levels • Skid resistance of road surfaces • Road infrastructure crash safety ratings (risk and protection scores) • Vehicle compliance with testing standards • Vehicle crash safety ratings • Average emergency medical services response times • Targeted audience groups' recall and assessed relevance of publicity and awareness campaign messages • Community attitudes to road safety
Intervention outputs	• Number of safety engineering treatments per section of road network • Number of emergency medical services responses to road network crashes • Hours of police enforcement targeting high risk behaviors • Numbers of police infringement notices issued • Media frequency and reach of publicity and awareness campaigns supporting police enforcement • Hours of school-based education activities • Volume of driver training, testing and licensing activities • Volume of vehicles tested

that they are appropriately dimensioned in terms of level of service required, rather than over-supplying services where preventative measures are lacking.

Performance targets

Performance targets should be set for the identified high-risk corridors and areas. These should take the form of final outcomes, intermediate outcomes, and outputs (see section 3.1.3). Every effort must be made to get reliable baseline estimates of current performance in the targeted corridors and areas and this will require combining available police and health sector data. Examples of performance target measures are presented in Table 4.

It is important that performance targets are ambitious and it should be recognized that the project aims to determine what can be achieved with the systematic application of good practice measures. In this regard lack of achievement of ambitious targets should not be viewed as a project failure, as the project should be designed as a learning by doing exercise (see section 3.3.2) which aims to produce tangible evidence of what can be achieved under prevailing country conditions. These country conditions may differ considerably from those experienced in good practice environments that set the performance expectations.

(iii) Policy reforms

In parallel with the focus on high risk corridors and areas the project concept should address national policy reform priorities identified by the capacity review. Where relevant and feasible, addressing these priorities should be integrated with initiatives in high-risk corridors and areas to enhance the evidence base for policy reform.

For example, building on the findings of the capacity review, entry and exit requirements for drivers and vehicles (both private and commercial) may require further benchmarking against good international practice, to identify areas for improvement. Information to support this policy reform process may be provided by enforcement and monitoring initiatives conducted in the project high-risk corridors and areas. Other reform initiatives such as reviewing funding and resource allocation processes, or legislative reviews, may be conducted separately from high-risk corridor and area initiatives, but again they could still benefit from evidence of road safety performance and related issues gained during the corridor and area programs.

4.3.5 Confirm project management arrangements

Following completion of the project concept in terms of its objectives, scale, capacity building priorities and re-

sults focus, it becomes important to finalize and confirm the project management arrangements. The early resolution of this requirement is vital to ongoing project success as it is essential that all partners have a shared understanding of the project's objectives and how it will be managed to achieve them.

(i) Lead agency role

The project management arrangements should model the vital lead agency contribution to directing and sustaining the production of improved road safety results and be designed to maximize the potential for the lead agency to rapidly assert itself in this role and build its capacity accordingly. This is particularly crucial given the multi-sectoral nature of projects and the propensity for participating agencies in the absence of clear leadership to revert to managing their particular contributions within their own agency frameworks with little reference to the shared focus on results and the coordination task required to maximize project effectiveness.

Considerable effort should be put into ensuring that the lead agency role is well understood, acknowledged and accepted by other agencies and external groups participating in the project, as this will prove crucial to ongoing project success in terms of building lead agency capacity.

(ii) Coordination

Coordination concerns the orchestration and alignment of the interventions and other related institutional management functions delivered by government partners and related community and business partnerships, to achieve the desired focus on results (see section 3.1.1 (ii) and Annexes 2–4). The emphasis in coordination is upon building effective working relationships across the road safety partnership for decision-making and consultative purposes (see Box 10).

The lead agency role is closely aligned and related to the achievement of effective project coordination (see Annex 2). National coordinating bodies may exist, but unless their membership includes agencies fully accountable and funded for road safety results, experience suggests they will be ineffective. In good practice countries these coordinating bodies are usually the extension of accountable lead agencies that own and use them as platforms for mobilizing resources and coordinating and focusing multi-sectoral partnerships, in pursuit of agreed results.

Project management arrangements should be integrated with existing coordination mechanisms. Where these do not exist the opportunity should be taken to create them in the context of the project with the design and implementation of structures and processes that can ultimately expand to take on the national task to deliver the long-term investment strategy. Where a national coordination body already exists this should take the role of the project Steering Committee. In the absence of such a body the Steering Committee should be structured as a nascent national coordination body, with a view to it growing into this role over the life of the project and becoming more formalized to oversee the national rollout program recommended on the basis of the results achieved by the project.

Likewise where a lead agency already exists it should take the role of supporting the coordination structures and processes with the necessary expertise and resources. It is essential that a central role is created for the lead agency that enables it to deliver effectively on its institutional management functions and build and strengthen its leadership and partnership capacity in the process. In the absence of a lead agency the opportunity should be taken by the project to designate the lead agency and to establish and resource a small lead agency secretariat which

Box 10: Coordination structures and working procedures

Coordination structures should engage project participants on at least three decision-making and consultative levels: agency leaders, senior agency managers, and external partners and stakeholders. This suggests that the basic project management arrangements should at least include a high-level Steering Committee which comprises agency heads, a senior managers' Working Group, and an extended senior managers' Consultative Group that includes wider community representation. These project management arrangements would be supported by expertise and resources provided by the lead agency.

The high-level Steering Committee would need to meet around four times a year to track project progress and take related decisions and provide guidance where necessary. The senior managers' Working Group would meet on a more regular basis to guide the day to day management of the project, and the Consultative Group would meet as required to address relevant project issues which required community input (see Annexes 2–4 for examples of arrangements in Australia and New Zealand which reflect these types of structures and processes).

can support the project management arrangements. As with the Steering Committee, the intention should be for the secretariat to grow in capacity over the life of the project and be further strengthened to oversee the recommended national rollout program based on the project's findings.

Coordination structures and processes must be adjusted to reflect the project partnerships that have been created to enhance project effectiveness. It is important to find ways to integrate community groups, NGOs and private sector partners into the project from the outset, to ensure their effective engagement in its ongoing management and implementation. This could include their core membership of the project Steering Committee, Working Group and Consultative Group, where appropriate.

4.3.6 Specify monitoring and evaluation procedures

Monitoring and evaluation procedures for the targeted high-risk corridors and areas should be addressed as an integral element of the project concept.

(i) Procedures

The design and management of monitoring and evaluation procedures should generally be a lead agency responsibility but the actual data collection may be carried out by other agencies, as in the case of police crash reporting, or consulting firms for seatbelt and cycle helmet usage surveys. As noted in section 4.3.3 (iii) it may also be appropriate to have the project monitoring and evaluation programs carried out by a local research center, if such an entity with sufficient capacity exists to undertake this function.

Monitoring and evaluation requirements also require early resolution to ensure that baseline performance measures in the targeted high-risk corridors and areas and ongoing measurement programs are implemented in a timely fashion and contribute to active management of the project. Control corridors and areas should also be identified and included in baseline and ongoing measurement programs.

Project monitoring and evaluation procedures should be designed with a view to rolling them out more systematically across the network once they have been established and proven to be operationally efficient and effective.

(ii) Reporting

Related to the project management and monitoring and evaluation requirements is the need to reach early agreement on the project performance reporting requirements. Again it is vital to have consensus across the project partners on the process, content and timing of project reporting arrangements.

4.3.7 Prepare detailed project design

Detailed design of the project can commence once agreement has been reached on the project concept and related management and monitoring and evaluation and reporting arrangements for the targeted high-risk corridors and areas. Successful implementation of the investment strategy hinges on designing projects that accelerate the transfer of road safety knowledge to participants, strengthen the capacity of participating partners and stakeholders, and rapidly produce results that provide benchmark measures to dimension a national roll-out program.

Accelerating the transfer of knowledge and strengthening capacity must be grounded in practice by a learning by doing process backed with sufficient targeted investment to overcome the barriers presented by the revealed capacity weaknesses at the global, regional and country levels (see section 3.3.2).

The project design should clearly specify all required outputs for each component and where relevant their linkages with the overall performance targets set for the high-risk corridors and areas covered by the project.

4.3.8 Address project implementation priorities

To ensure efficient and effective project implementation and achievement of project objectives the following priorities must be closely addressed:

(i) Role of technical assistance

In situations where road safety management capacity is weak, strong reliance will be placed on recruiting external technical assistance support to help guide project implementation. It is crucial that this assistance is provided first and foremost in the form of a mentoring role to local staff who will undertake the tasks concerned, rather than being seen as external expertise that has been hired to take responsibility for their delivery. This is particularly relevant to the overall strategic management of the project, but it also relates to more specialized technical tasks.

Recognition of this priority to ensure that local staff are empowered and challenged to take responsibility for project implementation will influence the nature and specification of external technical assistance packages. It will require a shift from the more common approaches of the past where external consulting teams would provide self-contained, expert services, leaving in many cases limited residual local capacity once the consulting teams departed. This approach has proved to be unsustainable.

A high priority must be placed on providing technical assistance to support the project at a strategic management level where strong local leadership skills must be developed and to help guide related institutional reform and restructuring initiatives. Emphasis should be placed on providing a more process orientated style of technical assistance where external experts work alongside local staff in mentoring roles to help accelerate knowledge transfer and build institutional capacity on a more sustainable basis.

(ii) Promotion

Comprehensive promotion of the project is also crucial to achieving capacity building objectives and engendering a shared societal responsibility to support the delivery of the interventions required to achieve the desired focus on results. This must go beyond the understanding of promotion as road safety advertising supporting particular interventions and address the overall level of ambition set by government and society to improve road safety performance in the longer term in accordance with the long-term investment strategy.

As a priority the project should include a communications campaign to launch the long-term investment strategy and promote its goals by highlighting the tangible project actions that are implemented to achieve them. In this regard the project should be promoted in the context of the government's broader road safety strategy and presented as a concrete example of the type of the initiatives that that will be taken in partnership with the wider community to benefit them and the nation. The project should also include more specific public education campaigns designed to support project activities targeting key safety behaviors in the corridors and areas concerned and these should be integrated with the broader strategic promotion of the project.

(iii) Knowledge transfer and roll-out program

A core project objective is the achievement of quick and proven safety results in high-risk corridors and areas and the development of benchmark performance measures to dimension a national roll-out program of successful initiatives to the remaining high-risk corridors and areas. This places a high priority on ensuring that the monitoring and evaluation procedures are effective and that the focus on results to be achieved underpins the leadership and coordination of the project during its implementation. It also places a high priority on sustaining the emphasis on transferring good practices into the country concerned and accepting the challenges of innovation and learning by doing that this entails.

The aim is to accelerate knowledge transfer and build country capacity in a targeted process that demonstrates when good practice measures are taken road safety performance can be dramatically improved. In this way the business case for higher levels of sustained investment can be prepared, built on a platform of strengthened country capacity and proven success.

Above all, it should be clearly understood that the project is the first step in a longer process. An overarching strategic priority must be placed on ensuring that the project's research and development and knowledge transfer potential is fully realized.

4.4 Conclusions

These guidelines have been prepared to assist the implementation of the recommendations of the *World Report on Road Traffic Injury Prevention*. In keeping with modern road safety management practice the guidelines promote a *Safe System* approach which also contributes to the achievement of other high priority global, regional and country development goals of sustainability, harmonization and inclusiveness.

The successful implementation of the *World Report* recommendations requires them to be treated as a totality and the process of doing so will take at least a decade in low and middle-income countries. Counties must first assess their road safety management capacity and state of readiness to commit to the long-term reforms and investments necessary to bring safety outcomes under control. The guidelines provide diagnostic tools which appraise

the underlying conditions which determine country success or failure and the best way forward. They set out a two-stage process for generating country investment which addresses and overcomes the barriers imposed by weak road safety management capacity. They ensure that measures taken are properly sequenced and adjusted to the absorptive and learning capacity of the country concerned. However, their effective application must be supported by recognized road safety specialists with successful strategic management experience at country and international levels.

Each country faces unique circumstances and challenges, but a key conclusion to be drawn from the high-income country case studies provided in Annexes 2–4 is that road safety management at the country level is a complex business. In this regard the complexity of the institutional arrangements in high-income countries can be viewed as a surrogate indicator of success and the commitment to sustained road safety investment. The case studies are instructive in their own right in terms of highlighting the institutional arrangements and scale of investment evident in high-income countries where safety outcomes are successfully managed and performance shows continuous improvement. They merit the close attention of low and middle-income countries seeking to bring their safety outcomes more rapidly under control.

An important message of the guidelines is that the implementation of the *World Report* recommendations must be grounded in practice by a learning by doing process backed with sufficient targeted investment to overcome the barriers presented by weak institutional capacity. In this regard the guidelines provide useful tools, but their value is contingent on a country's willingness to support and promote their use with strong institutional leadership and sustained investment on a scale that produces substantial and measurable results.

References

1. Bliss T (2004). *Implementing the Recommendations of the World Report on Road Traffic Injury Prevention*, Transport Note TN-1, The World Bank, Washington, DC.
2. Wegman F, Snoeren P (2005). *Review of Road Safety Management Capacity in Low and Middle-Income Countries,* SWOV, Dutch Institute for Road Safety Research, Leidschendam.
3. Lawrence M (2006). *Review of the Road Safety Capacity Review Methodology Contained in World Bank Transport Note (TN-1)*, World Bank, Washington DC.
4. Howard E, Breen J (2006–2008*). Road safety management capacity reviews in Ukraine, Armenia, Bosnia and Herzegovina. Serbia, Bangladesh.* World Bank, Washington DC.
5. Eds. Peden M, Scurfield R, Sleet D, Mohan D, Hyder A, Jarawan E, Mathers C (2004). *World Report on Road Traffic Injury Prevention*, World Health Organization, Geneva.
6. Elvik R (2007). *State-of-the-art approaches to road accident black spot management and safety analysis of road network,* Institute of Transport Economics, Norway.
7. International Road Assessment Program (2007). *Getting Organized to Make Roads Safe*, Basingstoke, United Kingdom.
8. International Road Assessment Program (2008). *Vaccines for Roads. The new iRAP tools and their pilot application,* Basingstoke, United Kingdom.
9. FIA Foundation for the Automobile and Society (2008). *Seat-belts and child restraints: a road safety manual for decision-makers and practitioners,* London.
10. Global Road Safety Partnership (2007). *Drinking and driving: a road safety manual for decision-makers and practitioners,* Geneva.
11. Global Road Safety Partnership (2008). *Speed Management: a road safety manual for decision-makers and practitioners,* Geneva.
12. World Health Organization (2006). *Helmets: a road safety manual for decision-makers and practitioners,* Geneva.
13. Bliss T, Guria J, Lauridsen G, Rockliffe N, Strachan G (1998). *An international comparison of road safety enforcement,* Safety Directions Working Paper 3, Land Transport Safety Authority, Wellington.
14. World Health Organization (2005). *Prehospital trauma care systems*, Geneva.
15. World Health Organization (2004). *Guidelines for essential trauma care*, Geneva.
16. Carlsson G, Hedman K-O (1990). *A Systematic Approach to Road Safety in Developing Countries*, Swedish Natiional Road Administration and the World Bank, Washington DC.

Annexes

ANNEX 1: UN GENERAL ASSEMBLY AND WORLD HEALTH ASSEMBLY RESOLUTIONS ON GLOBAL ROAD SAFETY

United Nations A/RES/58/289

General Assembly

Distr.: General
11 May 2004

Fifty-eighth session
Agenda item 160

Resolution adopted by the General Assembly

[*without reference to a Main Committee (A/58/L.60/Rev.1 and Add.1)*]

58/289. Improving global road safety

The General Assembly,

Recalling its resolutions 57/309 of 22 May 2003 and 58/9 of 5 November 2003,

Having considered the report of the Secretary-General on the global road safety crisis,[1]

Noting the recommendation contained in the report of the Secretary-General that a coordinating body be identified within the United Nations system to provide support in this field[2] and the recommendation that the United Nations regional commissions undertake certain activities,[3]

Convinced that responsibility for road safety rests at the local, municipal and national levels,

Recognizing that many developing countries and countries with economies in transition have limited capacities to address these issues, and underlining, in this context, the importance of international cooperation towards further supporting the efforts of developing countries, in particular, to build capacities in the field of road safety, and of providing financial and technical support for their efforts,

Commending the initiative of the Government of France, the World Health Organization and the World Bank in launching the *World Report on Road Traffic Injury Prevention* in Paris on 7 April 2004, in observance of World Health Day, with the theme "Road safety is no accident", which contains a number of recommendations,

Also commending the United Nations regional commissions and their subsidiary bodies for responding to the above-mentioned resolutions and to the report of the Secretary-General,

1. *Takes note* of the recommendations contained in the *World report on road traffic injury prevention*;

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[1] A/58/228.

[2] Ibid., para. 44 (*a*).

[3] Ibid., para. 44 (*k*).

2. *Invites* the World Health Organization, working in close cooperation with the United Nations regional commissions, to act as a coordinator on road safety issues within the United Nations system;

3. *Requests* the Secretary-General, in submitting his report to the General Assembly at its sixtieth session in accordance with resolution 58/9, to draw upon the expertise of the United Nations regional commissions, as well as the World Health Organization and the World Bank;

4. *Underlines* the need for the further strengthening of international cooperation, taking into account the needs of developing countries, to deal with issues of road safety.

84th plenary meeting
14 April 2004

United Nations A/RES/60/5

General Assembly

Distr.: General
1 December 2005

Sixtieth session
Agenda item 60

Resolution adopted by the General Assembly

[*without reference to a Main Committee (A/60/L.8 and Add.1)*]

60/5. Improving global road safety

The General Assembly,

Recalling its resolutions 57/309 of 22 May 2003, 58/9 of 5 November 2003 and 58/289 of 14 April 2004 on improving global road safety,

Having considered the report of the Secretary-General on the global road safety crisis,[1]

Commending the World Health Organization for its role in implementing the mandate conferred upon it by the General Assembly in its resolution 58/289 to act, working in close cooperation with the United Nations regional commissions, as a coordinator on road safety issues within the United Nations system,

Also commending the United Nations regional commissions and their subsidiary bodies for having responded to the above-mentioned resolutions and to the report of the Secretary-General by accelerating or expanding their road safety activities,

Noting with satisfaction the progress made by the United Nations Road Safety Collaboration as described in the report of the Secretary-General,[2] as well as the road safety initiatives undertaken by relevant United Nations agencies and international partners,

Underlining the importance for Member States to continue using the *World Report on Road Traffic Injury Prevention* as a framework for road safety efforts and implementing its recommendations by paying particular attention to the five risk factors identified, namely, the non-use of safety belts and child restraints; alcohol; the non-use of helmets; inappropriate and excessive speed; and the lack of infrastructure,[3]

Welcoming the proposal of the Economic Commission for Europe to host the first United Nations Global Road Safety Week, in Geneva in April 2007, targeted at young road users, including young drivers,

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[1] A/60/181 and Corr.1.

[2] Ibid., para. 32.

[3] Ibid., para. 37 (*f*) and (*g*).

Also welcoming the proposal to designate the third Sunday in November as the World Day of Remembrance for Road Traffic Victims, in recognition of road traffic victims and their families' loss and suffering,[4]

Convinced that responsibility for road safety rests at the local, municipal and national levels,

Recognizing that many developing countries and countries with economies in transition have limited capacities to address these issues, and underlining, in this context, the importance of international cooperation towards further supporting the efforts of developing countries, in particular, to build capacities in the field of road safety and of providing the financial and technical support associated with such efforts,

1. *Expresses its concern* at the continued increase, in particular in developing countries, in traffic fatalities and injuries worldwide;

2. *Reaffirms* the importance of addressing global road safety issues and the need for the further strengthening of international cooperation, taking into account the needs of developing countries, by building capacities in the field of road safety, and providing financial and technical support for their efforts;

3. *Encourages* Member States and the international community, including international and regional financial institutions, to lend financial, technical and political support, as appropriate, to the United Nations regional commissions, the World Health Organization and other relevant United Nations agencies for their efforts to improve road safety;

4. *Invites* the United Nations regional commissions, relevant United Nations agencies and international partners to continue the existing road safety initiatives, and encourages them to take up new ones;

5. *Encourages* Member States to adhere to the 1949 Convention on Road Traffic[5] and the 1968 Convention on Road Traffic[6] and Convention on Road Signs and Signals,[7] in order to ensure a high level of road safety in their countries, and also encourages them to strive to reduce road traffic injuries and mortality in order to achieve the Millennium Development Goals;

6. *Stresses* the importance of the improvement in the international legal road traffic safety norms, and welcomes in this regard the work of the Working Party on Road Traffic Safety of the Inland Transport Committee of the Economic Commission for Europe in the elaboration of a substantial package of amendments to the 1968 Conventions on Road Traffic and Road Signs and Signals;

7. *Invites* Member States to implement the recommendations of the *World Report on Road Traffic Injury Prevention*, including those related to the five main risk factors, namely, the non-use of safety belts and child restraints; the non-use of helmets; drinking and driving; inappropriate and excessive speed; as well as the lack of appropriate infrastructure;

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[4] Ibid., para. 37 (*i*).

[5] United Nations, *Treaty Series*, vol. 125, No. 1671.

[6] Ibid., vol. 1042, No. 15705.

[7] Ibid., vol. 1091, No. 16743.

8. *Also invites* Member States to establish a lead agency, on a national level, on road safety and to develop a national action plan to reduce road traffic injuries, by passing and enforcing legislation, conducting necessary awareness-raising campaigns and putting in place appropriate methods to monitor and evaluate interventions that are implemented;

9. *Invites* the United Nations regional commissions and the World Health Organization to organize jointly, within their resources as well as with voluntary financial assistance from concerned stakeholders from government, civil society and the private sector, the first United Nations Global Road Safety Week to serve as a platform for global and regional, but mainly national and local, activities to raise awareness about road safety issues and to stimulate and advance responses as appropriate for these settings, and to convene a second road safety stakeholders' forum in Geneva as part of the Global Road Safety Week to continue work begun at the first forum held at United Nations Headquarters in 2004;

10. *Invites* Member States and the international community to recognize the third Sunday in November of every year as the World Day of Remembrance for Road Traffic Victims as the appropriate acknowledgement for victims of road traffic crashes and their families;

11. *Requests* the Secretary-General to report to the General Assembly at its sixty-second session on the progress made in improving global road safety;

12. *Decides* to include in the provisional agenda of its sixty-second session the item entitled "Global road safety crisis".

38th plenary meeting
26 October 2005

United Nations A/RES/62/244

General Assembly

Distr.: General
25 April 2008

Sixty-second session
Agenda item 46

Resolution adopted by the General Assembly

[*without reference to a Main Committee (A/62/L.43 and Add.1)*]

62/244. Improving global road safety

The General Assembly,

Recalling its resolutions 57/309 of 22 May 2003, 58/9 of 5 November 2003, 58/289 of 14 April 2004 and 60/5 of 26 October 2005 on improving global road safety,

Having considered the note by the Secretary-General transmitting the report on improving global road safety,[1]

Noting with appreciation the adoption on 23 May 2007 of World Health Assembly resolution 60.22 on emergency care systems,[2]

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

Commending the World Health Organization for its role in implementing the mandate conferred upon it by the General Assembly to work with the United Nations regional commissions to coordinate road safety issues within the United Nations system, and the progress of the United Nations Road Safety Collaboration as a coordination mechanism whose members are providing Governments and civil society with good-practice guidelines to support action to tackle the major road safety risk factors,

Recognizing the work of the United Nations regional commissions and their subsidiary bodies in increasing their road safety activities and advocating for increased political commitment to road safety, and in this context also recognizing

[1] A/62/257.

[2] See World Health Organization, *Sixtieth World Health Assembly, Geneva, 14–23 May 2007, Resolutions and Decisions, Annexes* (WHA60/2007/REC/1).

the continuing commitment of the Economic Commission for Europe to global action in the elaboration of safety-related global technical vehicle regulations and amendments to the Convention on Road Traffic[3] and the Convention on Road Signs and Signals,[4] resolution 63/9 of 23 May 2007 of the Economic and Social Commission for Asia and the Pacific,[5] in which the Commission encouraged members to continue to act upon recommendations contained in the Ministerial Declaration on Improving Road Safety in Asia and the Pacific,[6] the Accra Declaration of African Ministers responsible for transport and health of 8 February 2007, the Declaration of San José on road safety of 14 September 2006 and resolution 279 (XXIV) of 11 May 2006 of the Economic and Social Commission for Western Asia on follow-up to implementation of components of the Integrated Transport System in the Arab Mashreq, including follow-up on road safety,[7]

Commending the World Bank for its initiative in establishing the Global Road Safety Facility, the first funding mechanism designed to support capacity-building and provide technical support for road safety at the global, regional and country levels, welcoming the financial assistance given to the Facility by the Governments of Australia, the Netherlands and Sweden, and by the FIA Foundation for the Automobile and Society, and encouraging more financial contributions to the Facility,

Commending also the World Health Organization and the United Nations regional commissions for organizing, in collaboration with the other members of the United Nations Road Safety Collaboration, the first United Nations Global Road Safety Week in April 2007, during which hundreds of events were held all over the world, including the World Youth Assembly for Road Safety and the second Stakeholders' Forum for Global Road Safety, in Geneva, which helped to draw attention to the fact that road traffic crashes have become the leading cause of death among young people aged between 10 and 24,

Taking note of all national and regional initiatives to improve awareness of road safety issues, including the second European Road Safety Day, to be observed on 13 October 2008,

Also taking note of the report of the Commission for Global Road Safety, *Make Roads Safe: A New Priority for Sustainable Development*, which links road safety with sustainable development and which calls for increased resources for road safety, a new commitment for road infrastructure assessment and a global ministerial conference on road safety under the auspices of the United Nations,

Expressing its concern at the continued increase in road traffic fatalities and injuries worldwide, in particular in developing countries,

Reaffirming the need for the further strengthening of international cooperation and knowledge-sharing in road safety, taking into account the needs of developing countries,

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[3] United Nations, *Treaty Series*, vol. 1042, No. 15705.

[4] Ibid., vol. 1091, No. 16743.

[5] See *Official Records of the Economic and Social Council, Supplement No. 19* (E/2007/39), chap. IV, sect. A.

[6] E/ESCAP/63/13, chap. IV.

[7] See *Official Records of the Economic and Social Council, Supplement No. 21* (E/2006/41), chap. I.

1. *Invites* Member States to actively participate in the development of the global road safety status report being prepared by the World Health Organization;

2. *Invites* all Member States to participate in the projects to be implemented by the United Nations regional commissions to assist low- and middle-income countries in setting their own national road traffic casualty reduction targets, as well as regional targets;

3. *Reaffirms* the importance of addressing global road safety issues and the need for the further strengthening of international cooperation, taking into account the needs of developing countries by building capacities in the field of road safety and providing financial and technical support for their efforts;

4. *Encourages* Member States to continue to strengthen their commitment to road safety, including by observing the World Day of Remembrance for Road Traffic Victims on the third Sunday of November every year;

5. *Invites* the World Health Organization and the United Nations regional commissions, in cooperation with other partners in the United Nations Road Safety Collaboration, to promote multisectoral collaboration by organizing, when appropriate, United Nations Global Road Safety Weeks, including Stakeholders' Forums for Global Road Safety;

6. *Encourages* organizations in both the private and the public sector with vehicle fleets, including agencies of the United Nations system, to develop and implement policies and practices that will reduce crash risks for vehicle occupants and other road users;

7. *Welcomes* the offer by the Government of the Russian Federation to host and provide the necessary financial support for the first global high-level (ministerial) conference on road safety, to be held in 2009, to bring together delegations of ministers and representatives dealing with transport, health, education, safety and related traffic law enforcement issues, to discuss progress in implementing the recommendations of the *World Report on Road Traffic Injury Prevention* and the General Assembly resolutions on improving global road safety, and provide an opportunity for Member States to exchange information and best practices;

8. *Decides* to include in the provisional agenda of its sixty-fourth session the item entitled "Global road safety crisis", and requests the Secretary-General to report to the General Assembly at that session on the progress made in improving global road safety.

87th plenary meeting
31 March 2008

FIFTY-SEVENTH WORLD HEALTH ASSEMBLY **WHA57.10**

Agenda item 12.7 **22 May 2004**

Road safety and health

The Fifty-seventh World Health Assembly,

Recalling resolution WHA27.59 (1974), which noted that road traffic accidents caused extensive and serious public health problems, that coordinated international efforts were required, and that WHO should provide leadership to Member States;

Having considered the report on road safety and health;[1]

Welcoming United Nations General Assembly resolution 58/9 on the global road-safety crisis;

Noting with appreciation the adoption of resolution 58/289 by the United Nations General Assembly inviting WHO to act as a coordinator on road safety issues within the United Nations system, drawing upon expertise from the United Nations regional commissions;

Recognizing the tremendous global burden of mortality resulting from road traffic crashes, 90% of which occur in low- and middle-income countries;

Acknowledging that every road user must take the responsibility to travel safely and respect traffic laws and regulations;

Recognizing that road traffic injuries constitute a major but neglected public health problem that has significant consequences in terms of mortality and morbidity and considerable social and economic costs, and that in the absence of urgent action this problem is expected to worsen;

Further recognizing that a multisectoral approach is required successfully to address this problem, and that evidence-based interventions exist for reducing the impact of road traffic injuries;

Noting the large number of activities on the occasion of World Health Day 2004, in particular, the launch of the first world report on traffic injury prevention,[2]

1. CONSIDERS that the public health sector and other sectors – government and civil society alike – should actively participate in programmes for the prevention of road traffic injury through injury surveillance and data collection, research on risk factors of road traffic injuries, implementation and evaluation of interventions for reducing road traffic injuries, provision of prehospital and trauma

[1] Document A57/10.

[2] *World report on road traffic injury prevention.* Geneva, World Health Organization, 2004.

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care and mental-health support for traffic-injury victims, and advocacy for prevention of road traffic injuries;

2. URGES Member States, particularly those which bear a large proportion of the burden of road traffic injuries, to mobilize their public-health sectors by appointing focal points for prevention and mitigation of the adverse consequences of road crashes who would coordinate the public-health response in terms of epidemiology, prevention and advocacy, and liaise with other sectors;

3. ACCEPTS the invitation by the United Nations General Assembly for WHO to act as a coordinator on road safety issues within the United Nations system, working in close collaboration with the United Nations regional commissions;

4. RECOMMENDS Member States:

(1) to integrate traffic injuries prevention into public health programmes;

(2) to assess the national situation concerning the burden of road traffic injury, and to assure that the resources available are commensurate with the extent of the problem;

(3) if they have not yet done so, to prepare and implement a national strategy on prevention of road traffic injury and appropriate action plans;

(4) to establish government leadership in road safety, including designating a single agency or focal point for road safety or through another effective mechanism according to the national context;

(5) to facilitate multisectoral collaboration between different ministries and sectors, including private transportation companies, communities and civil society;

(6) to strengthen emergency and rehabilitation services;

(7) to raise awareness about risk factors in particular the effects of alcohol abuse, psychoactive drugs and the use of mobile phones while driving;

(8) to take specific measures to prevent and control mortality and morbidity due to road traffic crashes, and to evaluate the impact of such measures;

(9) to enforce existing traffic laws and regulations, and to work with schools, employers and other organizations to promote road-safety education to drivers and pedestrians alike;

(10) to use the forthcoming world report on traffic injury prevention as a tool to plan and implement appropriate strategies for prevention of road traffic injury;

(11) to ensure that ministries of health are involved in the framing of policy on the prevention of road traffic injuries;

(12) especially developing countries, to legislate and strictly enforce wearing of crash helmets by motorcyclists and pillion riders, and to make mandatory both provision of seat belts by automobile manufacturers and wearing of seat belts by drivers;

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(13) explore the possibilities to increase funding for road safety, including through the creation of a fund;

5. REQUESTS the Director-General:

(1) to collaborate with Member States in establishing science-based public health policies and programmes for implementation of measures to prevent road traffic injuries and mitigate their consequences;

(2) to encourage research to support evidence-based approaches for prevention of road traffic injuries and mitigation of their consequences;

(3) to facilitate the adaptation of effective measures to prevent traffic injury that can be applied in local communities;

(4) to provide technical support for strengthening systems of prehospital and trauma care for victims of road traffic crashes;

(5) to collaborate with Member States, organizations of the United Nations system, and nongovernmental organizations in order to develop capacity for injury prevention;

(6) to maintain and strengthen efforts to raise awareness of the magnitude and prevention of road traffic injuries;

(7) to organize regular meetings of experts to exchange information and build capacity;

(8) to report progress made on the promotion of road safety and traffic injury prevention in Member States to the Sixtieth World Health Assembly in May 2007.

Eighth plenary meeting, 22 May 2004
A57/VR/8

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ANNEX 2: INSTITUTIONAL MANAGEMENT FUNCTIONS AND LEAD AGENCY ROLE

Overview

The seven institutional management functions underpinning good practice road safety performance summarized in section 3.1.1 of the main report are described in more detail in this Annex, as follows:

- Results focus
- Coordination
- Legislation
- Funding and resource allocation
- Promotion
- Monitoring and evaluation
- Research and development and knowledge transfer

The institutional structures and processes which deliver these management functions are examined, with detailed reference to the experience in several good practice jurisdictions (New Zealand, Great Britain, the Netherlands, Sweden, the Australian States of Victoria and Western Australia). These good practice jurisdictions present a mix of organizational approaches achieving differing levels of safety performance as well as differing strengths or levels of sophistication in their delivery.

Effective road safety management requires shared multi-sectoral responsibility for results. The focus of this Annex concerns the road safety management functions of the responsible government institutions which make the dominant contribution to improved road safety results. The participation and contribution of civil society and business entities in achieving the results sought by the national road safety strategy is addressed within the context of the government agencies' responsibilities.

While multi-sectoral activity benefits from an holistic system-wide approach there is always the possibility that shared road safety interests will be submerged by competing interests. Therefore, effective organization to achieve road safety results requires strong leadership and support from a lead governmental organization to transform multi-sectoral shared responsibility for road safety into concerted results-based action.

The lead agency plays a pre-eminent role in most of the institutional management functions, though sometimes it can adopt more of a guiding, encouraging or catalytic role. The lead agency takes responsibility within government for the development of the national road safety strategy and its results focus, the overarching institutional management function. It also usually takes responsibility for horizontal inter-governmental coordination arrangements; vertical coordination of national, regional and local activities; coordination of the necessary delivery partnerships between government partners and stakeholders, the professional, non-governmental and business sectors, and parliamentary groups and committees; ensuring a comprehensive legislative framework; securing sustainable sources of annual funding and creating a rational framework for resource allocation; high-level promotion of the road safety strategy across government and society; periodic monitoring and evaluation of road safety performance; and the direction of research and development and knowledge transfer.

Introduction

Knowledge about road safety management has evolved over a considerable period of time based on research and practice in many settings in motorized and motorizing countries. Experience shows that if countries wish to improve their road safety performance they must be properly organized to manage the shared responsibility for safety results in a systematic and planned way.

Road safety organization in countries which have achieved marked improvements in road safety performance is the result of years of capacity-building and programs of investment by government. It is a process of continuing development, as road safety arrangements adjust to major political and economic changes and as further improvements and efficiencies are identified.

Countries with poor road safety performance cannot expect to achieve the organizational structures and processes of good practice countries overnight. Achieving high performance requires a long institutional process supported by the political will and cohesive approaches within government to provide the necessary frameworks for successful management.

As set out in section 3.1.1 of the main report and summarized below, seven institutional management functions provide the foundation of an effective national road safety management system:

- *Results focus* in its ultimate expression concerns a strategic orientation that links all actual and potential interventions with results, analyzes what can be achieved over time, and sets out a performance management framework for the delivery of interventions and their intermediate and final outcomes. It defines the level of safety which a country wishes to achieve expressed in terms of a vision, goals, objectives and related targets.

- *Coordination* concerns the orchestration and alignment of the interventions and other related institutional management functions delivered by government partners and related community and business partnerships to achieve the desired focus on results.

- *Legislation* concerns the legal instruments necessary for governance purposes to specify the legitimate bounds of institutions, in terms of their responsibilities, accountabilities, interventions and related institutional management functions to achieve the desired focus on results.

- *Funding and resource allocation* concerns the financing of interventions and related institutional management functions on a sustainable basis using a rational evaluation framework to allocate resources to achieve the desired focus on results.

- *Promotion* concerns the sustained communication of road safety as a core business for government and society and emphasizes the shared societal responsibility to support the delivery of the interventions required to achieve the desired focus on results.

- *Monitoring and evaluation* concerns the systematic and ongoing measurement of road safety outputs and outcomes (intermediate and final) and the evaluation of interventions to achieve the desired focus on results.

- *Research and development and knowledge transfer* concerns the systematic and ongoing creation, codification, transfer and application of knowledge that contributes to the improved efficiency and effectiveness of the road safety management system to achieve the desired focus on results.

Effective road safety management requires shared multisectoral responsibility for results and, as highlighted in the *World Report on Road Traffic Injury Prevention,*[1] the establishment of a lead agency is a prerequisite for effective country road safety organization. Within government the lead agency takes on the ownership of road safety and deals with all seven institutional management functions.

The lead agency plays a pre-eminent role in most of the institutional management functions; though sometimes it can adopt more of a guiding, encouraging or catalytic role. In good practice countries, the lead agency is formally established with its role being invariably defined in legislation, government policy documents and annual performance agreements.

> Each country needs a lead agency on road safety, with the authority and responsibility to make decisions, control resources and coordinate efforts by all sectors of government—including those of health, transport, education and police. This agency should have adequate finances to use for road safety, and should be publicly accountable for its actions.

> The experience from a wide range of countries is that, whatever the organizational structure, it is important that the lead governmental organization for road safety should be clearly defined, with its specific responsibilities and coordinating roles set out (Peden et al., 2004).[1]

In good practice road safety management, the lead agency takes responsibility within government for the development of the national road safety strategy and its results focus, the overarching management function. It also usually takes responsibility for horizontal inter-governmental coordination; arrangements; vertical coordination of national, regional and local activities; coordination of the necessary delivery partnerships between government partners and stakeholders, professional, non-governmental, business sectors and parliamentary groups and committees; ensuring a comprehensive legislative framework; securing sustainable sources of annual funding and creating a rational framework for resource allocation; high-level promotion of the road safety strategy across government and society; periodic monitoring and evaluation; and the direction of research and development and knowledge transfer.

This Annex describes and discusses the seven institutional management functions and related structures and processes which provide the foundation for effective road safety management. Principally the focus is on the road safety management functions of the responsible government institutions which make the dominant contribution to improved road safety results. The participation and contributions of civil society and business entities in achieving the results sought by the national road safety strategy are addressed within the context of the government agencies' responsibilities. For each identified institutional management function the role of the national road safety lead agency is outlined. Examples of good practice in lead agency delivery are provided throughout in Boxes.

The knowledge base supporting this Annex comprises international reviews and includes in-depth case studies of lead agency road safety organizations in six jurisdictions—New Zealand, Great Britain, the Netherlands, Sweden, and the Australian States of Victoria and Western Australia. While these jurisdictions have differing levels of safety performance they have all made significant progress in reducing road deaths and serious injuries through improved organization and implementation. The Annex refers to these as 'good practice countries.' The case studies present a mix of organizational approaches as well as differing strengths or levels of sophistication in their delivery of the different institutional management functions. Detailed case study findings are presented in Annex 4 which summarizes how each case study jurisdiction delivers the institutional management functions identified in section 3.1.1 of the main report, and describes the lead agency and related coordination structures and processes which have been put in place to direct the national effort. Annex 2 as noted summarizes the lead agency role in delivering each institutional management function and provides jurisdictional examples from the Annex 4 case studies (plus several supporting examples from elsewhere). Annex 3 summarizes lead agency structure and processes, again providing jurisdictional examples from the Annex 4 case studies. In this regard core information is repeated throughout the Annexes, with Annexes 2 and 3 highlighting the important perspectives of the lead agency management role and lead agency structures and processes respectively.

The emphasis throughout this Annex and the supporting Annexes 3 and 4 is on creating an awareness and understanding of good practice which in its interpretation and adoption will need to be attuned and adapted to local conditions, needs and opportunities.

Results focus

Results focus: overview of good practice

Function:

Results focus is the overarching function in institutional management for road safety. In its ultimate expression *results focus* concerns a strategic orientation that links all actual and potential interventions with results, analyses what can be achieved over time, and sets out a performance management framework for the delivery of interventions and their intermediate and final outcomes. It defines the level of safety that a country wishes to achieve expressed in terms of a vision, goals, objectives and related targets.

Dimensions:

- Appraising current road safety performance through high-level strategic review.
- Adopting a far-reaching road safety vision for the longer term.
- Analyzing what could be achieved in medium term.
- Setting appropriate quantitative targets by mutual consent across the road safety partnership.
- Establishing mechanisms to ensure stakeholder accountability for results.

Results focus

Results focus in its ultimate expression concerns a strategic orientation that links all actual and potential interventions with results, analyses what can be achieved over time, and sets out a performance management framework for the delivery of interventions and their intermediate and final outcomes. It defines the level of safety that a country wishes to achieve expressed in terms of a vision, goals, objectives and related targets.

Results focus is the overarching function in institutional management for road safety. Without a *results focus,* all other functions—*coordination, legislation, funding and resource allocation, promotion, monitoring and evaluation,* and *research and development and knowledge transfer*—will lack cohesion. The *results focus* process evolves over time, as monitoring and evaluation produces more data, from qualitative assessment to one that becomes increasingly better informed about country road safety performance. Ultimately the full range of quantitative targets, their periodic review and arrangements to ensure accountability for their delivery will be possible as *results focus* gradually becomes more refined.

Results focus is addressed across five dimensions:

1. Appraising current road safety performance through high-level strategic review.
2. Adopting a far-reaching road safety vision or goal for the longer term.
3. Analyzing what could be achieved in the medium term.
4. Setting targets by mutual consent across the road safety partnership.
5. Establishing mechanisms to ensure partner and stakeholder accountability for results.

Lead Agency Role

The lead agency has the main responsibility within government across the identified dimensions of the country *results focus.*

1. Appraising current road safety performance through high-level strategic review

The starting point for *results focus* is high-level review of road safety performance to identify the scope for action and related priorities and develop a consensus across government around building or improving organizational capacity to manage for results.

The process of appraising current road safety performance requires high-level multi-sectoral strategic examination of a range of activities and typically involves a senior working group of officials from the Transport, Health, Justice and Education sectors. There will be in-house technical support from the lead agency if this has been established and outside expert support of experienced safety managers to provide transparent peer review.

Section 4.2 of the main report presents guidance and checklists for countries which wish to undertake a safety management performance review, whether they are starting out in road safety or have been active for some time,

Box 1: Road safety management capacity reviews in low, middle and high-income countries

Road safety management capacity reviews have been carried out in a range of low, middle and high-income countries (e.g., Bangladesh, Vietnam, Bosnia and Herzegovina, Serbia, Ukraine, Armenia, Montenegro, Argentina and Sweden).

These high-level strategic reviews have been carried out by experienced safety managers using World Bank checklists to assess road safety management capacity across the system to take account of *institutional management functions, interventions* and *results* and their interactions. They have been carried out by experienced road safety management specialists and funded at the country level or by the World Bank Global Road Safety Facility.

These reviews have provided a useful management tool for road safety policymakers and managers to assess current road safety performance and the quality of the road safety management system. They aim for a constructive dialogue between key road safety partners and stakeholders about the acknowledged strengths and weaknesses of current arrangements to inform the development of an investment strategy designed to achieve the country's ambition for improved road safety results.

and outlines the process required to engage partners and stakeholders and draw conclusions. The aim is to achieve a clear overview of country capacity to manage road safety performance—to identify what is working and where there is room for improvement—and to better specify challenging but achievable road safety results in the national road safety strategy (see Box 1).

Lead Agency Role

In good practice *results focus,* the lead agency:

- **manages the process of governmental review of road safety performance;**
- **identifies the key governmental partners and stakeholders who can deliver road safety results;**
- **brings the key partners and stakeholders together;**
- **initiates road safety management capacity reviews and chairs governmental reviews of road safety performance;**
- **prepares background papers on current performance;**
- **achieves consensus on the key problem areas in the road safety management system;**
- **follows up on agreed actions.**

2. Adopting a far-reaching road safety vision or goal for the longer term

Good practice countries are increasingly adopting long term visions for road safety and setting new frontiers for road safety performance in the medium to longer term. Road safety visions range from a desire to be the best in the world or the region, through to visions that set an end goal of no deaths and serious injuries. Far-reaching visions of total road safety promote a level of ambition that goes beyond incremental performance gains and the implicit acceptance of death and injury that will be determined by the rate of improvement shown by the best performing countries. A road safety vision is thus a desired longer term result which, together with interim quantitative targets, underpins the national road safety strategy. If promoted well and at a high-level, a vision can help to create a sympathetic climate for the introduction of interventions and help develop and explain the road safety strategy.

The long-term and far-reaching Swedish *Vision Zero* concept combines ethics, biomechanics, environmental management and pragmatism in its approach (see Box 2).[2] Like the Swedish *Vision Zero*, the Dutch *Sustainable Safety* concept focuses on addressing human limitations—*man is the measure*. A sustainable safe traffic system has a road infrastructure which is adapted to the limitations of human capacity through proper design, vehicles that are equipped with proper tools and constructed to offer as much crash protection as possible, and users who are adequately informed, educated and, where necessary, controlled.[3]

Central government and parliament, guided by the lead agency, are the key players in adopting road safety visions. Both Sweden and The Netherlands have set out national visions, policies and targets within legislation. Here parliamentary scrutiny and approval of the road safety concepts stimulated public debate and prepared the way for future successful work underpinned by accountable partnerships in a mutually supportive institutional climate (see Box 3).

Lead Agency Role

In good practice *results focus,* the lead agency:

- **studies and proposes a far-reaching road safety vision for the longer term;**
- **initiates a discussion about the vision with governmental partners and stakeholders, parliament, and civil society;**
- **identifies the key partnerships needed within and outside government for promotion of the vision;**

Box 2: The Swedish *Vision Zero*

Vision Zero is a traffic safety policy developed in Sweden in the late 1990s and based on four elements: ethics, responsibility, a philosophy of safety, and creating mechanisms for change. The Swedish parliament voted in October 1997 to adopt this policy and since then several other countries have followed suit.

Ethics. Human life and health are paramount. According to *Vision Zero* life and health should not be allowed in the long run to be traded off against the benefits of the road transport system, such as mobility. Mobility and accessibility are therefore functions of the inherent safety of the system, not vice versa as it is generally viewed today.

Responsibility. Until recently responsibility for crashes and injuries was placed principally on the individual road user. In *Vision Zero* responsibility is *shared* between the providers of the system and the road users. The system designers and enforcers—such as those providing the road infrastructure, the car-making industry and the police—are responsible for the functioning of the system. At the same time the road user is responsible for following basic rules, such as obeying speed limits and not driving while under the influence of alcohol. If road users fail to follow such rules, the responsibility falls on the system designers to redesign the system, including rules and regulations.

Safety philosophy. In the past the approach to road safety was generally to put the onus on the road user. In *Vision Zero* this is replaced by an outlook that has been used with success in other fields. Its two premises are: human beings make errors; and there is a critical limit beyond which survival and recovery from an injury are not possible. It is clear that a system that combines human beings with fast-moving, heavy machines will be very unstable. It is sufficient for a driver of a vehicle to lose control for just a fraction of a second for a human tragedy to occur. The road transport system should therefore be able to take account of human failings and absorb errors in such a way as to avoid deaths and serious injuries. Crashes and even minor injuries, on the other hand, need to be accepted. The important point is that the chain of events that leads to a death or disability must be broken, and in a way that is sustainable, so that over the longer time period loss of health is eliminated. The limiting factor of this system is the human tolerance to mechanical force. The chain of events leading to a death or serious injury can be broken at any point. However, the *inherent* safety of the system—and that of the road user—is determined by people not being exposed to forces that go beyond human tolerance. The components of the road transport system, including road infrastructure, vehicles and restraint systems, thus need to be designed in such a way that they are interlinked. The amount of energy in the system must be kept below critical limits by ensuring that speed is restricted.

Driving mechanisms for change. To change the system involves following the first three elements of the policy. While society as a whole benefits from a safe road transport system in economic terms, *Vision Zero* relates to the citizen as an individual and his or her right to survive in a complex system. It is therefore the demand from the citizen for survival and health that is the main driving force. In *Vision Zero* the providers and enforcers of the road transport system are responsible to citizens and must guarantee their safety in the long term. In so doing they are necessarily required to cooperate with each other, for simply looking after their own individual components will not produce a safe system. At the same time the road user has an obligation to comply with the basic rules of road safety. In Sweden the main measures undertaken to date include:

- setting safety performance goals for various parts of the road traffic system;
- focusing on vehicle crash protection, and support for the consumer information program of the European New Car Assessment Programme (EuroNCAP) and securing higher levels of seat-belt use and fitting smart, audible seat-belt reminders in new cars;
- installing crash-protective central barriers on single-carriageway rural roads and encouraging local authorities to implement 30 km/h zones;
- wider use of speed camera technology; and an increase in the number of random breath tests;
- the promotion of safety as a competitive variable in road transport contracts.

While the *Vision Zero* does not say that the road safety ambitions historically have been wrong, the actions that would have to be taken are partly different. The main differences probably can be found within how safety is being promoted; there are also some innovations that will come out as a result of the vision, especially in infrastructure and speed management.

A tool for all. *Vision Zero* is relevant to any country that aims to create a sustainable road transport system, and not just for the excessively ambitious or wealthy ones. Its basic principles can be applied to any type of road transport system, at any stage of development. Adopting *Vision Zero* means avoiding the usual costly process of trial and error, and using from the start a proven and effective method.

Source: Peden et al., 2004.[1]

Box 3: Adopting *Vision Zero* and the role of the lead agency

The Swedish *Vision Zero* was an initiative of the Swedish Road Administration (SRA), the lead agency for road safety. In 1995, the SRA started to express the idea that road safety should follow the same principles that healthcare had followed for many years, namely that everything possible should be done to prevent the loss of human life. The Road Safety Director started to formulate a number of ethical rules on which road safety work could be based.

After further development by the SRA, *Vision Zero* was launched and vigorously promoted by the lead agency and the Transport Minister. The introduction of *Vision Zero* facilitated lead agency communication with parliamentarians and decision-makers on road safety and changed political attitudes at national, regional and local levels. The marketing of *Vision Zero* towards politicians proved successful and in 1997 *Vision Zero* was raised in parliament and approved, with a 10 year numerical target as a first step, as the basis for the future road safety work in Sweden.

Vision Zero secured more funding for road safety and rapid acceptance locally where much road safety work in Sweden is carried out. Another effect of *Vision Zero* was to help create demand amongst the public for action on the part of policymakers. In its promotional work, the SRA secured cross-government support for the *Vision Zero* strategy in national transport policy and secured its role as the main driver for road safety work in Sweden.

- **identifies the potential for high-level promotion and championing of the vision to underpin the safety strategy;**
- **seeks agreement on the vision amongst partners and stakeholders and ensures it is set out in legislation;**
- **seeks agreement on the shared responsibility which is implicit in the far-reaching vision and ensures that it is clearly defined in the national road safety strategy.**

3. Analyzing what could be achieved in the medium term

Analysis of the potential for safety improvements in the medium term requires the identification and survey of the most important road casualty problems throughout the road traffic system, analysis of information on the effectiveness of different interventions to improve results and the identification of useful implementation tools to improve institutional delivery.

Typically, countries starting out in road safety will have rudimentary data collection systems in place and little capacity for evaluation. At the same time political conclusions will have been drawn about the need for improved results and there will be a need to start to organize.

The absence of comprehensive, reliable safety data on final outcomes (numbers of road traffic deaths, serious injuries, and costs) should not impede immediate action. Following strategic review of road safety performance countries can take immediate steps to put measurement systems in place which will provide a starting point for results focused activity, while they develop national databases for shared access by key governmental partners and stakeholders. For example, they can consider the potential for setting targets for the outputs of their institutions for activities which will improve results (e.g., the number of police patrol hours enforcing key safety behaviors and ambulance response times). Similarly, they might consider setting targets for intermediate outcomes (e.g., percentage reductions in average mean speeds and percentage increases in crash helmet and seat belt use). These can be measured relatively easily to establish the baseline against which to measure future improvement.

Good practice countries analyse country information as well as the international knowledge base to ensure understanding of the potential scope in all these areas. In recent years good practice countries have acknowledged the importance of speed management and the need to address physical and behavioral human limitations as core issues for the design and operation of a safe road traffic system. They acknowledge that while total crash prevention is an over-ambitious objective, road death and serious injury can be largely avoided by putting to greater effect and implementing more systematically key safety principles and measures which have been known about for many years.

Typically, working papers analysing the effects of a range of interventions are developed to inform target-setting and strategy development and are published at the same time as the road safety strategy. Examples from New Zealand and Great Britain indicate what is involved in this process.[4,5,6] Again this activity usually requires a high-level multi-sectoral group supported by advisory groups comprising in-house, external research expertise including

technical experts from abroad. Sometimes country road safety performance and related strategy and targets are evaluated in formal published independent peer reviews to achieve impartial, expert and transparent assessment.

Lead Agency Role

In good practice *results focus,* the lead agency:

- **reviews the key road safety problems and the potential for further improvements in consultation with governmental partners and stakeholders and by drawing on country and international research expertise;**
- **identifies information needs for road safety strategy development;**
- **identifies the key elements of good practice results management, system-wide road safety intervention and improved implementation arrangements using country and international research;**
- **analyzes long-term trends which could affect future road safety outcomes and carries out scenario planning and computer modelling to develop road safety strategies;**
- **carries out reviews of cost-benefits, cost-effectiveness and public acceptability of strategy interventions;**
- **consults on the multi-sectoral strategy options with key government partners and the wider group of partners and stakeholders within the coordination hierarchy.**

4. Setting targets by mutual consent across the road safety partnership

Value of targets

The *World Report*[1] stated that setting challenging but achievable targets—or practiced by an increasing number of countries—is a sign of responsible management. Targeting and objective measurement of safety performance through the monitoring and evaluation of final and intermediate road safety outcomes is the key to effective road safety management, programming and use of public resources.

In good practice safety management road safety results are always expressed in the form of quantitative targets, increasingly as interim targets in pursuit of a long term goal or vision. Targets specify the desired safety performance endorsed by government at all levels, partners, stakeholders and the community. Setting quantitative interim targets can lead to better programs, more effective use of resources and an improvement in road safety performance. To be credible they must be achievable with cost-effective, publicly acceptable interventions. Their duration should be at least five or ten years with measurable outcomes and sufficient funding for their development, implementation management as well as monitoring and evaluation of actions.[7,8,9]

Different types of targets

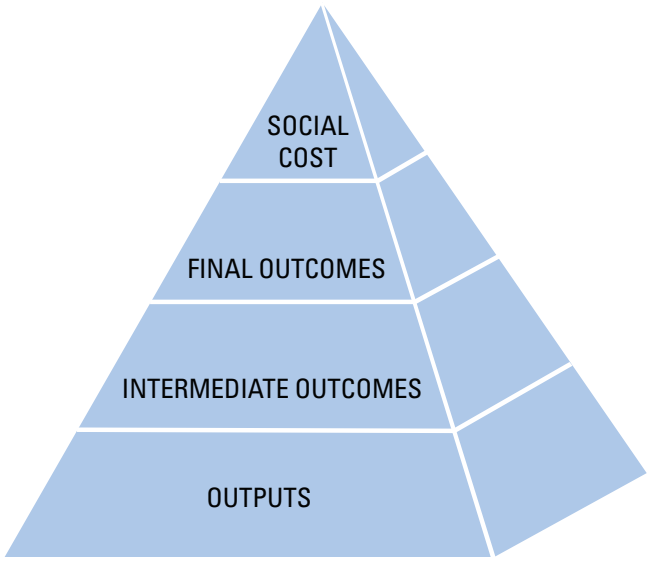
Several types of target can be set as outlined in Figure 1 and Tables 1–4. Good practice requires the use of all three kinds of target in the hierarchy—final outcomes, intermediate outcomes and outputs. The use of intermediate outcome measures as targets is not widespread, though they are more commonly used to monitor performance. Likewise output targets are not common and New Zealand provides the best example of their use.

Final outcome targets. In good practice countries final outcome targets usually comprise targeted reductions in deaths and serious injuries. Death and injury rates are also targeted in some countries but only in addition to numbers of deaths and serious injuries. A declining rate such as deaths per numbers of vehicles may mask increases in numbers of deaths and injuries which is why numbers rather than rates are, in general, found to be more useful. Top down targets are based on an idealistic objective with little prior consideration of how the final outcome target is to be reached. Bottom up targets are set on the basis of objective data. Most countries have relied upon final outcome targets alone in defining their safety goals using a combination of these two approaches to ensure that they are realistic but challenging.[10] Establishing final outcomes will require crash death and injury databases in the transport and health sectors.

Regional targets. Most final outcome targets are set at national level, but regional targets are also set as in the case of the Netherlands and New Zealand (see Box 4). This is especially important where key aspects of road safety have been devolved from central to regional and local levels.

Intermediate outcome targets. As shown in Figure 1 and Table 3, targets can also include intermediate outcomes consistent with their achievement (e.g., targeting the reduction in average mean speeds or the increase in seat belt use, or improvements in the quality of the vehicle fleet and the level of protection offered by the road network). Establishing intermediate outcomes will require the organization of network surveys and the development or support of arrangements such as vehicle and road infrastructure safety rating partnerships and programs.

Figure 1: New Zealand's road safety target hierarchy



– The overall target is to reduce the socio-economic costs of road crashes;
– to be achieved by meeting the second level of targets, requiring specific reductions in the numbers of fatalities and serious injuries.
– A third level of targets consists of intermediate outcomes (also known as performance indicators) including those related to speed, drink driving and rates of seat-belt wearing that are consistent with the targeted reductions in final outcomes; and
– a fourth level of targeting is concerned with institutional delivery outputs such as the enforcement outputs that are required to achieve the third-level targets.

Source: Land Transport Safety Authority (2000, 2003).

Table 1: Social cost and fatality targets in New Zealand

		Targets	
	Base 2001	2004 not exceeding	2010 not exceeding
Social Cost (2001 prices*)			
$ billion	3.02	2.75	2.1
Deaths			
Number	455	400	300
Deaths per billion veh-km	12.6	9.9	6.1
Deaths per 100,000 people	11.8	10.2	7.3
Deaths per 10,000 vehicles	1.7	1.5	1.1

Table 2: Targeted reductions in deaths and serious injuries in New Zealand

		Targets	
	Base 2001	2004 not exceeding	2010 not exceeding
Deaths			
Number	455	400	300
Deaths per billion veh-km	12.6	9.9	6.1
Deaths per 100,000 people	11.8	10.2	7.3
Deaths per 10,000 vehicles	1.7	1.5	1.1
Hospitalizations			
Number hospitalized	6,700	5,870	4,500
Hospitalized per billion veh-km	186	140	90
Hospitalized per 100,000 people	174	150	110
Hospitalized per 10,000 vehicles	25	22	16
Number hospitalized for over one day	2,880	2,750	2,200
Number hospitalized for over 3 days	1,794	1,750	1,400

Table 3: Intermediate outcome targets for speed, excess alcohol and restraint use in New Zealand

	Base 2001	Target 2004 not exceeding
Speed		
Open road mean speed (km/h)	100.2	99
Open road 85th percentile (km/h)	109	107
Urban mean speed (km/h)	55.2	55.2
Urban 85th percentile (km/h)	61.5	61
Alcohol		
Percent of driver deaths with excess alcohol	21%	21%
Number of driver deaths with excess alcohol	55	48
Restraints		At least
Safety belts—front	92%	92%
Safety belts—rear	70%	75%
Children (under 15) restrained	89%	90%

Table 4: Annual output targets for breath-testing for excess alcohol in New Zealand

	2000/01	2001/02	2002/03	2003/04	2004/05
Hours to be delivered	508,785	505,920	543,025	574,140	616,715
Number of Compulsory Breath Tests (at roadside testing points) to be conducted	1.4–1.6M	1.4–1.6M	1.5–1.7M	1.5–1.7M	1.5–1.7M
Number of Mobile Breath Tests to be conducted	370–410K	370–410K	500–550K	500–550K	800–900K
Offence notices to be issued		26–30,000	23–26,000	23–26,000	23–26,000

Box 4: Regional targets in New Zealand and the Netherlands

New Zealand. The national road safety strategy[12] sets out regional targets to reduce the number of deaths and hospitalizations. In support of the national strategy, local authorities are expected to develop safety management systems, apply crash reduction studies and safety audit procedures (which are a pre-requisite of scheme funding), undertake detailed analysis to develop implementation strategies to meet targets and give appropriate priority to funding safety activity.

The Netherlands. In 2005, the Dutch government's *Mobility Memorandum*[13] stated that the national quantitative target to reduce deaths was to be split up into 19 regional targets. Each region would have an equal target, since the conditions between regions did not differ greatly. Agreements would be established between central and local government. The regions and provinces would determine their own plans and measures to reach these targets.

Output targets. Output targets can be set for measures required to achieve the intermediate results (see Table 4). These include physical deliverables such as the number of police patrols or random breath tests or emergency response times in the emergency medical system.

In countries which need to improve the quality of national road traffic crash and injury databases, the use of intermediate outcomes and output targets provide a useful starting point. Countries which are only targeting final outcomes can enhance their *results focus* by targeting intermediate outcomes and outputs. A range of data arrangements and partnerships will be required to facilitate final and intermediate outcome and output target setting.

The target-setting process

Target setting is the responsibility of the lead agency and the coordinating body since the realization of outcome targets is a shared multi-sectoral responsibility across government. An effective process depends upon governmental lead agency direction, good in-house support, technical support from independent experts and consultation with a wide range of partners and stakeholders.

In good practice countries the interim targets proposed by the lead agency and/or the coordination body are based on research and analysis of how targets can be reached. These are then submitted for Ministerial/Cabinet and parliamentary approval. The activity is driven by the lead agency which reviews safety performance, identifies priorities, and

organizes the other key government partners and stakeholders to consider and approve proposed outcomes.

Lead Agency Role

In good practice *results focus,* the lead agency:

- **sets up a road safety strategy unit within the lead agency;**
- **puts together appropriate groups of experts for technical support for the target-setting process;**
- **proposes and seeks agreement through its intergovernmental coordination arrangements on challenging but achievable targets for final outcomes, intermediate outcomes and institutional outputs at the national level (and later at regional and local levels);**
- **publishes details of the targets and strategies in which the accountabilities of the different partners and stakeholders are also outlined;**
- **monitors progress at regular intervals and refines intervention output levels accordingly.**

As shown in Box 5, good practice countries typically organize special divisions to prepare analysis for road safety strategy development and target setting.

Technical support. Effective targeted road safety planning is a highly technical activity and requires multi-disciplinary expertise, often including external experts as shown in Box 6. Targets need to be based on adequate information about the road safety situation both past and present and upon reasonable assumptions about the future and broader factors which may influence road safety results (such as the state of the economy, population growth or the national capacity for delivering road safety outputs). This requires analysis of crash data, data collected in surveys and safety rating information to provide information about the key road safety problems; assessment of levels of risk for different road user groups necessitating exposure data such as population numbers, passenger kilometers, vehicle kilometers and time traveled; and assessment of future long-term casualty, traffic and demographic trends given that rising or falling traffic volumes can have a large effect on casualties and demographic changes may present increases or decreases in high-risk groups. Additionally, analysis of the effectiveness of interventions in terms of reducing casualty numbers is needed. The collection of public opinion survey data is useful to gauge the acceptability of key interventions.[8,10] These different data systems are outlined later in the section on *Monitoring and Evaluation*.

Box 5: Lead agency road safety strategy units

- *New Zealand.* The Land Transport Safety Authority's Strategy Division conducted the target-setting work and provides road safety research, statistics and economic analysis, all of which aim to ensure that safety interventions achieve improvements in road trauma levels. It provided strategic direction for road safety and managed the New Zealand Road Safety Program.
- *Victoria.* The VicRoads' Road Safety Department has responsibility for road safety strategy development and dedicates a large part of its road safety department to the Strategies and Programs Section which has five units.
- *Great Britain.* The Road Safety Strategy division of the Department for Transport had responsibilities for strategy and target development, as well as activity on vulnerable road users, motorcycling, local authority liaison, demonstration projects and research.

Before targets are approved consultation with key governmental partners, other partners and stakeholders engaged in improving road safety results and the wider public is essential. Good practice indicates that governmental and professional consultation is usually conducted initially within the coordination hierarchy, followed by a public consultation process. As shown in Box 7, the signing off of targets is always carried out at a high level across government with accountabilities defined and agreed (see later section on *Coordination*).

5. Establishing mechanisms to ensure partner and stakeholder accountability for results

Key changes in road safety accountabilities have developed as part of public sector service reform over the last thirty years. Public service targets and agreements are the means by which governments and agencies specify their roles and accountability for road safety responsibilities.

Performance-based planning in road safety is advanced in good practice countries and is most comprehensive in the State of Victoria and in New Zealand (see Box 8). In both countries the road safety outcome and output targets which have to be met by all the key responsible agencies are set out in the road safety strategy and in annual performance agreements. Performance is reported annually to Ministers and elected representatives, and to the public through annual reports. In other good practice jurisdictions, there are usually outcome targets but few

Box 6: Target-setting arrangements in good practice countries

New Zealand—in-house research support and the use of international experts
The target-setting methodology and modelling activity underpinning the New Zealand *Road Safety to 2010* strategy targets was carried out by review teams comprising government officials and experts in road safety and independent road safety experts from Australia and the United Kingdom with substantial experience of national and regional strategic planning in road safety. Expert modeling analysis of benefits, costs and funding showed that the headline target to 2010 could be reached by an appropriate mix of engineering, enforcement and education interventions. Findings were published in two Working Papers in 2000, which informed the broad partner and stakeholder consultations carried out subsequently.[4,5]

Great Britain—the role of the STAR group
In Great Britain, the first safety targets were informed by modelling, forecasting activity and analysis work which was published simultaneously with the target announcement.[6] The Safety Targets and Accident Reduction Steering (STAR) Group was set up by the lead agency to provide technical support and advice to Ministers on the setting of the 2010 targets. Its members were from local authorities, the Royal Society for the Prevention of Accidents, the Parliamentary Advisory Council for Transport Safety, TRL, the Department for Transport and its Regional Offices and individual experts.[14]

Victoria—the role of the Monash University Accident Research Centre
As part of the bottom-up targeting process, the Monash University Accident Research Centre carried out a road safety impact analysis of the initiatives in the draft strategy. On the basis of this and traffic and casualty forecasting, the lead agency proposed targets and strategy to government which followed broad consultation with the road safety partners and stakeholders.

Netherlands—the role of the AVV—the research arm of the Ministry of Transport
Setting targets (or revising targets) was conducted by a small group of Ministry of Transport officials with preparatory work to support this conducted by the AVV, supported by additional research organizations such as SWOV. A consultative meeting was carried out with representatives of national, regional and local authorities and, following approval, the proposed targets were presented to parliament.

Box 7: Approving targets across government

Sweden: The decision to aim for a long term target for no deaths and serious injuries arising from road traffic and the intermediate target to 2007 was taken by the government and approved by the parliament based on a proposal from the Swedish Road Administration.

Victoria: The bottom up target to reduce deaths and serious injuries by 20% by the year 2007 was proposed by the lead agency and approved by the Ministerial Council and the Victorian parliament.

New Zealand: The 2010 New Zealand target was a bottom up target based on analysis of cost-effective measures proposed by the lead agency which could be undertaken during the target period. The final decision on the target was made by the coordinating body, the National Road Safety Committee, and Cabinet.

have output targets. Performance agreements for targets rarely cover all the main government partners.

Lead Agency Role

In good practice *results focus,* the lead agency:

- **sets out the responsibility of the lead and other agencies to achieve specified road safety results (outcomes and outputs) in annual performance agreements;**
- **uses Memoranda of Understanding to underline agreement about the way in the members work together in matters related to road safety;**
- **includes road safety results as a formal criterion in the performance-driven employment remuneration package of agency Chief Executives;**
- **encourages and monitors outputs and contributions of a wider group of partners and stakeholders based on formal and published declarations of intent to carry out specific interventions which contribute to improved road safety results.**

Box 8: Examples of lead agency annual performance agreements

Victoria: The roles and responsibilities of VicRoads, Victoria Police and the Transport Accident Commission are set out in the road safety strategy, annual plans and performance agreements. Reducing road crash death and injury is a formal criterion in the performance-driven employment remuneration package of the Chief Executive of VicRoads, the lead agency. Reducing road casualties by 20% by 2007 as targeted in the national strategy *Arrive Alive!* was one of four policing performance targets in Victoria Police's published plan for 2003/4. Accountability for local road safety activity is established through a combination of funding mechanisms and performance indicators. Specifically allocated funding is made available to Community Road Safety Councils for targeted road safety activity and VicRoads works to specific performance targets associated with this program, the results of which are published annually.

New Zealand: Since 1989 public finance law in New Zealand has required all government agencies to prepare annual corporate management information, which includes performance targets, objectives and scope of activities.[17] The road safety targets which each National Road Safety Committee member has signed up to and the systematic follow through which is conducted to determine the success or failure of specific actions are the cornerstone of New Zealand's road safety performance management regime. The lead agency for road safety has to submit an Annual Performance Agreement with the Ministry of Transport covering road safety activity for the next twelve months.[18] New Zealand Police work within a performance management framework covering both road safety outcomes and enforcement outputs. Final outcomes include road deaths, serious injuries and crashes and intermediate outcomes relate to driver behavior (e.g., mean speeds and the percentage of offenders driving in excess of 10km/h above the limit). Outputs include operational hours delivered (e.g., for speed, drink driving, and restraints) and these are intended to maximise the efficiency of enforcement.[15]

Sweden: The Swedish Road Administration's (SRA) lead agency responsibilities for road safety are set out every year in performance agreements and in its Annual Report. Between 1997–2007, the SRA's target was to contribute to achieving a reduction in the number of deaths to a level of no more than 270 by 2007. Annual goals are also specified in performance agreements. For example in 2003 a specified goal was to implement cost-effective road safety measures on the state road network to reduce the number of deaths. The outputs and contributions of other key partners and stakeholders are based on formal Declarations of Intent, published on the SRA website and monitored.

Great Britain: The Department for Transport's Public Service Agreement target has been to reduce the number of people killed or seriously injured in Great Britain in road accidents by 40%, and the number of children killed or seriously injured by 50% by 2010, compared with 1994–98, tackling at the same time the significantly higher incidence in disadvantaged communities. The Department's Highways Agency also has a specific Public Service Agreement target to reduce road casualties on national roads and has produced a five year road safety plan.

Results focus: summary of lead agency role

In good practice countries the lead agency has the main responsibility within government for managing the country *results focus* and ensuring that system-wide interventions are agreed and implemented by the responsible authorities across government and wider society. The lead agency concerns itself not only with the development of the national road safety strategy and targets, but also all the institutional management functions which contribute to its success.

1. *Appraising current road safety performance through high-level strategic review*

   In good practice *results focus,* the lead agency:
   - manages the process of governmental review of road safety performance;
   - identifies the key governmental partners and stakeholders who can deliver road safety results;
   - brings the key partners and stakeholders together;
   - initiates road safety management capacity reviews and chairs governmental reviews of road safety performance;
   - prepares background papers on current performance;
   - achieves consensus on the key problem areas in the road safety management system;
   - follows up on agreed actions.

2. *Adopting a far-reaching road safety vision for the longer term*

   In good practice *results focus,* the lead agency:
   - studies and proposes a far-reaching road safety vision for the longer term;
   - initiates a discussion on the vision with governmental partners and stakeholders, parliament, and civil society;
   - identifies the key partnerships needed within and outside government for promotion of the vision;
   - identifies the potential for high-level promotion and championing to underpin the safety strategy;
   - seeks agreement on the vision amongst partners and stakeholders and ensures it is set out in legislation;
   - seeks agreement on the shared responsibility which is implicit in the far-reaching vision and ensures that it is clearly defined in the national road safety strategy.

3. *Analyzing what could be achieved in the medium term*

   In good practice *results focus,* the lead agency:
   - reviews the key road safety problems and the potential for further improvements in consultation with governmental partners and stakeholders and by drawing on country and international research expertise;
   - identifies information needs for road safety strategy development;
   - identifies the key elements of good practice results focus, system-wide safety intervention and improved institutional arrangements using country and international research;
   - analyzes long-term trends which could affect future road safety outcomes and carries out scenario planning and computer modelling to develop road safety strategies;
   - carries out reviews of cost-effectiveness and public acceptability of strategy interventions;
   - consults on the multi-sectoral strategy options with key governmental partners and stakeholders and the wider group of partners and stakeholders within the coordination hierarchy.

4. *Setting quantitative targets by mutual consent across the road safety partnership*

   In good practice *results focus,* the lead agency:
   - sets up a road safety strategy unit within the lead agency;
   - puts together appropriate groups for technical support for the target-setting process;
   - proposes and seeks agreement through its inter-governmental coordination arrangements on challenging but achievable targets for final outcomes, intermediate outcomes and institutional outputs at the national level (and later at regional and local levels);
   - publishes details of the targets and strategies in which the accountabilities of the different partners and stakeholders are also outlined;
   - monitors progress at regular intervals and refines intervention output levels accordingly.

5. *Establishing mechanisms to ensure partner and stakeholder accountability for results*

   In good practice *results focus,* the lead agency:
   - sets out the responsibility of the lead and other agencies to achieve specified road safety results (outcomes and outputs) in annual performance agreements;
   - uses Memoranda of Understanding to underline agreement about the way in the members work together in matters related to road safety;
   - includes road safety results as a formal criterion in the performance-driven employment remuneration package of agency Chief Executives;
   - encourages outputs and contributions of a wider group of partners and stakeholders based on formal and published declarations of intent to carry out specific interventions which contribute to improved road safety results.

Coordination

Coordination: overview of good practice

Function:

Coordination concerns the orchestration and alignment of the interventions and other related institutional management functions delivered by government partners and related community and business partnerships to achieve the desired focus on results.

Dimensions:

- Horizontal coordination between central government agencies.
- Vertical coordination between central, regional and local levels of government.
- Specific delivery partnerships between government, nongovernment and business at the central, regional and local levels.
- Parliamentary relations at central, regional and local levels.

Coordination

Coordination concerns the orchestration and alignment of the interventions and other related institutional management functions delivered by government partners and related community and business partnerships to achieve the desired focus on results.

Coordination is a working function in good practice countries which is closely related to the leadership function. The rationale for *coordination* is always the country *results focus.*

Coordinating arrangements must be authoritative, accountable, require decision-making and be appropriately funded if they are to help deliver improved road safety results and serve as platforms for mobilizing resource across government and civil society.

The *coordination* function is addressed across four key dimensions:

1. Horizontal coordination across central government.
2. Vertical coordination from central to regional and local levels of government.
3. Specific delivery partnerships between government, nongovernment, community and business at the central, regional and local levels.
4. Parliamentary relations at central, regional and local levels.

Lead Agency Role

In good practice *coordination* the lead agency plays the pivotal management role across the identified dimensions.

1. Horizontal coordination across central government

Country responsibilities for road safety can be spread over different levels of government with policy being decided at national, regional, local as well as international levels. There are many institutional partners and stakeholders in road safety and different government agencies have separate responsibilities—Transport, Justice, Education, Health, Employment, Finance, Industry, Research, Local and Regional government. In some parts of the world (e.g., European Union countries) there are international governmental road safety functions.

The component problems of road safety are so diverse that meaningful institutional collaboration between the main government agencies is essential to ensure efficient and effective road safety management. Avoiding duplication of effort and realizing the full potential of individual sectoral contributions are fraught with difficulty, unless special institutional arrangements are put in place to address accountability, coordination and funding issues.[16,17]

In good practice countries horizontal coordination is carried out across government, by government. High-level committees, working groups and bi-lateral partnerships are established to deliver a coordinated delivery of the road safety strategy. National coordinating arrangements and structures are an extension of the accountable lead agency that manages them. They are used as platforms for agreeing and reviewing national road safety targets, mobilizing resources, coordinating multi-sectoral partnerships in pursuit of agreed results and consulting with a wider group of partners and stakeholders. The arrangements are usually established, serviced and supported by the

lead agency with a high capacity secretariat and appropriate funding.

Decision-making across government

A clear decision-making hierarchy is established in good practice *coordination* (see Boxes 9–10). This addresses all or most of the following levels to ensure meaningful interaction and decision-making:

- Ministerial Council
- Agency chief executive (or departmental head) level
- Senior manager level
- Safety theme level, including thematic sub-committees reporting to the above level
- Consultation level

The major work is usually directed by senior managers of the partner agencies with technical support from the lead agency secretariat and related policy and research teams. The senior managers seek decisions and direction from their chief executives (see Box 11). Advisory support typically comes from working and technical groups at lower levels of government with advisory groups comprising broad government agency and non-governmental partner and stakeholder representation and consultative arrangements. Usually the lead agency carries most of the workload and the negotiation of partnership agreements with governmental departments. A good practice model combining all these elements is presented in Figure 2.

Box 9: Main levels of the coordination hierarchy in Victoria

- *Ministerial Road Safety Council*
  Key agency Ministers
- *Road Safety Executive Group*
  Key agency Chief Executives
- *Road Safety Management Group*
  Senior road safety management
- *Road Safety Reference Group*
  Broad range of stakeholders
- *Specific thematic and consultation groups*

Box 10: Main levels of the coordination hierarchy in New Zealand

- *National Road Safety Committee*
  Chief Executives of the main governmental agencies reporting regularly to Ministers
- *National Road Safety Working Group*
  Senior managers with operational lead
- *National Road Safety Program Review Group*
  Senior managers from the three main governmental partners
- *National Road Safety Advisory Group*
  Broad consultative group of partners and stakeholders
- *Specific thematic and consultation groups*

Box 11: National Road Safety Working Group in New Zealand

The National Road Safety Working Group (NRSWG)—the equivalent of Victoria's Road Safety Management Group—is the coordinating group of senior managers and the most important, while not the highest level group, in New Zealand's decision-making hierarchy. The NRSWG reports to the National Road Safety Committee (NRSC) of Chief Executives, but leads on operational matters. It is responsible for detailed policy coordination between the member organizations, preparing quarterly NRSC meetings as well as setting up working groups on specific issues. It is chaired by the lead agency and is supported by the lead agency secretariat which is situated in the lead agency road safety strategy division.

Formal specification of the purpose and decision-making role of coordinating bodies is set out in legislation and/or a Memorandum of Understanding and in the road safety strategy (see Boxes 12–13). Membership of the coordinating body at the executive and senior manager levels is usually kept small to promote accountability and confined to key public sector ministries (road/transport, health, police/justice). The coordinating body reports progress to the Cabinet or to Ministers, taking their direction and advice. Experience indicates that one of the requirements of successful inter-governmental coordination is that it cannot be too open a process, with confidentiality being needed at its inner core on budget planning and sensitive policy issues.

Experience globally indicates that where *coordination* is carried out predominantly at Ministerial level without the driving force of a properly resourced lead agency, such arrangements provide more a forum for an exchange of views on the part of senior officials and Ministers than for effective inter-governmental decision-making and a positive influence on results.

Figure 2: Good practice model of national road safety coordination arrangements

National *road safety coordination arrangements* provide a decision-making hierarchy and partnership framework for achieving road safety results through the development and implementation of a coordinated road safety strategy and performance targets which have been agreed across government. The hierarchy consists of three main management levels:

The *Road Safety Executive Committee* comprises the Chief Executives (Secretaries/Assistant Ministers) of the key governmental stakeholders and reports to, supports and receives direction from Ministers. Its role is in communicating, coordinating and agreeing on top-level strategy between agencies on road safety issues. It monitors and reports progress to the government through its Ministers, who sign off the national road safety strategy based on detailed plans for the outputs of the key stakeholders to achieve results. The Group meets approximately 4 times each year and the Chair is occupied by the lead agency for road safety.

The *Road Safety Managers' Working Group* is the hub of the road safety co-ordination meeting monthly and comprises senior managers from government departments with responsibilities for day to day road safety management. The Chair is occupied by the lead agency for road safety. With the lead agency as the key link, the group coordinates implementation of the road safety strategy, develops and implements programs and interventions, reviews identified programs, identifies research priorities, and promotes and monitors a coordinated country-wide program of activities. The Group can set up *Technical Working Groups* to assist its activity.

The *Road Safety Advisory Group* is a consultative body comprising all the main road safety stakeholders, including the non-governmental sector, business and professional sector which meets quarterly and is chaired by the lead agency head of road safety.

The *Coordination Secretariat* is a dedicated, funded unit which sits within the road safety strategy unit of the road safety department of the lead agency.

Box 12: National Road Safety Committee (NRSC), New Zealand—Purpose

2.1. The National Road Safety Committee exists so that:
- (a) *collectively,* the chief executives of agencies with significant responsibility for road safety can work together to reduce road trauma and achieve government road safety outcomes; and
- (b) *individually,* each agency can secure the best possible road safety outcomes from its resources, leveraging off the compatible endeavors of partner agencies that also have a focus on road safety.

2.2. Working as a whole, the Committee's focus is on achieving the government's goals for road safety. It is the principal inter-agency forum for communicating and coordinating top level strategy between the agencies on matters related to road safety.

Extract from NRSC Memorandum of Understanding, 2005[18]

Box 13: National Road Safety Committee, New Zealand: the convenor role of lead agency

While all Committee members (including associates) come together as peers, the lead agency is assigned the role of convener of the Committee. In the spirit of 'first among equals' the lead agency will:

(a) provide the secretariat to support the Committee;
(b) arrange meetings of the Committee on at least a quarterly basis with other meetings being arranged as and when required;
(c) communicate with all members on matters pertaining to the agenda, venue and timing of meetings;
(d) arrange for the Committee to regularly meet with Ministers, as required;
(e) in general terms, act as a conduit between the Committee and the Ministers.

Extract from NRSC Memorandum of Understanding, 2005[18]

Lead Agency Role

In good practice *coordination,* the lead agency:

- **manages the working processes of inter-governmental decision-making on the national road safety targets and strategy;**
- **identifies the key governmental agencies which must be brought together to deliver road safety results and to agree a national road safety strategy;**
- **proposes and seeks agreement on an efficient decision-making hierarchy of governmental agencies and the organizational structures and processes to support this;**
- **establishes the working arrangements of the different levels of the coordination hierarchy from the senior decision-making levels to the consultation and thematic support levels;**
- **secures the support of different levels of management from the key agencies for coordination tasks with special emphasis on the senior road safety management level which is at the core of the coordination hierarchy;**
- **convenes and chairs the main committees;**
- **prepares agendas, minutes and documents for meetings of the different coordination committees.**

The coordinating bodies agree long-term visions, goals and related targets for future safety improvements. In New Zealand and in some of the Australian States, all member agencies directly engaged present their specific road safety initiatives and related work programs to the coordinating committee for consideration, review and funding and commit to fully implementing their work programs and achieving results. Good practice *coordination* requires the commitment to the shared responsibility for delivering final and intermediate outcomes as well as the different institutional output targets (see Box 14). Coordination bodies re-assess priorities over time and adjust funding, policies and measures accordingly.

Box 14: Signing up to the road safety strategy in Victoria

VicRoads (the Victoria Road Corporation), the lead agency for road safety, shares responsibility with the Transport Accident Commission, Victoria Police (and the Department of Justice) for the delivery of the State road safety strategy. Each agency reports to the Ministerial Council on Road Safety. Each Agency Minister has formally signed up to the targeted outcomes of successive road safety strategies.

Lead Agency Role

In good practice *coordination,* the lead agency:

- **prepares Memoranda of Understanding to set out the roles and responsibilities of the key agencies and agreements about delivery of road safety strategy components;**
- **identifies and proposes the possible contributions which might be made by different agencies to the national road safety strategy with reference to international good practice;**
- **organizes appropriate follow up to monitor and ensure delivery.**

Integrating road safety into higher level governmental policies

Country coordination arrangements also provide a valuable platform for integrating road safety into higher level government policies to increase resourcing levels and coverage. Examples include specifying road safety improvements in the national transport policy (e.g., the *Dutch Mobility Plan 2005*[19]); addressing road safety within public health strategies for injury prevention (e.g., *Saving Lives: Our Healthier Nation White Paper,* Great Britain[20]); covering work-related road safety in occupational health and safety strategies; and integrating road safety with environmental and economic considerations in

policies on safe and sustainable communities (e.g., *Growing Victoria Together*, State of Victoria[21]). These good practice activities would typically complement any existing road safety strategy and program policy documents.

Mobilizing resources

Resources for road safety originate from a variety of sources within government, as outlined in Box 15 and detailed in a later section on *Funding and Resource Allocation.* In countries without effective lead agency and coordination arrangements road safety efforts are typically under-resourced and lack technical and political support.

An important function of effective *coordination* is to maximize funding possibilities out of different budgets across government and to prepare the way for final decision-making in Cabinet. A strong business case needs to be made to encourage cooperation and collective responsibility for road safety, especially in governmental sectors such as health and finance which have most to gain from safety investment.

Consultation with a wider group of partners and stakeholders

Good practice countries put in place specific consultation arrangements with all relevant partners and stakeholders to achieve societal ownership of the road safety problem and the championing and delivery of results within the national road safety strategy (see Box 16). These consultation and coordination bodies usually sit at the lower levels of the decision-making hierarchy.

Box 15: Multi-sectoral road safety spending in New Zealand 2003/4

For 2003/04 road safety specific central government expenditure/allocations were estimated at NZ $340 million (excl GST). This comprises:

NZ Police	$202 million (enforcement)
LTSA	$42 million (education and safety management)
Transfund	$91 million (small projects, minor safety works, safety retrofitting)
ACC	$5 million (safety promotion)

A further contribution by local government was estimated at $400 million. Note this tabulation also excludes the substantial funding of ACC rehabilitation services for road crash victims which annually exceeds the cost of preventive measures.

Establishing and funding the coordination secretariat

Whatever forms the coordination body or arrangements may take a dedicated and funded secretariat is established, usually by the lead agency, to provide multi-disciplinary technical support to the coordinating body and its sub-committees (see Box 17). Successful operation hinges on the intellectual capacity and independence provided by the secretariat and its responsiveness to the tasks it is set. The secretariat can include regional and local government liaison staff to ensure effective nationwide coordination of the road safety program delivery.

Lead Agency Role

In good practice *coordination,* the lead agency:

- **mobilizes resources for the national road safety strategy from as many sustainable sources as possible using the coordination platform;**
- **proposes and secures a budget for inter-governmental coordination and ensures that sufficient in-house capacity to deliver this function is established;**
- **establishes a coordination secretariat within the lead agency to provide multi-disciplinary technical support to the coordinating agency and its sub-committees. For example, this can be sited within the lead agency road safety strategy division.**

2. Vertical coordination from central to regional and local levels of government

In the last thirty years there has been a general trend in many high-income countries for less central governance and more local and regional decision-making across a range of public policy issues. In line with the principle of subsidiarity, decision-making is assigned increasingly to the lowest and nearest level to the problem and its potential solution. In practice very few organizations have escaped reorganization in implementing key road safety functions, whether as a result of macro-societal policy, changes in public service delivery, or changes in transport or policing policy.

In good practice countries major responsibility for road safety rests to an increasing degree with regional, state, provincial government as well as local authorities and districts. In most countries local highway authorities have re-

Box 16: Stakeholder consultation and coordination bodies in good practice countries

New Zealand: National Road Safety Advisory Group (NRSAG). Chaired by the lead agency, the NRSAG provides a forum for a wide range of agencies involved in road safety to express their views on road safety issues and to provide a base from which joint projects can be initiated. In 2004 it comprised 19 members predominantly from the public sector including the Accident Compensation Corporation (ACC), the Alcohol Advisory Council of New Zealand, the Crime Prevention Unit of the Ministry of Justice, Local Government New Zealand, the Ministries of Health, Justice, Pacific Island Affairs, Transport and Youth Affairs, the New Zealand School Trustees Association, the New Zealand Automobile Association (AA), the New Zealand Police, Transit New Zealand, Transfund New Zealand, Te Puni Kokiri, Road Safety Coordinators Association, Road Safety Coordinators, Energy, Efficiency and Conservation Authority and Cycle Support NZ.

Victoria: Road Safety Reference Group. This brings together the key agencies, other relevant government departments, agencies, professional and representative bodies. It meets quarterly and is chaired by the VicRoads General Manager of Road Safety. The Group develops action and research proposals, sets up issues-based action groups to tackle major concerns and coordinates the activities of its members.

Great Britain: Road Safety Advisory Panel. In Great Britain, the Road Safety Advisory Panel at national level brings together 32 stakeholder organizations and acts as a forum for national consultation with other governmental departments and key stakeholders. Its role is to provide advice to Ministers on road safety policies and to advise on the three-yearly reviews of progress towards safety targets. The Road Safety Advisory Panel meets around three times a year. Various sub-groups have been established to provide technical support.

Sweden: National Road Safety Assembly. This was set up in 2002 and brings together representatives from government agencies, non-governmental organizations and companies affected by road safety issues. Its aim is to inspire and encourage traffic stakeholders to share responsibility for road safety. The Assembly comprises a variety of actors who have made declarations of intent to improve road safety. For example, the taxi and road haulage sectors have made commitments regarding the increased use of seat belts, better observance of speed limits and driving without alcohol. Regional and local coalitions have also been set up.

Box 17: The role of the coordination secretariat in Victoria

The Road Safety Department of VicRoads provides the secretariat for the work of all coordinating committees for road safety in Victoria. The primary role of the secretariat is to:

- Initiate, develop and deliver road safety strategies and programs that contribute to the road safety outcomes of strategies such as the *Arrive Alive! Victoria's Road Safety Strategy 2002–2007*,[22] having regard to the trends in road trauma.
- Coordinate and influence the development and implementation of road safety strategies, provide effective support and facilitate the management of the road safety management and coordination structure.
- Work in partnership with national umbrella organizations, local government and community groups to increase their involvement, participation and commitment to improving road safety outcomes.
- Improve existing partnerships and establish new external partnerships to increase their contribution to Victorian road safety programs.

sponsibility for their own roads but are not always legally bound to carry out road safety activities. While local authority activity is central to achieving national results, there is typically unevenness in safety performance from one authority to the next. At the same time regionally devolved responsibilities for road traffic policing can lead to differing priorities for the enforcement of key road safety rules.

Examples are presented below of how good practice countries have addressed the challenges of coordinating road safety activities at regional and local levels. They also illustrate the importance of establishing and trying to maintain, wherever possible, a formal framework for coordinated and funded results-based interventions.

Establishing a legal duty for road safety at local and regional levels

One mechanism which has been used to encourage coordinated road safety activity following public sector reform is to establish a legal duty for local authority activity and support this with specific funding mechanisms. An example from Great Britain is given in Box 18.

Box 18: Decentralized road safety engineering in Great Britain[23,24]

In 1974 a legal duty was place on local authorities to establish systematic programs for identifying high-risk crash sites and developing remedial measures. The legislation also required local authorities to appoint road safety officers who were responsible for developing safety education and publicity programs for the local authority. Aided by the development of national road safety guidelines, multi-disciplinary specialist safety teams grew up in many local authorities to carry out programs of road safety engineering and information work. National good practice guidelines and codes of good practice were produced on the basis of experience with local authority implementation. Given that Great Britain has a complex devolved crash reporting system, local and national government and local police forces work closely to achieve common reporting standards for road crash injuries.

In the 1980s central and local government agreed that local safety scheme funding should be ring-fenced to ensure that remedial measures addressing high-risk sites and areas were given priority. Annual funding rose rapidly and by 1997, comprised 6 times the amounts recorded in 1982. In 2001, the funding system changed and local authorities had to bid for a single allocation to address transport needs following the submission of a 5-year Local Transport Plan. All local highway authorities have adopted national safety targets locally.

Establishing regional and local coordination bodies

Where regional targets have been set, regional and local government in good practice countries participate either in the highest levels of the coordination hierarchy or have been required by law to establish specific regional and local coordination arrangements (see Boxes 19–20).

Police enforcement plays a key role in the Victorian road safety strategy. New coordination arrangements were essential when public sector reform shifted practice from highly structured, data-led central policing to regional and local decision-making on road safety priorities with greater reference to and consultation with local communities (see Box 21).

Box 19: Regional and local coordination in New Zealand

Transfund, the regional highway authority and Local Government New Zealand are represented in the National Road Safety Committee and sign up to national and regional road safety targets and strategy. They acknowledge their accountability by means of Memoranda of Understanding and annual performance agreements for specific road safety outputs. Representatives of local authorities are also represented lower down the hierarchy in a consultative capacity.

Lead Agency Role

In good practice *coordination,* the lead agency:

- **manages vertical coordination between central, regional and local levels of government to achieve results;**
- **ensures that the roles and responsibilities of the different levels of government for different aspects of road safety are set out in legislation, including a legal duty to act on the part of lower levels of government;**
- **includes representation of the regions and municipalities in national coordination bodies/arrangements;**
- **proposes and seeks agreement of legislative requirements for the regions and municipalities to establish coordination arrangements to achieve results;**
- **establishes funding mechanisms and prepares implementation tools to assist and encourage lower levels of government in carrying out results-based interventions identified in the national road safety strategy;**
- **helps to establish community partnerships with local road safety coordinators financed by the lead agency to stimulate local action.**

3. Specific delivery partnerships between government, non-government, community and business at the central, regional and local levels

Lead agencies rely heavily on other partners and stakeholders to realize their goals and they play the major role in establishing, funding and encouraging the partnerships needed to deliver road safety results (see Box 22).

Good practice countries develop a range of close working partnerships, often using direct funding mechanisms and other implementation tools. These include bi-lateral and multi-sectoral partnerships amongst the roads/transport, health, justice/police and transport sectors at national, regional and local levels. Many non-governmental organizations also work actively on road safety. These include bodies which address specific road safety themes (e.g., new car assessment programs, professional sectoral organizations such as highway and transportation or casualty surgeons' organizations, road user organizations, safety organizations which often fulfil an umbrella role nationally for non-governmental road safety interests, insurance organizations, industrial groups who may be affected by road safety decisions, and charitable foundations). Consultation and coordination with all are necessary to achieve

Box 20: Decentralizing road safety in the Netherlands 1994–2006[17,23,25,26]

In the Netherlands, the general policy has been to 'centralize what needs to be centralized and de-centralize what should be decentralized.' Over the years, several key road safety responsibilities and implementation of the *Sustainable Safety* strategy have been devolved to regional and local authorities. Regional and local government draw up provincial/regional and municipal traffic and transport plans which aim to integrate road safety policy into longer-term regional and transport planning. Such plans include measures for sustainably-safe design of regional and local roads, and for influencing behavior via public information, education, and police enforcement. The Dutch Institute for Road Safety Research (SWOV) provides key independent promotional and technical support.

The Decentralization Agreement of 1994 specified that:

- Within the general framework of national policy, policies are drawn up where problems need to be solved.
- Each region should have a Regional Safety Board (ROV) in which all parties involved in traffic safety coordinate their individual activities at regional and local level.
- Each region should coordinate policies at the regional level and local authorities should coordinate locally.
- Each region should provide the secretariats of the ROV and encourage activity by local authorities.

In 1997 and within the context of the *Start-Up* program for the Dutch *Sustainable Safety* program central and local government agreed highly successful contractual targets between 1997–2002 with a specific budget to re-classify the road network according to function and thereafter to implement 30km/h zones in residential access roads.[2] In 1998 new legislation was introduced to allow the state and the provinces to direct lower levels if the national plan was not being fully implemented by provinces, or if provincial plans were not being fully implemented by local authorities.

In 2005, the Dutch government's *Mobility Memorandum*[17] stated that the national quantitative target to reduce deaths would be split up into 19 regional and metropolitan area targets. Each region would have an equal target, given that the conditions between the administrative areas did not differ greatly. Agreements would be established between central and local government. The regions and provinces would determine their own plans and measures to reach these targets. Since 2005, the state subsidy to the provinces and metropolitan areas for road safety is no longer earmarked but included in a combined partial subsidy for regional and local traffic and transport policies. At the same time the legal requirement for coordination and its subsidy was removed and large differences in provision for road safety have been reported subsequently.

Box 21: Decentralizing policing in Victoria[27]

Local Priority Policing was introduced in 1999 and, organizationally, Victoria Police went from Central to a Regional command structure. Traffic Management Units comprise traffic personnel who are also available for other duties as required. Local Safety Committees established under the Local Priority Policing Strategy are consulted about the allocation of traffic enforcement resources at high-risk locations and to address high-risk behavior.

The Traffic and Transport Services Department's State Traffic Advisor coordinates the Regions' Traffic Officers Forum which meets monthly, to work towards road safety strategies agreed with corporate partners. Various units have been established within the Traffic and Transport Services Department to carry out or provide advice on traffic safety activity.

Enforcement activity in Victoria is coordinated with publicity and other events organized by other partners and stakeholders using an annual diary of when and where publicity and enforcement activity is to be carried out and when activities are to be advertised in the press. This is maintained by VicRoads, the lead agency. The Road Safety Calendar is then published and circulated to all partners and stakeholders. Victoria Police circulates it to all District Commanders for implementation. The Calendar is updated every 6 months.

societal ownership of the road safety problem and the championing of solutions.

Key bi-lateral and tri-lateral partnerships between government agencies

There are numerous examples of partnerships in good practice countries between lead and other agencies and which aim to deliver specific elements of the road safety strategy (see Boxes 23–25 for examples from The Netherlands, New Zealand and Great Britain). These become even more important where no formal multi-sectoral road safety plan or decision-making structure exists.

Police and roads authorities: Partnerships between highway authorities and the police are particularly important for the efficient support and use of crash data systems

Box 22: The shared responsibility across government, the business sector and civil society involves:

- politicians who make decisions concerning community planning and traffic issues;
- planners who implement political decisions concerning the shape and design of society and the road transport system;
- road managers and the municipal authorities that construct and maintain roads;
- the police who ensure that traffic rules are followed;
- vehicle manufacturers and dealers;
- organizations that strive to improve road safety in society;
- companies, organizations and private individuals that purchase transport services;
- companies, organizations and private individuals that transport goods and people;
- all those who use roads and streets.

Box 23: Sustainable safety in the Netherlands—local and central government contracts

The aim of the *Sustainable Safety* policy is to re-engineer and manage the road network to provide compatibility between road functions, speed limits and road layouts in order to encourage safe road use. Implementation of *Sustainable Safety* is linked to specific road safety targets of reducing deaths by at least 50% and injuries by 40% by 2010 compared with the 1986 baseline figures. In built-up areas the speed limit norm has been established at 30km/h with only main urban roads at 50km/h. The norm on local roads outside built-up areas is 60km/h, with only designated local distributors at 80km/h and long-distance main roads and motorways at 100 or 120km/h.

In 1997 a 5 year covenant was signed between the Minister of Transport, the provinces, the municipalities, and the water boards. This Start-up Program on *Sustainable Safety* set out the clear roles and responsibilities of all of the partners who agreed to carry out a specific program of measures. In addition to establishing a clearer road hierarchy in terms of speed management, this also comprised rules concerning priority, especially priority to cyclists; rules about where mopeds are ridden; the marking of priorities at all road junctions; improved public information; strengthened enforcement; and integration with land-use planning policies. Previous experience with 30km/h zones in the Netherlands had shown a crash reduction potential of 23%. With the potential of two thirds of the Dutch urban road network being converted to 30km/h zones this contract between central and local government led to re-classification of the road network and conversion of as much as 50% of these into 30km/h zones.

Box 24: Risk Targeted Road Policing in New Zealand

The New Zealand Police operate a Risk Targeted Road Policing (RTRP) model which allocates operational resources to higher risk behaviors, offenders and geographical locations to ensure that the effect of limited Police resources on reducing road deaths and injuries is maximised.

The basis of the model is the New Zealand Road Safety Program (administered by the lead agency) which plans and allocates resources for enforcement nationally. Police strategic enforcement focuses on trauma promoting offenses (e.g., speeding, drinking or drugged driving, failure to wear a seat belt, failure to give way or dangerous overtaking) in order to maximise the effect of enforcement on the road toll and driver behavior.

The second tier of the model is the Road Safety Action Planning (RSAP) process. This is a collaborative process whereby key road safety partners agree on quarterly or bi-annual risks, identify objectives, direct tasks, set targets, develop plans and monitor and review progress. The Police are responsible for the delivery of enforcement that targets the priorities and objectives identified in the RSAP.

The third tier is that of Risk Targeted Patrol Plans (RTPPs) which are operational tasking documents. The main aim of RTPPs is to direct strategic enforcement hours to known safety risks often by location and time. RTPPs are issued to both dedicated road policing and general duties staff and require sufficient specification to enable the frontline supervisor to direct the delivery of enforcement hours tactically in support of the RSAP objectives.

This RTRP model has been implemented a part of a general deterrence approach. The aim of general deterrence is to prevent traffic-related offending, and is based on the actual and perceived likelihood of detection. This effect is achieved through road policing that is highly visible, ongoing, strictly enforced across the general population, and well publicised.

Source: Jones, 2005[29]

Box 25: Lead agency fostered police partnerships in Great Britain

In Great Britain, in the absence of an annual public service agreement target for the Home Office for road safety and roads policing and declining levels of traffic policing, a national roads policing strategy was devised. Encouraged by the lead agency for road safety, a tri-partite policy agreement was made between the Association of Chief Police Officers, the Department for Transport and the Home Office for 2005.[30] 'Reducing road casualties' is one of 5 actions and comprises:

- continued operation of the National Safety Camera Program, dealing with road sites and traffic light junctions with a known history of collisions and casualties;
- a national police Drink and Drug Driving campaign, to ensure that people are deterred from this activity by significantly increased risk of detection;
- a national police Seat Belt campaign, to increase the level of seat belt wearing, especially by rear-seat passengers and children;
- a highly visible police presence on the roads.

and coordinated enforcement and publicity. Police and highway authorities work together in good practice countries to produce road safety action plans that promote local ownership of road safety, the appropriate use of police and other resources across boundaries, and calendars of coordinated activity through the year.

In New Zealand road safety policing has comprised over 20% of all policing activity in recent years due to sound business cases being made by the lead agency for the funding of key enforcement outputs. The lead agency in New Zealand contracted New Zealand Police on an annual basis to provide specified outputs related to the road safety strategy funded within the New Zealand Road Safety Program. New Zealand road safety policing has led to a substantial reduction of road trauma through pro-active on-road enforcement with benefits to cost estimated within the range of 8:1–13.1 (with enforcement aimed at excessive speed and drink driving yielding ratios at the upper end of this range).[28] Since 1995 the lead agency advertising programs have supported strategic police enforcement in the areas of speeding, drink-driving and seat belt use.

Multi-sectoral local partnerships. All good practice countries (see Box 26 for Victorian example) foster the development of multi-sectoral local partnerships. These improve awareness and coordination of road safety, as well as local acceptance of rules and measures.

Box 26: Local partnerships in Victoria

Local government activity. Each municipality identifies local issues, develops and implements municipal road safety strategies and action plans, builds links with community groups interested in road safety and 24 Community Road Safety Councils help to give effect to the strategy.

The Saferoads Partnership between the Municipal Association of Victoria, Local Government Professionals, VicRoads, Victoria Police, the TAC and the Royal Automobile Club of Victoria was established in 1999. A Memorandum of Understanding between the partners sets out clearly the roles and responsibilities of each partner. Councils are encouraged to develop municipal safety strategies within their Corporate Plans.

Community road safety councils (CRSC) are used to identify local issues and develop action plans that complement the state programs. Each CRSC receives support from a government funded Road Safety Officer. The CRSCs undertake around 150 community road safety programs annually.

Lead Agency Role

In good practice *coordination,* the lead agency:

- **identifies, establishes, funds and provides tools for key partnerships between government agencies (e.g., lead agency, police, highway authorities). It ensures that local and national government and police forces work closely to achieve a common reporting standard where responsibilities for collecting data are devolved. It establishes crash databases and provides advice on data management and analysis;**
- **makes use of Memoranda of Understanding to cement partnership arrangements between the lead agency and key partners and stakeholders;**
- **encourages and helps to fund multi-sectoral local partnerships engaging the key partners and stakeholders to implement good practice interventions;**
- **develops tools for use by local authorities such as road safety calendars, safety management systems, crash databases, crash reduction studies or good practice guidelines, often in association with and support of the appropriate professional or safety organization.**

Engaging the non-governmental sector

As the *World Report*[1] highlighted, the non-governmental sector can play a major role in road casualty reduction. Non-governmental organizations both support and provide leadership in key areas of road safety and need to be fully engaged by the lead agency. The scope of non-

governmental organization (NGO) road safety activity is broad, contributing to a variety of country institutional road safety management functions as well as carrying out interventions in support of national visions, targets and strategies. NGOs are particularly effective when they measure their success by their ability to influence road safety results.[31]

Results focus. NGOs help determine challenging but achievable road safety targets. The Dutch Institute for Road Safety Research (SWOV), TRL (UK) and the Monash University Accident Research Centre (MUARC) in Victoria, Australia are actively engaged in assisting lead agency target-setting.

Coordination. While national inter-governmental coordination is the role of government in good practice countries, regional organizations of large national NGOs provide coordination for activity in support of the national road safety strategy (e.g., National Society for Road Safety in Sweden). Local community groups engage and provide coordination for local partners and stakeholders in road safety such as the Community Road Safety Councils in Victoria and New Zealand.

Funding. Private sector insurance organizations can play an effective role in supporting the national road safety strategy. For example, Folksam Research in Sweden and the US Insurance Institute for Highway Safety have made a major contribution to assessing safety ratings of the crash performance of used cars as well as researching vehicle crash protection and other road safety issues. At international level, organizations such as the World Bank Global Road Safety Facility and the FIA Foundation for the Automobile and Society provide project and grant funding for road safety.

Legislation. Positive advocacy from NGOs can be important to legislative development. NGOs can sometimes take the lead in ensuring that key legislation reaches the statute book as shown in the British example in Box 27.

Promotion. The NGO sector plays a key role in helping to provide a sympathetic climate for change. NGOs can provide an authoritative source of impartial factual information and promote evidence-based solutions in support of national visions and targets. The sector can help to identify and actively promote demonstrably effective solutions, with due consideration to their cost, practicality and public acceptability. They can also publicly challenge ineffective policy options.

Box 27: Parliamentary NGO role in seat belt wearing in Great Britain

The UK umbrella organisation, the Parliamentary Advisory Council for Transport Safety, brought together key NGOs such as the Royal Society for the Prevention of Accidents, the British Medical Association and the Automobile Association in an effective coalition in support of compulsory front seat belt use in the 1980s. The UK seat belt legislation was delivered by private members legislation (an amendment to a Government Bill (front and rear belts) as well as a Private Members Bill for rear seat belt wearing for children. This legislation was tabled and guided through parliament by parliamentary members of the leading NGOs.

Independent road safety research organizations are strong and authoritative promoters of road safety (e.g., the Dutch Institute for Road Safety Research (SWOV) in the Netherlands and Monash University Accident Research Centre (MUARC) in Victoria, Australia). The National Society for Road Safety (NTF) is playing a key role in promoting the right to road safety in Sweden and the shared responsibility of system providers and users. Victims' organizations play an important role in increasing understanding about the consequences of road crashes, although they may have broader interests than road safety and engage in pursuit of matters of social justice and victim support. Examples of victim groups are Mothers Against Drinking Driving (MADD) in the USA, Asociación Familiares y Víctimas de Accidentes del Tránsito (Association of Families and Victims of Traffic Accidents) in Argentina and Great Britain's Road Peace and BRAKE.

Monitoring and evaluation. Independent national research organizations play a key role in monitoring the national road safety targets and strategies (e.g., TRL, SWOV, MUARC). The European New Car Assessment Programme and the European Road Assessment Programme are examples of successful partnerships which assess the safety quality of new cars and road infrastructure.

Research and development and knowledge transfer. The lead agency engages the independent research sector in the creation of road safety knowledge, identification of current global good practice, as well as the development of longer term solutions and innovation. Professional organizations in the health and transport sectors play an important role in preparing national guidelines and promoting good practice (e.g., the Institution of Highways and Transportation in Great Britain, CROW in the Netherlands

and the Australian Road Research Board). International foundations and partnerships such as the European Transport Safety Council, the World Bank Global Road Safety Facility and the FIA Foundation for the Automobile and Society work across national boundaries to promote good practice.

Lead Agency Role

In good practice *coordination,* the lead agency:

- **engages the non-governmental sector to help deliver results. While effective NGOs are independent and receive funding from a variety of sources to preserve their impartiality, the lead agency is an important source of support;**
- **establishes or helps to establish new partnerships or organizations in support of the country results focus and supporting institutional management functions;**
- **provides pump-priming, core funding and technical support.**

Engaging the business sector

The business sector shares responsibility for road safety and can make an important contribution with initiatives which are in line with national road safety strategy goals. The business sector's contribution and influence cuts across most of the identified institutional management functions.

Results focus. Given that road traffic crashes have been identified as the leading cause of work-related death and injury in several countries, employers can be encouraged to make a significant contribution to achieving road safety results in a variety of ways. In several countries, governments, public and private sector employers, and non-governmental organizations have taken steps to address work-related safety against the background of national road casualty reduction targets and with the aim of reducing crash and injury costs.

Statutory requirements are typically set out in high-income countries to provide a framework for business sector engagement in road safety through safety and health legislation; vehicle, road construction and product standards; and work-related road safety policies.[1] Such actions include national occupational safety and health strategies, employer policies in the public and private sectors and ad hoc measures. Research and experience has identified substantial potential benefits associated with better managing work-related road safety, though little activity has been evaluated scientifically and systematically and knowledge of the effectiveness of different measures is limited[32] (see Box 28).

Box 28: Benefits of managing work-related road safety (HSE, 2003)[33]

- Control over costs, such as wear and tear, fuel, insurance premiums, legal fees and claims from employees and third parties;
- informed decisions about matters such as driver training and vehicle purchase and identifying where health and safety improvements can be made;
- fewer days lost due to injury;
- reduced risk of work-related ill health;
- reduced stress and improved morale;
- less need for investigation and paperwork;
- less lost time due to work rescheduling;
- fewer vehicles off the road for repair;
- reduced running costs through better driving standards; fewer missed orders and business opportunities so reduced risk of losing the goodwill of customers;
- less chance of key employees being banned from driving (e.g., as a result of losing points on licenses).

However, the large benefits of vehicle safety improvements have been widely demonstrated. While legislation is necessary to ensure a standard level of protection, industry is being urged increasingly to fast track safety improvements wherever possible (see Boxes 29–31). Sweden stimulates its local motor vehicle and road haulage industry to offer new safety equipment. Employers can contribute much to road safety through in-house vehicle and user safety policies. As in Sweden, the lead agencies in Victoria and New South Wales, Australia have developed in-house safe driving and fleet purchase policies.

Coordination. In good practice countries government seeks to encourage the most positive contribution from

Box 29: What vehicle manufacturers can do: World Report (2004)[1]

- Ensure that all motor vehicles meet safety standards set for high-income countries—regardless of where the vehicles are made, sold or used—including the provision of seatbelts and other basic safety equipment.
- Begin manufacturing vehicles with safer vehicle fronts, so as to reduce injury to vulnerable road users.
- Continue to improve vehicle safety by ongoing research and development.
- Advertise and market vehicles responsibly by emphasizing safety.

Box 30: Steps taken by good practice lead agencies to improve vehicle safety standards

- *Engage in international legislative development work* by being represented in technical committees of the UN ECE, the EU and other bodies associated with the development of vehicle safety standards and legislation. In addition, several countries participate actively in the work of international organizations towards the development of legislative tests and standards such as working and steering committees of the European Enhanced Vehicle-safety Committee and global research co-operation within the International Harmonised Research Activities (IHRA).
- *Provide technical support* to achieve vehicle safety legislation which reflects real-world conditions necessitates programs of in-depth crash injury research, crash dummy development and other biomechanical work. For example, in Europe over the last 20 years countries such as Great Britain, Germany, Sweden and France have devoted significant national resource to activity aimed at safety standard development.
- *Carry out national research and monitoring of vehicle safety measures*
  The monitoring of the performance of vehicle safety legislation in real crashes to identify progress as well as future priorities for vehicle safety has taken place systematically in several countries. The Cooperative Crash Injury Research Study in the UK is one of the largest on-going studies of this kind.
- *Establish, support and join New Car Assessment Programs*
  Various governments have developed New Car Assessment Programs in the United States, Australasia and Europe.
- *Encourage financial incentives for the use of protective equipment* and ensure that protective equipment usage laws are properly enforced. Some countries provide financial incentives for the fitment or use of safety equipment.
- *Encourage local car industry to fast track key safety measures*
  Even countries which have signed up to international agreements for type approval can encourage national progress to achieve faster results.

Box 31: Examples of lead agency initiatives to engage the business sector in Sweden

- Helping to establish the European New Car Assessment Programme (Euro NCAP) which publishes ratings on the crash performance of new cars that has led to significant improvements in safer car design for car occupants;
- Using Euro NCAP safety ratings in performance monitoring in Swedish Road Administration travel policies to encourage demand for improvements in vehicle safety;
- Encouraging the local car industry to fast track the fitment of alcohol interlocks, seat belt reminders and electronic stability control systems;
- Encouraging road haulage and taxi companies to adopt a range of safer practices such as the fitment of alcohol-lock devices to detect excess alcohol and seat belt reminders by stipulating safety demands such as these in transport contracts;
- Supporting the non-governmental organization National Society for Road Safety to develop performance ratings for the road safety activities of road haulage companies;
- Engaging the business sector and other organizations through establishing the National Road Safety Assembly. This consultative and coordinating body encourages traffic stakeholders to make far-reaching promises to improve road safety. The taxi and road haulage sectors, for example, have made commitments regarding the increased use of seat belts, better observance of speed limits and driving without alcohol.

business by clearly defining its responsibilities in the national road safety strategy and including the sector in its consultation and coordination groups, usually at the lower level of the decision-making hierarchy (see Boxes 31 and 32).

Funding. Business sponsorship for road safety activities is widely sought by government and the non-governmental sector world-wide. A wide variety of companies are, typically, invited to support the national road safety strategy activity (e.g., the *THINK!* campaign in Great Britain) and annual conferences supporting the strategy (e.g., Roadsafe in Victoria). The insurance, car manufacturing and oil sectors have played a key role in supporting non-governmental road safety organizations and National Road Safety Councils. The Global Road Safety Partnership encourages and initiates business-sponsorship of safety projects on an international basis. The insurance sector also plays an important role in funding research and safety data (e.g., the US Insurance Institute for Highway Safety and Folksam Research in Sweden). The funding role of the industry is discussed in a later section on *Funding and Resource Allocation*.

Promotion. The business sector can play a key role on helping to promote work-related strategies and its initiatives which produce road safety results.

Box 32: Examples of business consultative/coordination groups in good practice countries

New Zealand's Industry Consultative Group (ICG). This group was established to provide a forum for the land transport industry to liaise with the lead agency. It provides a strategic overview of commercial vehicle safety issues in the land transport sector, operates in an advisory capacity and reports to the National Road Safety Working Group. Its membership comprises: the New Zealand Automobile Association (AA), the Bus and Coach Association, the Contractors Federation, Federated Farmers, the Imported Motor Vehicles Dealers Association, Local Government New Zealand, the Motor Industry Association, the Motor Trade Association, the Motor Vehicle Dealers Institute, the Owner Carriers Association of New Zealand, the New Zealand Road Transport Forum and the Taxi Federation.

Victoria's Transport Industry Safety Group meets 6 times each year in involving the road safety partners, transport industry and unions, the WorkSafe Authority and the State Coroner's Office which focuses upon heavy vehicle related safety issues.

The *Swedish National Road Safety Assembly* and the *British Road Safety Advisory Panel* which focus on delivery of the national safety strategies also include members of key industrial groups.

Box 33: The US Insurance Institute for Highway Safety[34]

The Insurance Institute for Highway Safety (IIHS) is a non-profit making research and communications organization funded by motor vehicle insurers. For over 30 years IHSS has been a leader in identifying what works and does not work to prevent motor vehicle crashes and reduce injuries in crashes which occur. The Institute's research focuses on interventions aimed at all three factors in motor vehicle crashes (human, vehicular, and environmental) that can occur before, during, and after crashes to reduce losses. In 1992 the Vehicle Research Centre (VRC) was opened. This centre, which includes a state-of-the-art crash test facility, is the focus of most of the Institute's vehicle-related research. The Institute's affiliate organization—the Highway Loss Data Institute—gathers, processes, and publishes data on the ways in which insurance losses vary among different kinds of vehicles.

In 2005, the IIHS budget was $13,033,853. Total staffing was 74 in the following departments: Executive (4), Arlington Research (non-vehicle research) (12), Vehicle Research Centre (29), Communications (print, video, and website) (16), and Legal, Accounting & Office Management (13).

Monitoring and evaluation. The insurance sector has been active in monitoring the safety quality of the vehicle fleet. For example, the US Insurance Institute for Highway Safety and Folksam Research in Sweden play a major role in producing objective safety rating information which provides an important source of data on the safety performance of national vehicle fleets.

Research and development. The insurance sector also can perform a nationally useful research and development function, as shown in the example in Box 33.

Lead Agency Role

In good practice *coordination,* the lead agency:

- **engages the business sector in support of a range of institutional management functions needed to deliver results;**
- **establishes a national strategy for work-related road safety and requires safety provision in all in-house transport contracts to stimulate local industry;**
- **includes business sector representation in the national strategy consultation/reference group in the national road safety coordination hierarchy;**
- **establishes well-publicized agreements involving companies in key activities in support of the strategy.**

4. Parliamentary relations at central, regional and local levels

Experience worldwide demonstrates that effective road safety policies can also arise out of the efforts of informed and committed members of parliament.[1] In good practice countries, parliament is pro-active in supporting all the main institutional management functions needed to realize the national road safety results. It can participate actively in support for country results focus, by ensuring that national targets are enshrined in legislation and are sufficiently ambitious but achievable in the interim. It can participate in the national coordination and consultation hierarchy. It can help to promote and champion road safety and to ensure that adequate resources are available

in government road safety budgets. Parliament, of course, actively participates in the road safety legislative function and in its monitoring role holds government to account for country road safety performance.

Good practice countries, therefore, encourage an informed all-party approach to road safety policies and maintain good contact and coordination with parliamentary road safety organizations. Well-informed parliamentary committees and joint groups of legislators and professionals on road safety providing all-party initiative, support and scrutiny have been identified as a key ingredient in achieving major breakthroughs in road safety policy development in good practice countries.[1]

Parliamentary road safety committees have demonstrated their value in:

- using private members legislation to enact road safety rules;
- ensuring adequate resources;
- achieving greater action and commitment at a whole of government level;
- highlighting the achievements of projects by governments, professionals and others;
- bringing emerging issues to the attention of government;
- attracting attention to issues at the boundaries of agencies' responsibilities;
- accelerating sluggish reform processes;
- exploring new ideas without undue political costs to government.[8,16,35]

Parliamentary Committees. Parliamentary Committees are appointed by the parliament and have a specific and formal remit within the parliament. They typically comprise around 8–10 parliamentarians from all parties and have a small permanent secretariat. They can be road safety committees or transport committees which give high priority to road safety. There are several examples of parliamentary organizations in Australia, Great Britain, the Netherlands and Sweden which have been associated with initiating important road safety measures (see Boxes 34–35).

Parliamentary Groups. Parliamentary Groups are usually registered with parliament and have to conform to certain rules, but they are not formally part of parliament. They are joint groups comprising parliamentarians, road safety experts and professional organization established by several parliamentarians from all parties (see Box 36). The *World Report* noted that such groups could also make a valuable contribution to safety.[1]

Lead Agency Role

In good practice *coordination,* the lead agency:

- **engages and encourages parliamentary relations at central, regional and local levels to ensure support for the desired focus on results;**
- **provides support to parliamentary liaison staff to aid the process of communication between the Executive and parliament;**
- **presents an annual report to parliament on road safety progress;**

Box 34: Parliamentary Committees dealing with road safety in Australia and Europe

- The Victorian Joint Standing Committee on Road Safety was instrumental in the successful adoption of the first legislation worldwide on compulsory front seat belt wearing. 1970 was Australia's worst year for road deaths and following the advice of the Committee Victoria made seat belt wearing compulsory from the beginning of 1971, which led to a reduction in car occupant deaths in Victoria by 18% by the end of 1971 and 26% by 1975.[35,36]
- In New South Wales in the early 1980s, the parliamentary Standing Committee on Road Safety (STAYSAFE) was responsible for the introduction and full-scale implementation of highly visible random breath testing which led to a 20% reduction in alcohol-related deaths and injuries and received over 90% public support in opinion surveys which has been sustained.[37]
- The Travelsafe Committee of the Queensland parliament was established in 2004 and has helped to achieve, improvements in road safety management, random breath testing and the introduction of speed cameras.[38]
- Sweden's Parliamentary Transport Committee played a key role in enshrining the *Vision Zero* policy in legislation and introducing numerical fatality reduction targets to 2007 to encourage fast action and focus. In 2004, it organized a European meeting of Parliamentary Select Committees on Transport to discuss priority actions for the European Union road safety policy.[39,40]
- All-party support from the Parliamentary Standing Committee on Transport, Public Works and Water Management was the key to the establishment of *Sustainable Safety* in the Netherlands.[41]
- All party parliamentary support for speed camera deployment from the British Select Committee on Transport assisted with the national roll-out of speed camera partnerships.[42]

- **encourages through its Ministers the establishment of a dedicated all party road safety committee to champion road safety within the parliamentary process, the media and society at large, parliamentary hearings on aspects of road safety by relevant parliamentary committees, and parliamentary legislation for road safety using Private Members' procedures;**
- **supports the production of road safety guidance for locally elected representatives to encourage local leadership and evidence-based practice at the local level in partnership with NGOs, local authority association;**
- **includes all party parliamentary road safety organizations in the advisory group of road safety coordinating bodies.**

Box 35: Parliamentary Road Safety Committee of Victoria[36]

The Committee comprises seven members of parliament drawn from both Houses and all Parties. The Committee elects the Chair and has a secretariat of 4—an executive officer, two research officers and an officer manager. The functions of the Committee set out in legislation are: . . . 'to inquire into, consider and report to the parliament on any proposal, matter or thing concerned with—(a) road trauma; (b) safety on roads and related matters.' The Road Safety Committee does not have legislative or regulatory powers. It holds public inquiries, reporting to parliament with recommendations and government is required to respond within 6 months. There are 5 phases of the Inquiry process:

1. The Committee advertises its Terms of Reference and calls for submissions (providing guidance to the public on how to make a submission). A Discussion Paper may be prepared and published.
2. The Committee gathers information, including fact and opinion found in submissions and presented in Public Hearings, inspections and field trips.
3. The Committee considers the arguments, evidence and data it has gathered. Findings and recommendations are agreed upon.
4. The Committee tables a report, including its recommendations, in the parliament.
5. The Minister who initiated the Inquiry or who has portfolio responsibility for the matter addressed by the Inquiry is responsible for replying to the Committee's recommendations. The Minister has six months from the date of the tabling of the report to respond. The Minister may accept, reject, modify or adapt the Committee's recommendations.

The Committee typically investigates one major road safety issue in each calendar year and since 1992 it has produced 11 reports.

Box 36: Parliamentary Advisory Council for Transport Safety (PACTS)[43]

The Parliamentary Advisory Council for Transport Safety (PACTS) established in 1983 is a registered charity and an associate Parliamentary Group. Its charitable objective is 'To promote transport safety legislation to protect human life.' Its aim is to advise and inform members of the House of Commons and of the House of Lords on air, rail and road safety issues. It brings together safety professionals and legislators to identify research-based solutions to transport safety problems having regard to cost, effectiveness, achievability and acceptability.

Coordination: summary of lead agency role

In good practice countries *coordination* is a function of the national leadership of road safety to achieve results. The rationale for coordination is always the country results focus and the lead agency plays the pivotal management role.

1. *Horizontal coordination across central government*
   In good practice coordination, the lead agency:
   - manages the working processes of inter-governmental decision-making on the national road safety targets and strategy;
   - identifies the key governmental agencies which need to be brought together to deliver road safety results and to agree a national road safety strategy;
   - proposes and seeks agreement on an efficient decision-making hierarchy of governmental agencies and organizational structures and arrangements in support of this;
   - establishes the working arrangements of the different levels of the coordination hierarchy from the senior decision-making levels to the consultation and thematic support levels;
   - secures the support of different levels of management from key agencies to coordination tasks with special emphasis on the senior safety management level which is at the core of the coordination hierarchy;
   - convenes and chairs the main committees;
   - prepares agendas, minutes and documents for meetings of the different coordination committees;
   - prepares Memoranda of Understanding to set out the roles and responsibilities of the key agencies and agreements about delivery of road safety strategy components;
   - identifies and proposes the possible contributions which might be made by different agencies to the national road safety strategy with reference to international good practice;
   - organizes appropriate follow up to monitor and ensure delivery;
   - mobilizes resources for the national road safety strategy from as many sustainable sources as possible using the coordination platform;
   - proposes and secures a budget for inter-governmental coordination and ensures that sufficient in-house capacity is established;
   - establishes a coordination secretariat within the lead agency to provide multi-disciplinary technical support to the coordinating agency and its sub-committees. For example, this can be sited within the lead agency road safety strategy division.

2. *Vertical coordination from central to regional and local levels of government*
   In good practice *coordination,* the lead agency:
   - manages vertical coordination between central, regional and local government to achieve results;
   - ensures that the roles and responsibilities of the different levels of government for different aspects of road safety are set out in legislation, including a legal duty to act on the part of lower levels of government;
   - includes representation of the regions and municipalities in national coordination bodies and arrangements;
   - proposes and seeks agreement of legislative requirements for the regions and municipalities to establish coordination arrangements to achieve results;
   - establishes funding mechanisms and prepares implementation tools to assist and encourage lower levels of government in carrying out results-based interventions identified in the national road safety strategy;
   - helps to establish community partnerships with local road safety coordinators financed by the lead agency to stimulate local action.

3. *Specific delivery partnerships between government, non-government, community and business at the central, regional and local levels*
   In good practice *coordination,* the lead agency:
   - identifies, establishes, funds and provides tools for key partnerships between government agencies (e.g., lead agency and the police, lead agency and highway authorities, police and highway authorities). It ensures that local and national government and police forces work closely to achieve a common reporting standard where responsibilities for collecting data are devolved. It establishes crash databases and provides advice on data management and analysis;
   - makes use of Memoranda of Understanding and agreements to cement partnership arrangements between the lead agency and key partners and stakeholders;
   - encourages and helps to fund multi-sectoral local partnerships engaging the key partners and stakeholders to implement good practice interventions;
   - develops tools for use by local authorities such as road safety calendars, safety management systems, crash reduction studies or good practice guidelines, often in association with and support of the appropriate professional or safety organization;
   - engages the non-governmental sector to help deliver results. While effective NGOs are independent and receive

funding from a variety of sources to preserve their impartiality, the lead agency is an important source of support;
- establishes or helps to establish new partnerships or organizations in support of the country results focus and supporting institutional management functions;
- provides pump-priming, core funding and technical support;
- engages the business sector in support of a range of institutional management functions needed to deliver results;
- establishes a national strategy for work-related road safety and requires safety provision in all in-house transport contracts to stimulate local industry;
- includes business sector representation in the national strategy consultation/reference group in the national road safety coordination hierarchy;
- establishes well-publicized agreements involving companies in key activities in support of the strategy.

4. *Parliamentary relations at central, regional and local levels*
In good practice *coordination,* the lead agency:
- engages and encourages parliamentary relations at central, regional and local levels to ensure support for the desired focus on results;
- provides support to parliamentary liaison staff to aid the process of communication between the Executive and parliament;
- presents an annual report to parliament on road safety progress;
- encourages through its Ministers the establishment of a dedicated all party road safety committee to champion road safety within the parliamentary process, the media and society at large; parliamentary hearings on aspects of road safety by relevant parliamentary committees; and parliamentary legislation on road safety using Private Members' procedures;
- supports the production of road safety guidance for locally elected representatives to encourage local leadership and evidence based practice at the local level in partnership with NGOs, local authority association;
- includes all party parliamentary road safety organizations in the advisory group of road safety coordinating bodies.

Legislation

Legislation: overview of good practice

Function:

Legislation concerns the legal instruments necessary for governance purposes to specify the legitimate bounds of institutions in terms of their responsibilities, accountabilities, interventions and institutional management functions to achieve the desired focus on results.

Dimensions:

- Reviewing the scope of the legislative framework.
- Developing and updating legislation needed for the road safety strategy.
- Consolidating legislation.
- Securing legislative resources for road safety.

Legislation

Legislation concerns the appropriate legal instruments for governance purposes which specify the legitimate bounds of institutions, their responsibilities and accountabilities, their interventions and their related institutional management functions to achieve the desired focus on results.

All good practice countries aim to ensure that appropriate legislation is in place to meet the road safety task set out and agreed within the national road safety strategy. Typically a comprehensive framework for the road traffic system safety will have evolved over many years.

The *legislation* function is addressed across four main dimensions:

1. Reviewing the scope of the legislative framework periodically.
2. Developing legislation needed for the road safety strategy.
3. Consolidating legislation.
4. Securing legislative resources for road safety.

Lead Agency Role

The lead agency plays an important role across the identified dimensions of *legislation*.

1. Reviewing the scope of the legislative framework

Good practice countries provide the legislative framework for different elements of the traffic system to specify the roles and responsibilities of road safety agencies, define the performance goals and evaluation arrangements, and ensure compliance with detailed performance requirements for the design, operation and use of the road network, vehicles and the emergency medical system.

When new road safety strategies and quantitative targets are developed a multi-sectoral review by officials and external experts with specialist skills is typically undertaken to review a range of interventions. This will include reviewing whether or not current legislative instruments are sufficient to match the road safety task envisaged in the new strategy (see Boxes 37–38).

Box 37: Reviewing road safety law in Great Britain

Following the Road Traffic Law Review (Department of Transport and Home Office, 1988) which comprised representatives of the lead agency (DfT), the Home Office and independent experts, a number of legislative changes were made, reflecting concerns about the way in which motoring offenses were dealt with by the criminal justice system. One important recommendation and subsequent legislative provision for road safety strategy was the introduction of the use of camera technology in traffic law enforcement.

In 2004 the government published the first three year review of the Strategy *Tomorrow's Roads—Safer for Everyone*. The Road Safety Act 2006 gave effect to several elements of the government's strategy towards achieving the casualty reduction targets.

Box 38: Reviewing legislative needs of the road safety strategy in Sweden[2]

In Sweden, the lead agency for road safety set up a Committee of Inquiry into Road Traffic Responsibility in 2000. It recommended to the government that *Vision Zero* and the responsibility of the system designers for road safety be regulated by law and that a road traffic inspectorate be established. Legislative provisions for *Vision Zero* and the establishment of an inspectorate were subsequently enacted.

Lead Agency Role

In good practice *legislation,* the lead agency:

- **periodically sets up reviews to benchmark international good practice, identifies any necessary legislative requirements for new safety strategies and adapts rules and standards to keep pace with technical progress;**
- **carries out in-house reviews of the costs and benefits of potential legislative requirements.**

Safety standards set for road network design and planning must be defined or upgraded within a hierarchy of roads and respond to identified road user risks. In most good practice countries this is carried out by the national highway and planning authorities. Some countries (e.g., Sweden and the Netherlands) set targets for the performance of the network such as increasing the number and length of 30km/h zones in residential areas by a certain proportion. Safety audit requirements to monitor compliance are also widely used. The International Road Assessment Programme (iRAP) is being developed as a new tool to assist low and middle income countries is assessing the quality of their network.

Vehicle safety standards to the highest practicable level of safety for vehicle occupants and other road users are aimed for in good practice countries. Several countries report that improvements in vehicle safety continue to be a key means of reaching casualty reduction targets in the medium- to long-term and have worked to ensure that the vehicle industry delivers safety results. Achieving such results, however, requires significant in-house professional capacity development and research and technical support.

Safety standards are being developed increasingly at the international level in legislative and consumer information programs. Standards, which may vary a lot in detail and safety level, have been promulgated by the world's leading vehicle safety jurisdictions: USA, Japan, Australia and Europe (UN ECE and EU). Specialist skills and procedures are necessary to identify and set standards offering a high-level of protection and ensuring compliance with them as a prerequisite for entry to the vehicle fleet through vehicle certification. These standards can relate to active safety features (e.g., lighting and conspicuity) and passive safety features (e.g., side and frontal impact protection, pedestrian and cyclist protection, and safety belts). Typical activities of good practice countries in this field are summarized in Box 30.

Vehicle certification is carried out in good practice countries either by the lead agency or its agents (see Boxes 39–40).

Driver licensing and testing standards must take account of the higher crash risks of novice and elderly drivers. Setting driving and riding standards and rules is usually the responsibility of the lead agency. Education and testing to secure compliance engages a range of agencies, both governmental and non-governmental.

Setting and securing compliance with evidence-based road safety rules (e.g., speed limits, seat belt use, helmet use, and appropriate alcohol limits enforced by random breath testing). Victoria, Australia has been the global leader in introducing seat belt, crash helmet, alcohol and drugs legislation (see Box 41).

Box 39: The UK Vehicle Certification Agency

VCA is the vehicle type approval authority and management system certification body in the UK. It is an executive agency of the Department for Transport (DfT) closely linked with UK government and European policy formulation on vehicle safety and environmental protection standards. With officers around the world, VCA has 113 staff. Its principal objectives are:

- to ensure that new vehicles and their parts are designed and manufactured to conform with appropriate road safety and environmental standards, through the operation of international and national Type Approval schemes;
- to supply customers with accurate and valid approvals, advice and support on Type Approval;
- to carry out enforcement, legislation-making and data publication activities commissioned by DfT and other parts of government or industry, to agreed standards and timescales;
- to supply customers with valid certification to international standards.[44]

Box 40: Vehicle Inspection New Zealand Ltd

Vehicle Inspection New Zealand is an independent self-financing organization which carries out the certification of motor vehicles. The certification process requires checking of documentation to establish that vehicles were manufactured to safety standards recognized in New Zealand and detailed inspections to confirm the vehicles are still within 'Safe tolerance' of their manufactured state.

Box 41: Legislating for road safety in Victoria, Australia

VicRoads, in partnership with Victoria Police, the Transport Accidents Commission with technical support from Monash University Research Centre and all party support from the Parliamentary Road Safety Committee, has introduced evidence-based legislation designed to curtail high risk behaviors and, equally importantly, to facilitate the enforcement of such legislation.

1961– Compulsory helmet wearing for motorcyclists
1970– Compulsory seat belt wearing for all passenger vehicle occupants
1974– Compulsory testing for blood alcohol level of injured persons (over 14 years) treated at hospital
1976– Legislation to permit random breath testing (RBT)
1981– Compulsory use of child restraints where children are carried in front seats
1983– Red light cameras introduced
1984– Zero blood alcohol law for first year drivers (extended in 1987 to the first three years of licensing)
1986– Speed cameras introduced
1990– Compulsory helmet wearing for bicyclists
1992– Zero blood alcohol level for heavy vehicle drivers
1998– Speed camera operation by civilians
2001– Mandatory loss of license for Blood Alcohol Content of > 0.07
2003– Legislation to permit random roadside saliva testing to detect drivers under the influence of illicit drugs
2003– Mandatory alcohol interlocks for repeat offenders at Blood Alcohol Content level of 0.15 and above
2003– Introduction of point-to point speed measurement legislation
2004– Implementation of random drug testing.

Post-impact care is characterized in the *World Report*[1] as a chain of help starting at the scene of crash up to the point of the rehabilitation of the victim. Emergency medical care response times and other aspects of trauma care must be carefully managed. Since the lead agency for road safety is usually not sited within the Health Ministry, effective coordination arrangements are required to ensure that the health sector can play its full role in national road safety targets, strategies and programs.

2. Developing and updating legislation needed for the road safety strategy

Good practice countries develop and update legislation needed for the road safety strategy with due consideration to cost-effectiveness, practicality and public acceptability.

The precise arrangements for developing legislation differs from one country to the next, but all good practice countries develop procedures for this (some more formally than others) and make provision for the mixture of legislative and technical expertise needed. An example from Victoria is presented in Box 42.

In good practice countries the development of a legislative proposal usually involves examination of different alternatives as well as an impact assessment (see Boxes 43–44). In Great Britain, for example, a regulatory impact assessment is required which considers best estimates of the costs (particularly to local authorities and business) and benefits (to society) of the proposed measure which is published as part of the legislative proposal. In Victoria, Australia a business impact assessment is prepared for every legislative proposal before it goes to Cabinet. In New Zealand the national benefits of new safety measures requiring legislative support must exceed their costs.

Consultation. Consultation with the relevant governmental partners is carried out at an early stage of developing a legislative proposal. Inter-governmental coordination bodies and advisory groups provide the forum for initial consultation. The need to consult a wide range of partners and stakeholders is usually a standard provision in legislative texts. Consultation papers are issued at an early stage in the development process and aim to encourage broad public debate. The professional, research and non-governmental sectors often assist in making the road safety case where proposed legislation meets with objections or where commercial interests opt for weaker voluntary requirements.

Small rules teams. Small rules teams of in-house policy experts and legislative experts (often sitting in other parts of the government or the government department) manage the process of developing major legislative Acts and steering them through parliament (see Box 44). Primary or enabling legislation comprising major acts of parliament requires full parliamentary scrutiny and time. However, the majority of road safety legislation comprises secondary legislation enabled by primary legislation which Ministers can lay before parliament on a day to day basis and which is ultimately passed through subject to no objections. Secondary regulation can be highly technical, setting out detailed performance requirements for vehicles and road infrastructure, and it requires appropriate levels of in-house

Box 42: The legislative process and road safety in Victoria

The Minister for Transport (VicRoads' Minister) has responsibility for the Road Safety Act (and Regulations) which is subject to Cabinet and parliamentary approval. Prior to consideration by the Cabinet, proposals are required to be circulated to major departments for comment. The initiating department collates comments further and lodges. When Bills are introduced into the House, the Opposition often requests full briefings by the Road Safety Department staff. A Business Impact Assessment is required for legislative proposals to Cabinet and Regulatory Impact Statements (published for comment) are required for regulations.

The General Manager Road Safety from VicRoads, through the Road User Behavior Unit and the VicRoads Legal Services Department, has responsibility for developing key proposals. The key governmental partners in this process are the Department of Justice Enforcement Unit, the Department of Justice Legal Services for criminal on-road offenses and Victoria Police who review enforceability. One person is allocated to road safety in VicRoads' Legal Services.

Vehicle standards legislation is introduced at the federal level, although Victoria participates in research and development and is consulted, along with other States, on the content of national proposals for Australian Design Rules and standards agreed internationally. The national umbrella body for decision making on these matters is the Australian Transport Council (ATC).

Source: VicRoads, 2006 [46]

Box 43: Developing road safety legislation in Sweden[47]

Before the Swedish government submits a proposal for major new road safety legislation to parliament, it has to follow the following steps:

- The various alternatives available to the proposal have to be examined.
- This task is assigned to a committee of inquiry comprising one or more people who may include experts, officials or politicians.
- The committee of inquiry submits its recommendations in a report to government.
- The government then refers the report to various public agencies, organizations and municipalities for consideration before amending or submitting its proposal.

Box 44: Lead agency rules teams in New Zealand, Great Britain and the Netherlands

New Zealand. A rules team sat within the Policy Division of the Land Transport Safety Authority with a core legal team in the Ministry of Transport providing the gateway to parliament and managing cross-sectoral issues, especially with the justice sector.

Great Britain. Road safety legislation is developed in the Department for Transport by legal experts from the legislative department in consultation with road safety policy officials. Every time a major piece of legislation is developed, a dedicated team of around 3–4 officials is set up comprising road safety department experts together with one or more legal experts.

The Netherlands. A similar arrangement whereby the policy and legislative experts combine is practised in the Netherlands. Additionally, an independent body is consulted by the Minister to provide legal advice on each legislative proposal that goes to the Dutch parliament.

technical expertise. The team is normally based within the safety strategy and policy sections of the lead agency. Within the lead agency legislative expertise is available, either within the safety team or, more commonly, provided by a separate legislative unit in the organization.

Legislative pilots providing for an experimental period of legislation to pass into permanent law at the decision of the Minister of Transport can usefully save parliamentary time. Legislation for the Drink-Drive Rehabilitation Scheme for alcohol offenders in Great Britain was introduced via a legislative pilot and made law by Ministerial decision. Subsequently, a permanent drink-drive rehabilitation scheme was introduced throughout Great Britain. Legislative pilots requiring affirmative resolution by parliament can also be useful and sometimes encourage more support for those legislative proposals which attract small but vociferous opposition. The compulsory use of seat belt legislation in Great Britain was introduced in this way.

Lead Agency Role

In good practice *legislation,* the lead agency:

- **reviews different alternatives to achieving specific policy objectives;**

- **carries out early consultation with governmental partners within the coordination and consultation bodies. The process of discussing and addressing any concerns put forward by other government departments needs to take place well before Cabinet discussions;**
- **uses its coordination arrangements to ensure progress with legislative development important for the strategy, where the right of initiative rests with other government departments;**
- **consults with a broad range of partners and stakeholders and the public on proposals for developing and updating enforceable standards and rules;**
- **puts together small rules teams of in-house policy experts and legislative experts;**
- **uses legislative pilots.**

3. Consolidating legislation

Road safety legislation addresses a wide range of issues and has often evolved over time, often without adequate cross-referencing. From time to time road safety legislation is consolidated into one text to allow greater ease of reference as well as a clearer understanding of the responsibilities imposed by legislation (see Box 45). Good practice countries tend to consolidate key road traffic legislation or motor vehicles legislation every 10–15 years. The country Highway Code is also revised from time to time.

Box 45: Consolidating road rules in Australia, New Zealand and Great Britain

Australia: In order to ensure that road rules were up to date and consistent throughout the country Australian Road Rules were harmonized and consolidated in 1999. This eliminated many differences between the rules of different states which had existed mainly for historical reasons. Legal teams from road safety departments in the State lead agencies played a key role in this process.

New Zealand: The Land Transport Amendment Act 2005 merged a number of pieces of existing land transport legislation into the Land Transport Act 1998 which itself was a major consolidation of previous road safety legislation.

Great Britain: The main purpose of the Road Traffic Act 1988 was to consolidate and replace earlier road traffic legislation in the overall interest of improving road safety. As amended it remains the principal statute on this area of the law, regulating a wide range of road traffic issues, including driving standards, the construction and use of vehicles and driver licensing and instruction. A considerable number of statutory instruments have been made under the Act since it came into force. A consolidated version of the Act is available online and includes details of all the secondary legislation made under each provision of the Act.

Lead Agency Role

In good practice *legislation,* the lead agency:

- **conducts periodic reviews to consolidate key legislation (e.g., vehicle type approval information and road rules which have evolved over the decades) to improve ease of use.**

4. Securing legislative resources for road safety

In most good practice countries road safety legislation has been developed over time usually within the framework of general road traffic or policing legislation and sometimes within health or education frameworks. While this can hinder transparency and easy reference, the multi-disciplinary nature of road safety allows advantage to be taken of increased opportunity for legislative slots. Pursuing legislative time for road safety is a key lead agency function and strong inter-governmental coordination can help the often difficult processes of securing scarce slots in the government program for the passing of road safety legislation.

A further mechanism used in good practice countries is to encourage parliamentarians to use opportunities for private members' legislation to introduce important measures (see Box 46 for example from Great Britain).

In Australia, the bi-partisan composition and support of the Victorian Parliamentary Road Safety Committee en-

Box 46: Finding opportunities for road safety legislation in Great Britain

Opportunities have arisen to introduce road safety measures in policing, education and health frameworks when parliamentary time is not made available for road traffic or transport measures. For example, the 2004 Road Safety Bill was not enacted due to the calling of a general election, but key measures were enacted through amendments to a Justice Bill which was enacted.

In addition the introduction of private members legislation or all-party parliamentary amendments to government bills has provided a useful route for the introduction of the primary legislation for measures such as compulsory front seat belt wearing, rear seat belt wearing for children and legislation providing for road humps.

abled legislative changes to be recommended that may otherwise have been politically contentious for individual parties to initiate.

Lead Agency Role

In good practice *legislation,* the lead agency:

- **finds opportunities for legislative slots in government and parliamentary programs;**
- **encourages all party parliamentary interest in road safety through regular engagement and briefing and actively seeks to encourage the use of private members legislation where government time cannot be found or when issues benefit from parliamentary championing.**

Legislation: summary of lead agency role

In good practice countries the lead agency plays a major role in ensuring that appropriate *legislation* is in place to meet the road safety task.

1. *Reviewing the scope of the legislative framework.*
   In good practice *legislation,* the lead agency:
   - periodically sets up reviews to benchmark international good practice, identifies any necessary legislative requirements for new road safety strategies and adapts rules and standards to keep pace with technical progress;
   - carries out in-house reviews of the costs and benefits of potential legislative requirements.

2. *Developing and updating legislation needed for the road safety strategy.*
   In good practice *legislation,* the lead agency:
   - reviews different alternatives to achieving specific policy objectives;
   - carries out early consultation with governmental partners within the coordination and consultation bodies. The process of discussing and addressing any concerns put forward by other government departments needs to tale place well before Cabinet discussions;
   - uses its coordination arrangements to ensure progress with legislative development important for the strategy, where the right of initiative rests with other government departments;
   - consults with a broad range of stakeholders and the public on proposals for developing and updating enforceable standards and rules;
   - puts together small rules teams of in-house policy experts and legislative experts;
   - uses legislative pilots.

3. *Consolidating legislation.*
   In good practice *legislation,* the lead agency:
   - conducts periodic reviews to consolidate key legislation (e.g., vehicle type approval information and road rules which have evolved over the decades) to improve ease of use.

4. *Securing legislative resources for road safety.*
   In good practice *legislation,* the lead agency:
   - finds opportunities for legislative slots throughout government and parliamentary programs;
   - encourages all-party parliamentary interest in road safety through regular engagement and briefing and actively seeks to encourage the use of private members legislation where government time cannot be found or when issues benefit from parliamentary championing.

Funding and resource allocation

Funding and resource allocation: overview of good practice

Function:

Funding and resource allocation concerns the financing of interventions and related institutional management functions on a sustainable basis using a rational evaluation and programming framework to allocate resources to achieve the desired focus on results.

Dimensions:

- Ensuring sustainable funding resources.
- Establishing procedures to guide allocation of resources across safety programs.

Funding and resource allocation

Funding and resource allocation concerns the financing of interventions and related institutional management functions on a sustainable basis using a rational evaluation and programming framework to allocate resources to achieve the desired focus on results.

Securing appropriate annual funding on a sustainable basis for the national road safety strategy is a pre-requisite for achieving road safety results. The *World Report* noted that well-targeted investment of financial and human resources can lead to substantial reductions in road traffic deaths and injuries. Research and experience demonstrate that road safety expenditure is a good investment given the high socio-economic cost of road traffic crashes and injuries and the potential for significant returns. However, in countries with poor road safety performance there is little or no road safety funding.[1,13,17]

In good practice countries responsibility for annual funding rests with central government and there is access to sustainable and annual sources of road safety funding. At the same time there are established procedures to guide the allocation of resources cost-effectively across safety programs to ensure safety measures compete successfully with projects serving other societal aims. General good practice is to separate the funder, provider and delivery functions, wherever possible, to promote accountability and improve efficiency.

The *funding and resource allocation* function is addressed across two dimensions:

1. Ensuring sustainable funding sources.
2. Establishing procedures to guide allocation of resources across safety programs.

Lead Agency Role

The lead agency plays a major role across the identified dimensions of *funding and resource allocation.*

1. Ensuring sustainable funding sources

The principal sources of sustainable funding include general tax revenues, road funds, user fees and insurance levies.

General tax revenues. General tax revenues are the most common source of government funding. Many good practice countries fund large components of their road safety programs from this source, as part of the national budgeting processes and funds are distributed to various sectors responsible for road safety activity (see Box 47). Separate road safety budget lines are uncommon but can be used to good effect.[17] Often, the specific road safety components are embedded within larger engineering, enforcement and education programs and are difficult to identify as individual budget items.

The value of this approach to road safety funding is that it is relatively simple to administer. However, it lacks trans-

Box 47: Recipients of funding for road safety through general tax revenues in Great Britain

The lead agency, the Department for Transport, allocates resource to the Highways Agency and local authorities to carry out road safety work through Local Transport Plans which they are required by law to produce. Funding to police is allocated through the Home Office, to schools policies through the Department for Education, to the health sector via the Department of Health and, for work-related road safety to the Health and Safety Executive via the Department for Work and Pensions.

parency in terms of determining total costs, equitable cost sharing across road user groups and in monitoring financial performance of investments. In countries active in road safety such as Great Britain and Sweden this type of finance is generally associated with a strong political commitment to road safety, legal backing, ring-fenced items in budgets from time to time, good planning and delivery of the required specific targets.[17]

User fees can be used to provide a regular and dedicated funding source. Charges for services like road-worthiness testing, driver training and testing, driver licensing and heavy vehicle operator licenses are often used to cover road safety costs. Many entry and exit services concerning measures such as driver and vehicle licensing, vehicle inspection and operator licensing are directly funded from road user fees, paid either to the government agencies responsible or private sector agencies working on their behalf. These fees borne by users represent a substantial proportion of a country's total road safety investment.

Road funds. Revenue sources for road funds typically come from fuel taxes, vehicle registration and licensing fees, and road user charges for heavy vehicles. These funds are outside the direct control of the Ministry of Finance or Treasury. There are few examples of road funds being used to finance road safety investments (see Boxes 48–49). The New Zealand road fund, which is entirely financed by road user charges, funds the national road safety enforcement program and the road safety work of Land Transport New Zealand (and previously the Land Transport Safety Authority) that contributes to improved outcomes within the *Road Safety to 2010* strategy.

Insurance levies. An active partnership between government and the insurance industry is evident in several good practice countries. In the Australian States, New Zealand and the provinces of Canada, the injury accident insurer is typically a governmental organization. In addition to requiring mandatory vehicle insurance, some countries levy a fee on vehicle insurance premiums (and most effectively without exemption) to help fund road safety programs. The use for road safety is justified since insurance and premiums are related to crash costs. Initially, the amount of funding raised can be small, but increases with motor vehicles and traffic growth. Finland provides an early example of this approach (see Box 50) and more recent initiatives can be found in the States of Victoria and Western Australia (see Box 51) and in the Canadian province of Quebec. Victoria currently operates a levy which comprises 10% of the insurance premium and creates significant road safety investment supporting key behaviorial interventions and network safety engineering. South Africa established mandatory third party insurance premiums

Box 48: Financing road safety from the New Zealand Road Fund[17]

New Zealand has had a road fund since 1953. It has been restructured several times and its management was transferred to an independent road fund administration called Transfund in 1996. In December 2004, Transfund merged with the Land Transport Safety Authority (LTSA) to become Land Transport New Zealand.

The fund operates on the basis of payment by road users for road use. The proceeds are managed outside the government's general budget and the funds are used to improve the highway system. Revenues are deposited into an interest bearing separate Treasury account and the sources of revenue for the fund comprise:

- a fuel excise duty added to the price of gasoline;
- weight-distance charges paid by diesel vehicles;
- motor vehicle registration fees;
- interest earned on the road fund account;
- revenues earned from sale of surplus state highway property; and refund of value added taxes.

Annually fund revenues were allocated to the Transport Registry Centre and the New Zealand Road Safety Programme to finance road safety outputs from the Land Transport Safety Authority, the New Zealand Police and community partners. The balance of the revenue was mostly used to support road spending under the jurisdiction of Transit New Zealand (national roads) and local government. Some of these funds were used to finance the costs of the road safety engineering measures (e.g., skid resistance, treatment of hazardous locations, etc.). LTSA assembled the annual Police funding bid, managed the bidding process, published the final program and monitored subsequent performance against agreed outputs. The program was negotiated annually and all road agencies (Transit New Zealand and local authorities) participated in the bidding process. By subjecting all road investment—including road safety interventions—to benefit/cost analysis, the system also encouraged a balanced approach to the various factors which contribute to the delivery of a safe, efficient network.

Box 49: Administration of the Road Trauma Trust Fund in Western Australia

In Western Australia the Office of Road Safety (ORS) manages the funding of road safety programs through its administration of the Road Trauma Trust Fund (RTTF) which receives one third of all revenue from penalties imposed on motorists for offenses detected by the state's speed and red light cameras. Currently approximately $12 million per annum is allocated, but with increases in penalties for speeding that took effect on 1 January 2007, this amount is expected to increase significantly. The WA government has guaranteed that monies paid into the RTTF will be not less than $15 million per annum at least up to 2009. This arrangement ensures that the RSC can allocate priorities and budget in advance for expenditure in the year ahead. Base funding of about $1.3m (which is a direct allocation from Treasury mainly for ORS staff), together with a grant of approximately $4 million per annum from Insurance Commission for Western Australia gives the Road Safety Council an assured annual budget of around $20 million per annum.

Source: Office of Road Safety, 2007 [48]

Box 50: Insurance levies for road safety in Finland[17,49]

Finland has used insurance premiums to finance road safety for many years. The levy is set at a nominal amount (1% of premiums). In 2001, 4.4 million Euro was allocated to the Central Organization for Traffic Safety road safety work, local government of the province of Aland received 25,000 Euro and 1 million Euro were allocated to the Finnish Motor Insurers Centre for accident investigation work.

Finnish insurance premiums are set by the Ministry of Social Affairs. By setting premiums centrally the Finnish system puts an onus upon the insurers to limit premiums. Towards this end insurers make a considerable effort to reduce crash rates by providing research and safety information to their customers. Since 1968, the Motor Insurers' Committee (VALT) has maintained a system of in-depth crash investigation and its 21 multi-disciplinary crash investigation teams have investigated about 500, mainly fatal crashes, at the scene of the crash, from which such information is derived.

Source: Case study cited in [17]

collected through the fuel levy with 2.5% allocated to road safety measures. Fiji introduced a 10% mandatory safety levy on motor insurance premiums with funds collected contributing 60% of its road safety budget.[23]

Box 51: Insurance Commission of Western Australia (ICWA)—government insurer[50]

'The Board continued its funding of road safety programs by committing $4.1 million to the Road Safety Council and other road safety initiatives. This funding program supports a holistic and coordinated approach to the Road Safety Council's implementation of *Arriving Safely: Road Safety Strategy for Western Australia 2003–2007*. Based on a decade of sustained reduction in the number of CTP claims received, as a percentage of motor vehicles licensed in Western Australia, this financial commitment is viewed as an essential long-term investment.'

ICWA Annual Report Extract, 2005

Earmarked resources. Some taxes can be earmarked (or hypothecated) for a specific purpose. For example, in Great Britain in the mid 1980s and 1990s, there were specific allocations of resources in the annual grant from central to local government for low cost/high return road safety engineering schemes (see Box 18). In Sweden, the lead agency provides special allocations to the police for various road safety outputs as well as earmarked funding for road safety engineering (see Box 52).

Revenue from traffic fines can also be used to finance road safety activity. All traffic fines raised in Vietnam are used for road safety. In Western Australia, one third of red light and speed camera fines are allocated to the Road Trauma Trust Fund used for road safety initiatives. The Swedish Road Administration can retain 35% of parking fines to cover administrative costs. In the Great Britain (see Annex 4 Case Study) and Victoria, fines revenue from speed cameras is earmarked to provide road safety funding.[17,51]

Sale of personalized vehicle license/number plates. Sweden and New Zealand assign all or the majority of proceeds of the sale of license plates to road safety (see Annex 4 for further information).

Small Government Grants. Some countries assign a small proportion of the overall budget for road safety to small grants. For example the National Road Maintenance fund of Jordan is required to approve funds for the implementation of selected road safety projects. Box 53 cites a further example from Great Britain.

Private sector business funding. Companies can either have a direct financial incentive in promoting road safety or may be affected by decisions on road safety (e.g., the

Box 52: Earmarked funding for road safety engineering in Sweden

Sweden: Road safety in Sweden is mostly funded by government and through general revenue which is then distributed to the lead agency, the Swedish Road Administration (SRA) and other sectors. In 1999, funding to the SRA was doubled with a total of SEK 8.5 billion ($US 1.25 billion) being allocated to road safety over 10 years.

An increased and earmarked allocation was made to allow resource for physical road safety measures such as roads with median guardrails, safer intersections and road shoulders. It has been estimated that approximately SEK 75 million (just under $US 11 million) per year of the SRA budget are spent on road safety projects.

Box 53: Road safety small grants in Great Britain

Section 40 of the Road Traffic Act 1988, gives the Department for Transport the power to have a Challenge Fund to assist with the cost of projects promoting road safety proposed by organizations other than local authorities. Grants are not payable to individuals. Grants made from the fund may finance the reasonable costs of staff and overheads, which are directly and transparently associated with the delivery of that project only. These costs are additional to regular running costs. The government allocates around £200,000 per annum to such a Challenge Fund: individual grants are expected to be for sums up to £20,000. Grant funding is for not for profit projects which support Great Britain's road safety strategy and casualty reduction targets for 2010. The local authority exemption has recently been removed.

Source: www.dft.gov.uk

insurance industry, the car manufacturing industry or businesses with large vehicle fleets). Many road safety NGOs look to private sector sponsorship for part of their annual funding. Private sector contributions do not replace annual government budgets for road safety, but can provide useful financing for projects in support of the national road safety strategy. In Great Britain, for example, where road safety is not a core funding issue either for the Home Office or police, the police have obtained private sector funding for ad hoc projects.

Funding road safety research. Funding for road safety research organization in good practice countries is derived mainly from public sector funds distributed by the lead agency, both to outside bodies and in support of in-house management capacity. In some countries, (e.g., the United States and Sweden) the insurance industry has played a key role.

Multi-lateral lending institutions and bilateral donors. Organizations such as the World Bank and World Health Organization utilize a range of instruments to provide support for aspects of road safety especially to support professional capacity building. Multi-lateral lending institutions and bilateral donors may provide more funds for road safety if governments can demonstrate commitment to sustainable road safety policies, clear goals and targets and mobilise effective domestic resources.[52] Donor funds can be channelled through projects in the transport or the health and education sectors.

In 2006, the World Bank established the Global Road Safety Facility to generate increased funding and technical assistance for global, regional and country level initiatives to build capacity and implement road safety programs in low and middle income countries. The Facility has been pledged funding of $5 million over 3 years from the World Bank, $5 million over 5 years from the FIA Foundation for the Automobile and Society, $1.4 million over four years from the government of the Netherlands, $3.1 million over four years from the Swedish International Development Cooperation Agency (Sida) and $0.8 million over three years from the Australian Agency for International Development (AusAID). The Commission for Global Road Safety has recommended a 10 year commitment of US$300 million to the Facility ($200 million from donor governments and US $100 million from other sources) to support a global road safety action plan to implement the *World Report* recommendations.[53] Annual bilateral grant aid explicitly for road safety in middle and low income countries has been estimated at less than $10 million which is well below the level of aid allocated to the prevention and treatment of other health losses.[53] An early World Bank internal guideline stated that up to 10% of all road infrastructure projects should be committed to road safety and the Commission for Global Road Safety has recommended that this principle (and a minimum of 10%) be rigorously and consistently applied by all bilateral and multilateral donors.

Lead Agency Role

In good practice *funding and resource allocation,* the lead agency:

- **reviews and makes a strong case to government for improved funding mechanisms on the basis of in-house or external benchmarking of international good practice;**

- **encourages the establishment of dedicated funding sources for road safety (e.g., from road user fees and road funds) which provide a means of financing road safety outputs from different ministries; and ensures that road safety objectives and management structures for such funds are clearly defined in legislation;**
- **ensures that opportunities for additional funding from insurance and business sectors are exploited for activity to achieve results by means of establishing levies on insurance premiums and encouraging business sponsorship;**
- **earmarks funds, wherever possible, from central government to key partners and stakeholders at regional and local levels for key outputs set out in the national road safety strategy;**
- **manages hypothecated monies from road traffic penalties for road safety work.**

2. Establishing procedures to guide allocation of resources across safety programs

Good practice countries generally establish a clear understanding of the socio-economic cost of road crashes and the value nationally of preventing deaths and serious injuries. Components of this cost are outlined in Table 5 and Box 54 provides an illustration of how they are estimated nationally. Identifying this cost elevates the case for road safety investment where it is evident that substantial savings can be made. A nationally recognised basis for project evaluation and resource allocation enables road safety programs and projects to compete successfully with projects serving other policy aims.[1,13]

Cost-effectiveness analysis. Cost-effectiveness analysis sets the costs of a measure against its effects which are not expressed in monetary terms. Starting from a given safety target and budget, this method identifies the path which will produce estimated casualty savings at the least cost. Policy measures are ranked according to their estimated cost-effectiveness ratios. Cost-effectiveness analysis is widespread in high-income countries.

Multi-criteria analysis. Multi-criteria analysis is a qualitative method which is more complex than other appraisal options. It assesses the impact of a measure against a wide range of general objectives. Value scales and weighting schemes are used to indicate a value trade-off between criteria and objectives. Such analyses are also commonly used in OECD countries.

Cost-benefit analysis. Cost-benefit analysis has proved to be a useful road safety resource allocation tool in many good practice countries. The benefit-cost ratio of proposed safety initiatives is estimated by comparing the benefits of reduced crash deaths and injuries with the costs of achieving them. However, this requires the valuation of lives saved and injuries avoided which raises complex conceptual and measurement issues. Some good practice countries have adopted an official Value of Statistical Life, based on estimates of peoples' willingness to pay for small reductions in risk. Others have adopted a gross output or human capital approach which values the loss of current resources and losses in future output, and sometimes adds a significant sum to account for related pain, grief and suffering. Other measures can also be used, such as those based on the values revealed in court awards to surviving dependents.[54]

Table 5: The components of the socio-economic cost of road crashes[13]

Medical costs	Costs of medical care after a crash, such as hospital treatment, rehabilitation, medicine, and adaptations for those who are disabled
Gross production loss	Costs due to loss of labor by crash victims from absenteeism, death and disability
Material costs	The costs of damage to vehicles, road side objects etc., from road crashes
Settlement costs	The costs of fire service, police, and courts as a result of a road crash
Congestion costs	The costs of traffic jams (loss of time) caused by road crashes
Human costs	These costs express the monetary loss of quality of life

Sufficient in-house governmental capacity is required for securing sustainable sources of annual road safety funding, preparing road safety budgets, developing business cases and allocating resources. External research sector support is also often used to identify the value of preventing deaths and injuries and for cost-effectiveness and cost-benefit analyses.

Lead Agency Role

In good practice *funding and resource allocation,* the lead agency:

- **reviews and estimates, often with external technical support, the value of preventing road traffic deaths and serious injuries;**
- **develops and uses a nationally recognized basis for project evaluation based on an economic appraisal of mea-**

sures using the value of preventing death and serious injury to identify priorities;
- **ensures sufficient in-house lead agency capacity for the preparation of safety budgets and allocation of resources based on cost-effectiveness and cost benefit analyses;**
- **makes proposals to other governmental partners concerning the content of their annual budgets and ensuring that the annual performance agreements of the key governmental partners and stakeholders reflect their accountability for agreed road safety strategy outputs;**
- **establishes specific procedures to guide allocation of resources across safety programs;**
- **makes business cases to coordination bodies and Cabinet for the allocation of resources based on cost-effectiveness and cost benefit analyses, recognizing that road safety improvements can also meet other governmental objectives.**

Box 54: The value of preventing road traffic deaths, casualties and crashes in Great Britain

In 2003, 3,247 fatal crashes, 28,913 serious crashes and 181,870 slight crashes were reported. In cost-benefit terms the value of prevention of these 214,030 crashes is estimated to have been £13,083 million in 2003 prices and values. In addition, there were an estimated 3.2 million damage-only crashes valued at a further £5,011m. The total value of prevention of all road crashes in 2003 was therefore estimated to have been £18,094 million.

The values for preventing fatal, serious and slight casualties include the following cost elements:

- loss of output due to injury. This is calculated as the present value of the expected loss of earnings plus any non-wage payments (national insurance contributions, etc.) paid by the employer.
- ambulance costs and the costs of hospital treatment.
- human costs, based on willingness to pay values, which represent pain, grief and suffering to the casualty, relatives and friends, and, for fatal casualties, the intrinsic loss of enjoyment of life over and above the consumption of goods and services.

For non-injury crashes the cost elements are the cost of damage to vehicles and property and costs of police and the administrative costs of crash insurance.[54]

Funding and resource allocation: summary of lead agency role

In good practice countries the lead agency plays a major role in ensuring that secure and sustainable *funding* is available in government budgets and from all other available sources, as well as establishing procedures to guide the rational *allocation* of resources across safety programs which allows a strong business case for road safety funding.

1. *Ensuring sustainable funding sources.*
   In good practice *funding and resource allocation,* the lead agency:
   - reviews and makes a strong case to government for improved funding mechanisms on the basis of in-house or external benchmarking of international good practice;
   - encourages the establishment of dedicated funding sources for road safety, (e.g., from road user fees and road funds), which provide a means of financing road safety outputs from different ministries; and ensures that road safety objectives and management structure for such funds are clearly defined in legislation;
   - ensures that opportunities for additional funding from insurance and business sectors are exploited for activity to achieve results by means of establishing levies on insurance premiums and encouraging business sponsorship;
   - earmarks funds, wherever possible, from central government to key stakeholders at regional and local levels for key outputs set out in the national road safety strategy;
   - manages hypothecated monies from road traffic fines for safety work.
2. *Establishing procedures to guide the allocation of resources across safety programs.*
   In good practice *funding and resource allocation,* the lead agency:
   - reviews and estimates, often with external technical support, the value of preventing road traffic deaths and serious injuries;
   - develops and uses a nationally recognized basis for project evaluation based on an economic appraisal of measures using the value of preventing death and serious injury to identify priorities;
   - ensures sufficient in-house lead agency capacity for the preparation of safety budgets and allocation of resources based on a cost-effectiveness and cost benefit analyses;
   - makes proposals to other governmental partners concerning the content of their annual budgets and ensuring that the annual performance agreements of the key governmental stakeholders reflect their accountability for agreed road safety strategy outputs;
   - establishes specific procedures to guide allocation of resources across safety programs;
   - makes business cases to coordination bodies and Cabinet for the allocation of resources based on a cost-effectiveness and cost-benefit analyses, recognizing that road safety improvements can also meet other governmental objectives.

Promotion

Promotion: overview of good practice

Function:

Promotion concerns the countrywide and sustained communication of road safety as core business for government and society and emphasizes the shared societal responsibility to support the delivery of the interventions required to achieve the desired focus on results.

Dimensions:

- Promoting a far-reaching road safety vision or goal
- Championing and promotion at a high level
- Multi-sectoral promotion of effective intervention and shared responsibility
- Leading by example with in-house road safety policies
- Developing and supporting safety rating programs and the publication of their results
- Carrying out national advertising
- Encouraging promotion at the local level

Promotion

Promotion concerns the countrywide and sustained communication of road safety as a core business for government and society and emphasizes the shared societal responsibility to support the delivery of the interventions required to achieve the desired results.

The road safety *promotion* function has traditionally comprised government-backed publicity campaigns aimed at road users to create awareness of road safety problems and to influence attitudes. However, using social marketing techniques the scale and intensity of these campaigns has increased considerably with the advent of targeted road safety strategies and introduction of general deterrence-based police enforcement programs. Road safety promotion is also now taking on a much broader role within the road safety management system. It addresses the overall level of ambition set by government and society and aims to create a supportive climate for achieving results and implementing effective intervention in a multi-sectoral context.

The *promotion* function is addressed by the following dimensions:

1. Promoting a far-reaching road safety vision or goal.
2. Championing and promotion at a high level.
3. Multi-sectoral promotion of effective intervention and shared responsibility.
4. Leading by example with in-house road safety policies.
5. Developing and supporting safety rating programs and the publication of their results.
6. Carrying out national advertising.
7. Encouraging promotion at local level.

Lead Agency Role

The lead agency plays the major role in *promotion* of the national road safety strategy across the identified dimensions. It promotes the focus on desired results, the means by which they can be achieved and the core business responsibilities of the key partners and stakeholders for their achievement across government and wider society.

1. Promoting of a far-reaching road safety vision or goal

The creation of a supportive climate for road safety management requires increased public and professional understanding that the level of death and serious injury in using roads is disproportionate compared with the risks of other everyday activities. Even in the best performing country in road safety, the risk per hour of death while using the roads is at least 7 times the risk in the rest of everyday life.[55] The aim is to decrease public acceptance of large numbers of road deaths and increase support for cost-effective measures to decrease the frequency and severity of fatal and serious road injury.

Conditions need to be created in which the media and society demand action to prevent the avoidable loss of life, with public criticism levied for failure to implement interventions. As the *World Report*[1] noted, a sympathetic institutional climate needs to be built up where the mutual encouragement of road injury prevention professionals and policymakers—both in the executive and the legislature—provides a stimulus and an effective response for road safety.

Lack of interest or complacency about road deaths and injuries in society can be shaken and sights raised by

Box 55: Promoting *Vision Zero* in Sweden

The right to safety: The introduction of *Vision Zero* in Sweden marked a fundamental change in the promotional strategies for road safety. Prior to *Vision Zero* the emphasis in the promotional activity of the Swedish Road Administration and the National Society for Road Safety was on how people in the community should behave. After *Vision Zero* the emphasis in the activity of both organizations was the individual's right to health in the transport system and the importance of demanding safer systems from the road and vehicle providers. The promotion of *Vision Zero* involved fundamental engagement with society over the right to safety and the promotion of systems that are intrinsically safe, providing all parties meet their responsibilities.

Shared responsibility: In *Vision Zero,* responsibility is shared between the providers of the system and road users. The system designers and operators—such as those providing the road infrastructure, the vehicle manufacturing industry and the police—are responsible for the functioning of the system. At the same time, the road user is responsible for following basic rules, such as speed limits and not driving while under the influence of alcohol. If road users fail to comply with such rules, the responsibility falls on the system designers to redesign the system, including its rules and regulations. The key partners and stakeholders are brought together by government in a range of organizations to create partnerships and commitments to deliver this shared responsibility (e.g., the National Road Safety Assembly).[56]

Box 56: Promoting *Sustainable Safety* in the Netherlands

In the Netherlands in the early 1990s the lead agency, the Ministry of Transport, invited the lead road safety research institute to develop a new approach to road safety. The Ministry funded and promoted *Sustainable Safety* as the basis of the Dutch government's approach to road safety work and its development was managed by the Institute for Road Safety Research (SWOV). SWOV also played a key promotional role (see Figure 3). The start-up program for *Sustainable Safety* was adopted by parliament in 1997.

adopting a vision of improved performance which motivates key partners and stakeholders as well as capturing the imagination of the general public.[7,8] A compelling vision can focus attention on results and also help to explain the rationale for the road safety strategy (see Boxes 55–56). Where the country *results focus* includes such a vision it will become the central call to action, underpinning all promotional activities.

Lead Agency Role

In good practice *promotion,* the lead agency:

- **plays the major role in promoting the shared responsibility for achieving road safety results by creating and articulating a far-reaching vision and concepts for a safer road traffic system.**

2. Championing and promotion at a high level

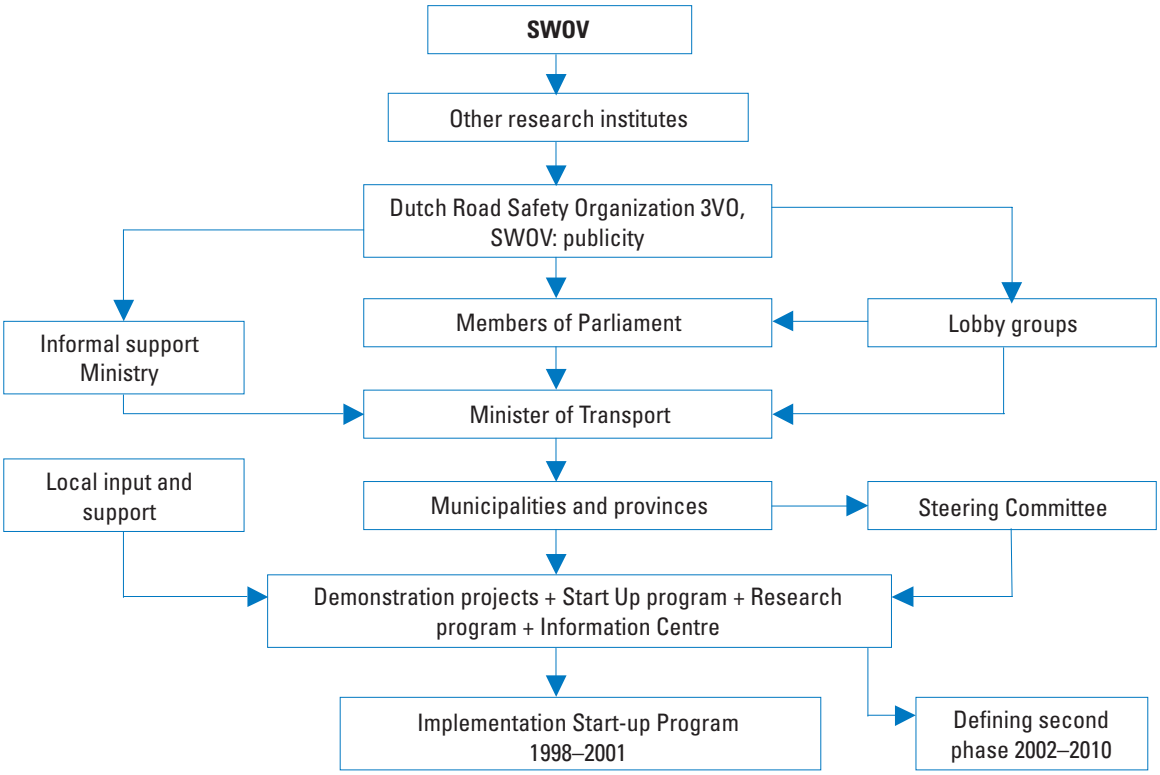
Setting road safety on the agenda for society through promotion by the highest levels of government is a key strategy adopted by good practice countries. When supported by a well-founded vision, targets, strategies and well-funded programs, such high-level championing goes to the core of a country's political will.

Aided by the contribution and championing from parliamentary bodies and civil society, government plays a pivotal role. In several countries government leaders have engaged directly in road safety promotion. For example, the President of France and the Prime Minister of Malaysia have cited road safety as one of the main national priorities for their term of office and established high-level cabinet committees to oversee developments. The Prime Minister of Great Britain launched the country's current national road safety strategy and targets.

Swedish Ministers engaged fully in the promotion of *Vision Zero*. In Great Britain the promotion of anti-drink driving by a high-profile Transport Minister contributed to a hardening of public attitudes to excess alcohol and calls for further measures. In Poland a leading academic in road safety became a Transport Minister and introduced a major new national road safety strategy. In Malaysia a cabinet committee is chaired by the Prime Minister bringing together Ministers of Transport, Home Affairs, Education and Works. In 2004, road safety was nominated as one of the national priority issues.

Government also encourages and supports high-level championing of road safety by authoritative figures and organizations in the research, police, health and non-governmental field.

Figure 3: The route map for promoting *Sustainable Safety* in the Netherlands[57]



Lead Agency Role

In good practice *promotion,* the lead agency:

- **takes every opportunity to engage the President or Prime Minister in launching national targeted road safety strategies and programs to ensure maximum political authority and publicity;**
- **encourages all Ministers in the road safety partnership to play an active role in creating awareness about road safety challenges and promoting policy initiatives in the media;**
- **fosters a cadre of senior professionals in the road safety field—leading academics, casualty surgeons, chief police officers, interested parliamentarians from all parties, and community leaders—who advocate and forge support for important policy development to achieve results.**

3. Multi-sectoral promotion of effective intervention and shared responsibility

Many examples can be cited of effective multi-sectoral promotion of evidence-based interventions. As the *World Report*[1] outlined, the Victorian partnership of road authority, third party insurer, police and research sector for safety promotion and enforcement has proved to be a successful model which has since been followed in other countries (see Box 57).

Box 57: Promotion by transport, justice, insurance and research sectors in Victoria, Australia[1]

Australia's achievements in setting essential safety rules such as seat belt use and an appropriate blood alcohol limit and securing good compliance through hard-hitting promotion combined with high visibility enforcement are widely recognized. A key element of the State of Victoria's success in traffic law enforcement has been the level of cooperation and coordination reached between different governmental, parliamentary and research institutions to promote and secure compliance with evidence-based measures. Highly effective promotional activity combined with data-led policing and use of speed cameras on the part of VicRoads, the Transport Accident Commission (TAC), Victoria Police and Monash University Accident Research Centre led to a general, network-wide effect in speed reduction in urban areas and a 30% reduction in crashes on urban arterial roads.[58]

The lead agency in Sweden has set up a National Road Safety Assembly to establish wider promotion of the shared responsibility for road safety and multi-sectoral promotion of road safety (see Box 58.)

Lead Agency Role

In good practice *promotion,* the lead agency:

- **stimulates and invests in multi-sectoral promotion of the strategy and evidence-based intervention through existing and new road safety partnerships.**

4. Leading by example with in-house road safety policies

In good practice *promotion* national, regional and local government in-house road safety policies are used to promote road safety. In this way government demonstrates exemplary road safety commitment as well as creating a demand for safety equipment and safety improvement. Such policies include travel and fleet policies aimed at reducing occupational road safety risks as well as safety requirements in governmental transport contracts (see also Boxes 30 and 31).

Travel and fleet policies: In-house travel and fleet policies were introduced, for example, in Sweden and in Australian States. The Swedish policy relates to fleet cars and rental cars used by government employees in the roads sector and is guided by European New Car Assessment Programme safety rating information. The use of such policies by central government has encouraged their wider use in the private sector and by local authorities.

Stipulating safety provisions as a condition in transport contracts: Contracts can also be used to place demands for safer transport services. In Sweden the lead agency has stipulated that the award of road transport contracts is conditional on the fitting of alcohol interlock devices in all vehicles used by its contractors.[58] Local government also plays a role with the help of central government advice and funding. For example, in purchasing bus and tram services the municipality of Gothenburg sets out specific contractual requirements for low vehicle speeds in city bus operations, and the Borlänge municipality featured safety as a key requirement in transport services purchasing. The lead agency contracted a local non-governmental traffic safety organization to audit this local activity to ensure that safety systems were in place.[60]

Lead Agency Role

In good practice *promotion,* the lead agency:

- **devises fleet safety policies for the lead agency based on good practice and encourages their wider take up;**
- **specifies road safety demands in the transport contracts developed by the lead agency with organizations (e.g., car rental, taxi hire, road haulage companies).**

5. Developing and supporting safety rating programs and the publication of their results

Another important way in which government can promote road safety for results is through developing safety rating programs which provide objective information for road users and publicizing the results. Such programs represent effective road safety interventions in themselves

Box 58: National Road Safety Assembly, Declarations of Intent, and OLA method in Sweden[59]

The Assembly, established by the Minister of Transport and developed and managed by the SRA, promotes the shared responsibility in *Vision Zero* by bringing together representatives from around 30 national organizations affected by road traffic issues—companies, government agencies, trade unions and interest organizations. It aims for parties to issue declarations of intent and devise measures to promote improved road safety in the areas of speed, safety systems, sobriety on the roads and children and young people in traffic. The declarations are published on the SRA website and are the product of the OLA method. The OLA is a new method devised by the lead agency for promoting cooperation and allocation of responsibility between partners working in road safety in Sweden. The SRA's new 100% investigation of fatal crashes provides a data-led focus for this 3 phase process following a road death carried out at national and regional levels:

Phase 1: Parties involved come to a consensus around a problem scenario—*objective facts*
Phase 2: Based on these facts, ideas for short and long term *solutions* are identified
Phase 3: Each party than devises measures to avoid such a death occurring again formulated as *declarations of intent* which are followed through.

To date OLAs have been carried out in the following areas: heavy good vehicles in urban areas, bus passenger safety, safer moped traffic, young drivers aged 16–24, safer heavy goods vehicle transport and moped safety. The Road Traffic Inspectorate follows up national OLA projects and makes random checks of the regional projects.

as well as contributing intermediate outcome data for the road safety management system.

Together with road user and consumer groups, lead agencies have played the major role both in the initial development and annual support of organizations which carry out new car assessments and their safety rating programs. Lead agencies have also assisted with the development and support of road assessment programs initiated by road user organizations which rate the protection offered by sections of the road network (see later discussion in Section on *Monitoring and Evaluation)*.

Lead Agency Role

In good practice *promotion,* the lead agency:

- **contributes to the development and support of safety rating programs and their organization together with road user and consumer groups and ensures that their results are well publicized.**

6. Carrying out national advertising

As the *World Report*[1] noted, when used in support of legislation and law enforcement, publicity and information can create shared social norms for safety. However, when used in isolation, education, information and publicity do not generally deliver tangible and sustained reductions in deaths and serious injuries. In all good practice countries national advertising is carried out as part of the national road safety program, often under a specific program theme such as the *THINK!* campaign in Great Britain. Such advertising is usually contracted out to advertising agencies to prepare the campaigns and source the media outlets. Private sector support is also encouraged by government. As shown in the New Zealand example in Box 59, the approach develops over time.

Lead Agency Role

In good practice *promotion,* the lead agency:

- **ensures that regular information is available and accessible on the key road safety problems as well as upcoming policy initiatives to achieve results;**
- **builds in-house capacity for road safety promotion as well as contracting out targeted road safety advertising in support of the major themes of the national road safety strategy.**

7. Encouraging promotion at the local level

In good practice countries the lead agency plays a key role in assisting road safety promotion of country results focus and intervention at local level. In Great Britain, local road safety partnerships promote key actions in the national road safety strategy to achieve results (e.g., interventions on speed, seat belt use and deterring excess alcohol (see Box 60)).

In New Zealand over forty road safety coordinators supported by the lead agency develop and implement community-owned road safety initiatives that address local road safety issues aligned with the national road safety strategy (see Box 61). In Victoria, over twenty Community Road Safety Councils supported by a VicRoads program play a significant advocacy and public awareness role in promoting road safety locally.

Box 59: Road safety advertising in New Zealand 1995–2004

In New Zealand, the promotion of road safety nationally was carried out mainly by the Land Transport Safety Authority (LTSA) until 2004, through the national advertising program and the Community Road Safety Program. On a smaller scale promotioned campaigns were also conducted by the Accident Compensation Corporation. The Communications and Information Division of the Land Transport Safety Authority (LTSA) provided in-house capacity for the management of the road safety advertising program alongside education to encourage compliance with standards and rules.

Since 1995, New Zealand government advertising has targeted drinking and driving, speeding, safety belt wearing and failure to give way at intersections. The approach uses social marketing techniques and focuses on facts, figures and risks; the impact on the victim, families and communities; emotion and rationality; and credibility and personality. It works to a well-devised communications blue print that is measurement based and tested with the target audience at all stages of development and delivery.

In early 2004, the focus of the advertising campaign on speeding changed the target audience from offenders to the general public, with the objective of creating community demand for a change in the behavior of persistent offenders. While the objective of the new advertising campaign is to reduce speeding, the main aim is to obtain stronger community ownership and rejection of speeding. This approach is consistent with that adopted in other countries which are tackling the problem of excess and inappropriate speed.

Box 60: Lancashire Road Safety Partnership[61]

The Partnership was established in 2001 and comprises the Lancashire Constabulary, Lancashire County Council and the unitary authorities of Blackpool and Blackburn with Darwen. Partners and stakeholders are NHS Trusts, Highways Agency, Government Office North West and the Lancashire Magistrates' Courts.

The Partnership is one of the largest locally based safety camera partnerships in Great Britain, acting also on drink-driving and seat belt use. It maintains a network of almost 300 fixed camera sites and also has 8 mobile camera vehicles, 6 carried by cars and 2 by motorcycles, which can reach less accessible locations. The mobile cameras operate from 74 core sites and a further 72 sites of community concern put forward by the Community Safety Partnerships. The enforcement operation is supported by the Central Ticket Office which automatically processes all offenses recorded by the cameras. The Department for Transport's (DfT) fourth year evaluation report on the National Safety Camera Program shows reductions in Lancashire of 19.8% in personal injury collisions and 24.8% in killed or serious injury collisions at camera sites. The Partnership has drafted a new Service Level Agreement to ensure that camera enforcement remains an integral part of the Road Safety Strategy, guarantee the future funding of this activity within the Partnership and ensure that Partnership resources are utilized in the most effective and efficient manner possible. The enforcement and education undertaken by the Partnership is supported by a robust and effective communication strategy, which promotes road safety through campaigns against speeding and drink driving and promoting the wearing of seat belts in support of the Think! campaigns mounted by the DfT.

Box 61: LTSA's Community Road Safety Program in New Zealand[62]

In New Zealand the Land Transport Safety Authority's Community Road Safety Program (CRSP) has played a strong role in road safety promotion at local level. This program has as its primary objective the mobilisation of the community and building grass roots support to help achieve the road safety strategy goals. The strategy is to:

- Provide leadership
- Promote community ownership
- Target community funding effectively
- Manage community funding wisely
- Promote a clear role for Road Safety Coordinators
- Encourage innovation

CRSP coordinators were funded by the LTSA. In 2002, there were 42 road safety coordinators who were responsible for over 300 projects annually. In support of this program the LTSA provided technical expertise, coordinator salaries and project funding, a practical guidance manual, management assistance, an annual national conference and regional training to road safety coordinators working locally on initiatives that address local safety issues. Local government provided related support to the road safety coordinators in the form of office facilities and transport services.

Lead Agency Role

In good practice *promotion,* the lead agency:

- **mobilizes local leadership and support to help achieve road safety strategy goals;**
- **develops and funds targeted community road safety programs and supports local road safety coordinators.**

Promotion: summary of lead agency role

In good practice countries the lead agency plays the major role in *promotion* of the national road safety strategy and the shared responsibility for its delivery. It promotes the need for a focus on results, promotes the means by which they can be achieved as well as the core business responsibilities of the key stakeholders for implementation across government and wider society. Its aim is to create a receptive climate for activity to achieve road safety results.

1. *Promotion of a far-reaching road safety vision or goal*
   In good practice *promotion,* the lead agency:
   - plays the major role in promoting the shared responsibility for achieving road safety results by creating and articulating a far-reaching vision and concepts for a safer road traffic system.

2. *Championing and promotion at a high level*
   In good practice *promotion,* the lead agency:
   - takes every opportunity to engage the President or Prime Minister in launching national targeted road safety strategies and programs to ensure maximum political authority and publicity;
   - encourages all Ministers in the road safety partnership to play an active role in creating awareness about road safety challenges and promoting policy initiatives in the media;
   - fosters a cadre of senior professionals in the road safety field—leading academics, casualty surgeons, chief police officers, interested parliamentarians from all parties, and community leaders—who advocate and forge support for important policy development.

3. *Multi-sectoral promotion of effective interventions and shared responsibility*
   In good practice *promotion,* the lead agency:
   - stimulates and invests in multi-sectoral promotion of the strategy and evidence-based interventions through existing and new road safety partnerships.

4. *Leading by example with in-house road safety policies*
   In good practice *promotion,* the lead agency:
   - devises fleet policies for the lead agency based on good practice and encourages their wider take up;
   - specifies road safety demands in the transport contracts developed by the lead agency with organizations (e.g., car rental, taxi hire, road haulage companies).

5. *Developing and supporting safety rating programs and the publication of their results*
   In good practice *promotion,* the lead agency:
   - contributes to the development and support of safety rating programs and their organization together with road user and consumer groups.

6. *Carrying out national advertising*
   In good practice *promotion,* the lead agency:
   - ensures that regular information is available and accessible on the key road safety problems as well as upcoming policy initiatives to achieve results;
   - builds in-house capacity for road safety promotion as well as contracting out targeted road safety advertising in support of the major themes of the national road safety strategy.

7. *Encouraging promotion at the local level*
   In good practice *promotion,* the lead agency:
   - mobilizes local leadership and support to help achieve road safety strategy goals;
   - develops and funds targeted community road safety programs and supports local road safety coordinators.

Monitoring and evaluation

Monitoring and evaluation: overview of good practice

Function:

Monitoring and evaluation concerns the systematic and ongoing measurement of road safety outputs and outcomes (intermediate and final) and the evaluation of interventions to achieve the desired focus on results.

Dimensions:

- Establishing and supporting data systems to set and monitor final and intermediate outcomes and output targets.
- Ensuring transparent review of the national road safety strategy in terms of results, interventions and institutional management functions.
- Making any necessary adjustments to interventions and institutional outputs needed to achieve the desired results.

Monitoring and evaluation

Monitoring and evaluation concerns the systematic and ongoing measurement of road safety outputs and outcomes (intermediate and final) and the evaluation of interventions to achieve the desired focus on results.

Periodic monitoring and evaluation of road safety targets and programs is essential to assess performance and to allow adjustments to be made. This involves monitoring of collected data relating to targeted safety outcomes and outputs, the monitoring of implementation progress and identifying delays requiring corrective action, carrying out before and after studies to establish the effectiveness of specific safety measures, reviewing and updating policies and measures with re-distribution of resources towards more cost-effective measures, and maintaining confidence in progressing effective policies and measures.[7,8]

The effective monitoring and updating of targets requires appropriate management structures, systems and procedures for the collection, processing and publication of reliable data. The establishment and sustainable funding of transport registries for drivers and vehicles, crash injury databases and periodic survey work to establish performance and exposure data engages the transport, police, and health sectors (and in some countries the governmental insurer) as well as independent scientific expertise to ensure a transparent measurement process.

The *World Report*[1] noted that many low to middle-income countries lack road traffic injury surveillance systems in the transport and health sectors that generate reliable data on road traffic crashes and injuries. These data are needed to provide a solid foundation for road safety planning and decision-making. Safety performance data in many countries, including some high-income countries, can often be very limited.

The *monitoring and evaluation* function is addressed by three dimensions:

1. Establishing and supporting data systems to set and monitor final and intermediate outcomes and output targets.
2. Ensuring transparent review of the national road safety strategy in terms of results, interventions and institutional management functions.
3. Making any necessary adjustments to interventions and institutional outputs needed to achieve the desired results.

Lead Agency Role

***Monitoring and evaluation* of national road safety performance across the identified dimensions is usually the responsibility of the lead agency and its related coordinating body.**

1. Establishing and supporting data systems to set and monitor final and intermediate outcomes and output targets

Several government departments—transport, police, and health are responsible for road safety data systems, with the lead agency playing the major role. In some coun-

tries government insurance departments or organizations and university departments also share responsibility, and there can be a legislative duty on the part of different authorities to collect road traffic crash data and monitor performance.

Driver and vehicle registries. Self-financing driver and vehicle registries provide essential exposure data necessary to establish the road crash injury risks and rates in the transport system, as well as providing essential police enforcement data. These registries can sit within the lead agency either as a separate agency such as the Driver and Vehicle Licensing Agency in Great Britain or in a specific division such as New Zealand's Transport Registry Centre (see Boxes 62–63).

Periodic travel surveys. These are carried out to establish the travel patterns of different types of road use in the road traffic systems. The exposure data generated from these surveys allow crash injury rates and risks for the different modes of road use. For example, the National Travel Survey (NTS) in Great Britain is a continuous survey on personal travel (see Box 64). It provides the Department for Transport with data to answer a variety of policy and transport research questions. The survey has been running on an ad hoc basis since 1965 and continuously since

Box 62: The Transport Registry Centre, New Zealand (2006)

Main functions: The Transport Registry Centre (TRC) was until recently a section of the Operations Division of the Land Transport Safety Authority, but is now part of Land Transport New Zealand. It handles all aspects of motor vehicle registration, motor vehicle licensing, road user charges transactions and the national Driver License Register (DLR). The TRC maintains the DLR and the Motor Vehicle Register (MVR) and is responsible for the collection, reconciliation and pay-over of crown revenues collected from vehicle licensing and road user charges (RUC). The Transport Registry also administers the demerit point scheme for driver related offenses, suspends driver licenses due to excessive demerit points and reviews applications for driver licenses to be revoked on medical grounds.

Annual budget: Driver License Registry: $42,916,263, Motor Vehicle Registry & Revenue Management: $58,715,435 Crown Revenue: $1,778,660,000

Management:	9	HR/Administration:	14	*Staffing sections and staff numbers:*
Business Support Services:	64	Finance Operations:	4	In April 2006, 290 staff were employed at the TRC. Some TRC services are contracted out to agents who include the New Zealand Automobile Association, NZ Post shops and Books & More outlets, Vehicle Inspection New Zealand, Vehicle Testing New Zealand, On Road New Zealand and some independent agencies
Call Centre—MVR:	78	Agencies:	3	
Call Centre—DLR:	57	Vehicle Compliance:	8	
Crown Revenue:	15	Information Technology:	38	

Motor Vehicle Register:
- services are provided under contract to Ministry of Transport
- around 3.9M vehicles on the register
- 1.0M change of ownership transactions completed each year
- collect $500M in Accident Compensation Corporation (ACC) levies
- 7.5M requests (on-line) for information from the register annually from local authorities and industry
- answer more than 50,000 national 0800 calls each month
- 25,000 vehicle registrations each month (new and imported)
- 400,000+ vehicle licensing transactions per month.

Driver License Register:
- 2.9M licensed drivers
- 7,000 demerit warning letters issued monthly
- 20,000 new driver licenses issued monthly
- 3,000 overseas driver licenses converted to a NZ license each month
- 3,000 licenses suspended each month due to excessive demerit points or court action
- about 2,000 medical reviews processed each month
- answer in excess of 50,000 national 0800 calls per month.

Information provided by Transport Registry Centre, New Zealand, 2006

Box 63: The Driver and Vehicle Licensing Agency, Great Britain

The Driver and Vehicle Licensing Agency is an Executive Agency of the Department for Transport (Dft). Through agreed targets, the Agency is accountable to the Secretary of State and Ministers and, through them, to parliament and the public, for efficient and effective management of the Agency and its responsibilities.

The primary aims are to maximise the Agency's contribution to improving road safety, reducing crime, improving the environment and the public's experience of government services through the efficient provision of statutory core activities of driver and vehicle registration.

Information provided by DVLA, 2006

1988. It comprises a face to face interview and 1 week diary of 5,796 respondents with a response rate of 65%.

Final outcome data systems. The comprehensive crash injury data arrangements in Victoria, Australia (see Box 65) provide an illustration of the different functions and the range of organizational structures which are typically employed in the transport, health and justice sectors in good practice countries. Further examples are provided in Boxes 66–67.

Intermediate outcome data systems. Intermediate outcomes are not desired for themselves but for what they entail—better final outcomes. They include average traffic speeds, the proportion of drunk drivers, seatbelt-wearing rates, helmet-wearing rates and aspects of the safety quality of the road network and the vehicle fleet. Along with final outcome data, they provide a firm basis for multisectoral working to achieve road safety results. Where fragmentary arrangements exist for the collection and analysis of country-wide data on road traffic deaths and injuries, intermediate outcome data can provide in the interim a useful starting point for the measurement of country safety performance in the development of the national road safety strategy.

Most intermediate outcome data is collected by carrying out periodic national surveys of key safety indicators in normal traffic. Typical indicators in use are set out in Table 6.

National surveys of intermediate outcomes tend to be carried out by the lead agency in conjunction with the road authorities at national, regional and local levels, the police, and public health and research organizations. In Finland data on behavioral outcomes are combined for convenience of use in one database (see Box 68).

Safety rating programs such as New Car Assessment Programs (NCAPs) and Road Assessment Programs provide objective information of the quality of the national fleet and road network (see Boxes 69–70). An International Road Assessment Programme is currently under development. NCAPs can improve car industry performance and lead to significant progress in car occupant safety.[68]

Output data systems. The collection of records and data on the outputs of institutions are usually the responsibility of the institutions concerned. For example, the police in the State of Victoria keep records of performance on a range of areas which are outlined in annual reports and performance agreements (see Box 71).

Box 64: National Travel Survey, Great Great Britain

Why is the survey carried out?
The National Travel Survey (NTS) is a continuous survey on personal travel. It provides the Department for Transport with data to answer a variety of policy and transport research questions concerning travel patterns of the population. The survey has been running on an ad hoc basis since 1965 and continuously since 1988. It comprises a face to face interview and 1 week diary of 5796 respondents with a response rate of 65%.

How is the survey done?
The annual sample size is set at 5,796 private addresses in Great Britain (from the year 2000). The addresses are drawn from the Postcode Address File (a comprehensive list of all delivery points—postal addresses—in Great Britain). A distinctive feature of the NTS is a travel diary which all sampled household members keep for seven consecutive days. The survey switched to computer assisted interviewing (CAI) in 1994 for the main interview. Respondents continue to complete a paper travel diary which the interviewers then input into a specially written program that checks the data. The government statistical service conducts all processes up to the production of a fully edited data file and the publication of an annual technical report.

http://www.statistics.gov.uk/ssd/surveys/national_travel_survey.asp

Box 65: Examples of road crash injury data systems in Victoria, Australia[63,64,65,66]

In Victoria, Australia responsibilities for different crash, exposure and health data systems fall principally to VicRoads, Victoria Police, the Transport Accident Commission, the Department of Human Services and Monash University Accident Research Centre (MUARC).

Victoria Police. About 38,000 crashes annually are reported to the police on a standardized crash report form. Crash reports are received within 10 days, though crashes involving fatalities are reported daily. Data collected from collision reports are used to identify and validate safety camera sites, identify blackspot intersections and locations and areas for enforcement and local road safety initiatives, assist with the deployment of Booze Buses, identify locations for road environment improvements, report under the Victoria Police Business Plan, and measure annual road trauma outcomes.

VicRoads enhancement of crash data. The Road Information Systems group at VicRoads supports road crash data systems management. Data collection and data support activities are conducted under contract to the Road Safety Department at VicRoads. The information from the police collision forms obtained from Victoria Police is GIS coded and linked to other information databases in VicRoads. Classification of accidents is added as well as alcohol data from the hospitals and coroner. VicRoads' Road Crash Information System (RCIS) provides access to fatal crashes within 24 hours and information on injury crashes within about 2 months delay. The RCIS is used to identify high-risk sites and to provide updates on government performance indicators. A parallel system has been developed for Intranet and Internet access on the VicRoads website which is updated every 6 months. VicRoads supports multi-disciplinary in-depth crash investigation covering enforcement, vehicle and road design and driver behavior.

The Transport Accident Commission's claims database contains details of road crash victims whose injuries are serious enough to allow them to make a claim for damages under the no fault compulsory insurance scheme.

National Coroners' Information System (NCIS) was established in 1997 to manage the development of information contained in the Coroner's database includes medical reports, pathologist reports on causes of death, witness and Police reports. This data supplements crash data already in the Police and VicRoads crash databases and is managed by Monash University.

The Monash University Accident Research Centre is responsible for the *Victorian Injury Surveillance and Applied Research Program (VISAR)* which has been funded by the Department of Human Services since 1993. It provides a comprehensive injury surveillance system, including death data from the Australian Bureau of Statistics, coroner data from the National Coronial Information System, as well as hospital admissions and emergency department data.

The Victorian State Trauma Registry monitors the state wide system of trauma management in order to reduce preventable deaths and permanent disability from major trauma. It was established in 2001 coordinated by the VSTORM group based at the Department of Epidemiology and Preventive Medicine at Monash University. The Victorian State Trauma Registry aims to collect information on major trauma patients from every hospital and health care facility managing trauma patients across the State. In its second year of operation, the registry collected information from 129 facilities.

The *National Transport Injury Database (NTID)* was initiated by the Australian Transport Safety Bureau in 2002. It contains hospital data for in-patients in Australia and is checked and amended for duplicates and anomalies.

Box 66: Final and intermediate outcome data collection in Great Britain

The STATS19 system is a national police crash reporting system and results are monitored and reported annually in *Road Accidents Great Britain: the Casualty Report*. Police data is forwarded routinely to the Department for Transport and to local authorities.

The health sector has a system for road crash injury reporting and linkage studies between health and police data are made from time to time by the lead agency to estimate levels of underreporting in the national police reported database.

The lead agency also carries out the *National Travel Survey* periodically to collect exposure data on road user travel and trips (see Box 64), a coroners study to ascertain levels of excess alcohol in fatally injured drivers and riders, and periodic seat belt use, random breath testing and speed surveys in normal traffic.

In addition, the lead agency is one of the partners in a cooperative crash injury study which provides in-depth crash investigation of serious and fatal car crashes, which allows monitoring of vehicle safety standards.

Box 67: New Zealand's Crash Analysis System (CAS)

In New Zealand, the lead agency established a Crash Analysis System (CAS) which manages, analyses and maps road traffic crash and related data. The Crash Analysis System sat within the Strategy Division of the Land Transport Safety Authority. CAS allows users to:

- enter road crash data
- select crashes for analysis
- map crashes
- view images of the crash report diagrams
- locate and map crash clusters
- report on crashes or crash clusters
- monitor trends at crash sites
- automate the production of collision diagrams
- identify high-risk locations.

The information provided by the CAS is used to help analyse and determine road safety funding allocations. It is also used in the targeting of road safety programs and the monitoring of their performance. It integrates mapping with other functions and links crash data with road asset management data systems used by the road controlling authorities at the national and local level. The crash data collection is based on the fatal, injury and non-injury crashes reported by the police to the lead agency. Internet access to the full services of the CAS can be provided to authorized users.

http://www.ltsa.govt.nz/research/cas/

Safety statistics sections tend to be sited within the lead agency in a dedicated unit, sometimes within the traffic safety department (e.g., New Zealand (LTSA) and the United States (NHTSA) or within a large transport department or roads authority as in Great Britain (DfT) and Victoria, Australia (VicRoads)). Since data is collected by a range of agencies, strong partnership and coordination arrangements are typically put in place by the lead agencies in good practice countries.

Lead Agency Role

In good practice *monitoring and evaluation,* the lead agency:

- **establishes databases to identify and monitor final and intermediate outcomes and outputs;**
- **establishes and publishes the socio-economic cost of road traffic injuries;**
- **establishes central computerized transport and driver licensing registries to manage data on the number of vehicles and drivers on the road which are easily accessible for enforcement agencies;**
- **establishes travel patterns and exposure in the system of different types of road use through periodic national travel surveys;**
- **establishes linkages periodically between police reports and hospital admissions data to assess levels of underreporting;**
- **establishes or supports existing safety rating programs on new cars and road networks which provide intermediate outcomes data;**
- **carries out before and after studies to establish the effectiveness of specific road safety measures and in-depth studies to ascertain contributory factors, and the causes and consequences of injury;**
- **establishes tools for local highway and police authorities to undertake data collection, analysis and monitoring techniques and database management.**

Table 6: Types of intermediate outcome data collected

Average travel speed on urban and rural roads
Percentage of front seat belt use in cars
Percentage of rear seat belt use in cars
Percentage of child restraint use in cars
Percentage of excess alcohol amongst drivers
Percentage of motorized two wheeler users wearing crash helmets
Percentage of cyclists wearing crash helmets
Percentage of motor vehicles using daytime running lights
Ambulance response times within the emergency medical system
Percentage of cars in the national fleet with NCAP four star safety ratings
Percentage of roads with specified safety ratings

2. Ensuring transparent review of the national road safety strategy in terms of results, interventions and institutional management functions

Section 4.2 of the main report presents new guidance and checklists for countries which wish to undertake a safety management performance review, whether they are starting out in road safety or have been active for some time, and outlines the process to engage partners and stakeholders and draw conclusions. The aim is to achieve a clear overview of country organizational needs to better understand and manage present road safety performance—what is working and where there is room for improvement—and to ultimately specify or better specify challenging but achievable road safety targets in the national road safety strategy (see Box 1).

Box 68: The Traffic Behavior Monitoring System, Finland

The Ministry of Transport and Communications launched the Traffic Behavior Monitoring System in 1992 for the purpose of systematic data collection. Liikenneturva—the Central Organization for Traffic Safety in Finland, maintains the system for the monitoring of road safety activities. The main objective is to monitor changes occurring in traffic behavior. Annual repetition of the same measurements makes it possible to observe traffic behavior trends at different measuring points.

Traffic monitoring data is collected as a collaborative multisectoral effort. The organizations involved in Finland include: Ministry of Transport and Communications Finland, The Central Organization for Traffic Safety in Finland, University of Helsinki, National Public Health Institute, Ministry of Interior, The Finnish Road Administration, City of Helsinki.

The speed monitoring system is maintained by the Finnish National Roads Administration and comprises about 250 sites throughout the country. Mobile Police together with the National Health Institute have carried out scientific monitoring of drinking and driving. The material is collected by using an alcometer (a breath analyzer) to test the drivers of all vehicles passing a control point. The use of safety belts by drivers and front-seat passengers in vans and passenger cars is monitored by the Central Organization for Traffic Safety in Finland) in collaboration with the Mobile Police.

The traffic behavior measurements included in the system are: speeding, close following, drunk driving, seat belts' use, bicycle helmets' use, use of daytime running lights, indication of directions by vehicles, use of reflectors by pedestrians, and red light compliance by pedestrians. The results of traffic behavior are reported annually using the same methods and the same measuring points. The methods used are road-side observations and automatic traffic counters. The reports are publicly available.

Among the good practice countries to date, only Sweden has initiated and published the findings of a transparent road safety management capacity review using the available checklists.[70] However, all good practice countries have put in place monitoring systems for in-house and independent periodic measurement and publication of performance in meeting road safety targets.

In-house review. In-house reviews are typically carried out by the lead agency with inputs from key partners, stakeholders and external experts. Results are reported to the senior levels of the coordination hierarchy for further decision-making (see Box 72).

Review by independent experts and research organizations. In Victoria, evaluation of the key measures in the road safety strategy is usually carried out by an independent organization—the Monash University Accident Research Centre. In New Zealand, the *Road Safety to 2010* strategy has also been subject to various independent reviews since its inception in 2002 with the latest reviews being published on the Ministry of Transport website.[71]

In 2008, an independent review of road safety management capacity in Sweden was carried out for the Swedish Road Administration. Independent monitoring of policies which can generate societal debate such as compulsory seat belt use or speed camera deployment is also especially useful.

Road safety inspectorates. Sweden has set up a road traffic inspectorate to monitor the rate and quality of implementation of the *Vision Zero* strategy (see Box 73).

Reporting on progress. There is transparent reporting of road safety results and progress in all good practice countries with published annual road safety statistics and trends and publishes periodic in-house and external reviews of targets and programs (see Box 74). Typically, local roads and police authorities are required to report on their annual progress.

Increasingly, lead agencies are making interactive crash data systems available on the Internet. For example, the US National Highway Administration's Fatality Analysis Reporting System (FARS) contains data on all vehicle crashes in the United States that occur on a public roadway and involve a fatality. A FARS query system provides interactive access to fatality data through a web interface.[74] Examples from Victoria and New Zealand are noted in Boxes 67 and 75.

Lead Agency Role

In good practice *monitoring and evaluation,* the lead agency:

- **sets up regular reviews of the progress of the national road safety strategy in achieving desired results;**
- **establishes transparent independent peer review of road safety management capacity in terms of results, interventions and institutional management functions;**

Box 69: The functions and structure of the European Road Assessment Programme EuroRAP (2006)[69]

The European Road Assessment Programme (EuroRAP) is a non-governmental organization and an initiative of motoring organizations. It is a sister organization to Euro NCAP, which has raised the standards of new car safety, and EuroRAP aims to provide consumer focused, independent, consistent safety ratings of roads across borders. EuroRAP aims to stimulate competition in providing the safest roads. With EuroRAP, road engineers can see clearly how well—or badly—their roads are performing compared with others both within and outside their own countries. And the public can see how quickly or otherwise high-risk roads are being improved. AusRAP, USRAP and KiwiRAP have now been formed and iRAP has been formed as an international association to develop road assessment worldwide.

Objectives: The formal objectives of EuroRAP are to:

- reduce death and serious injury on European roads rapidly through a program of systematic testing of risk that identifies major safety shortcomings which can be addressed by practical road improvement measures;
- ensure assessment of risk lies at the heart of strategic decisions on route improvements, crash protection and standards of route management; and
- forge partnerships between those responsible for a safe road system—motoring organizations, vehicle manufacturers and road authorities.

Legal status: EuroRAP AISBL is an international not-for-profit association registered in Brussels. Its membership comprises motoring organizations, road authorities, the motor industry, and experts (individual and corporate) who have made a special contribution to the work of the Association. In 2002, the Foundation for Road Safety Research (a charity founded by the Automobile Association in 1986 to mark European Road Safety Year) acted to found EuroRAP AISBL. ADAC and ANWB were also founder Members of the Association. This followed a successful pilot in 2000 financed by 14 motoring organizations with technical support of several road administrations (GB, NL and S). From 2005, EuroRAP AISBL became the lead agency for work in Europe on behalf of its Members.

Membership: EuroRAP is a Membership organization and its main partners are its Members. There are approximately 30 Members of EuroRAP AISBL from around 20 countries and the Membership continues to grow. EuroRAP AISBL is believed to be the only formal organization which brings together the partners and stakeholders in a safe road system—users, road authorities and manufacturers. It has a policy objective to forge closer partnerships. The Membership base is expected to grow in 2007 as a result of various initiatives with greater inclusion of local and regional authorities and other road user groups. The clubs, charities and authorities involved in the pilot developed EuroRAP's governance framework.

Structure: The reporting structure is from General Assembly to Board to Committees to working groups. There is a Technical Committee, National Programs Committee, Communications Committee, Admissions Committee and Management Committee. The Executive reporting lines are modern with a flat structure. The senior posts are Administrator, Technical Director, Engineering Director, Research and Business Planning, Senior Research Analyst, Corporate Services, Communications and Marketing. About half of these posts are fulltime.

Role of the lead government road safety agency: Roads authorities across Europe actively support EuroRAP. Authorities contribute technical advice but are not bound by the policy lines adopted by the Association and do not shoulder financial and administrative responsibility for the Association. Authority support takes different forms from Membership and participation in the Association's affairs to substantial contributions towards the cost of EuroRAP surveys (e.g., in Ireland, Spain, Sweden and UK) as well as the provision of data, staff time and secondment. Generally, authorities see great benefit in informing the communication that motoring organizations have with road users.

- **sets up a road traffic inspectorate to monitor the rate and quality of implementation of its road safety strategy;**
- **transparently reports road safety results and progress made and makes interactive crash data systems available on the internet.**

3. Making any necessary adjustments to achieve the desired results

In good practice countries, the results of monitoring and evaluation are presented and discussed at all levels of the road safety strategy coordination hierarchy to improve the focus on achieving results (see *Results Focus* section).

Lead Agency Role

In good practice *monitoring and evaluation,* the lead agency:

- **ensures that the results of monitoring and evaluation are presented and discussed at all levels of the road safety strategy coordination hierarchy to improve the focus on achieving results (see *Results Focus* section).**

Box 70: New Car Assessment Program (NCAPs) and the role of the lead agency

New Car Assessment Program (NCAPs), which were first developed in the US, evaluate the crash performance of new cars in certain test conditions and provide a star rating. NCAPs make information about a car's comparative safety rating in its class available to car buyers. Secondly, they act as an incentive for manufacturers to improve the safety of their cars.

Of all the NCAPs, the most recent—the European New Car Assessment Programme (Euro NCAP)—has been the most expansive in testing for frontal side car occupant crash protection, pedestrian protection, pole testing and awarding points for child restraint and seat belt initiatives. Research has shown that cars with three or four stars are approximately 30% safer, compared to two star cars or cars without a Euro NCAP score, in car-to-car collisions.[66] The Euro NCAP consortium currently includes the governments of Catalonia, France, Germany, The Netherlands, Sweden and the United Kingdom, motoring organizations represented by the FIA Foundation for the Automobile and Society and ADAC, European consumer groups represented by ICRT and British Insurers represented by Thatcham (www.euronacap.com).[67]

The first NCAP was developed by the US National Highway Safety Administration. The New South Wales Traffic Authority, the British Department for Transport and the Swedish National Road Administration prepared the way for the establishment of the Australian and European New Car Assessment Programmes respectively. Here, car crash safety is assessed according to a 5-point scale with the highest rating at 5 stars. The programs were launched in partnership with motoring and consumer organizations. This involved substantial technical, political and promotional input. Lead agencies funded preparatory crash testing research as well as addressing concerns from the car industry. Lead agencies have also monitored and published results. New Zealand's Land Transport Safety Authority was a member of the Australasian New Car Assessment Programme, as are Vic Roads in Victoria and the Federal Office of Road Safety in Western Australia.

Box 71: Performance measure of institutional outputs—Victoria Police

	Target 2003/2004	Result 2003/2004
Number of incidents/collisions investigated	38,000	38,138
Number of heavy vehicle operations investigated	13	14
Number of drug-impaired driving assessments conducted	230	164
Number of alcohol screening tests conducted	1,300,000	1,203,251
Number of vehicles detected speeding	932,000	1,001,282
Number of targeted police operations conducted	18	18
Percentage of fatal collisions investigated involving inappropriate speed	30	45.5
Percentage of fatal collisions investigated involving fatigue	8	7.5
Percentage of fatal collisions investigated involving alcohol/drug use	20	27.5
Percentage of heavy vehicle prosecutions which are successful	90	92.5
Percentage of drivers tested who fail preliminary/random breath tests	0.5	0.4
Total cost of output	$119.2m	$125.6m

Box 72: In-house monitoring in Western Australia and Great Britain

The inter-agency *Measuring Progress Advisory Group* in Western Australia monitors the progress against the Strategy objectives and makes recommendations to the Council on effective ways of measuring progress against *Arriving Safely* targets and on policies and processes to improve the collection, sharing and application of road safety information and knowledge.

In Great Britain the road safety strategy is assessed by the Department for Transport every three years in line with a commitment written into the road safety strategy. Progress is assessed in-house and by the Road Safety Advisory Panel comprising a wide range of governmental and non-governmental stakeholders which was set up to advise Ministers of the progress with the road safety strategy. Implementation reports are published quarterly.

Box 73: The Swedish Road Traffic Inspectorate (2006)

The Swedish Road Traffic Inspectorate was established in 2003 as a division of the Swedish Road Administration. While it enjoys a large degree of independence it is not entirely independent, as many partners and stakeholders had preferred.[72] The Managing Director of the Road Traffic Inspectorate reports directly to the Board of SRA organization, and otherwise has a separate annual budget, program and decision-making hierarchy.[73] It has sixteen staff members and an annual budget of around 20,000,000 SEK ($US 2.6 million). The tasks of the Inspectorate are:

- to monitor and analyze conditions that could substantially affect the design and functioning of the road transport system through taking a holistic view of the road safety goals adopted by public authorities, municipalities and others.
- in dialogue with the players referred to above, work to ensure that they apply a systematic procedure to prevent road crashes that result in death or serious injury.
- to cooperate with other players to improve traffic safety on roads.
- to initiate research and development within the road safety sector and monitor research of importance to the operations at the Inspectorate.

The Road Traffic Inspectorate's management system for quality is based on ISO 9001:2000. The approach is process-based with production processes that are linked with the Inspectorate's duties. The *Analysis* process creates and communicates analyses and conclusions regarding the conditions in road traffic. *Discussion* creates improved conditions in road traffic. *Interaction* creates the prerequisites for improved conditions and *R&D* creates and communicates new knowledge on the conditions in road traffic.

Box 74: Reporting progress in New Zealand

In New Zealand the lead agency provided the National Road Safety Committee with a comprehensive quarterly report *Road Safety Progress* which outlined progress being made on outcome and output targets. It was also made available to the National Road Safety Advisory Group, members of parliament, lead agency managers and road safety coordinators.

Box 75: Internet version of crash statistics in Victoria

CrashStats is provided to users by VicRoads over the internet for the purpose of supplying information about road crashes in Victoria. The initiative is for educational purposes and allows users to better understand some of the key issues about road crashes. The user has to agree to specific terms and conditions before access is permitted.

Monitoring and evaluation: summary of lead agency role

In good practice countries *monitoring and evaluation* of national road safety performance is usually the responsibility of the lead agency and its related coordinating body. The lead agency plays the major role by ensuring that appropriate data systems, linkages and management capacity are established to set and monitor targets and strategies; conducting transparent reviews of the national road safety strategy and its performance; and making any necessary adjustments to ensure that results are achieved.

1. *Establishing and supporting data systems to set and monitor final and intermediate outcome and output targets.*
   In good practice *monitoring and evaluation,* the lead agency:
   - establishes databases to identify and monitor final and intermediate outcomes and outputs;
   - establishes and publishes the socio-economic cost of road traffic injuries;
   - establishes central computerized transport and driver licensing registries to manage data on the number of vehicles and drivers on the road which are easily accessible for enforcement agencies;
   - establishes travel patterns and exposure in the system of different types of road use through periodic national travel surveys;
   - establishes linkages periodically between police reports and hospital admissions data to assess levels of underreporting;
   - establishes or supports existing safety rating programs on new cars and road networks which provide intermediate outcomes data.
   - carries out before and after studies to establish the effectiveness of specific road safety measures and in-depth studies to ascertain contributory factors, and the causes and consequences of injury
   - establishes tools for local highway and police authorities to undertake data collection, analysis and monitoring techniques and database management.

2. *Transparent review of the national road safety strategy and its performance.*
   In good practice *monitoring and evaluation,* the lead agency:
   - sets up regular reviews of the progress of the national road safety strategy in achieving results;
   - establishes transparent independent peer review of road safety management capacity in terms of results, interventions and institutional management functions;
   - sets up a road traffic inspectorate to monitor the rate and quality of implementation of its road safety strategy;
   - transparently reports road safety results and progress made and makes interactive crash data systems available on the Internet.
3. *Making any necessary adjustments to achieve the desired results.*
   In good practice *monitoring and evaluation,* the lead agency:
   - ensures that the results of monitoring and evaluation are presented and discussed at all levels of the road safety strategy coordination hierarchy to improve the focus on achieving results (see *Results Focus* section).

Research and development and knowledge transfer

Research and development and knowledge transfer: overview of good practice

Function:

Research and development and knowledge transfer concerns the systematic and ongoing creation, codification, transfer and application on knowledge that contributes to the improved efficiency and effectiveness of the road safety management system to achieve the desired focus on results.

Dimensions:

- Developing capacity for multi-disciplinary research and knowledge transfer
- Creating a national road safety research strategy and annual program
- Securing sources of sustainable funding for road safety research
- Training and professional exchange.
- Establishing good practice guidelines.
- Setting up demonstration projects

Research and development and knowledge transfer

Research and development and knowledge transfer concerns the systematic and ongoing creation, codification, transfer and application on knowledge that contributes to the improved efficiency and effectiveness of the road safety management system to achieve the desired focus on results.

Good practice countries recognize that research, technical support and knowledge transfer underpin their road safety performance and ensure that this sector is well-supported.

This vital institutional management function has guided the design and implementation of national strategies that have sustained reductions in road deaths and injuries, in the face of growing mobility and exposure to risk. It aims to produce a cadre of international, national and local professionals who can contribute research-based approaches and knowledge to road safety policy, programs and public debate.

Determining future achievable levels of safety and the package of interventions which can be put in place to deliver these as well as the institutional arrangements which underpin their success requires as much technical as political support. An active road safety research environment is fundamental to the development of effective road safety policy.[1,17,22, 30,75] As the *World Report* outlined, the scale, depth and extent of research should take into account the existing state of knowledge, building on what has already been learned in other countries. Assimilation of the wide range of existing knowledge and its adaptation and demonstration in local circumstances is important.

As discussed in the main report (see section 3.3.2), knowledge transfer in countries starting out in road safety or in developing new approaches should be grounded in practice by a learning by doing process, backed with sufficient targeted investment to overcome the barriers presented by the evident capacity weaknesses at the global, regional and country levels.

Research and development and knowledge transfer is addressed by six dimensions:

1. Developing capacity for multi-disciplinary research and knowledge transfer
2. Creating a national road safety research strategy and annual program
3. Securing sources of sustainable funding for road safety research
4. Training and professional exchange
5. Establishing good practice guidelines
6. Setting up demonstration projects

Lead Agency Role

The lead agency plays a major role across the identified dimensions of *research and development and knowledge transfer.*

1. Developing capacity for multi-disciplinary research and knowledge transfer

Road safety research has been sited traditionally in transport within the public sector. Despite its multi-disciplinary nature road safety research has no long history of coordination across the different disciplines. Few countries have well-developed national road safety research strategies. Efforts at capacity development in the field of health research have been conducted for several decades by international, bilateral and private organizations, but there has been insufficient emphasis on road traffic injury prevention.

The first actions for road safety research and knowledge transfer are generally taken by the lead agency. However, where road safety becomes a serious and comprehensive problem dedicated national research institutions are established, as well as further development of in-house capacity.[17] This has been the case at an early stage for countries such as Great Britain with the Transport Research Laboratory (TRL), the Swedish National Road Research Institute (VTI) in Sweden, and the Dutch Institute for Road Safety Research (SWOV) in the Netherlands. In other cases, university departments are encouraged to fulfill this role, for example the Monash University Road Accident Research Centre (MUARC) in Victoria and the University of Putra, Malaysia.

With well-developed road safety research capacity, good practice countries rely upon research establishments which are independent of government and which compete with other bodies for research-funding. Such institutions generate a critical mass of appropriately trained professionals and typically engage in the preparation of road safety policies and actions to be taken by the government in later years. Parliamentarians and the media look to impartial advice from research organizations on road safety issues which, in turn, help to inform the wider public.

The independence of research and its separation from the executive function in developing public policy is necessary for ensuring quality and to protect the research body against short-term political pressures, though interaction between the two is essential and will require lead agency management capacity (see Box 76).[16] Separation of the research and evaluation functions from the operational aspects of road safety management also gives independence and credibility to public policy research (see Box 77, Figure 4).

Experience shows that the level of road safety activity intensifies following the establishment of such national institutions.[76]

Box 76: Lead agency management of road safety research in Great Britain, Western Australia and New Zealand

Great Britain: Until 1990 Department of Transport research was carried out or managed by the Transport Research Laboratory, which has now been privatised (TRL Ltd). Competitive tenders are sought from a wide range of contractors. Over the last 10 years a dedicated team of experienced researchers has carried out in-house program formulation and management. An external advisory panel on road safety research brings together independent experts and researchers to assist the Department with identifying program priorities.

New Zealand: A range of organizations carry out road safety research in New Zealand. Prior to December 2004 the lead agency—the LTSA—was responsible for coordinating this research and published a yearly summary of funded road safety research. This function is now undertaken by the Ministry of Transport. The in-house 2003 review of road safety research indicated that 58% of research projects were carried out by government agencies or Crown entities and 24% by the New Zealand university sector.

The LTSA's Strategy Division housed a road safety research unit which undertook a range of research support activity to assist national, regional and local government activity. Consulting bodies play a role as do universities (e.g., the Injury Prevention Research Unit at the University of Otago, the Departments of Civil Engineering and Psychology at Canterbury University and the Monash University Accident Research Centre in Victoria, Australia). Significant effort is made to keep abreast of international research and good practice.

Western Australia: The Office of Road Safety coordinates and manages road safety policy development and research on behalf of the Road Safety Council. Research and program evaluation experts are responsible for developing terms of reference for each project, for letting and monitoring contracts as well as for assessing the quality and adequacy of the data analysis and reports provided.

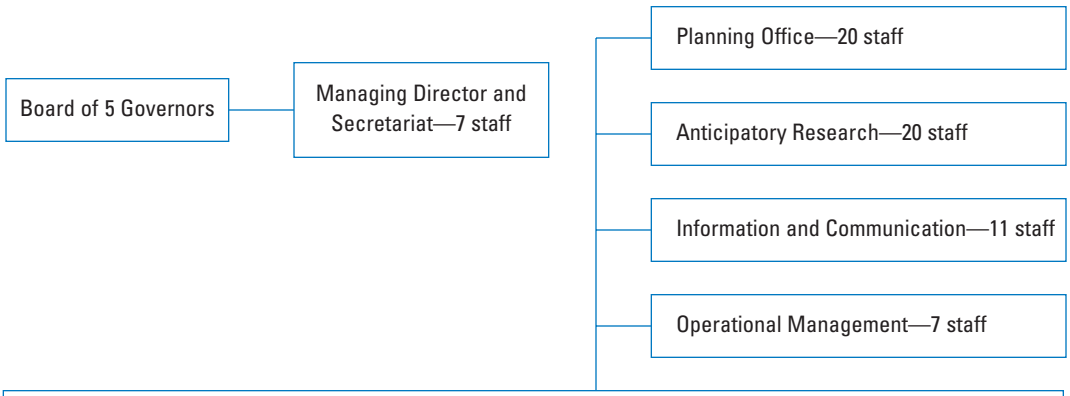
Box 77: Monash University Accident Research Centre (MUARC)[78]

MUARC was established in 1987 and is Australia's largest multidisciplinary, injury and injury prevention research institute covering transport, the workplace, the home, and recreational and other community locations. It carries out over 60% of Victoria's road safety research. MUARC is independent of government and receives external funding from a range of sources. It publishes its accounts annually and subjects its activity to regular independent review. It works co-operatively with both public and private sector organizations to define the scope of research projects and encourage the adoption of recommended injury prevention measures. Many of the senior researchers at MUARC are active at the national and international level.

MUARC is a centre of Monash University and has a Board of Management which brings together senior representatives of governmental agencies responsible for road safety and a road user organization. The Board monitors the general performance and direction of the Centre's program. The Centre has around 100 staff and postgraduate students covering many disciplines. Most staff are engaged principally in road safety research. The annual income of MUARC is around Aus$ 8 million. The two main sources of funding are government and research grants (mainly from commercial research).

MUARC played a vital role in shaping the successful road safety strategy in Victoria. It evaluated the 'booze bus' and speed camera programs including their supporting publicity campaigns. The initial process and outcome evaluations provided early feedback to the Police and TAC, which was used to fine tune program effectiveness. The large benefit/cost ratios calculated for these two programs (greater than 20:1) were important in decisions to continue investment in them on a considerable scale. Further analyses estimated the contribution of other factors to the overall reductions including the accident black spot program, bicycle helmet wearing and the downturn in the economy. MUARC has provided policy and strategic advice based on research, through representation on the Victorian Road Safety Coordination Council and its successor, the Road Safety Reference Group. Staff provided advice on the results of Victorian road safety initiatives to road safety authorities and police internationally. MUARC also carried out a road safety impact analysis of the initiatives of the State road safety strategy. In addition MUARC has database management responsibilities (e.g., the Victorian Injury Surveillance and Applied Research Program (VISAR)—see Box 65).

Figure 4: Organizational structure of the Dutch Institute for Road Safety Research (SWOV), 2006



The Dutch Institute for Road Safety Research (SWOV) is an independent non-governmental organization which is the central research institute for road safety in the Netherlands. Its aim is to pioneer and innovate in road safety research towards safer road traffic. It has a vision of promoting road safety and participates in the social debate and policy preparation. SWOV is overseen by a Board of Governors with an independent Chairman, a representative from a municipality, the RAI Association, the ANWB motoring organization and a representative commissioned by the SWOV Employees Council. The Board determines SWOV's research strategy and types of cooperation, as well as budgets, financial reports and requests for subsidy. It meets 4 times a year.

SWOV employs around 65 staff. The total budget in 2003 was Euro 4.5 million. Its programs of research are mainly funded (90%) by the Ministry of Transport with external project funding coming from the European Union and other sources.

Source: www.swov.nl

International road safety research networks play a key role in establishing information exchange, the sharing of experiences, and the fostering of collaborative projects and research studies. Schemes are supported in good practice countries that allow scientists and professionals to exchange research ideas and findings, develop proposals, mentor younger researchers and carry out research directed at policy-making. The *Global Road Traffic Injury Research Network* is an example of such a framework that focuses on researchers from low-income and middle-income countries. The main international road safety research network in Europe is the *Forum of European Road Safety Research Institutes*.

Lead Agency Role

In good practice *research and development and knowledge transfer,* the lead agency:

- **ensures in-house capacity for road safety research and management as well as contracting out to road safety research organizations as road safety activity increases.**
- **supports and develops key partnerships with independent road safety research organizations for a range of road safety management functions.**

2. Creating a national road safety research strategy and annual program

In some good practice countries multi-disciplinary road safety research forms part of a national research strategy with a dedicated government budget. This includes behavioral studies, road crash injury research, biomechanics and vehicle design, road safety engineering, post-impact care, demonstration projects, and the development of standards for national and international legislation. Some countries have set up external advisory panels to help define the national program (see Boxes 78–79).

Some countries publish details of the national road safety research programs whether on the lead agency website or in hard copy. In New Zealand, for example, *New Zealand Road Safety Research*[78] is an annual hard copy publication and published online.

Typically, an open peer review process of road safety research is put in place to ensure high quality work.

Lead Agency Role

In good practice *research and development and knowledge transfer,* the lead agency:

- **establishes with its partners a national road safety research program to address the needs of the road safety strategy with annual review of needs and consultation with external experts.**

3. Securing sources of sustainable funding for road safety research

Appropriate levels of investment of human and public financial resource from governmental budgets need to be invested in a national road safety research program. Funding for road safety research organization in good practice countries comes mainly from public sector funds distributed by the lead agency, usually to outside bodies but also supporting some in-house capacity.

In good practice countries the insurance industry has also played a key role in road safety research, as it moves away from its sole role of compensating for losses due to crashes to one which also embraces an active role in preventing them. For example, this has been achieved by governmental injury accident insurers in Finland, the Australian States, New Zealand and the provinces of Canada using levies on insurance premiums (see Box 80). The business case for

Box 78: Road safety research program in Great Britain 2006/7[79]

The strategy provides an overview of current evidence and research activities that are planned or already underway in the Road and Vehicle Safety and Standards and Roads: Performance and Strategy Directorates of the Department for Transport (DfT).

The road safety research program directly addresses the Departmental objective: 'Keep on track towards the Department's 2010 road safety PSA and develop the Department's strategy for future improvement,' where progress is on course to achieve the casualty reduction targets. A second three year review of overall DfT road safety standards and casualty reduction targets commenced during 2006 and was published in 2007.

Considerable evidence is also generated from collaboration, literature reviews and ongoing policy analysis. However, the greatest source of evidence under this theme is through three complementary research programs on vehicle safety (including Intelligent Transport Systems). A third of the casualty reduction target for 2010 is expected to be met through vehicle design improvements, road user behavior and traffic management.

Box 79: DfT External Advisory Panel on Road Safety Research, Great Britain

An annual minuted meeting is held by the Department for Transport to seek advice on its road safety research program. The panel comprises members of different Government Departments, representatives of local and regional government and professional organizations and road safety experts. Details of the program and results are published annually.

Box 80: Government insurers in Australasia and Finland

In Victoria, Australia and in New Zealand (the Transport Accident Commission, Victoria and the Accident Compensation Corporation (NZ)), the government insurer premium is included in the annual registration renewal fee on each vehicle. The premiums are used to pay for treatment and support services for people injured in road traffic crashes as well as preventative activity in support of the national road safety strategy.

Since 1968, the Finnish Motor Insurers' Committee (VALT), on the basis of insurance levies raised by government, has maintained a system of in-depth crash investigation and its 21 multi-disciplinary crash investigation teams have investigated about 500, mainly fatal crashes at the scene of the crash (see Box 50).

such investment by insurers is built on the experience that investment in prevention programs can significantly reduce claims without raising insurance premiums.

The UK Co-operative Crash Injury Study provides one example of how the lead agency can encourage sustained involvement of the business sector in support for road casualty reduction measures (see Box 81).

Lead Agency Role

In good practice *research and development and knowledge transfer,* the lead agency:

- **assigns specific annual budgets for road safety research for in-house and external research;**
- **establishes levies on motor vehicle insurance premiums in support of road safety research;**
- **encourages business sponsorship for public sector research.**

Box 81: UK Co-operative Crash Injury Study (CCIS)[80]

This study commenced in 1983 and is an ongoing program of research to conduct in-depth investigations into real world car crashes. The aim of the study is to provide government and industry with crash injury data that will assist in the development of regulations and improvements in secondary safety design features to help mitigate injuries to car occupants and other road users. Some 1,600 vehicles are examined each year by teams from the Vehicle Safety Research Centre at Loughborough, Birmingham Automotive Safety Centre and the Vehicle Inspectorate Executive Agency. The data are collected to similar protocols and are combined for analyses. CCIS is managed by TRL Limited, on behalf of the Department for Transport (Vehicle Standards and Engineering Division) who fund the project with Autoliv, Ford Motor Company and Toyota Motor Europe.

4. Training and professional exchange

Good practice road safety management and performance is underpinned by an array of specialist skills and knowledge across the transport, health, justice, education and planning and development sectors, and across related scientific disciplines. The creation and ongoing management of these skills and knowledge actively engages the public and private sectors, the research and development sector and professional and non-governmental networks, nationally, regionally and globally (see Box 82).

As the European Conference of Ministers of Transport has noted, the launch in 2004 of the *World Report* by the WHO and the World Bank and subsequent United Nations and World Health Assembly resolutions catalyzed a new momentum in global road safety initiatives. International dialogue is now focusing on building a global partnership that can assist and accelerate the process of low and middle-income countries building their scientific, technological and managerial capacities to prepare and implement cost-effective road safety programs. The priority areas being addressed by this dialogue include the global scaling up and harmonizing of related technical assistance, funding, knowledge management and training, and research and development. In particular, and as discussed in the main report (see section 3.3.2), knowledge transfer in countries starting out in road safety or in developing new approaches should be grounded in practice by a learning by doing process to inform the developing strategy and build the capacity to deliver it.

Box 82: Knowledge transfer activities of different international organizations

Knowledge transfer in road safety is promoted and supported by a wide range of international and national agencies e.g., The *World Bank* and its *Global Road Safety Facility, World Health Organization, FIA Foundation for the Automobile and Society* and the *Global Road Safety Partnership* have prepared a series of good practice guides on road safety interventions to assist country implementation of measures to address risk factors identified in the *World Report*.

The *World Health Organization* has produced a training program (TEACH VIP) with a road traffic injury prevention component as well as a recent training manual (www.who.int).

The *OECD* has carried out international reviews of road safety good practice for many years (www.oecd.org).

The *European Union* CARDS program has supported twinning and professional exchange programs in road safety management and is creating a European Road Safety Observatory to enhance knowledge transfer on good practice (www.erso.eu.int).

Training may include doctoral programs, post-graduate training, courses, workshops and refresher seminars in a wide range of multi-disciplinary road safety subjects. Career development pathways for trained professionals are important for attracting and retaining valuable human resources. Part of such a strategy includes establishing positions for road traffic injury prevention in appropriate ministries—such as those of transport and health—and finding incentives to encourage professionals in such posts to perform at a high-level[1] (see Box 83).

Lead Agency Role

In good practice *research and development and knowledge transfer,* the lead agency:

- **employs a variety of means for training and knowledge transfer including professional exchange and attendance at road safety courses, seminars and workshops.**

5. Establishing good practice guidelines

Good practice guidelines are a recognised means of assisting professionals nationally, locally and regionally involved in the specification and implementation of road safety measures. They comprise a synthesis of universal safety principles in specific areas, advice on the general means of applying them and illustrative case studies. Professional organizations such as engineering bodies play an important role in producing guidelines by professionals for professionals, encouraged by the lead agency (see Boxes 82, 84 and 85).

Box 83: Lead agency actions on training and professional exchange

Good practice countries encourage road safety staff to engage in regional, national and international networks to keep abreast of good international practice.

In Victoria, the lead agency runs a professional exchange program involving staff secondments of one or more year's duration between VicRoads, the ARRB Group and Monash University Accident Research Centre.

In New Zealand LTSA funded the development of training packs used by the local Community Road Safety Coordinators to encourage local activity in support of the national road safety strategy.

Box 84: The role of the lead agency in promoting good practice through guidelines

In Great Britain the lead agency has encouraged and supported good practice guideline activity over the last few decades in order to encourage good practice in road safety locally. This work has been conducted either in-house of by professional organizations such as the Institution for Highways and Transportation. Guidelines for Accident Analysis and Prevention were updated first in 1980 and again in 1985. These covered both rural and urban treatments and included recommendations on organization, staffing and funding of the programs, and on databases systems. The 1980 guidelines also introduced the concept of safety audit as a tool for preventing crashes. Subsequent guidelines include Urban Safety Management and Safety Audit. Under the auspices of the DfT, the TRL developed, with the assistance of local authorities a Road Safety Good Practice Guide in June 2001.

In New Zealand, a range of guidelines has been produced by the lead agency to facilitate implementation. One example is guidelines for developing a safety management system for road controlling authorities (LTSA, November 2003), which has increased road safety knowledge and skills in the engineering community.

Box 85: The role of professional organizations in knowledge transfer and encouraging good practice

CROW is the Dutch information and highway centre for transport and infrastructure. It is a is a non-profit making foundation which brings together national government, provinces, municipalities, contractors, public transport organizations, consultants and educational establishments to cooperate on the basis of common interests in the design, construction and management of roads, traffic and transportation facilities *(www.crow.nl/)*.

It is responsible for developing and maintaining the national design standards for roads and traffic provisions on national highways, rural roads and in urban areas. One of its key road safety initiatives is to produce urban safety guidelines and be a key agent in the implementation of sustainable safety principles.

Institution for Highways and Transportation, UK. In 1974 road safety on national roads in the UK was transferred to local highway authorities. During the following 10 years a strong body of experience on good road safety engineering practice rapidly developed at local level and was exchanged through regional groups of professional institutions, notably the Institution for Highways and Transportation. With a staff of 19, a membership of 10,000, 20 regional branches and an annual budget of £1.6 million, its aims are to:

- provide a forum for the exchange of technical information and views on highway and transport policy
- produce practical technical publications; to provide specialist advice to government and other bodies
- make roads safer for the travelling public
- encourage training and professional development to meet today's requirements *(www.iht.org)*.

Austroads is the association of Australian and New Zealand road transport and traffic authorities. Austroads members are the six Australian state and two territory road transport and traffic authorities, the Federal Department of Transport and Regional Services (DOTARS), the Australian Local Government Association (ALGA), and Transit New Zealand. It plays a key role in knowledge transfer in Australasia and beyond by carrying out research, preparing guidelines and other tools of information exchange. Austroads has set up a National Road Safety Taskforce with senior road safety representatives from all state road authorities, New Zealand and the federal Australian Transport Safety Board to oversee the road safety research program *(www.austroads.com.au)*.

Lead Agency Role

In good practice *research and development and knowledge transfer,* the lead agency:

- **develops in-house or contracts out to research and professional organizations the production and dissemination of good practice guidelines which comprise a synthesis of universal road safety principles in specific areas of road safety, advice on the general means of applying them and illustrative case studies.**

6. Setting up demonstration projects

Countries demonstrating good practice road safety performance have shaped their road safety programs over years of implementation, evaluation of results achieved and the long process of learning by doing. Well-designed pilot projects have proved to be an indispensable tool to secure further support for progressive strategies and to update good practice guidelines (see Boxes 86–87). Pilot studies and demonstration projects are used to evaluate the actual effects of measures, address any problem areas, and inform advice on good practice.

Demonstration projects must be of sufficient scale and intensity to contribute to the long-term process of building country capacity for sustainable road safety, while demonstrating measurable road safety results in the short-term to provide evidence-based benchmarks for the roll-out of similar initiatives across the rest of the country. This latter objective can be achieved by targeting high-risk road corridors and urban areas with sufficient resources to make a measurable impact.

Lead Agency Role

In good practice *research and development and knowledge transfer,* the lead agency:

- **develops and funds demonstration projects in areas which offer large potential for road casualty reduction, and uses the successful results to roll-out the projects nationally.**

Box 86: The Safer Cities demonstration project of urban safety management, Gloucester, Great Britain[81,82]

In Great Britain the lead agency encouraged local authorities to compete for funding of a £5 million urban safety management demonstration project. Against the background of national casualty reduction targets, a Safer City project ran from 1996 to 2001 in the city of Gloucester. An objective to reduce city-wide casualties by one third by 2002 compared with the average 1991 to 1995 was set. A variety of urban safety management engineering methods was used, as well as enhanced enforcement and supporting publicity.

The project brought together all those working locally in road safety including engineers, emergency services, magistrates, police, education and training staff, public transport operators, planners and research organizations. Political leadership was provided by a steering group of members from the City Council and Gloucestershire County Council which achieved the required close co-operation. While the target was not met for minor injuries overall, the activity was associated with substantial savings in death and serious injuries. Monitoring to date has shown that compared with the 1991–1995 average serious injuries and deaths fell by 38%. The experiences of the Gloucester experiment were used by the Department for Transport as the basis for new guidelines on *Road Safety Strategies for Urban Communities.*

Box 87: En route to *Vision Zero* demonstration project, Trollhättan, Sweden[83]

A national demonstration project *En route to Vision Zero* was conducted in the town of Trollhättan in the years 2000 and 2001. It was carried out in co-operation between the Swedish National Road Administration, Trollhättan Municipality, Saab Automobile AB, the National Society for Road Safety, the Police Authorities, the Swedish Association of Local Authorities and the Western Gotland regional authorities. All those involved shared their accumulated knowledge and participated within their own special field of expertise. In this project a 39 km long circuit of ordinary municipal streets and state roads was re-designed according to the principles of *Vision Zero* including raised pedestrian crossings, bus stops in the shape of an hour glass preventing cars from passing while the passengers board and alight. Advanced traffic signals, roundabouts, central guardrails and separate cycle lanes on the highway as well as removal of intersections and fixed objects. The inhabitants of Trollhättan were informed and engaged throughout the duration of the project. Road safety professionals from all over the world came to Trollhättan and could drive along the circuit in a number of Saab 9–5 cars equipped with an alcohol ignition interlock, a new type of seat belt reminder and an Intelligent Speed Adaptation system. A study showed that 75% of the 53,000 inhabitants of Trollhättan gave positive feedback to the demonstration project.

Research and development and knowledge transfer: summary of lead agency role

In good practice countries the lead agency plays a major role in *research and development and knowledge transfer* which is fundamental to achieving road safety results.

1. *Developing capacity for multi-disciplinary research and knowledge transfer.*
   In good practice *research and development and knowledge transfer,* the lead agency:
   - ensures in-house capacity for road safety research and management as well as contracting out to road safety research organizations as road safety activity increases.
   - supports and develops key partnerships with independent road safety research organizations for a range of road safety management functions.

2. *Creating a national road safety research strategy and annual program.*
   In good practice *research and development and knowledge transfer,* the lead agency:
   - establishes with its partners a national road safety research program to address the needs of the road safety strategy with annual review of needs and consultation with external experts.

3. *Securing sources of sustainable funding for road safety research.*
   In good practice *research and development and knowledge transfer,* the lead agency:
   - assigns specific annual budgets for road safety research for in-house and external research;
   - establishes levies on motor vehicle insurance premiums in support of road safety research;
   - encourages business sponsorship for public sector research.

4. *Training and professional exchange.*
   In good practice *research and development and knowledge transfer,* the lead agency:
   - employs a variety of means for training and knowledge transfer including professional exchange and attendance at road safety courses, seminars and workshops.

5. *Establishing good practice guidelines.*
   In good practice *research and development and knowledge transfer,* the lead agency:
   - develops in-house or contracts out to research and professional organizations the production and dissemination of good practice guidelines which comprise a synthesis of universal road safety principles in specific areas of road safety, advice on the general means of applying them and illustrative case studies.

6. *Setting up demonstration projects.*
   In good practice *research and development and knowledge transfer,* the lead agency:
   - develops and funds demonstration projects in areas which offer large potential for road casualty reduction and uses the successful results to roll-out the projects nationally.

References

1. Eds. Peden M, Scurfield R, Sleet D, Mohan D, Hyder A, Jarawan E and Mathers C (2004). *World Report on Road Traffic Injury Prevention,* World Health Organization, Geneva, 2004.
2. Tingvall C, The Zero Vision. In: van Holst H, Nygren A, Thord R, eds. (1995). Transportation, traffic safety and health: the new mobility Proceedings of the 1st International Conference, Gothenburg, Sweden, Berlin, Springer-Verlag, 1995:35–57.
3. Koornstra MJ, Mathijssen MPM, Mulder JAG, Roszbach R & Wegman FCM (editors) (1992). *Naar een duurzaam veilig wegverkeer; Nationale Verkeersveiligheidsverkenning voor de jaren 1990/2010.* [*Towards sustainably safe road traffic; National road safety survey for the years 1990/2010.]* (In Dutch.) SWOV, Leidschendam.
4. Land Transport Safety Authority (2000). *Safety Directions, Estimated effects of interventions on road safety outcomes to 2010, Working Paper 7*, Wellington http://www.ltsa.govt.nz/publications/docs/sdwp7.pdf
5. Land Transport Safety Authority (2000). *Safety Directions: Predicting and costing road safety outcomes, Working Paper 6, Wellington*.
6. Broughton J, Allsop RE, Lynam DA, McMahon CM (2000). *The numerical context for setting national casualty reduction targets*. Crowthorne, Transport Research Laboratory Ltd, TRL Report No. 382, 2000.
7. OECD (1994). *Targeted Road Safety Programmes*, Paris.
8. Allsop RE Ed. (2003). *Risk assessment and target setting in EU transport programmes,* European Transport Safety Council, Brussels http://www.etsc.be/documents/riskassess.pdf
9. Elvik R and Vaa, T eds. (2004). *Handbook of road safety measures*, Elsevier.
10. OECD (2002). *Road Safety: What's the Vision?,* OECD, Paris, 2002.
11. Land Transport Safety Authority (2003). Road safety to 2010, Wellington.
12. Land Transport Safety Authority (2000). *Road safety strategy 2010: A consultation document*. National Road Safety Committee, Land Transport Safety Authority, Wellington, 2000.
13. Bliss T, *Implementing the Recommendations of the World Report on Road Traffic Injury Prevention* (2004). Transport Note No. TN-1, World Bank, Washington, DC, April 2004.
14. Victoria Police (2003). *Delivering a Safer Victoria, Business Plan 2003–2004*, Melbourne, 2003.
15. Land Transport Safety Authority/Ministry of Transport, *Performance Agreement 2004/2005*, Wellington, 2004.
16. Trinca G, Johnston I, Campbell B, Haight F, Knight P, Mackay M, McLean J, and Petrucelli E (1988). *Reducing Traffic Injury the Global Challenge*, Royal Australasian College of Surgeons, 1988, ISBN 0 909844 20 8.
17. Aeron-Thomas A, Downing AJ, Jacobs GD, Fletcher JP, Deslby T and Silcock DT (2002). *A review of road safety management and practice*. Final report. Crowthorne, Transport Research Laboratory and Babtie Ross Silcock, 2002 (TRL Report PR/INT216/2002).
18. National Road Safety Committee, New Zealand (2005). *Memorandum of Understanding (updated 2005)*, Wellington, MoT, 2005.
19. Ministerie van Verkeer en Waterstaat (2005). *Mobility Policy Document*, The Hague, 2005.
20. http://www.archive.official-documents.co.uk/document/cm43/4386/4386-00.htm
21. http://www.dpc.vic.gov.au/CA256D800027B102/Lookup/GVTIIBooklet/$file/growing_vic_together%20final%20report.pdf
22. VicRoads, Victoria Police, Transport Accidents Commission *Arrive Alive Victoria's Road Safety Strategy 2002–2007* http://www.arrivealive.vic.gov.au, VicRoads Publication Number 00762, Melbourne.
23. Koornstra M et al. (2002). *SUNflower: a comparative study of the development of road safety in Sweden, the United Kingdom, and the Netherlands*. Leischendam, Dutch Institute for Road Safety Research (SWOV) www.swov.nl
24. Maltby C (2003). *Best Value, Local Transport Plans and Road Safety: Listening to and Learning from the Profession*, PACTS, 2003, London.
25. Jeijkamp AH and Kraay JH (2001). *Road safety in the Netherlands: we all work together*, AVV Transport Research Centre, Ministry of Transport, Rotterdam. April 2001.
26. Kraay JH (2002). *Mobility and road safety: Dutch road safety policy 2001–2020,* Paper presented to 21st Annual South African Transport Conference, Pretoria, July 2002.
27. Hayes IW, Victoria Police (2001). *The changing paradigm of traffic enforcement from the perspective of someone who has been part of both the past and the present*, Paper presented to the Road Safety Research, Policing and Education Conference, 2001, Melbourne.
28. Guria J (1998). *An economic evaluation of incremental resources to road safety programmes in New Zealand.* Accident Analysis and Prevention, Volume 31 (1–2), 1998, pp 91–99.
29. Jones J (2005). *Effective and Efficient Road Policing in New Zealand*, New Zealand Police, Wellington, (2005).
30. Association of Chief Police Officers, the Home Office and the Department for Transport (2005). *Roads Policing Strategy*, 11th January 2005, London.
31. Breen J, *Promoting research-based road safety policies in Europe: the role of the non-governmental sector (1999)*. In: Proceedings of the 2nd European Road Research Conference. Brussels, European Commission, 1999.
32. European Road Safety Observatory (2008). *Work-related road safety*: Author J Breen.
33. Health and Safety Executive (2003). http://www.hse.gov.uk/pubns/indg382.pdf
34. Insurance Institute for Highway Safety, Arlington, www.iihs.org
35. Clark B, Haworth N and Lenné M (2005). *The Victorian Parliamentary Road Safety Committee—A History of Inquiries and Outcomes, Report No. 237*, Monash University Accident Research Centre, Mebourne, June 2005.
36. Parliamentary Road Safety Committee of Victoria, Australia www.parliament.vic.gov.au/committees
37. Parliamentary Standing Committee on Road Safety (STAY SAFE), New South Wales, Australia http://www.parliament.nsw.gov.au/prod/parlment/Committee.nsf/0/1A5E1DF230CB6A1F4A2563E000050584.
38. Travelsafe Committee of the Queensland Parliament, Australia, www.parliament.qld.gov.au/comdocs/travelsafe/
39. Tingvall C (1998). *The Swedish 'Vision Zero' and how parliamentary approval was obtained.* Road Safety Research. Policing and Education Conference. 16–17 November 1998,

Wellington, New Zealand. Proceedings: Volume 1. Land Transport Safety Authority. New Zealand Police. pp. 6–8.
40. Swedish Parliamentary Transport Committee http://www.riksdagen.se/templates/R_Page____4397.aspx
41. Parliamentary Standing Committee on Transport, Public Works and Water Management http://www.tweedekamer.nl/leden_commissies_fracties/commissies/index.jsp
42. House of Commons Select Committee on Transport, London, http://www.parliament.uk/parliamentary_committees/transport_committee.cfm
43. Parliamentary Advisory Council for Transport safety www.pacts.org.uk
44. Vehicle Certification Agency www.vca.gov.uk
45. Vehicle inspection New Zealand www.vinz.co.nz
46. VicRoads, personal communication.
47. Riksdag, Sweden http://www.riksdagen.se/templates/PageWFrame_____6577.aspx
48. Office of Road Safety, Western Australia, personal communication.
49. European Conference of Ministers of Transport (2006). *Peer Review of Road Safety in the Russian Federation, Paris,* 2006.
50. Insurance Commission of Western Australia (ICWA) (2005). *Annual Report 2005,* Perth.
51. Gains A, Heydecker B, Shrewsbury J and Robertson S (2004). *The national safety camera programme Three-year evaluation report*, UCL, PA Consulting Group, DfT, June 2004.
52.. Wetteland T and Lundbye S (1997). *Financing of Road Safety Actions*, 3rd African Road safety Congress, Pretoria 1997.
53. Commission for Global Road Safety (2006). *Make roads safe: A new priority for sustainable development*, ISBN-13:978-0-9553198-0-8.
54. Department for Transport (2004). *Highways Economics Note No. 12003, Valuation of the Benefits of Prevention of Road Accidents and Casualties,* DfT, 2004.
55. Allsop R. *Road safety: Great Britain in Europe (2001)*. London, Parliamentary Advisory Council for Transport Safety, 2001 http://www.pacts.org.uk/
56. Tingvall C, *The Zero Vision*. In: van Holst H, Nygren A, Thord R, eds (1995). *Transportation, traffic safety and health: the new mobility*. Proceedings of the 1st International Conference, Gothenburg, Sweden Berlin, Springer-Verlag, 1995:35–57.
57. Wegman F (2000). *Sharing responsibility: central and local government partnership*, ETSC Best in Europe Conference, September 2000, Brussels.
58. Delaney A, Diamantopolou K, Cameron M, *MUARC's speed enforcement research: principles learnt and implications for practice.* Melbourne, Monash University Accident Research Centre, 2003 (Report No. 200).
59. Swedish Road Administration (2003). *Sectoral Report, 2003*, Publication, 2004 29E, Borlänge.
60. Haworth N, Tingvall C and Kowadlo N (2000). *Review of Good Practice Road Safety Initiatives in the Corporate and/or Business Environment, Report N. 166,* Monash University, March 2000.
61. http://www.lancashire.gov.uk/environment/ltp/ltp_web/section_10661157937.asp
62. McAloon P (2000). *New Zealand's Community Road Safety Programme,* 65th RoSPA Road Safety Congress, 2000, Plymouth.
63. VicRoads http://www.vicroads.vic.gov.au/
64. Monash University Accident Research Centre (2004). *Annual Report 2003*, Melbourne, 2004.
65. Monash University Centre for Coronial Information http://www.vifp.monash.edu.au/ncis/
66. Macdonald D et al (2004). Transportation performance Measures in Australia, Canada, Japan and New Zealand, Washington, 2004.
67. Luukkanen L (2003). *Safety management system and transport safety performance indicators in Finland.* Liikenneturva—Central Organization for Traffic Safety in Finland.
68. Lie A, Tingvall C (2002). *How do Euro NCAP results correlate with real-life injury risks? A paired comparison study of car-to-car crashes*. Traffic Injury Prevention, 2002, 3:288–291.
69. European Road Assessment Programmeme, (2006). (http://217.174.251.13/what_is_eurorap)
70. Breen J, Howard E, Bliss T (2008). *Independent Review of Road Safety in Sweden*, Jeanne Breen Consulting, Eric Howard and Associates, and the World Bank (2008).
71. Breen J (2004). *Review of the Road Safety to 2010 strategy. Final report to the National Road Safety Committee*, New Zealand, Jeanne Breen Consulting, November, 2004.
72. Road Traffic Inspectorate (2004). *Developments in road safety since the Vision Zero Decision in 1997 with a focus on the 11-point programme*, Borlänge, 2004.
73. Swedish Road Administration (2003). *Sectoral Report, 2003*, Publication, 2004 29E, Borlänge.
74. National Highway Safety Administration. FARS data http://www-fars.nhtsa.dot.gov/
75. Beckmann J and Avenoso A Eds. (2003). *Transport safety organization in public and private sectors*, European Transport Safety Council, Brussels, 2003.
76. Morsink P, Oppe S, Reurings M, and F Wegman (2005). SUNflower+6: *Development and application of a footprint methodology for the SUNflower+6 countries,* Published by: SWOV, Leidschendam, 2005, SBN-10: 90-807958-6-0.
77. Monash University Accident Research Centre (MUARC), Victoria, www.monash.edu.au/muarc/
78. NZ Road Safety Research document 2005 (PDF, 403Kb).
79. Department for Transport, *Evidence and Research Strategy*, 2006 edition, 2006, London.
80. http://www.lboro.ac.uk/research/esri/vehicle-road-safety/projects/ccis.htm
81. Department for Transport: *Report on the Gloucester Safer City Project*, Department for Transport, London, undated http://www.dft.gov.uk/stellent/groups/dft_control/documents/contentservertemplate/dft_index.hcst?n=9210&l=1
82. Department for Transport, TRL Ltd, Institution of Highways and Transportation (2003). *Urban safety management guidelines Road Safety Strategies for Urban Communities*, HMSO, London, 2003.
83. Wahlstrom H and S Fredriksson, *A vision zero town—Trollhättan, Sweden* (2002). Proceedings Best in Europe 2002—Safer Cities, European Transport Safety Council Brussels, June, 2002.

ANNEX 3: LEAD AGENCY STRUCTURES AND PROCESSES

Overview

A variety of lead agency models can be effective in road safety management and countries must create a lead agency appropriate to their own circumstances. Successful practice underscores the need for the agency to be a governmental body and for its leadership role to be accepted and fully supported by the rest of government to ensure the development of appropriate funding and capacity.

The lead agency may take the form of a designated, stand-alone entity with a coordinating committee or cabinet representing partner government agencies. It may also be part of a larger transport organization or be part of a Premier's department. The agency might undertake much of the work itself or it might delegate aspects of work to other organizations, including provincial and local governments, research institutes or professional associations.

Examples of four different types of governmental lead agency structures in several good practice jurisdictions are presented in this Annex. These jurisdictions have been active in road safety over a long period of time and exemplify effective delivery of all seven institutional management functions summarized in section 3.1.1 of the main report and detailed in Annex 2. They illustrate how governmental lead agencies and their coordination arrangements can vary to achieve desired results. In some cases the main institutional arrangements have evolved gradually over many years. In others they are relatively recent. All agencies presented have complex organizational structures and processes and many partners and stakeholders.

The different forms of lead agency arrangements are outlined with the aim of showing how their structures and processes reflect their contribution to institutional management functions and their relationships with other partners and stakeholders. For each lead agency type a summary of the lead agency delivery of management functions is presented, using material from the case studies presented in Annex 4. The aggregate structure for governmental road safety arrangements is outlined, together with the role assumed by the lead agency and its relationship with governmental delivery partners. A summary of the related organizational structures and processes is then provided to illustrate the nature of the institutional capacity required to carry out the lead agency role in practice. In using the information in this Annex it should be noted that structures and management processes of particular organizations develop over a period of time and are, typically, in the process of continual change. Therefore, the Annex can only provide snapshots of organizations at a particular stage of their evolution. Wherever possible dates have been assigned to good practice examples and a brief note is provided of major subsequent developments.

Two important conclusions from good practice are drawn with regard to lead agency forms and related structures and processes. First, no one lead organizational arrangement is prescribed as being best, given the diversity of country conditions which road safety managers have to meet. However, a central road safety office with adequate human, technical and financial resources is essential. Second, effective coordination arrangements are subordinate to the leadership role. Without adequate funding, technical resources and an authoritative lead agency support, coordinating the shared responsibility for achieving road safety results has little chance of success.

Introduction

As outlined in Annex 2, the lead agency plays a key role in all of the seven institutional management functions identified as underpinning the road safety management system (see section 3.1.1 in the main report for a summary of these). The lead agency takes responsibility for what it is solely accountable for as well as prompting, encouraging and assisting activities on the part of other key road safety partners and stakeholders. Effective delivery of the lead agency role to achieve desired results requires supporting organizational structures and processes.

The *World Report on Road Traffic Injury Prevention*[1] observes that a variety of lead agency models can be effective in road safety and that each country must create a lead agency appropriate to its own circumstances. The agency might take the form of a designated, stand-alone entity with a coordinating committee or cabinet representing partner government agencies. It might also be part of a larger transport organization or be part of the Premier's department. The agency might undertake much of the work itself or it might delegate tasks to other organizations, including provincial and local governments, research institutes or professional associations.

Successful practice underscores the need for the agency to be a governmental body and for its leadership role to be accepted and fully supported by the rest of government to ensure the development of appropriate funding and capacity. A review of road safety management in thirteen countries concluded that the main factor influencing the success or otherwise of different organizational arrangements was adequate human and financial resources.[2]

Coordination of multi-sectoral activities is a complex task and is closely related to the leadership function. In some low and middle-income countries, national road safety councils have been established as coordinating bodies with a leadership function, but without a lead road safety agency to support them. Without adequate funding, technical resources and an authoritative lead agency in support, this coordinating model has little chance of success.

This Annex builds on the descriptions presented in Annex 2 and drawing on material from Annex 4 examines the overarching organizational structures and processes which allow the lead agency to carry out its role effectively. Examples of four different types of governmental lead agency forms in several good practice jurisdictions are presented, from New Zealand, Great Britain, the Netherlands, Sweden, and the Australian States of Victoria and Western Australia. These good practice jurisdictions demonstrate a mix of organizational approaches at the national and state levels with differing road safety performance and differing strengths or levels of sophistication in their delivery of the identified institutional management functions. In some examples the relationships between these functions and organizational structures and processes are more transparent than in others and it remains a challenge to provide comparable information for each example presented.

The different forms of lead agency arrangements are examined to see how their structures and processes reflect their contribution to institutional management functions and relationships with other partners and stakeholders. A summary of the lead agency delivery of management functions is presented. The aggregate structure for governmental road safety arrangements is outlined, together with the role assumed by the lead agency and its relationship with governmental delivery partners. A summary of the related organizational structures and processes is then provided to illustrate the nature of the institutional capacity required to carry out the lead agency role in practice. Further information on the functions, structures and processes of each of these good practice countries is provided in the detailed case studies in Annex 4.

The main lead agency types in good practice countries

Four broad types of governmental lead agency structures are evident in good practice jurisdictions. Examples of these are presented in Table 1 and organizational structures and processes in a selection of them are then examined in more detail.

Table 1: Different forms of governmental lead agency for road safety in selected countries, 2004

Stand-alone lead agencies
• Land Transport Safety Authority, New Zealand,
• National Highway Traffic Administration, USA
Transport Ministry as lead department
• Department for Transport, Great Britain
• Ministry of Transport, Public Works and Water Management, the Netherlands
Road authority as lead agency
• Swedish Road Administration, Sweden
• VicRoads, State of Victoria, Australia
• New South Wales Traffic Authority, State of New South Wales, Australia
Stand-alone lead agency in Head of State's Department
• Office of Road Safety, State of Western Australia, Australia

The stand-alone lead agency

Examples of stand-alone lead agencies are limited, but as noted in the *World Report* assigning responsibility for results to a stand-alone agency is likely to increase the priority given to road safety. However, experience shows that strong political support and actions from other partner agencies are essential to bring about sustained and substantial improvements in road safety performance, as illustrated in the example from New Zealand.

Land Transport Safety Authority, New Zealand[3,4,5,6,7,8,9]

The Land Transport Safety Authority (LTSA) was set up as a stand-alone agency in 1993 and was responsible for the implementation of road safety in New Zealand for over a decade.

The Land Transport Act 1998 set out LTSA's principal objective to 'undertake activities that promote safety in land transport at reasonable cost,' where reasonable cost was defined as the benefits of any safety activity promoted exceeding their cost. The LTSA's role and activities were mandated in annual performance agreements with the Minister of Transport.[1]

A summary of the institutional management functions carried out by the LTSA is presented in Box 1. A more detailed review is presented in the in-depth case study in Annex 4.

The aggregate structure of the LTSA located in the broader context of other agencies to which it provided strategic direction is set out in Figure 1.

With more than 90% of direct road safety funding in New Zealand being allocated to its key partners in the road controlling authorities and the police, the organizational priority of the LTSA from the outset was focused on ensuring the effectiveness and efficiency of its partnerships with these agencies. The LTSA provided administrative and technical support to the National Road Safety Committee (NRSC) and its working groups which comprised the main road safety governmental partners, as well as working with other partners and stakeholders throughout the country.

The LTSA's organizational structure is outlined in Figure 2. It employed 656 staff as at 30th June 2004, of which 451 (68%) were employees in the Operations Division, 33 in the Strategy Division (5%), 52 in the Policy Division (8%), 26 in Communications and Education Division (4%), and 39 in Information Systems and Technology (6%).

The *Strategy Division* conducted the target-setting work and provided road safety research, statistics, performance monitoring and economic analysis, which aimed to ensure that safety interventions achieved improvements in road trauma levels. It provided strategic direction for road safety and managed the New Zealand Road Safety Program (or Safety (Administration) Program) which funded police and community road safety outputs. It also managed the national Crash Analysis System, directed the national research effort and provided the secretariat support to the National Road Safety Committee, the National Road Safety Working Group, the National Road Safety Advisory Group and the Industry Consultative Committee.

The *Policy Division* carried out policy analysis, research and development for road safety interventions such as the development of standards and rules relating to the design and operation of the road network and the conditions of entry and exit for vehicles, operators and users.

The *Operations Division* promoted compliance with standards and rules by means of community education, enforcement (including auditing of LTSA agents) and performance assessment. The Vehicle Certification Unit conducted audits of motor vehicle certification agents and commercial license transport operators in each region to ensure vehicle compliance standards were maintained. It also carried out investigations of heavy vehicle crashes where mechanical defects had been identified. Many activities were contracted out to companies and individuals. The Regional Offices monitored and reviewed performance on local networks, coordinated interventions with local road safety partners and managed vehicle and operator compliance. The Transport Registry Centre facilitated the entry and exit from the land transport system and managed the collection of user charges and Accident Compensation Corporation levies.

[1]In late 2004 the LTSA merged with the national transport funding organization to become Land Transport New Zealand which was set up to deliver a new integrated transport policy and to address the multiple goals of sustainable development. These institutional arrangements have since undergone further reforms, and this case study is confined to the role and activities of the LTSA.

Box 1: Summary of LTSA delivery of institutional management functions, New Zealand

Results focus: The Land Transport Safety Authority (LTSA) was the lead agency for road safety in New Zealand from 1993 to the end of 2004. The LTSA had the main responsibility for managing the country results focus and ensuring that system-wide interventions were agreed and implemented by the responsible authorities across government and wider society. It established a framework for assessing safety performance and the potential for achievable results in the medium term and led the development and delivery of national safety strategies and the work program agreed by the National Road Safety Committee (NSRC), the high-level coordinating body. The latest strategy includes targets for final and intermediate outcomes as well as institutional outputs. The LTSA's responsibility for the achievement of national targets was underpinned by a performance agreement with the Minister of Transport. It also established Memoranda of Understanding with its partners to guide the road safety effort and funded key police enforcement outputs to achieve results and underscore accountability for their delivery.

Coordination: The LTSA established and managed multi-sectoral coordination to engage all major partners and stakeholders in a decision making hierarchy of committees and chaired and provided the secretariat of the NRSC and supporting committees. It established road safety partnerships with each of the other six governmental members of the NRSC to deliver agreed targets. The LTSA built tools and programs for use by regional and local authorities and developed and supported community programs and partnerships at the local level.

Legislation: The LTSA established in-house capacity in its Policy Division to set, ensure compliance with and monitor road safety standards for vehicles, roads and people, as well as to provide policy advice. It established a small in-house rules team to work with the Ministry of Transport in developing and consolidating major primary legislation. The LTSA used the coordination hierarchy to find legislative slots for road safety and for consultation on proposals for legislative change.

Funding and resource allocation: The LTSA ensured a dedicated funding source for road safety from the National Road Fund and managed the New Zealand Road Safety Program to largely finance road safety outputs from NZ Police and also finance some aspects of the LTSA program of education, promotion and strategy development. The LTSA provided in-house capacity in its safety economics section to evaluate safety costs and benefits, estimate program funding needs and prepare related business cases. It periodically reviewed the value of preventing road traffic deaths and serious injuries to sustain a strong business case for expenditure on road safety. The LTSA also provided advice on grants management and managed the Road Safety Trust.

Promotion: The LTSA promoted the shared responsibility for delivery of the road safety strategy and its Ministers played a key role in launching and promoting the strategy. It coordinated multi-sectoral promotion and contracted out targeted road safety advertising in support of the major themes of the safety strategy. The LTSA provided in-house lead agency capacity for promotion through its Communications and Education Division, supported and promoted the Australasian New Car Assessment Programme (ANCAP) and developed community road safety programs to promote the national strategy at the local level.

Monitoring and evaluation: Monitoring and evaluation of the road safety strategy was LTSA's responsibility in association with the NRSC. The LTSA established surveys and databases to identify and monitor final and intermediate outcomes and outputs against targets and established and published the socio-economic costs of road traffic injuries on an annual basis. It managed the vehicle and driver registries, developed and maintained the Crash Analysis System and participated in the ANCAP safety rating program to assist monitoring of vehicle fleet safety. The LTSA reviewed the progress of the national road safety strategy in-house on a quarterly basis and funded an independent review of its performance in 2004.

Research and development and knowledge transfer: The LTSA's coordination role for road safety research was established in legislation. It built in-house capacity to manage its research strategy and program and supported external research focused on supporting the safety strategy, including demonstration projects. The LTSA secured funding for road safety research and knowledge transfer in its own budget and supported attendance of its staff at international road safety meetings, seminars, workshops and study tours to good practice countries. It also developed and disseminated good practice guidelines on road safety.

Figure 1: Aggregate structure of the Land Transport Safety Authority (LTSA) in New Zealand (1993–2004)

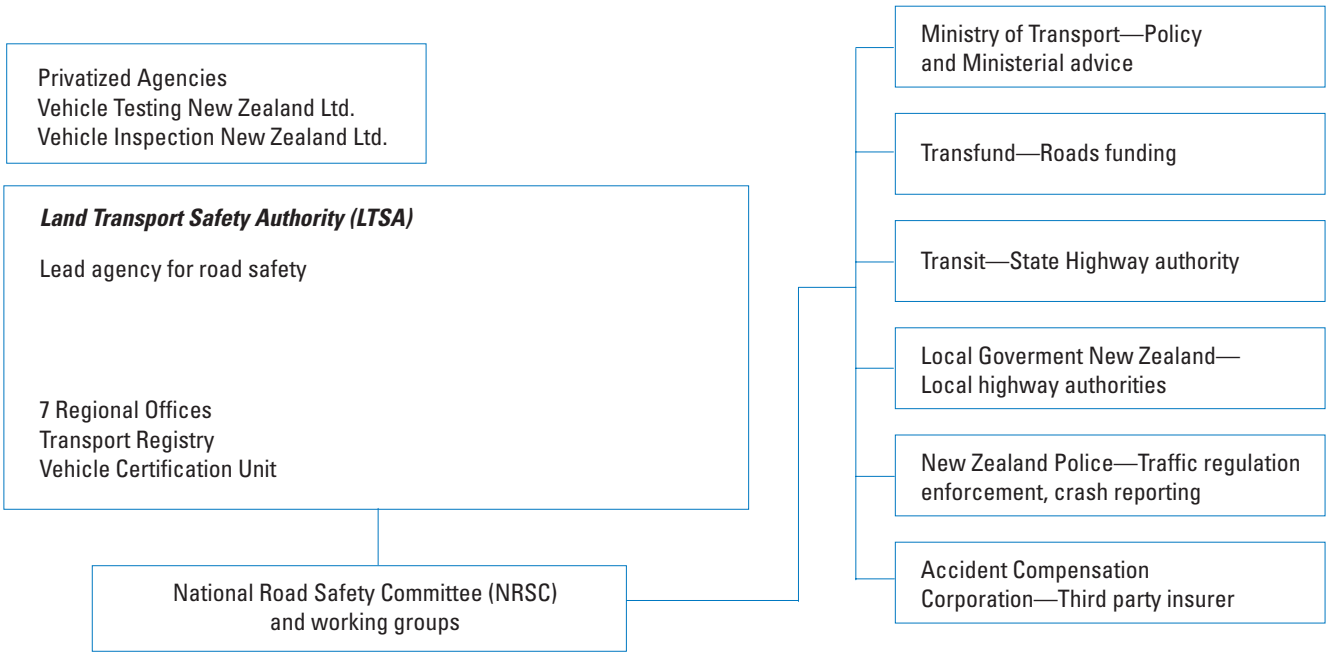


Figure 2: Organizational structure of the Land Transport Safety Authority (LTSA) in New Zealand (1993–2004)

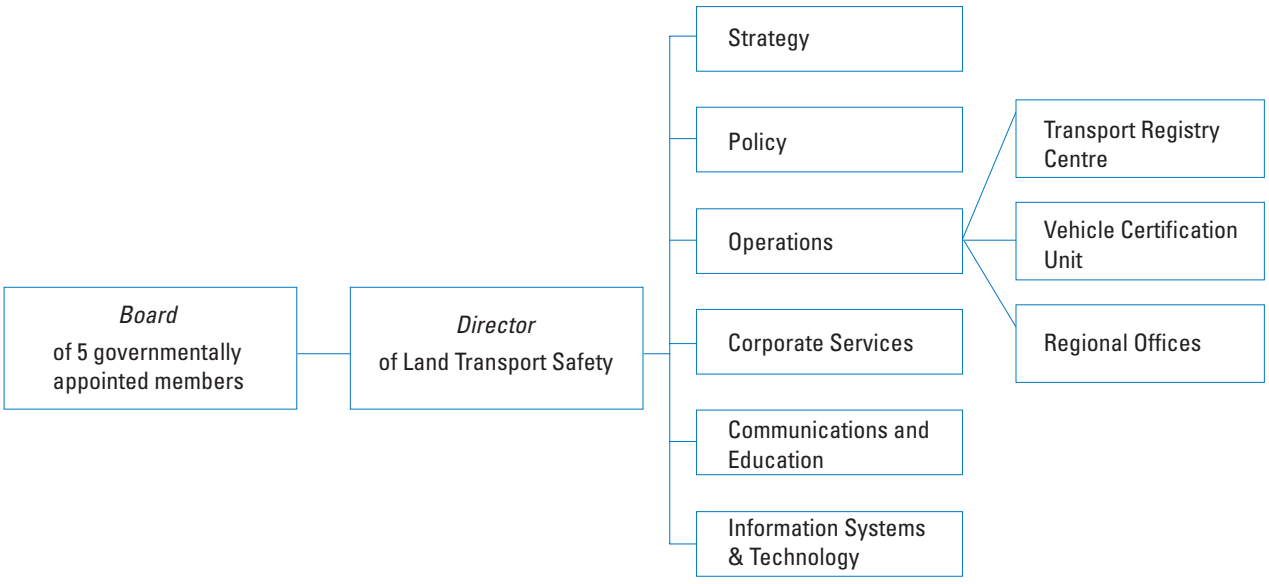
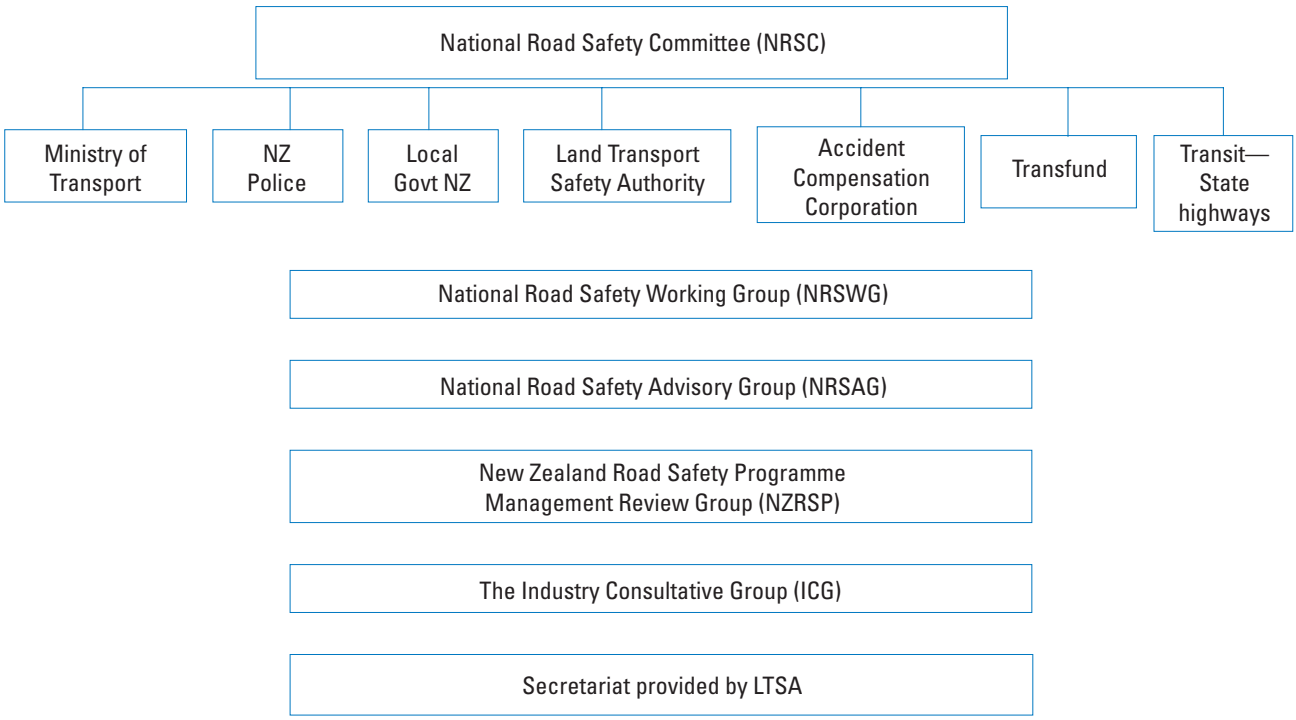


Figure 3: Multi-sectoral structures for road safety coordination in New Zealand (2004)



The *Corporate Services Division* provided information services, human resources, financial contract and facilities management, and reprographic and legal support for core LTSA activities. It also undertook the organization's corporate planning, including annual business planning and budgeting activities.

The *Communications and Education Division* provided the communication and information support for core activities. It also became engaged in education to encourage compliance with standards and rules and managed the road safety advertising program.

The *Information Systems and Technology Division* provided the tools and support for systems and technology which delivered the LTSA services. It managed the provision of information, data and systems that allowed staff and agents to carry out their work effectively.

The organizational structure of LTSA and the structure of the related coordination and decision-making hierarchy set out in Figure 3 provided for the delivery of all seven institutional management functions at country level, under LTSA's leadership and direction.

The LTSA chaired the NRSC and provided a dedicated secretariat to support it and three other management committees, the National Road Safety Working Group, the National Road Safety Advisory Group and the Industry Consultative Group, and it established road safety partnerships with each of the member agencies of the NRSC to achieve agreed targets.

National Road Safety Committee (NRSC). Chaired by the LTSA to 2004, the NRSC brings together the Chief Executives of the main government partners of the *Road Safety to 2010* strategy and is the Minister of Transport's highest-level road safety advisory group. Its role is in communicating, coordinating and agreeing top level strategy between agencies on road safety issues and over-sighting progress towards the achievement of national targets. Operational matters are managed by the National Road Safety Working Group and the Road Safety Program Review Group. The terms of reference for the NRSC and the agreement reached on the way in which the members work together in matters related to road safety are set out in a Memorandum of Understanding. Meetings are held quarterly and a planning workshop is held annually. A Ministerial debriefing is held after each NSRC meeting. Following an inde-

pendent review of road safety in New Zealand, the Departments of Health, Justice and Labour Departments joined this coordinating body as Associate Members.

National Road Safety Working Group (NRSWG). Chaired by the LTSA to 2004, the National Road Safety Working Group (NRSWG) reports to the NSRC, and leads on operational matters. It comprises senior representatives of the NRSC organizations and is responsible for detailed policy preparation and coordination between the member organizations, the preparation of quarterly NRSC meetings and the setting up of working groups on specific issues.

National Road Safety Advisory Group (NRSAG). Chaired by the LTSA to 2004, the NRSAG provides a forum for a wide range of agencies involved in road safety to express their views on road safety issues and to provide a base from which joint projects can be initiated. In 2004 it comprised 19 members predominantly from the public sector including the Accident Compensation Corporation (ACC), the Alcohol Advisory Council of New Zealand, the Crime Prevention Unit of the Ministry of Justice, Local Government New Zealand, the Ministries of Health, Justice, Pacific Island Affairs, Transport and Youth Affairs, the New Zealand School Trustees Association, the New Zealand Automobile Association (AA), the New Zealand Police, Transit New Zealand, Transfund New Zealand, Te Puni Kokiri, Road Safety Coordinators Association, Road Safety Coordinators, the Energy, Efficiency and Conservation Authority and Cycle Support NZ.

New Zealand Road Safety Programme Management Review Group (NZRSP). This group works to improve the efficiency and effectiveness of the New Zealand Road Safety Programme and comprises the LTSA, New Zealand Police and the Ministry of Transport.

The Industry Consultative Group (ICG). This group was established by the LTSA to create a forum for the land transport industry to liaise with the LTSA. It provides a strategic overview of commercial vehicle safety issues in the land transport sector, operates in an advisory capacity and reports to the National Road Safety Council Working Group. Its membership comprises: the New Zealand Automobile Association (AA), the Bus and Coach Association, the Contractors Federation, Federated Farmers, the Imported Motor Vehicles Dealers Association, Local Government New Zealand, the Motor Industry Association, the Motor Trade Association, the Motor Vehicle Dealers Institute, the Owner Carriers Association of New Zealand, the New Zealand Road Transport Forum and the Taxi Federation.

The lead Transport Ministry

The typical form of lead agency in European countries is a well-established road safety department within the government transport ministry. While there are similarities to the stand-alone lead agency previously discussed there are also major differences. These can be seen in greater decentralized responsibilities for some agencies (e.g., in traffic policing) the lack of a decision-making coordination body outside of the Cabinet, the structures and processes for coordination and consultation, and in funding mechanisms.

Examples from Great Britain and The Netherlands are presented.

Example A

Roads and Vehicles and Standards Directorate, Department for Transport, Great Britain[10,11,12,13]

The Department for Transport's (DfT) Roads and Vehicles and Standards Directorate is the lead agency for road safety in Great Britain.

Road safety is a shared responsibility at governmental level between the European Union (which has had key responsibilities in areas such as vehicle safety and driver licensing standards) and national and local government. Several agencies which carry out driver and vehicle licensing, testing and vehicle certification also come under the umbrella of the Department, as does the agency responsible for national roads. The DfT commits to Public Service Agreement targets for road casualty reduction which are the national road safety strategy targets and it works with a wide range of partners to achieve them. Road safety engineering and police enforcement activities are highly decentralized.

A summary of the institutional management functions carried out by the DfT is presented in Box 2. A more detailed review is presented in the in-depth case study in Annex 4.

The aggregate and organizational structures of the lead agency for road safety in Great Britain in 2005 are set out in Figures 4 and 5. Great Britain does not have a national coordination and decision-making body outside Cabinet. It works with bilateral and trilateral agreements with other government partners and a national consultative Road Safety Advisory Panel comprising a broad range of governmental and non-governmental partners and stakeholders. A range of DfT agencies are engaged in aspects of road safety management—Highways Agency, Vehicle Certification Agency, Vehicle Inspection Agency, Driver and Vehicle Licensing Agency, Driving Standards Agency, and Vehicle and Operator Services Agency (see Figure 4).[2]

Over 80 staff are actively engaged in road safety work in the Lead Directorate of the DfT (see Figure 5).

Road Safety Strategy manages the country focus on results. In 2005 this unit focused on the development and monitoring of strategies and targets, aided by external expert advisory groups—the Safety Targets and Accident Reduction Steering Group and, later, the Road Safety Advisory Panel set up and managed by the Department. It is also focused on vulnerable road user safety including motorcycling, local authority liaison, demonstration projects and research. External advisory groups have been established for the annual road and vehicle safety research program.

Driver Safety worked on policy and promotion associated with vehicle speed, impairment, driver training and testing, seatbelts, mobile phones, fatigue, work-related road safety and other driver-related issues.

Transport Technology and Standards (TTS) is responsible for setting and ensuring compliance with national vehicle policies and construction standards to reduce the likelihood of road crashes and lessen their impact, working closely with the EU, the United Nations Economic Commission for Europe and many UK bodies. TTS manages a wide-ranging research program into existing and promising technology, particularly the improvement of vehicle dynamic safety standards and the analysis of costs, benefits and effectiveness.

Traffic Management is responsible for policy on traffic regulation and management, street works regulations traffic signs, cycling and walking.

[2]An inter-governmental Road Safety Delivery Board was established in 2008 to encourage and monitor strategy implementation and progress towards targets. Its Terms of Reference states that it is not a decision-making body for policy or strategy.

Box 2: Summary of DfT delivery of institutional management functions, Great Britain

Results focus: The Department for Transport's (DfT) Roads and Vehicles and Standards Directorate is the lead organization for road safety in Great Britain. The DfT is responsible for managing the country results focus and ensuring that system-wide interventions are agreed and implemented by the responsible authorities. It has established a results management framework for appraising performance and identifying what can be achieved in the medium term. The DfT leads the development and delivery of national safety strategies and the current strategy includes targets for final outcomes to 2010. DfT accountability for targets is underpinned by an annual performance agreement. It has established Memoranda of Understanding and local agreements with its partners to implement the safety strategy.

Coordination: There is no national coordinating decision-making body outside the Cabinet. The DfT establishes bilateral and trilateral agreements with other government partners (e.g., police, Home Office, Department of Health and the Health and Safety Commission) to implement interventions. It encourages the local adoption of national targets, requires annual progress reports and encourages local multi-sectoral partnerships. It set up and consults with an inter-governmental Road Safety Delivery Board and a Road Safety Advisory Panel of partners and stakeholders (including the NGO and business sector) which monitor progress towards targets. The DfT engages with Parliamentary Committees and groups. European Union safety coordination is pursued within the European's Commission's High Level Group on Road Safety and other committees.

Legislation: The DfT has established in-house capacity to set, ensure compliance with, and monitor safety standards for vehicles, roads and people, some of which are agreed at EU level, and to provide related policy advice. Inspection and compliance are carried out by DfT agencies and the police. The DfT establishes small in-house rules teams of policy and legal experts to develop and consolidate major legislation and carries out impact assessments and consults widely on draft proposals. It uses a variety of means to find parliamentary slots, when necessary, for safety legislation.

Funding and resource allocation: The DfT ensures sustainable annual safety funding from general tax revenues which it distributes to its agencies through annual agreements and local transport plans. Other funding sources include a cost-recovery system for safety cameras, small grants and private sector funding for promotion, projects and non-governmental organization activities. The DfT has used ring-fenced funding to encourage local safety activities and carries out annual in-house reviews of the value of preventing road deaths and serious injuries to allow a strong business case to be made for road safety expenditure. It provides in-house lead agency capacity to evaluate safety costs and benefits, estimate program funding needs and prepare related business cases.

Promotion: Road safety in Great Britain is not driven by a long-term vision and the DfT promotes the shared responsibility for delivery of the road safety strategy as well as specific strategic themes nationally and locally under the umbrella of the *THINK!* campaign. The Prime Minister and DfT Ministers played a key role in launching and promoting the strategy. The DfT contracts out targeted road safety advertising and monitoring in support of the major themes of the national road safety strategy. It played a major role in establishing safety rating programs which promote various aspects of the strategy and it supports community partnerships at local level to achieve results.

Monitoring and evaluation: The DfT monitors the safety strategy assisted by external research organizations, the Road Safety Advisory Panel and the Road Safety Delivery Board which was established in 2008. Reviews are carried out and published every three years. The DfT has set up databases to identify and monitor final outcomes against targets and carries out surveys of travel patterns, vehicle use and intermediate outcomes. It has statistical units and committees which manage the national crash data system and carries out linkage studies of health and police date to establish under-reporting. DfT agencies manage computerized vehicle and driver registries. The DfT played a major role in establishing the European New Car Assessment Programme to assist monitoring of vehicle fleet safety. Its Highway Agency is a member of the European Road Assessment Programme which monitors aspects of road network quality. The DfT supports in-depth study of crashes to monitor vehicle safety performance. It also monitors local authority safety performance indicators.

Research and development and knowledge transfer: The DfT has established in-house capacity to manage its research program and coordinates and funds external research in support of the safety strategy. It secures funding for research and knowledge transfer in its own budget and has engaged other funding partners in major research. The DfT has an annual safety research program and external advisory bodies assist in identifying priorities. It supports staff attendance at international road safety meetings, workshops and field visits, and it develops and disseminates good practice guidelines and funds demonstration projects to encourage local casualty reduction activities.

Figure 4: Aggregate structure of the Lead Directorate in the Department for Transport in Great Britain (2005)

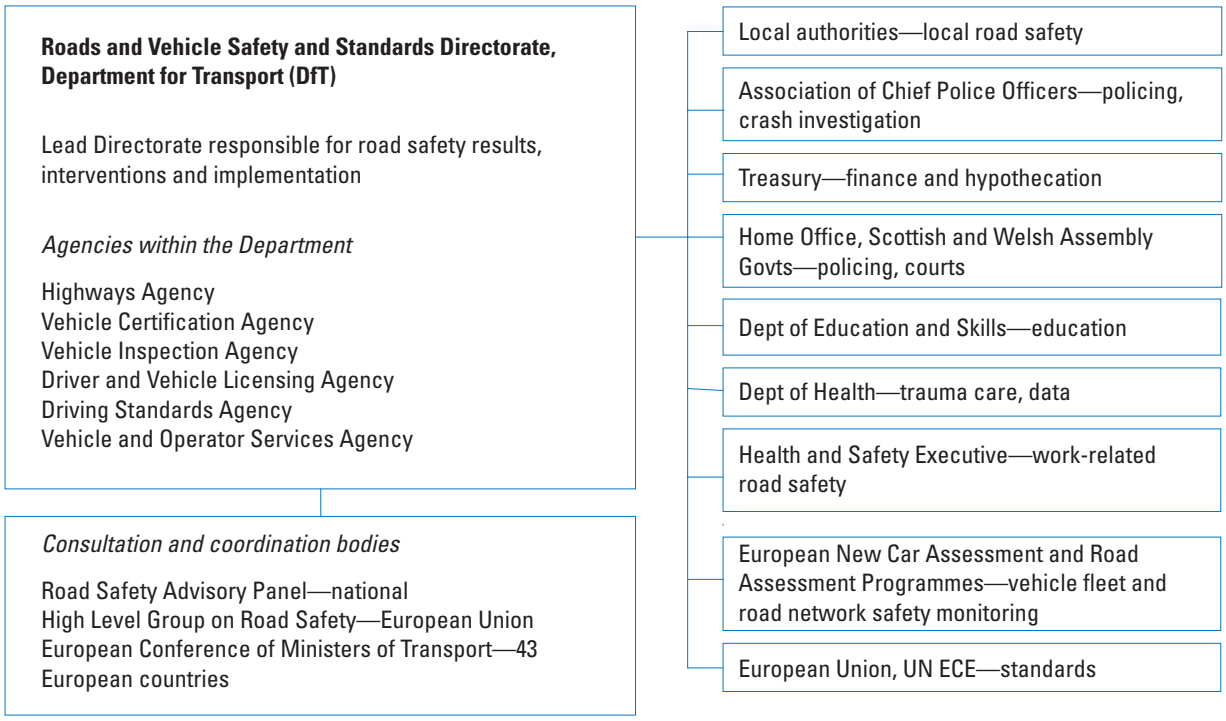
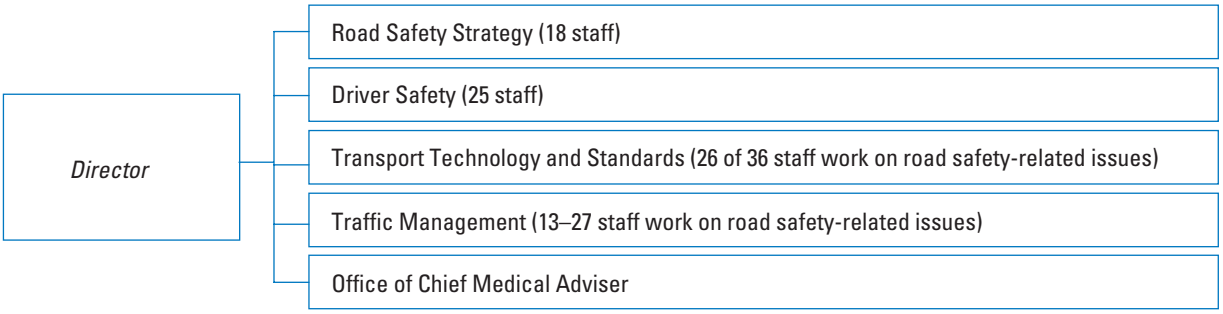


Figure 5: Organizational structure of the Lead Directorate in the Department for Transport in Great Britain (2005)



Example B

Ministry of Transport, Public Works and Water Management, The Netherlands

The Ministry of Transport, Public Works and Water Management is the lead agency for road safety in the Netherlands. Road safety is highly decentralized in the Netherlands and is a shared responsibility between the European Union (which has had key responsibilities in areas such as vehicle safety and driver licensing) and national, regional and local governments.

Traffic safety is one of five areas of responsibility of the Ministry which employs 13,000 people, has four Directorates, ten regional Departments, several specialist services and other support units. The Roads and Traffic Safety Department (RTSD) was set up in 1970 and sits within the Directorate for Passenger Transport. In 2005 RTSD compiled 24 staff members including an international coordinator. There is also a small section in the Directorate General for Freight Transport which deals with road safety in relation to freight transport (including small transport vans and addressing issues such as safety culture in transport companies). The RTSD takes the leadership role.

Box 3: Summary of MoT delivery of institutional management functions, The Netherlands

Results focus: The Ministry of Transport, Public Works and Water Management (MoT) is the lead agency for road safety in the Netherlands. The MoT's Roads and Traffic Safety Department (RTSD) has the central responsibility for the development and coordination of road safety targets at national level. It manages the country results focus and ensures that system-wide interventions are agreed and implemented to achieve related targets by the responsible authorities across government and wider society. The MoT has established capacity for appraising performance and identifying what could be achieved in the medium term. It pursues the long-term vision of *Sustainable Safety* (adopted in legislation) and has established road safety outcome targets in its Mobility Policy Document (2005) as well as regional road safety outcome targets. It has also signed up to European targets to reduce deaths by 50% in EU (by 2010) and ECMT (now ITF) countries (2012), and has established contractual agreements with its partners to achieve results.

Coordination: Outside Cabinet there is no national multi-sectoral governmental body set up specifically to take decisions on road safety. The MoT provides in-house capacity for coordination and consultation and has set up contractual delivery partnerships with several stakeholders to cement delivery of aspects of the national road safety strategy. The MoT established, managed and funded a system of multi-sectoral consultation at the national level to engage all key players with governmental responsibilities in road safety as well as other key players in achieving road safety results. It engages with parliament, the non-governmental and business sectors in road safety activity. It also engages actively in international coordination.

Legislation: The MoT has established in-house capacity to set and update vehicle, roads and road user rules and standards, some of which are agreed at EU level, with inspection and compliance carried out by departmental agencies and the police. It establishes small in-house rules teams engaging policy and legal experts in developing and consolidating major primary legislation. The MoT consults widely on proposals for legislative change at an early stage.

Funding and resource allocation: The MoT ensures a sustainable annual funding source for road safety from general tax revenues. Until 2005 it specifically allocated resources to the Regional Road Safety Agencies (in addition to their own sources of funding sources) via a road safety fund of around €20 million. The MoT periodically reviews the value of preventing road traffic deaths and serious injuries to allow a strong business case to be made for expenditure on road safety. It provides in-house capacity to evaluate safety costs and benefits, estimate program funding needs and prepare related business cases.

Promotion: The MoT promotes the shared responsibility for road safety called for by the *Sustainable Safety* strategy which lead agency ministers and parliamentarians played a key role in launching and promoting. The MoT coordinates multi-sectoral promotion and contracts out targeted road safety publicity in support of major road safety interventions. It helped set up and supports the European New Car Assessment Programme which promotes vehicle safety. It also promotes and encourages the achievement of road safety results to regional and local levels of government.

Monitoring and evaluation: The MoT has ensured a comprehensive framework for the monitoring and evaluation of road safety outcomes which is delivered by its agencies and assisted by a wide range of organizations. It publishes road safety results annually and reports these to parliament. Its research arm—the AVV (now DVS)—manages crash injury databases, collects and publishes road safety data, together with the Central Bureau of Statistics (comprising final and intermediate outcome data) and it carries out periodic monitoring of road safety targets. MoT agencies manage the vehicle and driver registries. The MoT establishes and publishes the socio-economic cost of road traffic injuries periodically. It also participates in the European New Car Assessment Programme to assist monitoring of vehicle fleet safety.

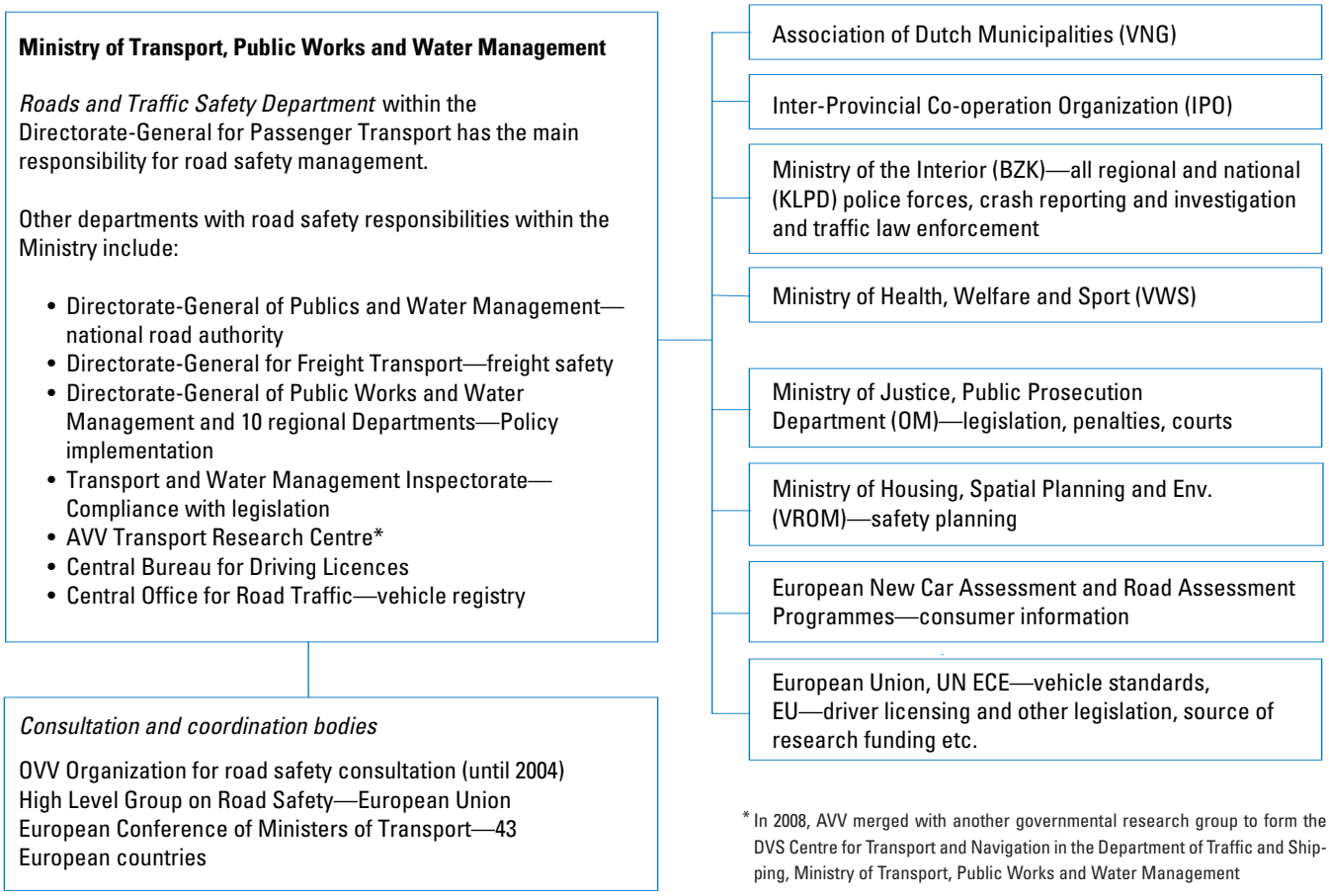
Research and development and knowledge transfer: The MoT has established both in-house capacity and external capacity for research and development and knowledge transfer aimed at achieving road safety results. It secures funding for road safety research and knowledge transfer in its own budget. The MoT supports attendance of its staff at international road safety meetings for professional development, and supports and disseminates good practice guidelines on road safety and demonstration projects to assist regional and local activities.

A summary of the institutional management functions carried out by the MoT is presented in Box 3. A more detailed review is presented in the in-depth case study in Annex 4.

The aggregate and organizational structures of the lead agency for road safety in the Netherlands, as well as its national and regional coordination and consultation structures, are set out in Figures 6–8.

The OVV (Organization for road safety consultation) was set up in 1992 and was broadened subsequently to become the OPV (Organization for passenger transport) with

Figure 6: Aggregate structure of the Road and Traffic Safety Department in Ministry of Transport, Public Works and Management, The Netherlands (1992–2004)



* In 2008, AVV merged with another governmental research group to form the DVS Centre for Transport and Navigation in the Department of Traffic and Shipping, Ministry of Transport, Public Works and Water Management

Figure 7: Organizational structure of the Road and Traffic Safety Department in Ministry of Transport, Public Works and Management, The Netherlands (2005)

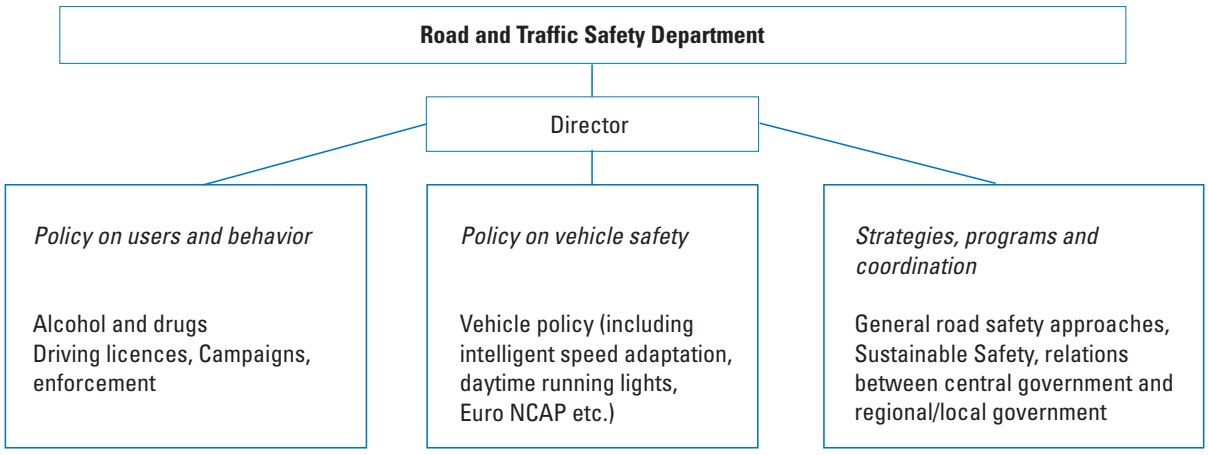
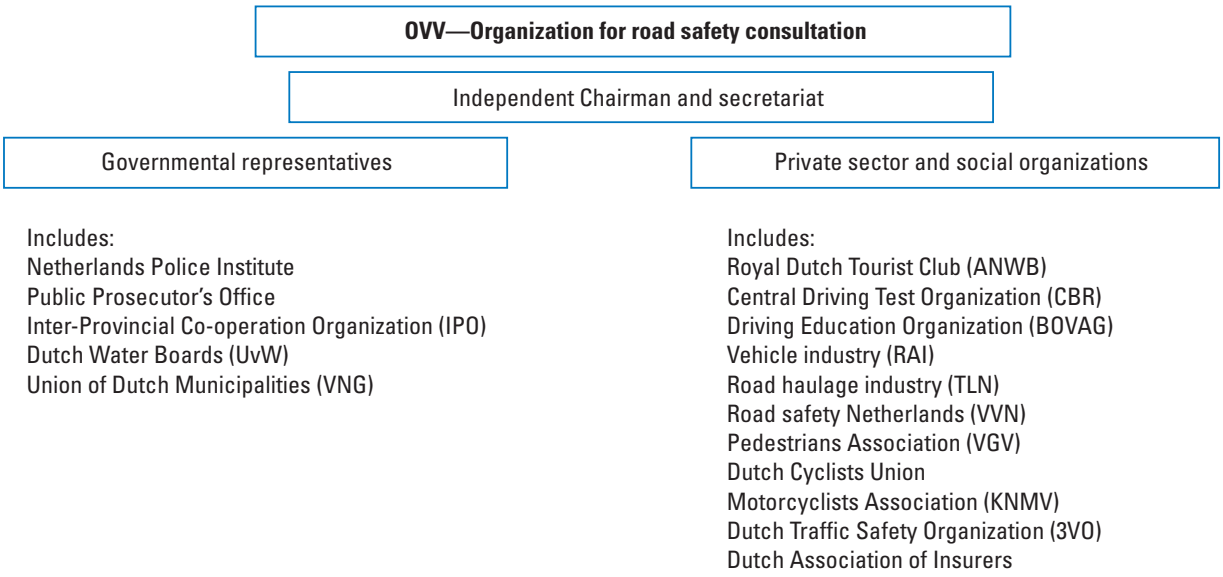


Figure 8: Multi-sectoral structures for road safety coordination in the Netherlands (1992–2004)



consultation on road safety as one component. The coordination body (past and present) brings together all key partners and stakeholders, including the private sector. Its statutory role is as a platform for mandatory national consultation on the intended policies of the Minister of Transport in relation to organizational matters and transport and traffic-safety related subjects that are primarily the responsibility of other Ministries. The 19 regions are required by law to subscribe to national targets and have incorporated road safety into their organizations. In 2005, it was agreed that the regions were to be autonomous in decisions about how to reach targets.

Until 2004–05 each of the 19 provinces had a Provincial Safety Board (ROV) in which all parties involved in traffic safety coordinated their individual activities at provincial and municipal level. A legal requirement provided for these bodies to be subsidized by central government. Each province provided the secretariats of the ROV and encouraged activity by municipal authorities. The Boards comprised representatives from regional and local authorities, the Ministry of Transport region and the police and Ministry of Justice.

The road authority as lead agency

A third lead agency model is the road authority, where powers for day to day road safety management have been delegated by a government Ministry.

Examples from Sweden and Australia are presented.

Example A

Swedish Road Administration[14,15,16,17]

While the Ministry of Industry, Employment and Communications has legal responsibility for road safety in Sweden, the Swedish Road Administration (SRA) is the national authority assigned the overall sectoral responsibility for the entire road transport system, and the SRA is the lead agency for road safety management.

Road safety in Sweden is a shared responsibility at the governmental level between the European Union (which has had key responsibilities in areas such as vehicle safety and driver licensing) and national and local governments. Road safety is pursued within a total transport context characterized by the demand for integrated service delivery that meets the multiple goals of sustainable development.

A summary of the institutional management functions carried out by the SRA is presented in Box 4.[3] A more detailed review is presented in the in-depth case study in Annex 4.

The aggregate and organizational structures of the lead agency for road safety in Sweden, as well as its coordination structure, are set out in Figures 9–11.

Since road safety is integrated into road transport policy, Swedish organization is complex. The overall responsibility for road safety rests within the Journeys by Citizens Department which is one of two main horizontal Departments of the Swedish Road Administration. A Traffic Safety Director who has the central controlling function for all road safety work is a key member of the Director-General's senior management team. Road safety expertise is located mainly within the Society and Traffic Department of the Administration. The operational activity is mostly conducted by the seven regional offices.

[3]Some of the SRA's institutional management functions are being transferred to a new Swedish Transport Agency which was established in January 2009. In late 2008, a new road safety strategy department comprising 20 people was established in the Society and Traffic Department.

SRA's road safety responsibilities are set out in a 1998 policy statement (see Box 5).

The Cabinet supported by the Ministry of Industry, Employment and Communications and SRA is at the top of the national decision-making hierarchy.

Three organizational entities deal with the coordination of interventions, each having their own small secretariat situated within the SRA. These are:

- the SRA's Director General's *Advisory Council on Road Safety* which is a high level group of 7 governmental and non-governmental partners and stakeholders which meets twice a year. It was set up as an advisory group to the Director-General with members invited on an individual basis;

- the *National Coordination Assembly* (NCA) has eight members (Ministry of Enterprise, Energy and Communications, Swedish Association of Local Authorities and Regions, National Society for Road Safety, National Police Board, Swedish Work Environment Authority, Folksam, Toyota Sweden AB, Swedish Road Administration). It brings together 15–20 people and meets 6 times a year. The aim is 'to share knowledge and coordinate the activities of key players with the intention of making *Vision Zero* a reality.' A NCA steering group acts as a reference group for proposals for the new interim target;

- the *National Road Safety Assembly* (started in 2002 at the instruction of the Ministry of Industry, Employment and Communications) brings together a very broad group of partners and stakeholders (about 40 members with road user and transport industry stakeholders being prominent) at national (three meetings a year) and regional levels. The Assembly works in specific areas—speed, drinking and driving, seat belt use, children and young people in traffic and two-wheeled motor vehicle crashes—and reports over 3000 individual activities.

There is also coordination with European partners as Sweden is a member of the European Union and UN ECE which determine international vehicle safety standards. At EU level, the SRA, as an agent of the Ministry, contributes to the European Commission's *High Level Working Group on Road Safety* and its sub-groups and *the Motor Vehicles*

Box 4: Summary of SRA delivery of institutional management functions, Sweden

Results focus: The Swedish Road Administration (SRA) is the accountable lead agency for road safety in Sweden. It has the main responsibility in Sweden for managing the country results focus, reviewing performance, proposing goals and targets and carrying out interventions in the road network. The SRA developed and leads *Vision Zero* and is responsible for the achievement of national targets underpinned by a performance agreement with the Ministry of Industry, Employment and Communications.

Coordination: The SRA established, chairs, manages and provides a dedicated in-house secretariat for each of the three consultative bodies which engage governmental partners in road safety as well as other key stakeholders in addressing *Vision Zero* and national targets. These bodies aim to share knowledge, discuss interventions and stimulate stakeholder contributions rather than act as decision-making bodies at the national level. The SRA also ensures that there is vertical coordination between governmental bodies and funds tools for use by regional and local authorities, as well as specific road safety outputs. In recent years it has expanded its external partnership capacity to deliver the challenging *Vision Zero* concept and has developed effective road safety partnerships individually and through its consultation bodies with a wide range of professional, research, non-governmental, user and industry groups. It seeks to ensure stakeholder accountability through its OLA process which involves the use of Declarations of Intent.

Legislation: The SRA has established a comprehensive legislative framework which has evolved over the years. It proposes vehicle, roads and road user rules and standards, some of which are identified and agreed at EU level, with inspection and compliance carried out by departmental agencies and the police. The SRA has established in-house capacity to propose, ensure compliance with and monitor road safety standards for vehicles, roads and people as well as to provide policy advice. It establishes Commissions of Enquiry when developing and consolidating major primary legislation.

Funding and resource allocation: The SRA ensures sustainable annual funding for road safety from general tax revenues which it allocates to its agencies through annual agreements and transport plans in support of *Vision Zero* interventions. It has used ring-fenced funding on a regional basis to encourage local road safety engineering activity and *Vision Zero* demonstration projects as well as directly funding some police outputs to achieve results. Procedures are established for cost-benefit analysis to identify priorities for infrastructure road safety spending. However, estimates of the value of preventing death and serious injury are not made annually, nor is cost-benefit or cost-effectiveness analysis used widely in resource allocation for safety work in the public sector.

Promotion: The SRA promotes the shared responsibility for road safety called for by the *Vision Zero* strategy. Ministers and Parliamentarians played a key role in launching and promoting *Vision Zero*. The SRA coordinates multi-sectoral promotion and contracts out the dissemination of targeted road safety information which recently has been directed more to organizational partners and stakeholders than the general public. It helped to set up, chairs and supports the European New Car Assessment Programme which promotes vehicle safety. The SRA also promotes the need to achieve road safety results to local and regional levels of government.

Monitoring and evaluation: Sweden has a long tradition in the monitoring and evaluation of road safety. This is carried out comprehensively by the lead agency (at national and regional levels), the Swedish Institute for Transport and Communications Analysis (SIKA), the Road Traffic Inspectorate (since 2003), research organizations, the municipalities and independent national and international experts. The SRA and its partners have established databases to identify and monitor final and intermediate outcomes against targets and the results are published annually. Safety rating programs are used to monitor aspects of vehicle fleet and road network safety respectively. The SRA established the Road Traffic Inspectorate to help monitor road safety performance and the effectiveness of partner and stakeholder activity. In 2007–8 the SRA commissioned and published an independent road safety management capacity review using the World Bank's assessment framework.

Research and development and knowledge transfer: Sweden has a long and internationally recognized tradition in road safety research which has had a major impact on policy and results. The SRA has ensured secured funding and capacity for road safety research and knowledge transfer. It supports attendance of its personnel at international road safety meetings, seminars, workshops and field visits. The SRA and its partners have developed and disseminated good practice guidelines on road safety. The SRA also funds *Vision Zero* demonstration projects.

Working Group which work on the EU road safety policies. The SRA was also a founding partner of the *European New Car Assessment Programme (Euro NCAP)* and the *European Road Assessment Programme (EuroRAP)* which provide consumer information and safety rating to road users in Europe.

Figure 9: Aggregate structure of the lead agency for road safety in Sweden (2005)

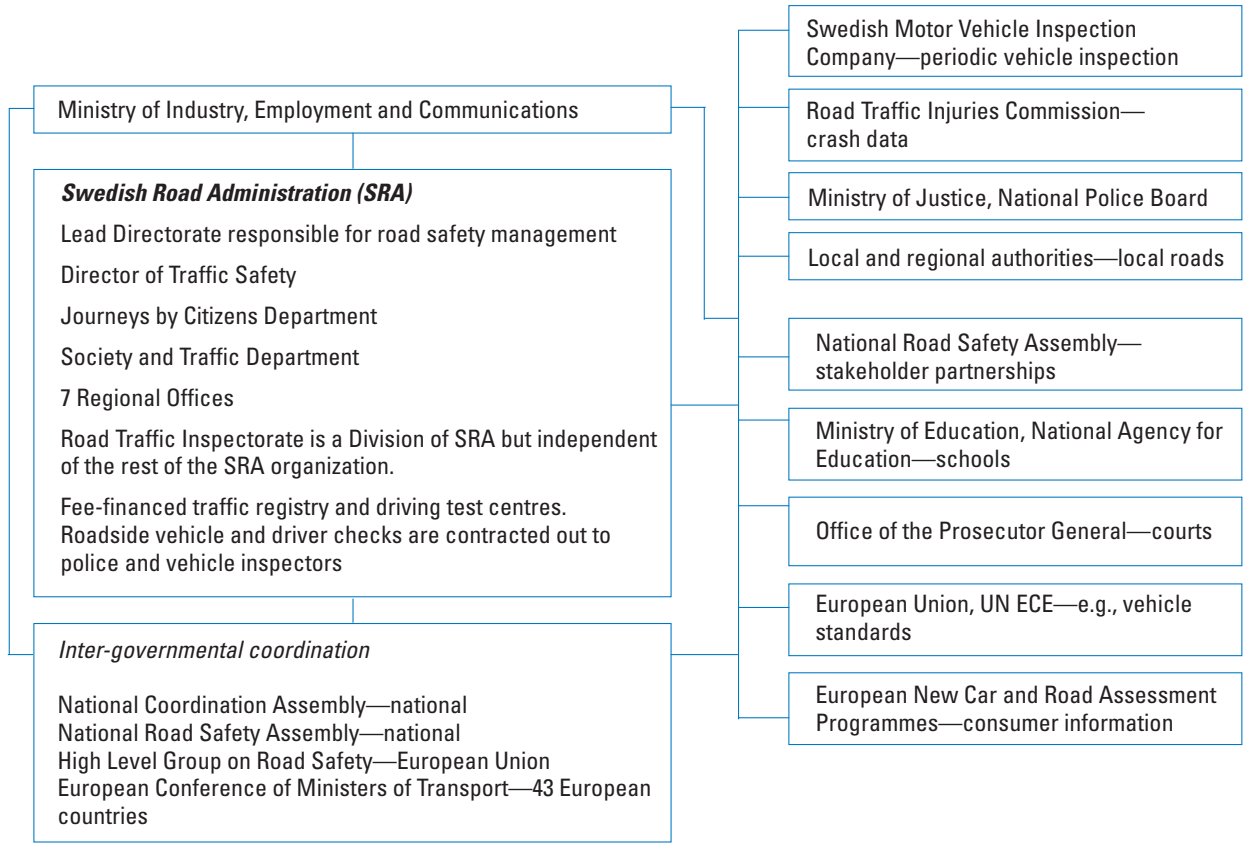


Figure 10: Organizational structure and processes of the Society and Traffic Department of the Swedish Road Administration (2006)

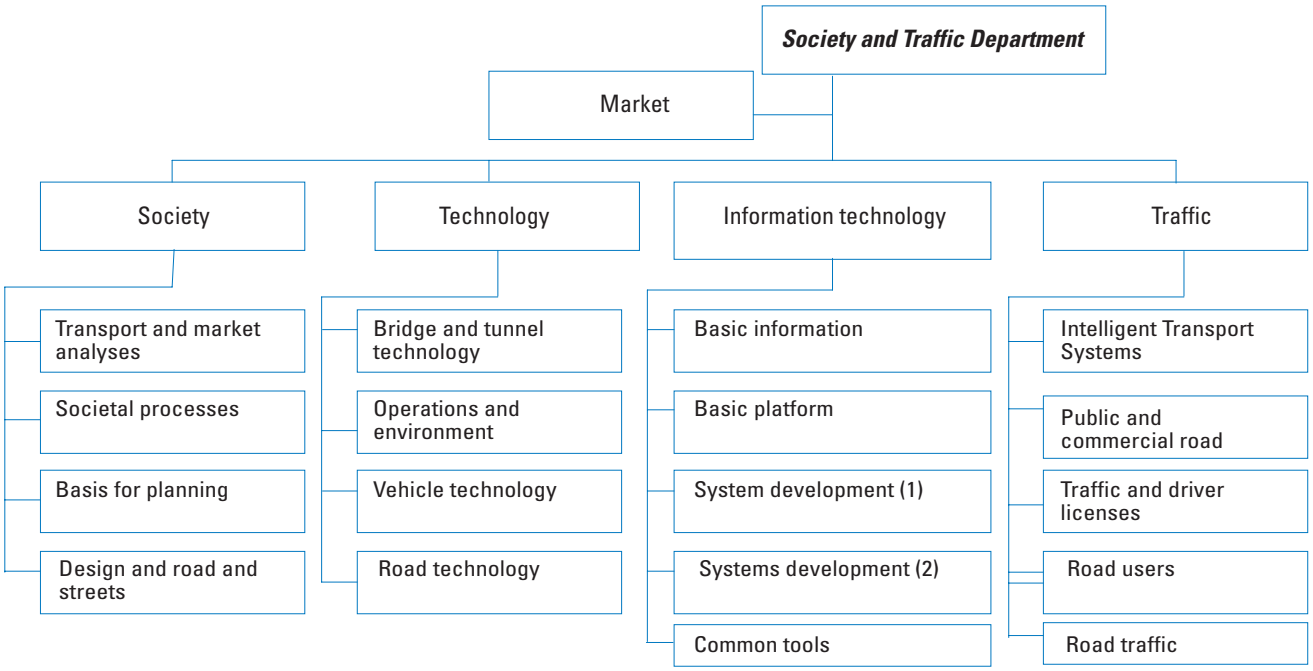


Figure 11: Multi-sectoral coordination arrangements for road safety in Sweden (2008)[17]

Box 5: Role and responsibilities of the SRA for road safety—1998 Policy Statement

- 'The Swedish Road Administration has been commissioned with the overall responsibility for road safety within the road transport system. Every head of division is responsible for the effect his/her area of responsibility has on road safety. Road safety endeavors shall be conducted as an integral part of other operations.
- In its capacity as the central administrative agency responsible for the entire road transport system, the Swedish Road Administration has been commissioned with the overall responsibility for road safety within the road transport system and shall monitor and actively promote developments within this area. This also means an obligation to endeavour to improve the transport system as a whole as required by road safety considerations.
- In its capacity as road manager the Swedish Road Administration is responsible for road safety on the state road network. Included in this responsibility is that the construction and maintenance works contracted by the Swedish National Road Administration shall be subjected to stringent environmental demands and that the Administration shall encourage contractors to develop production methods that are adapted to road safety.
- As an organization the Swedish Road Administration is responsible for road safety in all internal activities. Our dominant position as a road authority offers us a great potential for being able to promote road safety considerations in technological developments relevant to our sphere of operations.
- The Director-General is ultimately responsible to the Board of Directors for ensuring that road safety is taken into consideration within all areas of operation at the Swedish Road Administration.
- Every head of division is to ensure that road safety is taken into consideration within his/her area of responsibility. He/she shall also endeavour to ensure that fellow colleagues increase their awareness and knowledge about the impact of their own activities and that of the entire road transport system on road safety. It is also incumbent on him/her to set the style and through his/her leadership strive to increase road safety awareness. This obligation also includes ensuring adherence to this policy.
- Every employee at the Swedish Road Administration shall be familiar with the road safety policy and work according to its intentions.
- All employees are expected to set a good example through respecting traffic rules and otherwise exhibiting good conduct in traffic, both during and outside working hours.
- The Traffic Safety Director's department monitors the work conducted on road safety within the entire organization and throughout the road transport system as a whole.'

Source: SRA, 2006.

Example B

VicRoad[18,19,20,21,22,23]

VicRoads (the Victoria Road Corporation) is the lead agency for road safety in the State of Victoria, Australia. VicRoads was formed in 1989 during a period of corporatization of government services. Road safety is one of its four core businesses and VicRoads has responsibility for leading the preparation and delivery of the State road safety program, and final outcome targets. Its Chief Executive has road crash death and injury as a formal criterion in the performance-driven employment remuneration package.

A summary of the institutional management functions carried out by VicRoads is presented in Box 6. A more detailed review is presented in the in-depth case study in Annex 4.

Box 6: Summary of VicRoads delivery of institutional management functions, Victoria

Results focus: VicRoads (the Victoria Road Corporation) is the lead agency for road safety in the State of Victoria. It leads the management of the state's focus on achieving road safety results and works to ensure that system-wide interventions are agreed and implemented by the responsible authorities across government and wider society. VicRoads works with a *Safe System* approach adopted by government. It has established a results management framework for appraising performance and identifying what could be achieved in the medium term, and leads the development and delivery of safety strategies and action plans agreed within its high level coordinating body. This strategy includes interim targets for deaths and serious injuries as well as institutional outputs for policing activity. VicRoads' responsibility for the achievement of state road safety targets is underpinned by a performance agreement with the Minister of Transport. It is also annually accountable for a range of outputs associated with the safe planning, construction, and operation of state roads. Accountability is established by the main governmental partners who, at the highest level, sign up to a published strategy with quantitative targets. VicRoads has established appropriate in-house capacity for road safety strategy development and its coordination.

Coordination: VicRoads manages a system of multi-sectoral coordination to engage all key players with governmental responsibilities in road safety as well as other key players in the state road safety strategy. It has established strong delivery partnerships for the strategy and key interventions with Victoria Police, the Transport Accident Commission (the government insurance organization) and the Department of Justice. VicRoads provides in-house capacity for the secretariat of the coordination hierarchy and its committees. It establishes tools and programs for use by regional and local authorities and develops and supports community programs and partnerships (Saferoads) at the local level. VicRoads engages actively with the Parliamentary Road Safety Committee and the research, business and non-governmental sectors.

Legislation: VicRoads has built in-house capacity to help set, ensure compliance with, and monitor road safety standards for vehicles, roads and people, as well as to provide policy advice. Its road safety department plays a major role in developing and consolidating primary road safety legislation. VicRoads provides a Business Impact Assessment for legislative proposals to Cabinet, and Regulatory Impact Statements (published for comment) are required for new regulations. It also uses its coordination hierarchy to find legislative slots for road safety and for consultation on proposals for legislative change.

Funding and resource allocation: The principal sources of funding for road safety in Victoria are state government funding, some national government funding, and revenues raised from the compulsory state injury reduction insurance scheme administered by the TAC and from speed and red light cameras. A road safety levy was originally set at 3% of the injury insurance premium and the current level is 10%. VicRoads reviews periodically the value of preventing road traffic deaths and serious injuries to allow a strong business case to be made for expenditure on road safety. It provides in-house lead agency capacity to evaluate safety costs and benefits, estimate program funding needs and prepare related business cases.

Monitoring and evaluation: Monitoring of the road safety strategy is VicRoads responsibility and performance reviews are discussed within the coordination hierarchy. VicRoads and other governmental partners have established roads authority, insurance and health sector databases to identify and monitor final and intermediate outcomes and outputs against targets. VicRoads establishes and publishes the socio-economic cost of road traffic injuries on a periodic basis. It manages the vehicle and driver registries, carries out travel surveys and participates in the Australasian New Car Assessment Programme to assist the monitoring of vehicle fleet safety. VicRoads reports annually on road safety performance to parliament.

Research and development and knowledge transfer: VicRoads has ensured the establishment of a comprehensive state-wide capacity for road safety research and knowledge transfer and, with its partners, assigns annual budgets for road safety external research. It ensures in-house capacity for road safety research management. VicRoads and its partners align research provision to strategy needs. VicRoads makes provision for training and professional exchange programs. It also supports the production and dissemination of good practice guidelines, as well as demonstration projects. VicRoads plays a role in international development responses and runs an international road safety training course.

VicRoads works closely in a tri-partite partnership with the Transport Accident Commission, Victoria Police (Department of Justice), who play a major role and whose Ministers have also signed up to the national road safety strategy.

The aggregate and organizational structures of the lead agency for road safety in Victoria, as well as its coordination structure, are set out in Figures 12–14.

VicRoads has a dedicated road safety department with 55 staff. The department comprises a broad range of policy units covering the safety of different elements of the road traffic system (see Figure 13). The size of the strategy and programs unit reflects the substantial program development role of VicRoads as well as its multi-sectoral coordination role.

Figure 12: Aggregate structure of the lead agency for road safety in Victoria, Australia (2005)

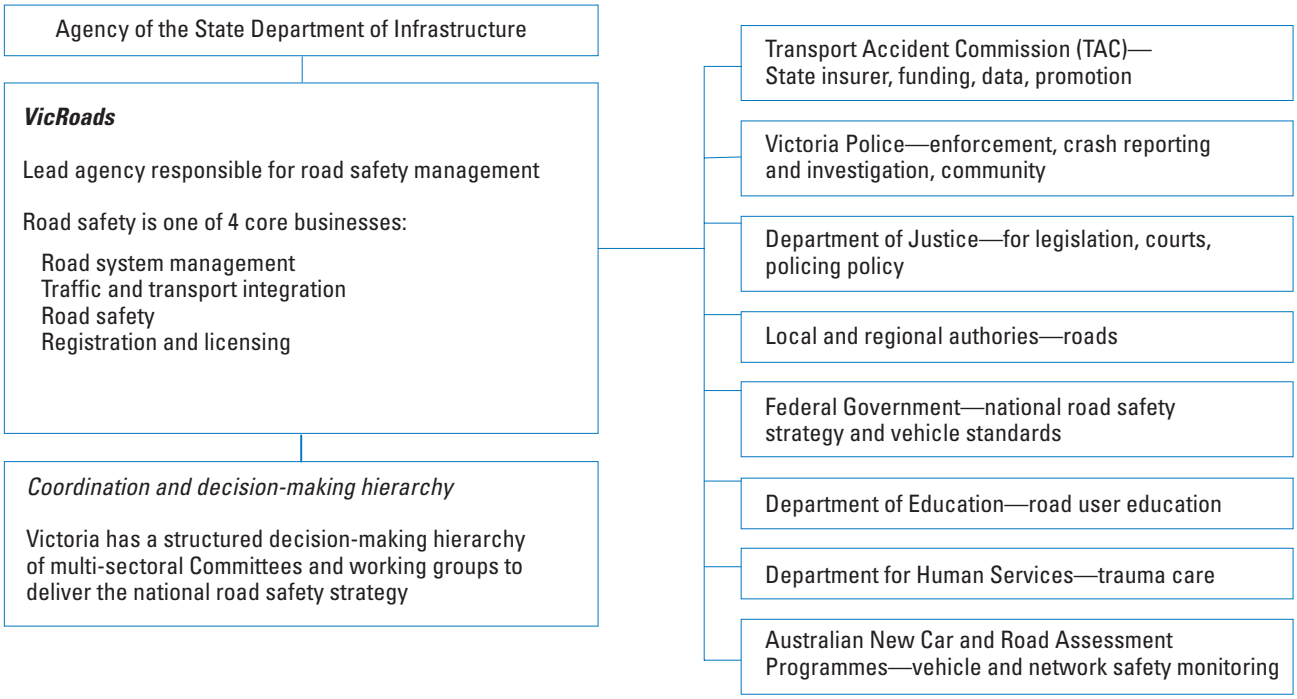


Figure 13: Organizational structure of VicRoads' road safety department (2005)

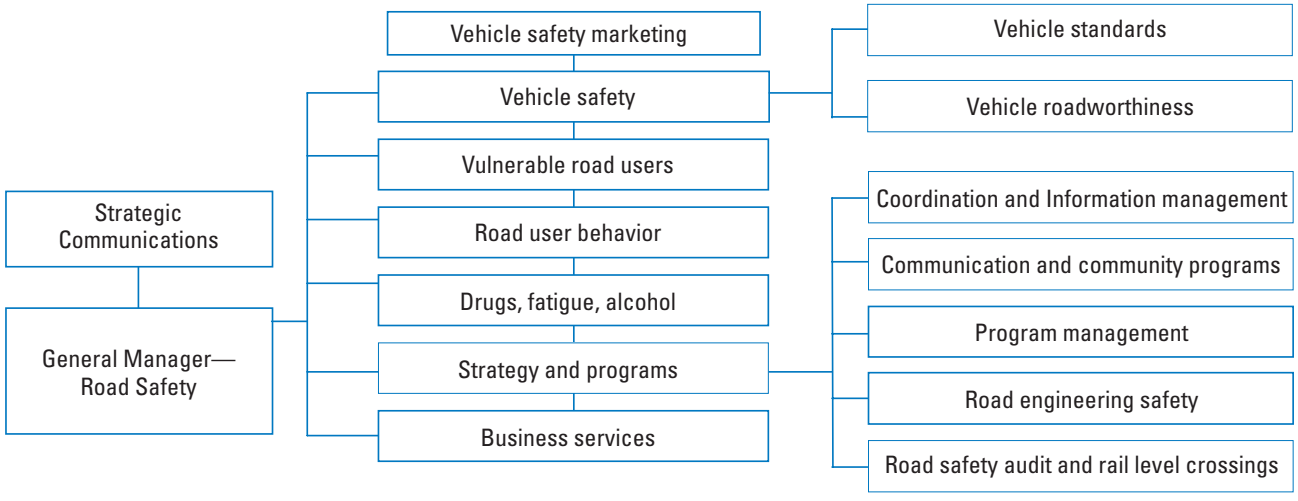
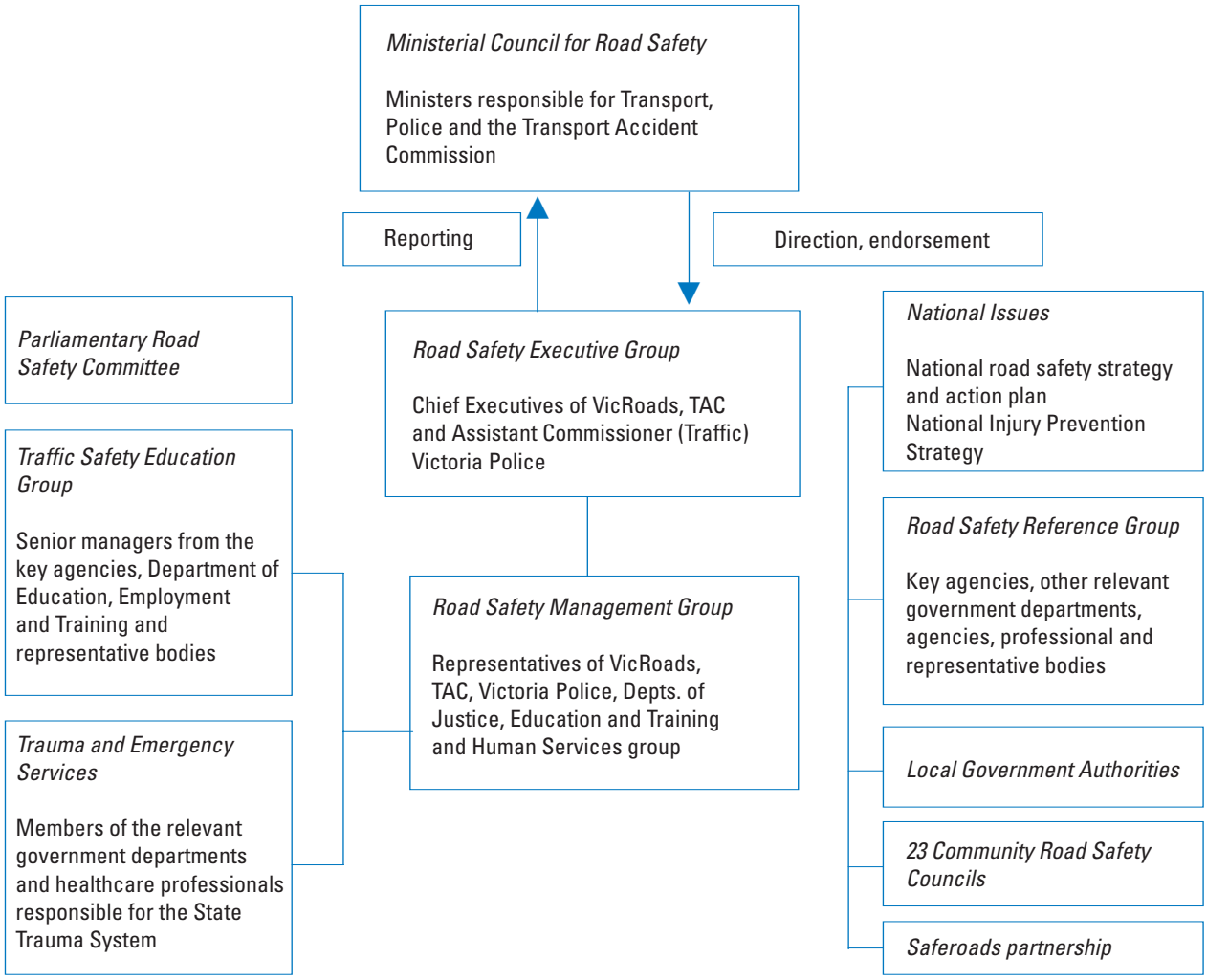


Figure 14: Multi-sectoral structures for road safety coordination in Victoria, Australia (2005)



The organizational structure of VicRoads and the related coordination and decision-making hierarchy set out in Figure 14 provided for the delivery of all seven institutional management functions, under VicRoads leadership and direction.

The *Ministerial Road Safety Council* was established in 1999 and comprises the Minister for Transport, Minister for Police and Emergency Services and the Minister for the Transport Accident Commission. The Council meets four times each year and ensures the achievement of a coordinated approach to road safety in Victoria. It has provided a powerful voice in Cabinet for the pursuit of road safety policies and has been critical in achieving support across government for funding of new initiatives as well as legislation. The Chair of that group rotates at each meeting. The group has signed off on the five year *Arrive Alive*! road safety strategy 2002–2007.

The *Road Safety Executive Group* comprises the chief executive officers and senior road safety representatives of these organizations which report to, support and receive direction from the Ministerial Road Safety Council. The Group determines strategic directions, monitors and reports progress to the government through the Ministerial Road Safety Council. The Group meets approximately four times each year and the chair rotates between agencies.

The *Road Safety Management Group* with representation from senior road safety officers from the four key partners and the Departments of Education and Training

and Human Services meets monthly and the chair is rotated. There are many specialist groups engaged with the Road Safety Management Group including Education, Local Government and Community Road Safety Councils. There is a link to national road safety activity through a national forum which meets twice yearly. With VicRoads as the key focal point, the group coordinates implementation of the road safety strategy, develops and implements programs and interventions to give effect to the strategy, reviews identified programs, identifies and actions research priorities, maintains links with the National Road Safety Strategy, promotes a coordinated state-wide program of activities, supports development and implementation of educational initiatives including the Traffic Safety Education Action Plan.

The *Road Safety Reference Group* meets quarterly and is chaired by the VicRoads General Manager of Road Safety. It comprises a broad range of partners and stakeholders, including road user, road transport industry and medical organizations. The Group develops action and research proposals, sets up issue-based action groups to tackle major concerns and coordinates the activities of its members.

Local government, road transport and Community Road Safety Councils are also represented in the hierarchy.

Lead agency situated within the Premier's Department

The fourth lead agency model described in this Annex is that of a central road safety bureau within the Premier's Department.

The Office of Road Safety, State of Western Australia[24,25,26,27]

A snapshot of the lead agency organization for road safety in the State of Western Australia is provided for 2006.

The Office of Road Safety (ORS) forms part of the Department of the Premier and Cabinet (the Head of State's Department) and is the lead agency for road safety policy and strategy development, coordination, communication (including mass media), monitoring and reporting on progress. This is an unusual lead agency structure comprising a small dedicated coordinating agency hosted by a parent agency that does not have core responsibility for primary service delivery in any road safety or transport related function. It serves, in effect, as a relatively independent executive arm of the National Road Safety Council—the main advisory body.

The Office of Road Safety (ORS) has a Treasury funded central budget of $1.1m which covers staffing costs. On behalf of the Road Safety Council and Government, the ORS is responsible for financial management of the Road Trauma Trust Fund (RTTF) which includes grants to various agencies for road safety activity. Out of a total of about $24m in 2005/06 in the RTTF, the ORS was responsible for managing a total of about $12m including: about $300,000 for core operations (travel, office costs etc), about $7m for mass media communication work (e.g., speeding, drink driving, seatbelt and fatigue campaigns etc), about $1m for research into road safety issues and about $4m for specific road safety projects including monitoring of progress.

A summary of the institutional management functions carried out by the ORS is presented in Box 7. A more detailed review is presented in the in-depth case study in Annex 4.

The aggregate and organizational structures of the lead agency for road safety in Western Australia, as well as its coordination structures are set out in Figures 15–17.

The main multi-sectoral coordinating bodies are the Ministerial Council on Road Safety and the Road Safety Council with the Office of Road Safety providing the executive arm.

The Road Safety Council of Western Australia was established in 1997, to advise government on programs and initiatives for reducing the level of road trauma in Western Australia. Chaired by an Independent Chairman, the Road Safety Council comprises representatives from the range of governmental agencies with responsibilities for road safety as well as a motoring organization. The principal functions of the Council are results management and implementation arrangements. Interventions or policy outputs are carried out by the Council's members.

The Council's functions set out in the Road Safety Council Act 2002 are:

(a) identify measures to improve the safety of roads in the State and to reduce the deaths of people, the injuries to people, and the damage to property, resulting from incidents occurring on roads in the State;
(b) recommend to relevant bodies and persons the action that should be taken to implement those measures;
(c) coordinate the implementation of those measures by relevant bodies and persons;
(d) evaluate and monitor the effectiveness of those measures;
(e) evaluate and monitor the safety of roads in the State; and
(f) recommend to the Minister how money standing to the credit of the Account should be spent to implement those measures and to facilitate the performance of the Council's functions.

Box 7: Summary of ORS delivery of institutional management functions, Western Australia

Results focus: The Office of Road Safety (ORS) is the lead agency for road safety in Western Australia and is responsible within government for leading, developing, coordinating, promoting and monitoring the state road safety strategy, program and targets. The ORS ensures that background papers on road safety performance are presented and discussed in the coordination body to inform new activity. The ORS has studied and proposed a far-reaching road safety vision for the elimination of death and serious injury for the longer term which has been adopted by government and parliament. It commissioned the modelling of future road safety improvements by experts and proposed a new strategy and targets the road safety partnership. The ORS uses Memoranda of Understanding to underline agreement reached on how members work together in matters related to road safety.

Coordination: The ORS manages and supports the coordination activities of the Road Safety Council throughout the state, and related road safety task forces, and provides administrative support to the Ministerial Council for Road Safety. It creates road safety partnerships with key stakeholders in pursuit of strategy objectives and ensures that parliament, the business and non-governmental sectors are engaged in road safety strategy development and coordination. The ORS also supports the development of partnerships and community programs at the local level.

Legislation: The ORS reviews legislative needs for the strategy in consultation with its partners in the coordination body. It plays a key role in developing and consulting the road safety partnership and public on proposals for major primary road safety legislation and uses its coordination hierarchy to find legislative slots for road safety and for consultation on proposals for legislative change. The ORS establishes in-house capacity to provide policy advice.

Funding and resource allocation: The ORS manages the funding of road safety programs and recommends disbursement of the Road Trauma Trust Fund which transparently allocates road safety resources. It also facilitates evaluation of project cost-effectiveness and project prioritization.

Promotion: The ORS promotes and facilitates a shared approach to road safety across all government agencies, local government and other partners and stakeholders. It widely promotes the State Road Safety Strategy and the Annual Priorities Program. The ORS manages public relations activities, media, campaigns and mass media initiatives, community engagement, agenda setting initiatives, partnership programs and other promotional campaigns at the state level. It also promotes local efforts in support of the state road safety strategy.

Monitoring and evaluation: The ORS has lead responsibility for the monitoring of the road safety strategy and is accountable for this in an annual performance agreement. It ensures that data systems are established to identify and monitor final and intermediate outcomes and outputs, and coordinates the maintenance of an integrated data and information network to facilitate road safety research, development, management and reporting. The ORS publicises monitored outcomes and provides safety data to the Road Safety Council for review and discussion. It is also a member of the Australasian New Car Assessment Programme which monitors vehicle fleet safety research.

Research and development and knowledge transfer: The ORS coordinates the funding of road safety research, development and demonstration projects in support of its strategy *Arriving Alive* and helps to develop state capacity for external research. It encourages and contributes to the development and dissemination of good practice guidelines on road safety. The ORS also plays an active role in technical guidance for highway authorities on a range of road safety issues as well jointly producing guidance (e.g., with professional associations such as Austroads and ARRB, and with research organizations).

Figure 15: Aggregate structure of the Office of Road Safety (2006)

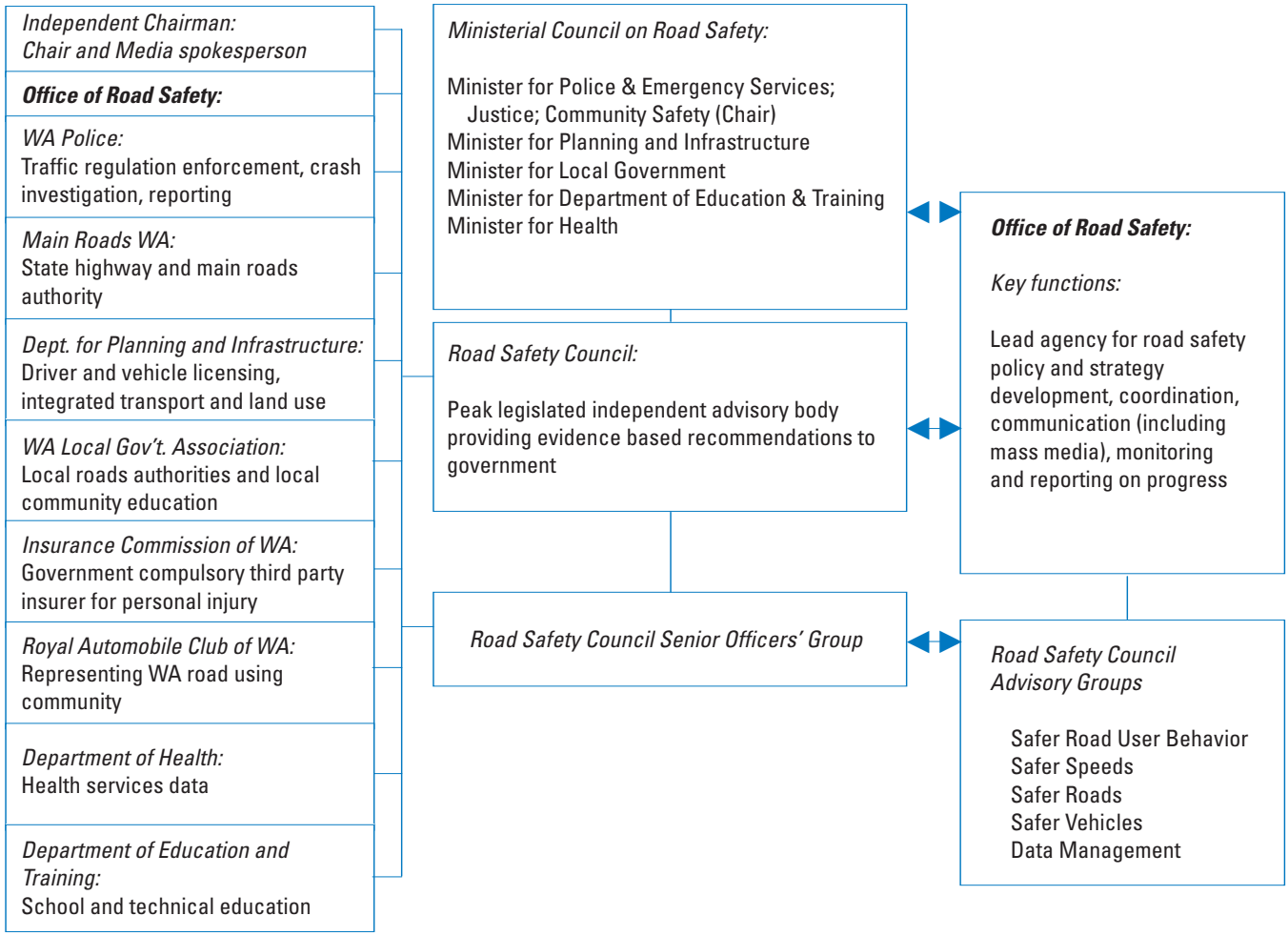


Figure 16: Organizational and reporting structure of the Office of Road Safety, Western Australia (2006)

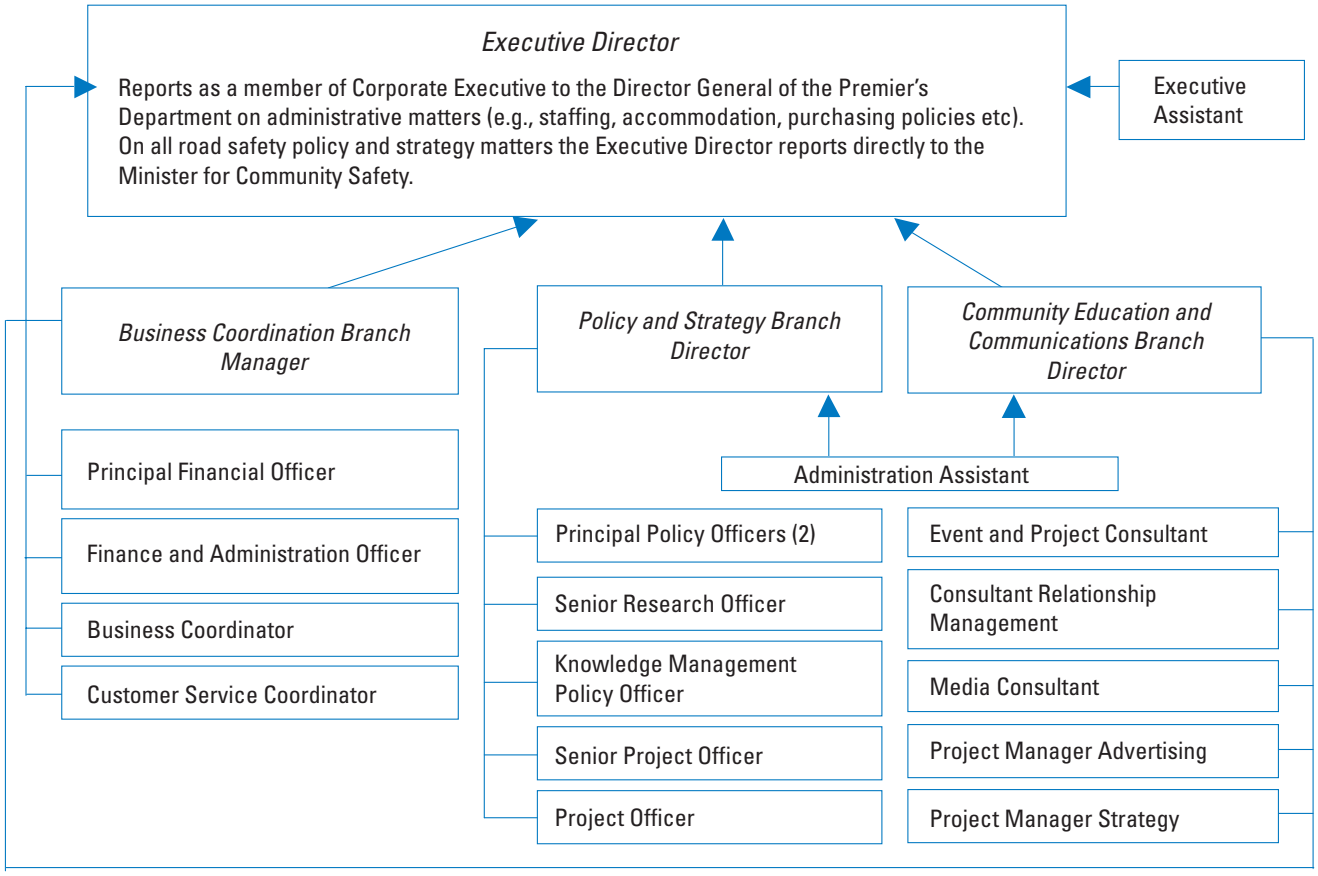
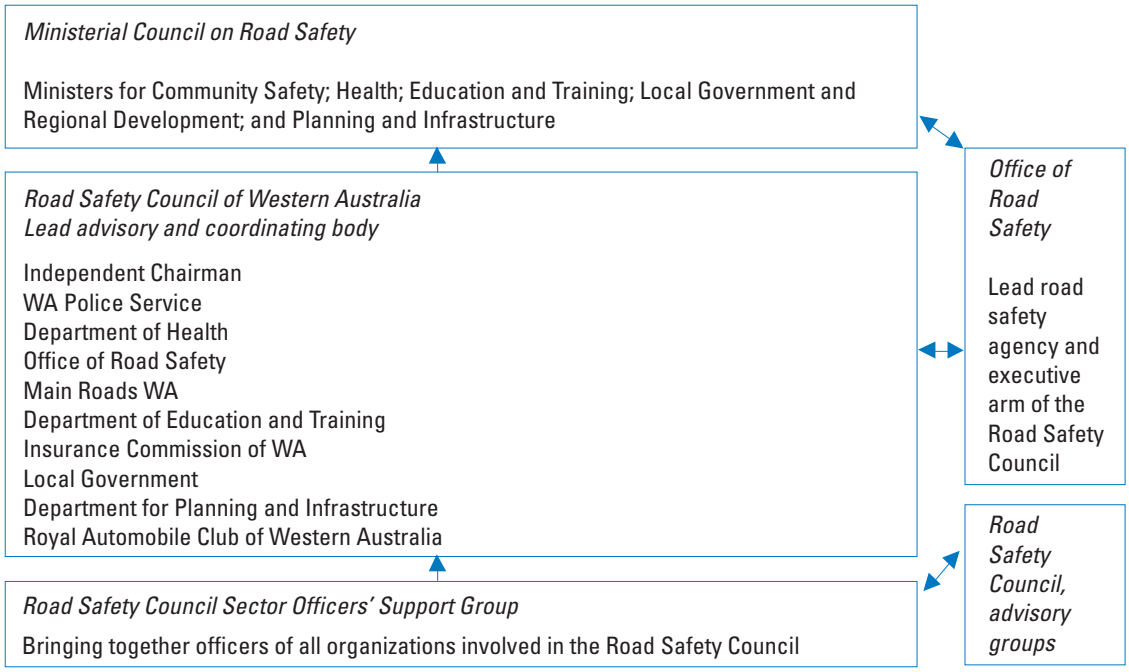


Figure 17: Multi-sectoral coordination in Western Australia (2006)



Summary

This Annex describes a variety of overarching organizational structures and processes which allow the lead agency to carry out its role effectively.

Good practice examples are presented from countries that have been active in road safety over a long period of time and which have developed a role in the delivery of all seven institutional management functions. These provide examples from Europe and Australasia of the stand-alone lead agency, the transport ministry as lead agency, the roads authority as lead agency, and the stand-alone lead agency in the Head of State's Department.

The examples illustrate how governmental lead agencies and their related coordination arrangements can vary in form and structure to achieve results. In some cases the main institutional arrangements have evolved gradually over many years. In others they are relatively recent. All agencies involve complex organizational structures and processes and many players.

Successful practice underscores the need for the agency to be an accountable governmental body and for its leadership role to be accepted and fully supported by the rest of government, to ensure the development of appropriate capacity and funding. Without an authoritative lead agency and adequate funding and technical resources, the shared responsibility for achieving road safety results has little chance of success.

References

1. Eds. Peden M, Scurfield R, Sleet D, Mohan D, Hyder A, Jarawan E and Mathers C (2004). *World Report on Road Traffic Injury Prevention,* World Health Organization, World Bank, Geneva, 2004.

2. Aeron-Thomas A, Downing AJ, Jacobs GD, Fletcher JP, Deslby T and Silcock DT (2002). *A review of road safety management and practice. Final report*. Crowthorne, Transport Research Laboratory and Babtie Ross Silcock, 2002 (TRL Report PR/INT216/2002).

3. Land Transport Safety Authority www.ltsa.govt.nz.

4. Land Transport Safety Authority/Ministry of Transport, *Performance Agreement 2004/2005,* Wellington, 2004.

5. Land Transport Safety Authority, *Statement of Intent 2004/2005,* Wellington, 2004.

6. Land Transport Safety Authority, *Annual Report for the year ended 30th June 2002,* Wellington, 2003.

7. Land Transport Safety Authority (2003). *Road safety to 2010,* Wellington.

8. Land Transport Safety Authority (2004). *Safety Administration Programme 2004–2005,* Wellington, 2004.

9. Petrus R, *The Development of New Zealand's Road Safety Strategy,* Land Transport Safety Authority, Paper presented to the Road Safety Research, Policing and Education Conference, November 2001, Melbourne.

10. Department for the Environment, Transport and the Regions, *Tomorrow's Roads—Safer for everyone,* 2000, HMSO, London.

11. Department for Transport, *Annual Report 2004,* HMSO, 2005, London.

12. Department for Transport, *Delivering better transport: a summary of priorities 2004/05*, HMSO, 2005, London.

13. Department for Transport, *Technical notes for Spending Review 2002 PSA targets,* www.dft.govt.

14. Lie A and Tingvall C (2005). *Government Status Report,* Sweden Roads Administration, ECMT, 23rd March, 2005.

15. Swedish Road Administration, *Annual Report 2003,* Publication 2004, 28E, Borlänge.

16. Swedish Road Administration, *Sectoral Report 2003,* Publication 2004, 29E, Borlänge.

17. Lie A and Tingvall C (2005). *Government Status Report,* Sweden Roads Administration, ECMT, 23rd March, 2005.

18. VicRoads, Victoria Police, Transport Accidents Commission *Arrive Alive Victoria's Road Safety Strategy 2002–2007.* www.arrivealive.vic.gov.au, VicRoads Publication Number 00762, Melbourne.

19. Johnston I, *Halving deaths from road traffic crashes—a case study from Victoria, Australia 1989–2004,* Addendum, Transportation performance measures in Australia, Canada, Japan and New Zealand, US DOT, FHA, October 2005, Washington.

20. VicRoads http://www.vicroads.vic.gov.au/.

21. VicRoads 2003–2004 and 2005/6 *Annual Reports*, Melbourne.

22. VicRoads, Victoria Police, Transport Accidents Commission *Victoria's Vehicle Safety Strategy and Associated Action Plan 2004–2007,* Melbourne, 2004.

23. Transport Accident Commission, *Annual Report 2004,* Melbourne, 2004.

24. Road Safety Council of Western Australia: Arriving Safely: *Road Safety Strategy for Western Australia 2003–2007,* Perth

25. Insurance Commission of Western Australia (ICWA) *Annual Report 2005,* Perth.

26. Road Safety Council, *Annual Review of Road Safety in Western Australia 2003,* Perth 2004.

27. Road Safety Council, *Arriving Safely: Road Safety Strategy for Western Australia 2003–2007,* Office of Road Safety, Perth, 2003.

ANNEX 4: COUNTRY CASE STUDIES

Overview

This Annex outlines country delivery of the institutional management functions which underpin road safety management in six good practice jurisdictions: New Zealand (stand-alone agency), The Netherlands and Great Britain (lead department within the Transport Ministry) Sweden and the Australian States of Victoria (road authority lead agency), and Western Australia (stand-alone lead agency in the Premier's Department).

The aim is to present an overview of the variety of structures and processes which governments have put in place to deliver the country road safety *results focus, coordination, funding and resource allocation, legislation, promotion, monitoring and evaluation* and *research and development and knowledge transfer* functions. The case studies present a mix of organizational approaches in jurisdictions with differing levels of road safety performance as well as differing strengths or levels of sophistication in their delivery of the different institutional management functions.

While structures may differ, the general characteristics of road safety organization are similar in all six jurisdictions and include most, if not all, elements of the following: a strong central lead agency which orchestrates the activity of a broad range of partners stakeholders; horizontal inter-governmental coordination and partnerships; good vertical coordination of national, regional and local activity; strong delivery partnerships with key stakeholders, parliament and the non-governmental and business sectors; regular review, updating and consolidation of legislation; secure and sustainable annual funding; promotion of shared responsibility to achieve results; rigorous monitoring and evaluation and purposeful research and development and knowledge transfer.

The six case studies illustrate the complexities of the institutional fabric that provide the foundation for a progressively successful approach to road safety management over time. Each case study comprises:

- an overview of the country context for road safety.
- an outline of how each jurisdiction deals with the different dimensions of each of the identified institutional management functions and a summary table of the lead agency role in this.
- a description of the lead agency and related coordination structures and processes which have been put in place to direct the national effort.

A further two case studies of developing road safety management practice in Poland and Malaysia are presented. Activity is described in relation to all seven institutional management functions, though in less detail than for the six high-income country case studies. Both of these countries in transition are currently making efforts to reverse road casualty trends against the background of increased motorization and an acknowledged need to strengthen road safety management capacity.

Organizational structures in most countries are in a process of continuing development, as road safety arrangements adjust to major political and economic changes and as further improvements and efficiencies are identified. The structural charts presented should be seen as a snapshot of organizations over a given period in time. Wherever possible dates have been assigned to organizational structures and a brief note made of any subsequent developments.

Acknowledgement

The authors are grateful for the assistance of many colleagues in contributing factual material and commentaries on these country case studies. Thanks in particular go to:

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Introduction

This Annex presents an outline of the delivery of institutional road safety management functions in six jurisdictions in high-income countries (New Zealand, Great Britain, The Netherlands, Sweden and the Australian States of Victoria and Western Australia) and two countries in transition (Poland and Malaysia).

The aim is to present an overview of the structures and processes which national governments put in place to deliver the institutional management functions identified and discussed in section 3 of the main report: i.e. *results focus, coordination, funding and resource allocation, legislation, promotion, monitoring and evaluation* and *research and development and knowledge transfer*.

The case studies present a mix of organizational approaches in countries and states with differing levels of safety performance, as shown below, and differing strengths or levels of sophistication in their delivery of the identified institutional management functions.

Death rates in case study countries, 2006

Country	Deaths per 100,000 population
New Zealand	9.4
The Netherlands	4.5
Great Britain	5.4
Sweden	4.9
Victoria	6.6
Western Australia	9.9
Poland	13.8
Malaysia	23.6

High-income countries. Sections 1.1–1.6 outline the structures and processes that deliver the institutional management functions which underpin road safety management in six good practice jurisdictions: New Zealand (stand-alone agency), The Netherlands and Great Britain (lead department agency) Sweden and the State of Victoria (road authority lead agency), and the State of Western Australia (stand-alone lead agency in the Premier's department). Experience in road safety management in these countries and available literature has provided the knowledge base to prepare these case studies.

The case studies illustrate the complexities of the institutional fabric that provides the foundation for continuous improvement in road safety results over time. Each case study comprises:

- an overview of the country context for road safety.
- an outline of how each jurisdiction deals with the different dimensions of the identified institutional management functions and a summary table of the lead agency role in this.
- a description of the lead agency and related coordination structures and processes which have been put in place to direct the national effort.

Countries in transition. Sections 2.1–2.2 present case studies of developing road safety management practice in Poland and Malaysia. Activity is described in relation to all seven institutional management functions, though in less detail than the six high-income country case studies. Both of these countries in transition are currently making efforts to reverse road casualty trends against the background of increased motorization and the need to strengthen road safety management capacity.

Organizational structures in most countries are in a process of continuing reform, as road safety arrangements adjust to major political and economic changes and as further improvements and efficiencies are identified. The structural charts presented should be seen as a snapshot of organizations over a given period in time. Wherever possible dates have been assigned to organizational structures and a brief note is made of any subsequent developments.

1. High-income countries

1.1 Road safety organization in New Zealand

National context

KEY FACTS: 2006	
Area:	**269,122 km²**
Population:	**4,149,000**
Kilometers of public road:	**93,460**
Number of licensed motor vehicles:	**3.1 million**
Road deaths per 100,000 of population:	**9.4**
Number of road deaths:	**391**

Source: IRTAD, 2008

The last 25 years have marked a period of intense economic and social change in New Zealand. In the late 1980s and early 1990s, a major restructuring of the transport sector took place with the aim of promoting efficiency, responsiveness to demand and improvement in safety. This saw the development of stand-alone agencies, such as the Land Transport Safety Authority, with their own performance management frameworks which linked day-to-day activities with desired high-level policy outcomes.

In 2002 New Zealand's first transport strategy outlined a vision of a transport system that is affordable, integrated, safe, responsive and sustainable, to be realised by means of an integrated approach that is forward-looking, collaborative, accountable and evidence-based. The strategy identifies five objectives: assisting economic development; assisting safety and personal security; improving access and mobility; protecting and promoting public health and ensuring environmental sustainability. The integration of these objectives and the increasing role played by regional and local authorities in transport is being established both in new government institutional arrangements and new funding arrangements for transport in New Zealand.

New Zealand is divided into 16 administrative regions and 74 local authorities. In practice road safety in New Zealand today is a shared governmental responsibility at the national, regional and local levels.

The public road network carries around 45 billion vehicle kilometers of traffic annually. While major urban roads and state highways comprise only 14% of the road network, they account for more than 60% of the social cost of road crashes.

Between 1990 and 2004, despite traffic growth, road deaths fell by 39%; road death rates nearly halved per 100,000 population and hospitalisations fell by around 33% (Figure 1). Road safety efforts in New Zealand have been characterized by an evidence-based approach to performance management. Highly successful multi-sectoral partnerships have been developed by the stand-alone land transport safety entity—the Land Transport Safety Authority—in its lead agency role. These have been supported by strong coordination arrangements.

However, with 391 deaths in 2006 and a death rate per 100,000 of population which is nearly twice as high as that of the best performing countries, New Zealand has some way to go to achieve its stated aim to be among the world's leaders in road safety outcomes.

This case study focuses on the institutional management functions delivered by the lead agency in New Zealand during the lifetime of the Land Transport Safety Authority (1993–2004).[1]

Country delivery of institutional management functions and lead agency role

Results focus

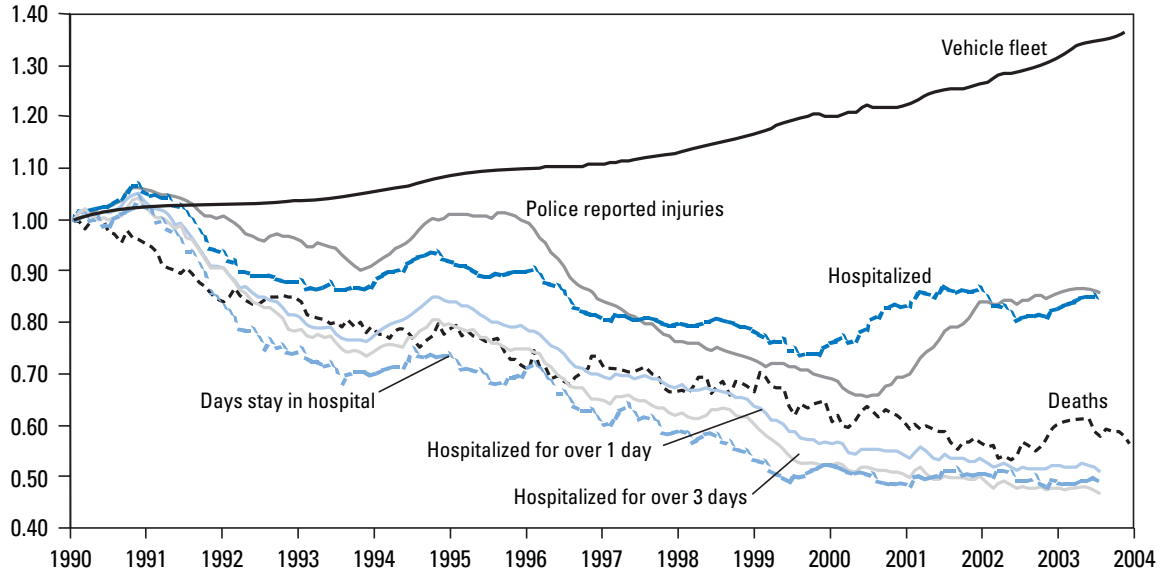
New Zealand has a well-established tradition in country *results focus*. Leadership responsibilities are well defined and an organizational framework exists for analysing data and safety performance, setting outcome and output targets as the basis for accountable road safety activity.

Lead agency

The Land Transport Safety Authority (LTSA) was set up in 1993 as a stand-alone authority responsible for promoting safety in land transport at reasonable cost, and managing land transport information and revenue systems. The LTSA functioned as the lead road safety agency under annual performance agreements with the Minister of Transport and was overseen by a Board of five members appointed by government.

[1] In late 2004 the LTSA merged with the national transport funding organization to become Land Transport New Zealand which was set up to deliver a new integrated transport policy and to address the multiple goals of sustainable development. These institutional arrangements have since undergone further reforms, and this case study is confined to the role and activities of the LTSA.

Figure 1: Road casualty and vehicle trends 1990–2004



Source: LTSA in Breen, 2004.

1. Appraising current road safety performance through high-level strategic review

The LTSA established in-house capacity within its Strategy Division to develop and implement the *Road Safety to 2010* strategy, as well as setting up and providing the secretariat for the coordination body—the National Road Safety Committee (NRSC). Through the NRSC the LTSA brought together the key governmental partners who could deliver road safety results, chaired reviews of road safety performance, prepared background papers on current performance, and made proposals for follow up action.

2. Adopting a far-reaching road safety vision or goal for the longer term

Outside its long-term vision of transport providing an affordable, integrated, safe, responsive and sustainable transport system, New Zealand has not established a specific long term road safety vision. However, the major strategic theme of the current *Road Safety to 2010 Strategy* published in 2003 is one of building safety into the road traffic system and into other government policies impacting on its safety quality.

3. Analyzing what could be achieved in the medium term

The target-setting method and modelling underpinning the *Road Safety to 2010 Strategy* targets was carried out by lead agency specialists and consultants, and peer reviewed by independent road safety experts from Australia and the United Kingdom with substantial experience of national and regional strategic planning in road safety. Expert analysis of benefits, costs and funding demonstrated that the overall safety target to 2010 could be reached by an appropriate mix of safety interventions. Findings were published in a National Road Safety Committee consultation document (NRSC, 2000) and two Working Papers (LTSA, 2000a, 2000b), which informed the broad stakeholder consultation carried out under the auspice of the NRSC. The Land Transport Safety Authority's Strategy Division managed this target-setting work and provided related road safety research, statistics and economic analysis.

4. Setting targets by mutual consent across the road safety partnership

Since 1991 targets for reductions in injury and death have quantified the government's demand for safer road transport, and determined outputs and outcomes to be achieved. There have been three national road safety plans promoting interventions to improve the safety of the network and the conditions of entry and exit to and from it for vehicles and users. The overall compliance regime consists of education, enforcement and performance assessment interventions. Various implementation activities have been undertaken to support these interventions relating to legislation, funding, coordination, monitoring and review, building tools for analysis and evaluation, communications and information support, and research coordination.

The *Road Safety to 2010 Strategy* set ambitious targets to reduce deaths by 35% by 2010 together with a range of targets for final and intermediate outcomes and institutional outputs. Its key strategic themes are outlined in Box 1. New Zealand's final outcome targets are bottom up targets based on analysis by in-house and external experts of cost-effective measures which could be undertaken during the target period and which were proposed by the lead agency. The final decision on the level of targets was made by the National Road Safety Committee, the national coordinating body. New Zealand's target setting hierarchy, as shown in Figure 2 and Tables 1–4, is the most comprehensive example internationally.

Box 1: Key strategic themes of the *Road Safety to 2010* strategy

- Integrating safety into the transport system:
- Accommodating human error
- Improving road user behavior
- Devolving safety management
- Communicating with partnerships
- Implementation
- Making the best use of resources

Source: National Road Safety Committee (2000).

Tables 1 and 2 set out final outcome targets for social costs, deaths and serious injuries to be achieved by 2010. Regional targets were also set and monitored.

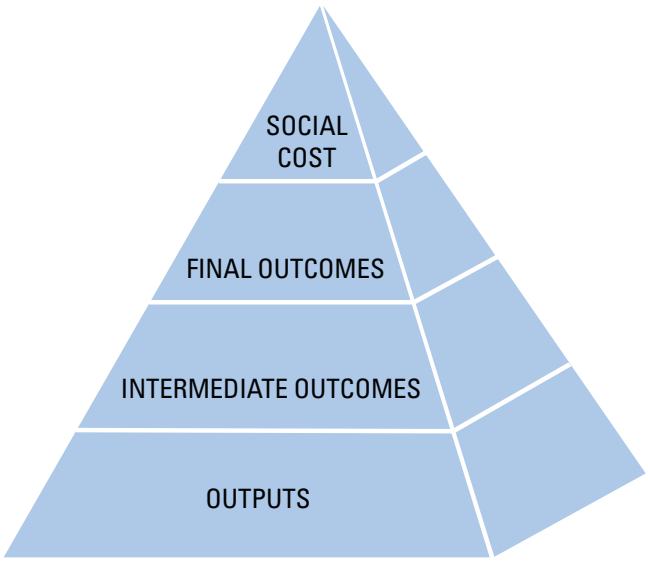
Table 3 outlines intermediate outcome targets for speed, excess alcohol and restraint use to 2004. Table 4 gives an example of police output targets which were adopted.

5. Establishing mechanisms to ensure stakeholder accountability for results

Since 1989 public finance law in New Zealand has required all government agencies to develop a strategic plan outlining its goals and means of achieving them. This requires the preparation of annual corporate management information which includes performance targets, objectives and scope of activities. In addition, the lead agency had an Annual Performance Agreement with the Minister of Transport covering road safety activities over the next twelve months.

The road safety outcome and output targets and systematic follow through which each member of the National Road Safety Committee adopts are the focus of New Zealand's performance assessment regime. LTSA established Memoranda of Understanding with its partners towards these ends (see *Coordination* section).

Figure 2: New Zealand's road safety target hierarchy



– The overall target is to reduce the socio-economic costs of road crashes;
– to be achieved by meeting the second level of targets, requiring specific reductions in the numbers of fatalities and serious injuries.
– A third level of targets consists of intermediate outcomes (also known as performance indicators) including those related to speed, drink driving and rates of seat-belt wearing that are consistent with the targeted reductions in final outcomes; and
– a fourth level of targeting is concerned with institutional delivery outputs such as the enforcement outputs that are required to achieve the third-level target.

Source: Land Transport Safety Authority (2000, 2003).

Table 1: Social cost and fatality targets in New Zealand

		Targets	
	Base 2001	2004 not exceeding	2010 not exceeding
Social Cost (2001 prices)			
$ billion	3.02	2.75	2.1
Deaths			
Number	455	400	300
Deaths per billion veh-km	12.6	9.9	6.1
Deaths per 100,000 people	11.8	10.2	7.3
Deaths per 10,000 vehicles	1.7	1.5	1.1

Table 2: Targeted reductions in deaths and serious injuries in New Zealand

		Targets	
	Base 2001	2004 not exceeding	2010 not exceeding
Deaths			
Number	455	400	300
Deaths per billion veh-km	12.6	9.9	6.1
Deaths per 100,000 people	11.8	10.2	7.3
Deaths per 10,000 vehicles	1.7	1.5	1.1
Hospitalizations			
Number hospitalized	6,700	5,870	4,500
Hospitalized per billion veh-km	186	140	90
Hospitalized per 100,000 people	174	150	110
Hospitalized per 10,000 vehicles	25	22	16
Number hospitalized for over one day	2,880	2,750	2,200
Number hospitalized for over 3 days	1,794	1,750	1,400

Table 3: Intermediate outcome targets for speed, excess alcohol and restraint use in New Zealand

	Base 2001	Target 2004 not exceeding
Speed		
Open road mean speed (km/h)	100.2	99
Open road 85th percentile (km/h)	109	107
Urban mean speed (km/h)	55.2	55.2
Urban 85th percentile (km/h)	61.5	61
Alcohol		
Percent of driver deaths with excess alcohol	21%	21%
Number of driver deaths with excess alcohol	55	48
Restraints		At least
Safety belts—front	92%	92%
Safety belts—rear	70%	75%
Children (under 15) restrained	89%	90%

Table 4: Annual output targets for breath-testing for excess alcohol in New Zealand

	2000/01	2001/02	2002/03	2003/04	2004/05
Hours to be delivered	508,785	505,920	543,025	574,140	616,715
Number of Compulsory Breath Tests (at roadside testing points) to be conducted	1.4–1.6M	1.4–1.6M	1.5–1.7M	1.5–1.7M	1.5–1.7M
Number of Mobile Breath Tests to be conducted	370–410K	370–410K	500–550K	500–550K	800–900K
Offense notices to be issued		26–30,000	23–26,000	23–26,000	23–26,000

LTSA Role: Results Focus

- **The Land Transport Safety Authority (LTSA) was the lead agency for road safety in New Zealand between 1993–2004. The LTSA had the main responsibility for managing the country results focus and ensuring that system-wide interventions were agreed and implemented to achieve results by the responsible authorities across government and wider society.**
- **The LTSA established a results management framework for appraising performance and identifying what could be achieved in the medium term.**
- **The LTSA led the development and delivery of national safety strategies (currently the *Road Safety to 2010* strategy) and the work program agreed by the National Road Safety Committee (NSRC), the high-level coordinating body. This strategy includes targets for final and intermediate outcomes and institutional outputs.**
- **The LTSA's responsibility for the achievement of national targets was underpinned by a performance agreement with the Minister of Transport.**
- **The LTSA established Memoranda of Understanding with its partners to achieve results and prepared and negotiated the annual funding bid for police enforcement and community outputs.**

Coordination

1. Horizontal coordination across central government

Soon after its establishment the LTSA established a system of multi-sectoral coordination to engage all key players with governmental responsibilities in road safety plus other key players in the national road safety strategy.

The LTSA chaired the National Road Safety Committee and provided a dedicated secretariat to support it and four other management committees; the National Road Safety Working Group, the National Road Safety Advisory Group, the New Zealand Road Safety Programme Review Group and the Industry Consultative Group. It also established road safety partnerships with each of the member agencies to achieve agreed targets.

National Road Safety Committee (NRSC). Chaired by the LTSA to 2004, the NRSC brings together the Chief Executives of the main government stakeholders of the *Road Safety to 2010* strategy and is the Minister of Transport's highest-level road safety advisory group. Its role is in communicating, coordinating and agreeing top-level strategy between agencies on road safety issues and providing oversight of progress towards the achievements of national targets. Operational matters are managed by the National Road Safety Working Group and the New Zealand Road Safety Programme Review Group. The terms of reference for the NRSC and the agreement reached on the way in the members work together in matters related to road safety are set out in a Memorandum of Understanding (see extract in Box 2). Road safety is clearly identified as core business for each of the partners in their documentation. Meetings are held quarterly and a planning workshop is held annually. A ministerial debriefing is held after each NSRC meeting. Following an independent review of road safety in New Zealand, the Departments of Health, Justice and Labour Departments joined this coordinating body as Associate Members. A dedicated secretariat for the NRSC was provided by the LTSA. Prior to the re-organization of governmental transport arrangements in December 2004, the NRSC comprised seven key agencies engaged in road safety and its organizational structure is set out in Figure 3. NRSC members headed up the respective agencies:

- *Chief Executive of Land Transport Safety Authority.* Until December 2004, the LTSA regulated and managed road safety, including administering the New Zealand Road Safety Programme which funded and managed road policing, safety education and strategic services. The Chief Executive of the LTSA (and Director of Land Transport Safety) chaired the NRSC.

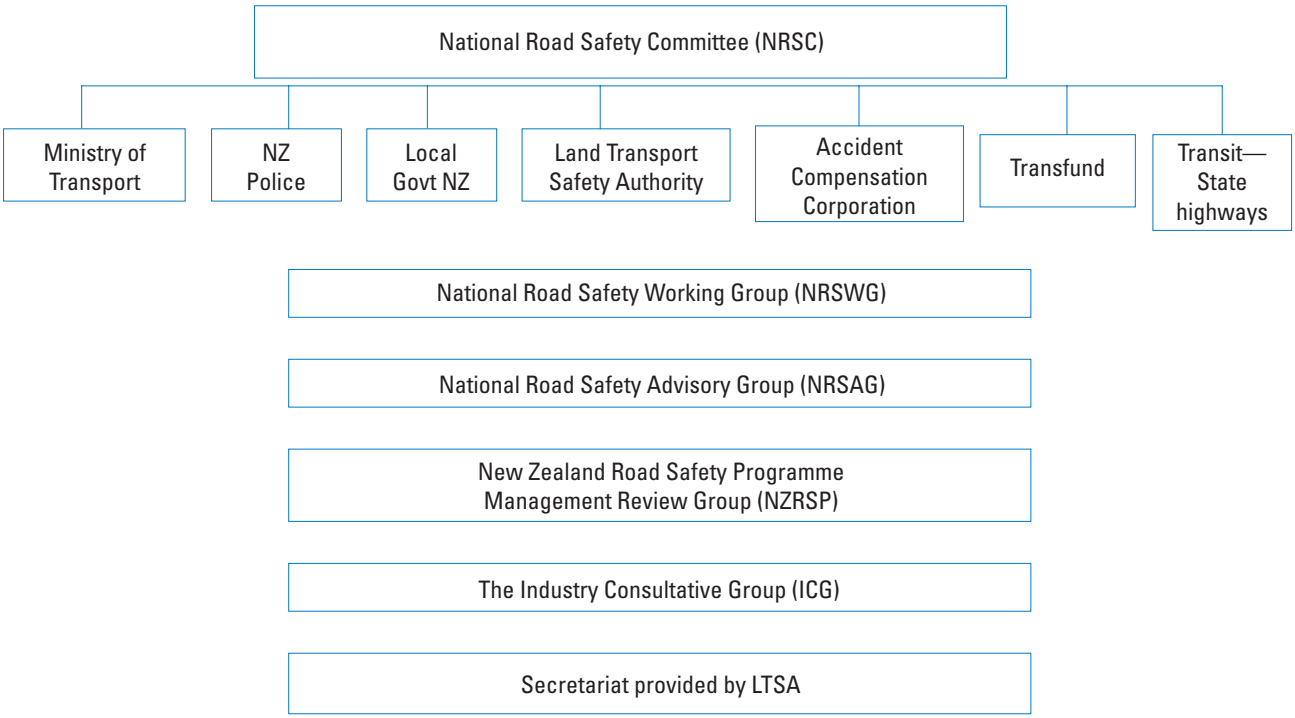
Box 2: National Road Safety Committee (NRSC), New Zealand—Purpose

'2.1. The National Road Safety Committee exists so that:
(a) *collectively*, the chief executives of agencies with significant responsibility for road safety can work together to reduce road trauma and achieve government road safety outcomes; and
(b) *individually*, each agency can secure the best possible road safety outcomes from its resources, leveraging off the compatible endeavors of partner agencies that also have a focus on road safety.

2.2 Working as a whole, the Committee's focus is on achieving the government's goals for road safety. It is the principal inter-agency forum for communicating and coordinating top level strategy between the agencies on matters related to road safety.'

Extract from NRSC Memorandum of Understanding, 2005

Figure 3: Multi-sectoral road safety coordination in New Zealand 2004



- *Secretary for Transport.* The Ministry of Transport leads policy advice to government and prepares and manages road safety legislation (Chair of the NRSC since December 2004).
- *The Commissioner of Police.* New Zealand Police is the national force policing New Zealand's road network, funded and managed through the New Zealand Road Safety Programme.
- *Chief Executive of Transfund.* Transfund managed the National Land Transport Programme which funds network safety maintenance and improvement on state highways and local roads as well as walking and cycling projects, public transport and regional development.
- *Chief Executive of Transit.* Transit New Zealand manages the safety maintenance and improvement of the state highway network through the State Highway Program.
- *Chief Executive of Accident Compensation Corporation (ACC).* The ACC aims to prevent and manage motor vehicle injury through the Motor Vehicle Account, funding specific road safety initiatives and leading implementation of the NZ Injury Prevention Strategy. The ACC is the lead agency on motorcycle safety, in addition to running several road safety educational programs, supporting road safety community work and funding a variety of safety equipment.
- *Chief Executive of Local Government New Zealand.* Local Government New Zealand represents 12 regional council areas and 74 territorial and local authorities whose regional land transport strategies integrate safety into regional transport planning, and whose local land transport programs manage the safety of local road networks.

National Road Safety Working Group (NRSWG). Chaired by the LTSA to 2004, the National Road Safety Working Group (NRSWG) reports to the NSRC, and leads on operational matters. It comprises senior representatives of the NRSC organizations and is responsible for detailed policy preparation and coordination between the member organizations, the preparation of quarterly NRSC meetings and the setting up working groups on specific issues.

National Road Safety Advisory Group (NRSAG). Chaired by the LTSA to 2004, the NRSAG provides a forum for a wide range of agencies involved in road safety to express their views on road safety issues and to provide a base from which joint projects can be initiated. In 2004, it comprised 19 members predominantly from the public sector including the Accident Compensation Corporation (ACC), the Alcohol Advisory Council of New Zealand, the Crime Prevention Unit of the Ministry of Justice, Local Government New Zealand, the Ministries of Health, Justice, Pacific Island Affairs, Transport and Youth Affairs, the New Zealand School Trustees Association, the New

Zealand Automobile Association (AA), the New Zealand Police, Transit New Zealand, Transfund New Zealand, Te Puni Kokiri, Road Safety Coordinators Association, Road Safety Coordinators, the Energy, Efficiency and Conservation Authority and Cycle Support NZ.

New Zealand Road Safety Program Management Review Group (NZRSP). This group works to improve the efficiency and effectiveness of the New Zealand road safety program and comprised the LTSA, New Zealand Police and the Ministry of Transport.

The Industry Consultative Group (ICG). This group was established by the LTSA to provide a forum for the land transport industry to liaise with the LTSA (see later section *Coordination* on *business sector engagement)*.

2. Vertical coordination from central to regional and local levels of government

Transfund (the road funding body), Transit (the national highway authority) and Local Government New Zealand (the local road authorities) were represented on the National Road Safety Committee during the case study period and signed up to national and regional road safety targets and strategy. They demonstrate accountability by means of Memoranda of Understanding and annual performance agreements for specific road safety outputs. Representatives of local authorities are also represented lower down the hierarchy in a consultative capacity.

While national and regional responsibilities are set out in legislation, local authorities are not subject to any express statutory safety objectives and their legal obligations for the safety of the road network are a mixture of contractual, voluntary and common law legal obligations. In support of the national strategy, local authorities are expected to set up safety management systems (a tool developed by the LTSA—see Box 3) apply crash reduction studies and safety audit procedures (which are a prerequisite of scheme funding), undertake detailed analysis to develop implementation strategies to meet targets and give appropriate priority to funding road safety activities.

3. Specific delivery partnerships between government, non-government, community and business at the central, regional and local levels

One of the main factors underpinning the significant gains made in reducing death and serious injury on New Zealand roads has been the close working partnerships and agreements forged between different government stakeholders and the commitment and support of community groups. Since the lead agency relies almost totally on other stakeholders to realize its goals, the establishment of partnerships with many agencies is a key strategy. In addition to alliances at the senior level of key government stakeholders brought together in the National Road Safety Committee and its other committees, a broad range of specific partnerships has been established.

Box 3: Safety Management Systems (SMS) in New Zealand

The Land Transport Safety Authority led the development of a voluntary Safety Management System (SMS) regime for road controlling authorities (RCAs) to ensure that decisions about construction, maintenance and management of the road network were guided by a SMS which comprises:

- the strategic direction of the RCA including the vision, plans and partnerships in place to deliver a road safety engineering toolbox including crash reduction studies, safety audits, data collection, adopted standards and guidelines;
- management control system and responsibilities for the SMS including the road safety engineering processes that will be used;
- continuous improvement/audit regimes to ensure delivery of best practice.

LTSA and highway authorities. The Land Transport Safety Authority, Transit New Zealand and Local Authorities were partners in a Crash Reduction Study Program in New Zealand. The original program was established in 1985 to identify sites for treatment based on the crash history at each site and to recommend low cost engineering treatments aimed at reducing those crashes. A monitoring system has been developed progressively since 1989 to gather crash data on treated sites. Results from a Crash Reduction Study in 2004 indicated an average 35% reduction in injury crashes over and above the crash trend. Average annual savings in crash costs associated with sites active over ten calendar years (1994–2003) have been estimated at $203 million per annum.

LTSA and the New Zealand Police. The close partnership between the New Zealand Police and the LTSA was key to managing enforcement and education activities in the road safety strategy to positively influence driver behavior. The LTSA contracted New Zealand Police on an annual basis to provide enforcement outputs related to the road safety strategy funded by the New Zealand Road Safety Programme. As a result road safety is a core business of the New Zealand Police with more than 20% of the police

budget being allocated to road safety-related activities. New Zealand road safety policing has led to a substantial reduction of road trauma through pro-active on-road enforcement with benefits to costs estimated within the range of 8:1–13.1 (with enforcement aimed at excessive speed and drink driving yielding ratios at the upper end of this range). Since 1995, the LTSA advertising programs have supported strategic police enforcement in the areas of speeding, drink-driving and seat belt use.

LTSA, New Zealand Police and local authorities. The LTSA, New Zealand Police and local authorities worked together to produce road safety action plans that promote local ownership of road safety, and appropriate use of police and other resources across local boundaries. High-level regional plans are used as a basis for the police to develop risk targeted patrol plans (RTPPs) in these areas. The co-operation between the police and highway authorities is close, in comparison to that achieved in many other countries, aided by the use of Memoranda of Understanding between the police and the road authorities.

LTSA, Accident Compensation Corporation, Occupational Safety and Health and Safety at Work Program. This aims to enhance occupational road safety programs for employers and employees. One key deliverable is the *Your Safe Driving Policy* booklet that has been jointly produced by ACC, OSH and the LTSA and distributed to over 2,500 employers. LTSA also worked with the regions to identify and provide resources to assist expansion of their existing programs with local employers.

LTSA, other national authorities and national motoring organizations. New Zealand is a member of the Australasian New Car Assessment Program which rates the safety performance of new cars against state of the art crash tests and provides objective information to car buyers. This program brings together representatives of different Australasian jurisdictions and motoring organizations.

LTSA and the Community Road Safety Program. The Land Transport Safety Authority's Community Road Safety Program has played a strong role in mobilizing the community and building grass roots support to help achieve the road safety strategy goals (see Box 4).

Non-governmental organization engagement

A variety of NGOs are represented in the National Road Safety Advisory Group. No national coalition or umbrella organization of professionals and organizations exist which actively work to identify and promote research-based measures to the wider community.

Box 4: LTSA's Community Road Safety Program (CRSP) in New Zealand

The community road safety strategy is to:

- provide leadership
- promote community ownership
- target community funding effectively
- manage community funding wisely
- promote a clear role for Road Safety Coordinators
- encourage innovation

CRSP coordinators were funded by the LTSA. In 2002, there were 42 road safety coordinators who were responsible for over 300 annual projects. In support of this program, the LTSA provided technical expertise, salary subsidies and project funding, provided a manual, assisted with management, ran an annual national conference and provided regional training to road safety coordinators working locally on initiatives that address local road safety issues. Local government provided related support to the road safety coordinators in the form of office facilities and transport services.

Source: McAloon, 2000

New Zealand organizations and professionals are members of the New Zealand Chapter of the Australasian College of Road Safety which seeks to share information about best practice amongst professionals. Trafinz, a local authority engineering organization, also mounts an annual national road safety conference aimed at road safety professionals and decision-makers.

Business sector engagement

The Industry Consultative Group (ICG) was established by the LTSA to provide a forum for the land transport industry to liaise with the LTSA. It provides a strategic overview of safety in land transport, operates in an advisory capacity and reports to the National Road Safety Working Group. Its membership comprises: the New Zealand Automobile Association (AA), the Bus and Coach Association, the Contractors Federation, Federated Farmers, the Imported Motor Vehicles Dealers Association, Local Government New Zealand, the Motor Industry Association, the Motor Trade Association, the Motor Vehicle Dealers Institute, the Owner Carriers Association of New Zealand, the New Zealand Road Transport Forum and the Taxi Federation.

An occupational health and safety policy has been established which encourages employers to address work-related road safety issues.

4. Parliamentary relations at central, regional and local levels

There is no parliamentary road safety committee or group in New Zealand which is particularly active on road safety issues. However, the parliamentary Transport and Industrial Relations Committee performs statutory parliamentary scrutiny of road safety policies and budgets.

LTSA Role: Coordination

- **The LTSA established and managed horizontal and vertical of multi-sectoral coordination processes to engage all key players with governmental responsibilities in road safety as well as other key players in the national road safety strategy.**
- **The LTSA established road safety partnerships with each of the other six members of the National Road Safety Committee to deliver agreed targets.**
- **The LTSA chaired and provided the secretariat for the NRSC and three other management committees, the National Road Safety Working Group, the National Road Safety Advisory Group and the Industry Consultative Group.**
- **The LTSA established tools and programs for use by regional and local authorities and developed and supported community programs and partnerships at local level.**

Legislation

1. Reviewing the scope of the legislative framework periodically

In preparing new strategies and targets, the LTSA reviewed and benchmarked international good practice, the legislative requirements of new road safety strategies and carried out in-house reviews of their potential costs and benefits.

2. Developing legislation needed for the road safety strategy

The LTSA used its National Road Safety Committee hierarchy to consult on and develop standards and rules. In developing legislation a rules team comprising the relevant expertise sat within the Policy Division of the Land Transport Safety Authority. A core legal team in the Ministry of Transport provided the gateway to parliament and managed cross-sectoral issues, especially with the justice sector.

3. Consolidating legislation

Rules are consolidated from time to time, as in other good practice countries. For example, the Land Transport Amendment Act 2005 was passed on 15 June 2005. It merged a number of pieces of existing land transport legislation into the 1998 Land Transport Act. Many of the components of these merged Acts remain the same. However, where required, they were amended to provide greater clarity and efficiency. The provisions of the Act primarily comprise enhancing enforcement, improving targeting of serious and repeat drink-driving offenders, improving efficiency for commercial transport operators, improving operational and administrative efficiency and updating land transport safety law.

4. Finding legislative slots in government and parliamentary programs

The NRSC as a strong inter-governmental coordination committee assisted LTSA in the often difficult processes of securing scarce slots for safety legislation in the government program.

LTSA Role: Legislation

- **The LTSA used its coordination hierarchy to find legislative slots for road safety and for consultation on proposals for legislative change.**
- **The LTSA established in-house capacity to set, ensure compliance with and monitor road safety standards for vehicles, roads and people, as well as to provide policy advice.**
- **The LTSA established small in-house rules teams which partnered with the Ministry of Transport to develop and consolidate major primary legislation.**

Funding and resource allocation

1. Ensuring sustainable funding sources

Funding for road safety in New Zealand comes mainly from road user taxes and charges (the National Roads Fund (NRF)) and from local property taxes. In 2004, the annual New Zealand Road Safety Programme (NZRSP) funded by the NRF (Box 5) provided for the planning, funding and delivery of a variety of road safety activity in New Zealand which was administered by LTSA, the lead agency. The NZRSP provided funding for the activities of the New Zealand Police (e.g., road policing in 2003/4 comprised around 23% of total police resource), the lead agency and through the lead agency to local communities. Funding to authorities responsible for engineering local and state roads is delivered through the National Roading Program administered until recently by Trans-

fund whose role was defined in legislation to allocate resources to achieve a safe and efficient road system. Vehicle testing which has been privatized is self-funding. The government insurer, the Accident Compensation Corporation, made modest contributions to the cost of equipment such as alcohol breath testing buses and localized road safety advertising.

Direct funding to the LTSA was nearly $167 million in 2004 coming from the NRF, user charges and the Crown (see Table 5).

New Zealand has also set up a Road Safety Trust which is a Crown entity that receives its funding from a share of the proceeds of personalized license plate sales. Four Trustees appointed by the Minister of Transport for a three year term oversee the allocation of resources. The Trust is empowered to fund community safety initiatives, road safety research training, education, overseas travel, attendance at conferences and private sector technological developments beneficial to road safety. The Trust's areas of priority are those contained in the *Road Safety to 2010* strategy. The Trust had a formal agreement for the provision of support services by the Land Transport Safety Authority by way of a Memorandum of Understanding (MOU). The MOU establishes a service-level agreement that clearly identifies and defines the expectations and responsibilities of both agencies.

2. Establishing procedures to guide allocation of resources across safety programs

The LTSA developed and used a nationally recognized basis for project evaluation using the economic appraisal of measures and willingness to pay values of preventing death and serious injury to identify road safety priorities. These values were updated annually. This approach to evaluation was also used by Transfund in allocating resources for road safety engineering with reference to costs and benefits.

The LTSA established a safety economics section in-house for safety funding and resource allocation based on appraisals of cost-effectiveness and cost-benefit analysis. The section evaluated safety costs and benefits, estimated program funding needs and prepared related business cases. The lead agency also prepared the business cases for the New Zealand Road Safety Programme to allocate resources to police and local communities and provided administrative and technical support for its delivery.

LTSA Role: Funding and Resource Allocation

- **The LTSA ensured a dedicated funding source for road safety from the National Road Fund and provided a means**

Box 5: Financing road safety from the New Zealand Road Fund[17]

New Zealand has had a road fund since 1953. It has been restructured several times and its management was transferred to an independent road fund administration called Transfund in 1996. In December 2004, Transfund merged with the Land Transport Safety Authority (LTSA) to become Land Transport New Zealand.

The fund operates on the basis of payment by road users for road use. The proceeds are managed outside the government's general budget and the funds are used to improve the highway system. Revenues are deposited into an interest bearing separate Treasury account and the sources of revenue for the fund comprise:

- a fuel excise duty added to the price of gasoline;
- weight-distance charges paid by diesel vehicles;
- motor vehicle registration fees;
- interest earned on the road fund account;
- revenues earned from sale of surplus state highway property; and refund of value added taxes.

Annually fund revenues were allocated to the Transport Registry Centre and the New Zealand Road Safety Programme to finance road safety outputs from the Land Transport Safety Authority, the New Zealand Police and community partners. The balance of the revenue was mostly used to support road spending under the jurisdiction of Transit New Zealand (national roads) and local government. Some of these funds were used to finance the costs of the road safety engineering measures (e.g., skid resistance, treatment of hazardous locations, etc.). LTSA assembled the annual Police funding bid, managed the bidding process, published the final program and monitored subsequent performance against agreed outputs. The program was negotiated annually and all road agencies (Transit New Zealand and local authorities) participated in the bidding process. By subjecting all road investment—including road safety interventions—to benefit/cost analysis, the system also encouraged a balanced approach to the various factors which contribute to the delivery of a safe, efficient network.

Table 5: Sources of funding by area of expenditure for LTSA in 2004

			Source of funding				
Area of expenditure	NZ Total $000	Share	NZ Road Safety Programme (NZRSP)	Third Party	Crown	National Roads Fund	Contract (Crown)
Policy advice	8,785	5%	3,233	2,761	548	2,253	
Safety information and promotion	29,249	17.5%	25,835	3,414			
Grants management	9,456	6%	8,876	580			
Safety audit	17,955	11%	2,699	15,256			
Licensing	28,453	17%	1,143	26,277	1,033		
Driver testing	15,728	9%		15,316	412		
Assessments	210	0.1%			210		
Vehicle impoundment	444	0.1%	444				
Motor vehicle registry and revenue management	56,645	34%		11,109			45,536
TOTAL	166,925		25%	45%	1%	1%	27%

Source: Annual Report 2004, Land Transport Safety Authority, Wellington

through the New Zealand Road Safety Programme to finance road safety outputs from the LTSA and police and community partners.

- **The LTSA conducted in-house reviews of the value of preventing road traffic deaths and serious injuries to sustain the strong business case for expenditure on road safety.**
- **The LTSA provided in-house lead agency capacity to evaluate safety costs and benefits and program funding effectiveness and the preparation of related business cases.**

Promotion

1. Promoting the far-reaching road safety vision or goal

The major strategic theme of *Road Safety to 2010* is one of building safety into the road traffic system and into other government policies impacting on its safety quality. The rationale for this is to ensure that safety is planned for in the first instance in traffic system design and operation and at least as an equal partner to efficient mobility and environmental protection.

Over the last decade, the promotion of the road safety strategy nationally was carried out mainly by the LTSA's Communications and Education Division which provided the communications and information support for core activities and shared responsibility across the road safety partnership.

2. Championing and promotion at a high level

The National Road Safety Committee provided high-level promotion of the national road safety strategy at Chief Executive level. Lead agency ministers played an active role in creating awareness about road safety challenges and promoting policy initiatives in the media.

3. Multi-sectoral promotion of effective intervention and shared responsibility

National Road Safety Committee members came together to launch and promote specific initiatives. The Accident Compensation Corporation and New Zealand Police also engaged in high-profile road safety promotion.

4. Leading by example with in-house road safety policies

No notable organizational examples were found.

5. Developing and supporting safety rating programs and the publication of their results

The LTSA joined the Australasian New Car Assessment Programme (ANCAP) which was originally developed in New South Wales, Australia and promoted key vehicle safety needs through publicizing consumer information.

6. Carrying out national advertising

Since 1995 the LTSA promotional program supported strategic police enforcement in the areas of speeding, drink-driving and seat belt use. During this time the campaign used vivid and realistic road safety advertisements aimed at offenders and the severe consequences of road crashes. After February 2004, the target of the advertising campaign changed from offenders to the general public,

with the objective of creating community demand for a change in the behavior of persistent offenders.

7. Encouraging promotion at the local level

LTSA's Community Road Safety Program (CRSP) has played a strong role in road safety promotion at the local level. This program has as its primary objective the mobilisation of the community and building grass roots support to help achieve the road safety strategy goals. CRSP coordinators are funded by the LTSA.

LTSA Role: Promotion

- **The LTSA promoted the shared responsibility for delivery of the road safety strategy.**
- **Lead agency ministers played a key role in launching and promoting the strategy.**
- **The LTSA coordinated multi-sectoral promotion and contracting out targeted road safety advertising in support of the major themes of the national road safety strategy.**
- **The LTSA provided in-house lead agency capacity for promotion through its Communications and Education Division.**
- **The LTSA supported the ANCAP safety rating program.**
- **The LTSA developed community road safety programs to promote the national strategy at the local level.**

Monitoring and evaluation

1. Establishing data systems to set and monitor final and intermediate outcome and output targets

LTSA established a range of data systems and tools to allow monitoring of the national road safety targets. It carried out safety audit, managed the Land Transport Registry covering vehicle registration and driver licensing, and developed the Crash Analysis System and the Safety Management System for assisting and monitoring local authority activity.

Vehicle and transport registries. The computerized vehicle and driver registries at the Transport Registry Centre within the Land Transport Safety Authority were managed under a contract with the Ministry of Transport (see Box 6). Apart from providing necessary data to establish road death and injury risk, these were fundamental to the success of the road safety strategy in assisting roadside police enforcement activity.

Final outcome data

A range of final outcome data systems were established.

Crash Analysis System (CAS). This system was established by LTSA to manage, analyze and map road traffic crash and related data. The CAS allows users to:

- enter road crash data
- select crashes for analysis
- map crashes
- view images of the crash report diagrams
- locate and map crash clusters
- report on crashes or crash clusters
- monitor trends at crash sites
- automate the production of collision diagrams
- identify high-risk locations.

The information provided by the CAS helps to analyse and determine road safety funding allocations. It is also used in the targeting of road safety programs and the monitoring of their performance. It integrates mapping with other functions and links crash data with road asset management data systems used by the road controlling authorities at the national and local level. The crash data collection is based on the fatal, injury and non-injury crashes reported by the police to the lead agency.

Crash reports include:

- where the crash occurred
- when and how it happened
- who was involved
- the type of vehicle drivers or passengers were travelling in at the time of the crash
- the people involved who were not in vehicles
- information about the crash environment
- a crash diagram.

The lead agency then codes this information according to the type of crash movement involved (e.g., overtaking or right-angle intersection collision) and the factors contributing to the crash (e.g., driving too fast for the conditions or failing to stop). The movement codes in symbolic form are scanned in, enabling users to instantly access them on-line—a useful tool when undertaking detailed analyses. CAS also holds scanned versions of the other pages from each original crash report. Internet access to the full services of the CAS can be provided to authorized users.

Health sector data on road traffic injury and outcomes is collected by the Ministry of Health, the Accident Compensation Corporation and the Injury prevention Research

Box 6: The Transport Registry Centre, New Zealand (2006)

Main functions: The Transport Registry Centre (TRC) was until recently a section of the Operations Division of the Land Transport Safety Authority, but is now part of Land Transport New Zealand. It handles all aspects of motor vehicle registration, motor vehicle licensing, road user charges transactions and the national Driver License Register (DLR). The TRC maintains the DLR and the Motor Vehicle Register (MVR) and is responsible for the collection, reconciliation and pay-over of crown revenues collected from vehicle licensing and road user charges (RUC). The Transport Registry also administers the demerit point scheme for driver related offenses, suspends driver licenses due to excessive demerit points and reviews applications for driver licenses to be revoked on medical grounds.

Annual budget: Driver License Registry: $42,916,263, Motor Vehicle Registry & Revenue Management: $58,715,435 Crown Revenue: $1,778,660,000

				Staffing sections and staff numbers:
Management:	9	HR/Administration:	14	In April 2006, 290 staff were employed at the TRC. Some TRC services are contracted out to agents who include the New Zealand Automobile Association, NZ Post shops and Books & More outlets, Vehicle Inspection New Zealand, Vehicle Testing New Zealand, On Road New Zealand and some independent agencies
Business Support Services:	64	Finance Operations:	4	
Call Centre—MVR:	78	Agencies:	3	
Call Centre—DLR:	57	Vehicle Compliance:	8	
Crown Revenue:	15	Information Technology:	38	

Motor Vehicle Register:
- services are provided under contract to Ministry of Transport
- around 3.9M vehicles on the register
- 1.0M change of ownership transactions completed each year
- collect $500M in Accident Compensation Corporation (ACC) levies
- 7.5M requests (on-line) for information from the register annually from local authorities and industry
- answer more than 50,000 national 0800 calls each month
- 25,000 vehicle registrations each month (new and imported)
- 400,000+ vehicle licensing transactions per month.

Driver License Register:
- 2.9M licensed drivers
- 7,000 demerit warning letters issued monthly
- 20,000 new driver licenses issued monthly
- 3,000 overseas driver licenses converted to a NZ license each month
- 3,000 licenses suspended each month due to excessive demerit points or court action
- about 2,000 medical reviews processed each month
- answer in excess of 50,000 national 0800 calls per month.

Information provided by Transport Registry Centre, New Zealand, 2006

Unit at the University of Otago. Health monitoring shows that road traffic crashes cause more years of life to be lost than any other source of injury or accident in New Zealand. Motor vehicle crashes are the single largest cause of death for children under 14 years old and for the 15–24 age-group (IPRU, 2001). Road crashes are a leading cause of permanent disability for people aged 15–44 (MoH, 1999). Periodic data matching surveys are made by the LTSA to link health data with police crash data to eliminate levels of under reporting of injury crashes on a regional basis.

Intermediate outcome data and output data

Data on speeds, seat belt use, cycle helmet use and drinking and driving are collected annually by the LTSA, with speeds being measured twice a year (summer and winter). New Zealand is also a member of the Australasian New Car Assessment Programme which allows it to monitor fleet safety quality. Travel surveys are carried out periodically on a rolling basis to collect exposure data. Traffic data is also collected annually.

Other data

Other data is collected annually to inform strategy development and intervention. In 2004, for example, the National Bureau of Research carried out an annual public opinion survey which concluded that:

- 76% of New Zealanders thought that compulsory breath testing helps to lower the road toll
- 77% agreed that enforcing the speed limit helps to lower the road toll

- 87% believed that seat belt enforcement helps to lower the road toll
- 90% of people wanted police enforcement effort to either be maintained or increased
- 92% of people wanted advertising to either be maintained or increased.
- 57% think speed cameras help to lower the road toll
- 56% support the use of hidden cameras
- 59% believe speed cameras are operated fairly
- 85% want the urban 50km/h speed limit to be retained or lowered
- 80% want the 100km/h to be retained or lowered

2. Transparent review of the national road safety strategy results, interventions and institutional management functions

Reviewing and reporting on progress

Progress against targets is reported annually in performance agreements in New Zealand. The LTSA provided the National Road Safety Committee with a comprehensive quarterly report *Road Safety Progress* which outlined progress being made on outcome and output targets. It was also made available to the National Road Safety Advisory Group, members of parliament, LTSA managers and Road Safety Coordinators.

The *Road Safety to 2010* strategy has also been subject to various independent reviews since its inception in 2002. Audit inspections of the performance of LTSA agents were also carried out. Transit, the State highway authority, also conducts random audits every year and a full audit every three years of compliance with safety management systems. It annually certifies the state highway network on its safety performance.

3. Making any necessary adjustments to interventions and institutional outputs needed to achieve the desired results

The results of monitoring and evaluation are presented by LTSA to the National Road Safety Committee and discussed periodically.

LTSA Role: Monitoring and Evaluation

- **Monitoring of the road safety strategy was the LTSA's responsibility in association with the National Road Safety Committee.**
- **The LTSA established surveys and databases to identify and monitor final and intermediate outcomes and outputs against targets.**
- **The LTSA established and published the socio-economic cost of road traffic injuries on an annual basis.**
- **The LTSA managed the vehicle and driver registries, developed the Crash Analysis System and participated in the Australasian New Car Assessment Programme to assist monitoring of vehicle fleet safety.**
- **The LTSA tracked public opinion on road safety problems and interventions through surveys.**
- **The LTSA regularly reviewed progress of the national road safety strategy in-house on a quarterly basis, funded independent reviews and reported results to the national coordinating body for discussion and follow-up action.**

Research and knowledge transfer

1. Developing capacity for multi-disciplinary research and knowledge transfer

A range of organizations carry out road safety research in New Zealand. Prior to December 2004, the LTSA was responsible for coordinating this research and this role was defined in legislation. It published a yearly summary of the road safety research which was funded. This function is now undertaken by the Ministry of Transport. The 2003 review of road safety research indicated that 58% of research projects were carried out by government agencies or Crown entities and 24% by the New Zealand university sector.

The LTSA's Strategy Division housed a road safety research unit which undertook a range of research support activity to assist national, regional and local government activity. Consulting bodies play a role in national road safety research as well as universities (e.g., the Injury Prevention Research Unit at the University of Otago, the Departments of Civil Engineering and Psychology at Canterbury University and by Monash University Accident Research Centre in Victoria, Australia).

2. Creating a national road safety research strategy and annual program

An annual program of research was defined by LTSA focussing on the national road safety strategy, as one of the functions of its coordination role.

3. Securing sources of sustainable funding for road safety research

Funding for road safety research was an integral part of the LTSA budget.

In addition, the Road Safety Trust administered by the LTSA funded research, community safety initiatives, train-

ing, education, overseas travel, attendance at conferences and private sector technological developments which were assessed as being beneficial to road safety in New Zealand. The LTSA advised on and oversaw all research funded by the Road Safety Trust. The Trust also offered Road Safety Research Scholarships for Masters and Doctoral candidates, which were administered by the NZ Vice Chancellors' Committee.

4. Training and professional exchange

Significant efforts were made by senior LTSA and key stakeholder personnel to keep abreast of international research and good practice, including annual visits to leading jurisdictions in the road safety field, and attending conferences and sharing knowledge within global and regional communities of practice.

5. Establishing good practice guidelines

A range of guidelines were produced by the LTSA to facilitate implementation of good practice road safety activities. One example was the guideline for developing a safety management system for road controlling authorities published by LTSA in November 2003, with the aim of increasing road safety knowledge and skills in the road engineering field.

6. Setting up demonstration projects

Demonstration projects were put in place periodically to highlight the effectiveness of important interventions. A notable example was the hidden speed camera trial conducted in the Central North Island, using the rest of the country as a control group. In posted speed camera zones in the region concerned cameras were used covertly, whereas in the rest of the country they remained in overt use in accordance with the approved operational guidelines. In the Central North Island region the use of hidden cameras resulted in a 20% statistically significant reduction in casualties compared with the rest of the country, with an estimated benefit cost ratio of around 150:1 (Keall, Povey & Frith, 2001 and 2002).

LTSA Role: Research and Development and Knowledge Transfer

- **The LTSA established in-house capacity to manage its research program and coordinated and supported external research in support of the safety strategy.**
- **The LTSA secured funding for road safety research and knowledge transfer in its own budget.**
- **The LTSA supported attendance of its staff at international road safety meetings, seminars and workshops, and study tours to good practice countries.**
- **The LTSA developed and disseminated good practice guidelines on road safety.**

Summary: LTSA delivery of institutional management functions

Results focus. The Land Transport Safety Authority (LTSA) was the lead agency for road safety in New Zealand from 1993 to the end of 2004. The LTSA had the main responsibility for managing the country results focus and ensuring that system-wide interventions were agreed and implemented by the responsible authorities across government and wider society. It established a framework for assessing safety performance and the potential for achievable results in the medium term and led the development and delivery of national safety strategies and the work program agreed by the National Road Safety Committee (NSRC), the high-level coordinating body. The latest strategy includes targets for final and intermediate outcomes as well as institutional outputs. The LTSA's responsibility for the achievement of national targets was underpinned by a performance agreement with the Minister of Transport. It also established Memoranda of Understanding with its partners to guide the road safety effort and funded key police enforcement outputs to achieve desired results and enhance accountability for their delivery.

Coordination. The LTSA established and managed multi-sectoral coordination to engage all major partners in a decision-making hierarchy of committees and chaired and provided the secretariat of the NRSC and supporting committees. It established road safety partnerships with each of the other six governmental members of the NRSC to deliver agreed targets. The LTSA built tools and programs for use by police and regional and local authorities and developed and supported community programs and partnerships at the local level.

Legislation. The LTSA established in-house capacity in its Policy Division to set, ensure compliance with and monitor road safety standards for vehicles, roads and people, as well as to provide policy advice. It established a small in-house rule team to partner with the Ministry of Transport in developing and consolidating major primary legislation. The LTSA used the coordination hierarchy to find legislative slots for road safety and for consultation on proposals for legislative change.

Funding and resource allocation. The LTSA ensured a dedicated funding source for road safety from the National Road Fund and managed the New Zealand Road Safety Program to largely finance road safety outputs from NZ Police and also finance some aspects of the LTSA program of education, promotion and strategy development. The LTSA provided in-house capacity in its safety economics section to evaluate safety costs and benefits, estimate program funding needs and prepare related business cases. It periodically reviewed the value of preventing road traffic deaths and serious injuries to sustain a strong business case for expenditure on road safety. The LTSA also provided advice on grants management and administered the Road Safety Trust.

Promotion. The LTSA promoted the shared responsibility for delivery of the road safety strategy and its ministers played a key role in launching and promoting the strategy. It coordinated multi-sectoral promotion and contracted out targeted road safety advertising in support of the major themes of the safety strategy. The LTSA provided in-house lead agency capacity for promotion through its Communications and Education Division, supported and promoted the Australasian New Car Assessment Programme (ANCAP) and developed community road safety programs to promote the national strategy at the local level.

Monitoring and evaluation. Monitoring and evaluation of the road safety strategy was LTSA's responsibility in association with the NRSC. The LTSA established surveys and databases to identify and monitor final and intermediate outcomes and outputs against targets and established and published the socio-economic cost of road traffic injuries on an annual basis. It managed the vehicle and driver registries, developed and maintained the Crash Analysis System and participated in the ANCAP to assist monitoring of vehicle fleet safety. The LTSA reviewed progress of the national road safety strategy in-house on a quarterly basis and funded an independent review of its performance in 2004.

Research and development and knowledge transfer. The LTSA's coordination role for road safety research was established in legislation. It built in-house capacity to manage its research strategy and program and supported external research focused on supporting the road safety strategy, including demonstration projects. The LTSA secured funding for road safety research and knowledge transfer in its own budget and supported attendance of its staff at international road safety meetings, seminars and workshops, and study tours to good practice countries. It also developed and disseminated good practice guidelines on road safety.

Lead agency structures

The aggregate and organizational structures of the lead agency for road safety in New Zealand are set out in Figures 4 and 5.

Figure 4: Aggregate structure of the Land Transport Safety Authority (LTSA) in New Zealand (1993–2004)

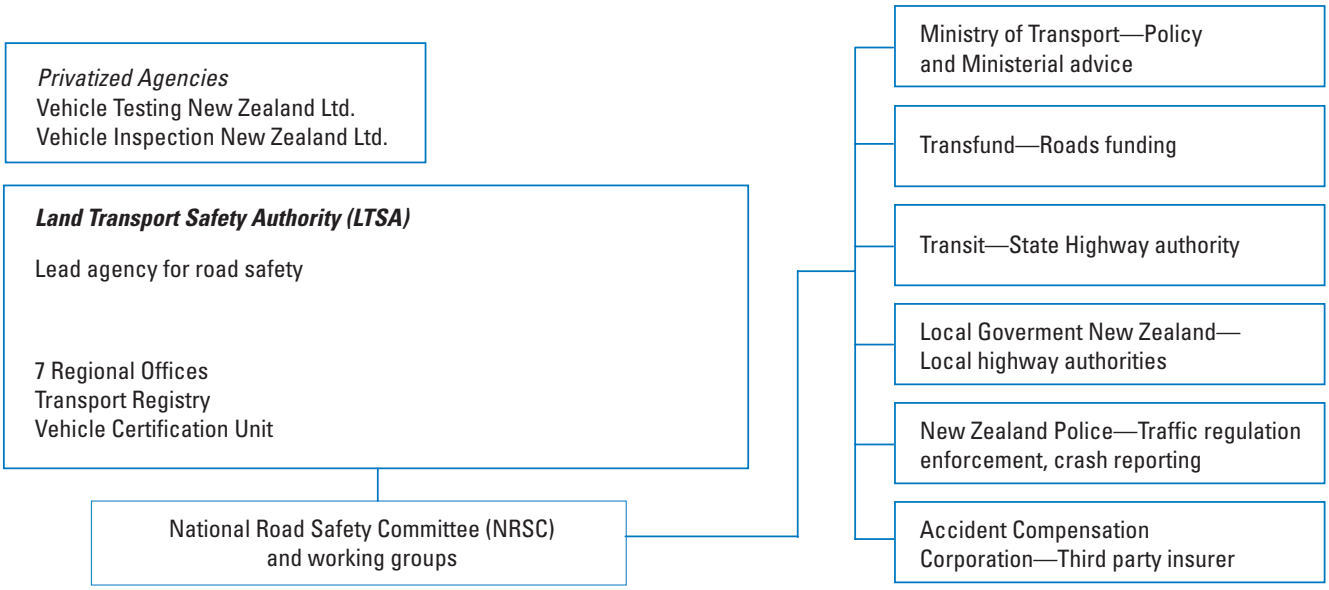
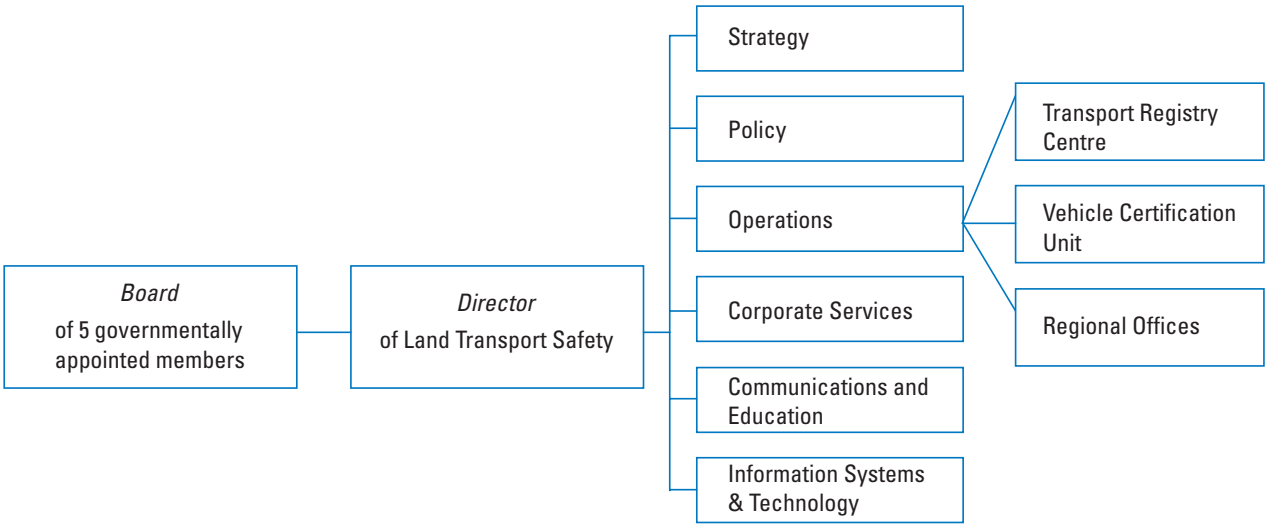


Figure 5: Organizational structure of the Land Transport Safety Authority (LTSA) in New Zealand (1993–2004)



With more than 90% of direct road safety funding in New Zealand allocated to LTSA's key partners in the road controlling authorities and the police, the organizational priority of the LTSA from the outset was focused on ensuring the effectiveness and efficiency of its partnerships with these agencies. The LTSA provided administrative and technical support to the National Road Safety Committee and its working groups which comprised the main road safety governmental stakeholders, as well as working with other partners and stakeholders throughout the country.

The LTSA's organizational structure is outlined in Figure 5. It employed 656 staff as at 30 June 2004, of which 451 (68%) were employees in Operations Division, 33 in Strategy (5%), 52 in Policy Division (8%), 26 in Communications and Education Division (4%), and 39 in Information Systems and Technology (6%).

The *Strategy Division* conducted the target-setting work and provided road safety research, statistics, performance monitoring and economic analysis, which aimed to ensure that safety interventions achieved improvements in road trauma levels. It provided strategic direction for road safety and managed the New Zealand Road Safety Program (or Safety (Administration) Program) which funded police and community road safety outputs. It also managed the national Crash Analysis System, directed the national research effort and provided the secretariat support to the National Road Safety Committee, the National Road Safety Working Group, the National Road Safety Advisory Group and the Industry Consultative Committee.

The *Policy Division* carried out policy analysis, research and development for road safety interventions such as the development of standards and rules relating to the design and operation of the road network and the conditions of entry and exit for vehicles, operators and users.

The *Operations Division* promoted compliance with standards and rules by means of community education, enforcement (including auditing of LTSA agents) and performance assessment. The Vehicle Certification Unit conducted audits of motor vehicle certification agents and commercial license transport operators in each region to ensure vehicle compliance standards were maintained. It also carried out investigations of heavy vehicle crashes where mechanical defects had been identified. Many activities were contracted out to companies and individuals. The Regional Offices monitored and reviewed performance on local networks, coordinated interventions with local road safety partners and managed vehicle and operator compliance. The Transport Registry Centre facilitated the entry and exit from the land transport system and managed the collection of user charges and Accident Compensation Corporation levies.

The *Corporate Services Division* provided information services, human resources, financial contract and facilities management, and reprographic and legal support for core LTSA activities, It also undertook the organization's corporate planning, including annual business planning and budgeting activities.

The *Communications and Education Division* provided the communication and information support for core activities. It also became engaged in education to encourage compliance with standards and rules and managed the road safety advertising program.

The *Information Systems and Technology Division* provided the tools and support for systems and technology which delivered the LTSA services. It managed the provision of information, data and systems that allowed staff and agents to carry out their work effectively.

The organizational structure of LTSA and the structure of the related coordination and decision-making hierarchy set out in Figure 3 (and described further in the section on *Coordination)* provided for the delivery of all seven institutional management functions at the country level, under LTSA's leadership and direction.

Bibliography

Injury Prevention Research Unit (2001). University of Otago, IPRU Fact sheet 22, ISSN -1172-8388, 2001.

Ministry of Health (1999). Our health Our Future, MoH, Wellington, 1999.

Eds. Peden M, Scurfield R, Sleet D, Mohan D, Hyder A, Jarawan E and Mathers C (2004). *World Report on Road Traffic Injury Prevention*, World Health Organization, Geneva, 2004.

OECD (2002). *What's the Vision?*, Organization for Economic Co-operation and Development, Paris, 2002.

Aeron-Thomas A, Downing AJ, Jacobs GD, Fletcher JP, Deslby T and DT Silcock (2002). *A review of road safety management and practice. Final report.* Crowthorne, Transport Research Laboratory and Babtie Ross Silcock, 2002 (TRL Report PR/INT216/2002).

Scrafton D, *Transportation Policy in New Zealand and Australia*, in Handbook of Transport Strategy, Policy and Institutions edited by KJ Button and DA Hensher, Elsevier 2005.

MacDonald D, Yew C, Arnold R, Baxter J, Halvorson R, Kassoff H, Meyer M, Philmus K, Price J, Rose D, Walton M and White W, *Transportation performance measures in Australia, Canada, Japan and New Zealand*, US DoT, Federal Highway Administration, December 20.

Land Transport Safety Authority www.ltsa.govt.nz

Land Transport Safety Authority/Ministry of Transport, *Performance Agreement 2004/2005*, Wellington, 2004.

Land Transport Safety Authority, *Statement of Intent 2004/2005*, Wellington, 2004.

Land Transport Safety Authority, *Annual Report for the year ended 30th June 2002*, Wellington, 2003.

Land Transport Safety Authority (2003). *Road safety to 2010*, Wellington.

Land Transport Safety Authority, *Safety Administration Program 2004–2005*, Wellington, 2004.

Land Transport Safety Authority, *Safety Directions*: *Predicting and costing road safety outcomes*, Working Paper 6, Wellington, 2000.

Land Transport Safety Authority, *Safety Directions: Estimated effects of interventions on road safety outcomes to 2010*, Working Paper 7, Wellington, 2000.

Land Transport Safety Authority, *Overall Results of the Crash Reduction Study Safety Improvements*, LTSA, September 2004, Wellington.

National Road Safety Committee, *Road Safety Strategy 2010: A Consultation Document,* October 2000, Land Transport Safety Authority, Wellington.

Petrus R, *The Development of New Zealand's Road Safety Strategy*, Land Transport Safety Authority, Paper presented to the Road Safety Research, Policing and Education Conference, November 2001, Melbourne.

Greenwood W and Denton R, *Developing a safety management system for road authorities*, Land Transport Safety Authority New Zealand http://www.ltsa.govt.nz/roads/sms/conference-paper. html

New Zealand Police, *Road Policing Strategy 2001–2006*, Wellington.

Breen J, Review of the *Road Safety to 2010* strategy. Final report to the National Road Safety Committee, New Zealand, Jeanne Breen Consulting, November, 2004.

Keall MD, Povey LJ, & J Frith W, *The relative effectiveness of a hidden versus a visible speed camera program.* Accid Anal Prev. 2001;33:277–284.

Keall MD, Povey LJ, & J Frith W (2002). *Further results from a trial comparing a hidden speed camera programme with visible camera operation*. Accident Analysis and Prevention, 34, 773–777.

1.2 Road safety organization in Great Britain

National context

KEY FACTS: 2006

Area:	**229,898 km^2**
Population:	**58,846,000**
Kilometers of public road:	**398,350**
Number of licensed motor vehicles:	**33,275,000**
Road deaths per 100,000 of population:	**5.4**
Numbers of deaths:	**3,172**

Source: IRTAD, 2008

Road safety in Great Britain (England, Scotland and Wales) is a shared responsibility at governmental level between national and local government and the European Union (which has key responsibilities in areas such as vehicle safety and driver licensing). The Department for Transport (DfT) is the lead department for road safety in Great Britain. It works with its governmental partners in the Scottish Executive and National Assembly for Wales, the Home Office, the 52 regional police forces, Health Departments, the Health and Safety Executive and the Department for Education and Skills. Private sector, professional safety and user organizations and parliamentary groups are also actively involved in support of national and local road safety strategies.

There is a long tradition of systematic road safety work in Great Britain which started in the mid-1960s against the background of increasing levels of road traffic and associated increases in road deaths and injuries. Crash investigation and prevention units in central government's Regional Offices were set up and the extension of local authority powers to act led to new institutional arrangements locally and also to funding initiatives. Road safety engineering and police enforcement activities continue to be highly decentralized.

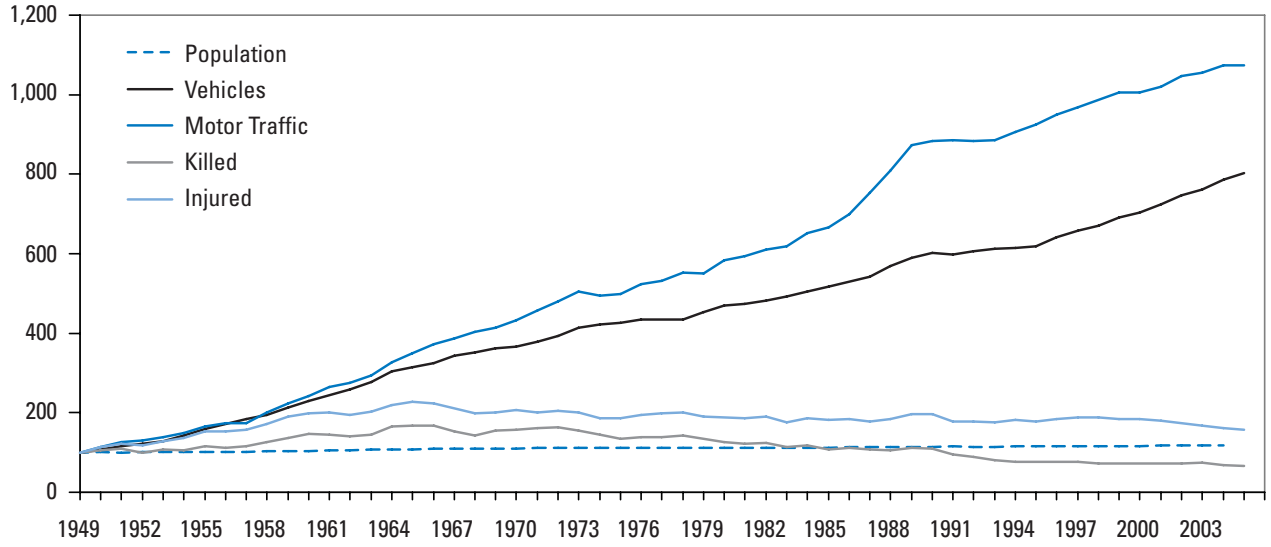
In common with many other high-income countries the late 1980s was a period of organizational change in public service delivery where many governmental functions were transferred to governmental agencies and privatized services. These organizations worked to Public Service Agreement targets and were subject to annual performance assessment. In 1986 *Road Safety: The Next Steps* was Great Britain's first national road safety strategy based on quantitative targets. The current road safety strategy *Tomorrow's Roads: Safer for Everyone* was launched by the Prime Minister in March 2000 within a framework of final outcome targets to 2010 and annual performance assessment.

In recent years road safety has also been integrated increasingly into other government objectives. Road safety is a key objective of the government's transport policy *Transport 2010: the 10 Year Plan* which states that 'people should travel safely and feel secure whether they are on foot or bicycle, in car, on a train, or bus, at sea or on a plane.' Safety has to be integrated with other government objectives for the environment, the economy, accessibility and social integration. The *Saving Lives: A Healthier Nation White Paper* explains how reducing road crashes would help to achieve the government's overall target to reduce accidents from all causes. From 2003 health authorities were expected to work with local authorities over road safety targets and implementation within the context of Health Improvement Programs. The Neighbourhood Road Safety Policy Initiative allocated grants totalling £17.6 million over 3 years to local authorities chosen for funding on the basis of casualty rates and levels of deprivation within their council areas to develop and demonstrate strategies for tackling the special road safety problems of disadvantaged communities.

Great Britain has achieved one of the lowest national per capita road death rates in the world. In 2006, the number killed on Great Britain's roads (3,172) was the lowest since records began in 1926. The long term casualty and traffic trends shown in Figures 1 and 2 indicate a gradual downward trend in deaths since the mid 1960s. Great Britain's road safety record is attributed to a long process of applying a range of engineering, enforcement and education measures cost-effectively, through setting clear targets for casualty reduction and through long-term programs. It has also made a strong contribution to public sector management of vehicle safety and associated casualty reductions through funding vehicle safety research and development work, the initial setting up of the European New Car Assessment Programme and the championing of improvements to vehicle crash protection standards at EU level bringing benefits nationally and internationally.

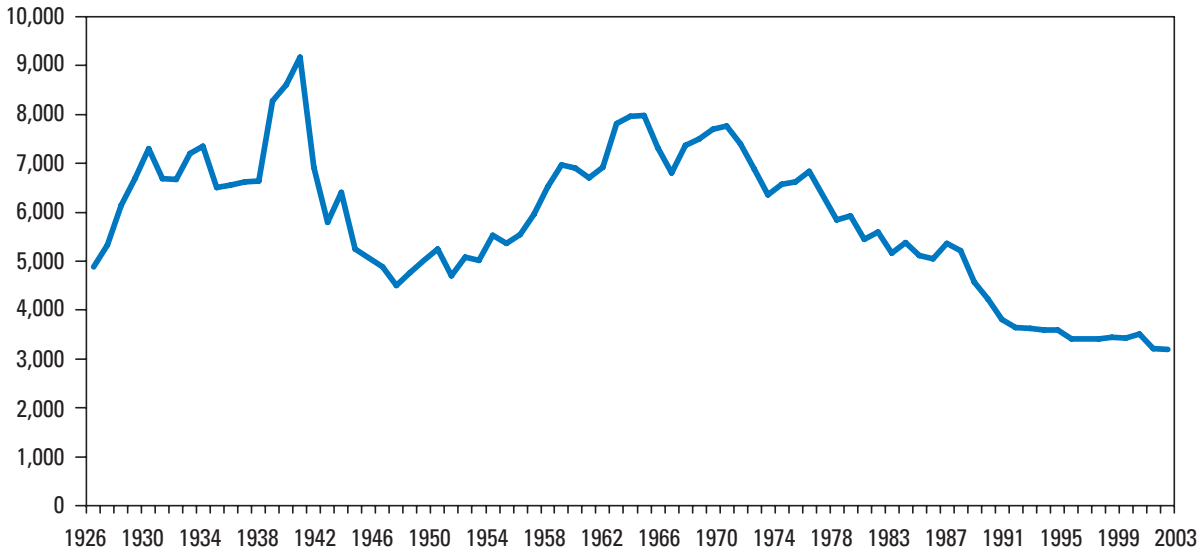
This case study focuses on the country delivery of institutional management functions in Great Britain, the lead agency role and the structures and processes put in place to meet interim quantitative targets.

Figure 1: Great Britain: Indices of population, vehicle stock, motor traffic and casualties: 1949–2005



Source: DfT, 2006

Figure 2: Great Britain: Numbers of road traffic deaths 1926–2003



Source: DfT, 2006

Country delivery of institutional management functions and lead agency role

Results focus

Great Britain has a well-established tradition in country results focus. Leadership responsibilities are well defined and an organizational framework exists for analysing data and safety performance, setting outcome and output targets as the basis for national road safety activity, and defining clear accountabilities for action.

Lead agency

The Department for Transport's (DfT) Roads and Vehicles Directorate is the lead agency for road safety in Great Britain. Reducing transport casualties is one of DfT's five

main objectives. The DfT works to Public Service Agreement targets for road casualty reduction which are the national road safety strategy targets. The DfT's Roads and Vehicle Safety and Standards Directorate has the principal responsibility for the development, delivery and monitoring of the national road safety strategy.

1. Appraising current road safety performance through high-level strategic review

In preparing the first targets in the mid 1980s, an Inter-Departmental Working Group was established to conduct a high-level review of road safety performance and strategic needs.

The DfT's reviews road safety performance in-house and commissions reviews from independent research bodies and experts to monitor progress with the national strategy as well as analyses from its statistical division, responsible for compiling annual police-reported crash statistics. A high-level expert group was set up by DfT in developing the current national strategy for the identification of the most important road casualty problems and solutions throughout the road traffic system on the basis of data analysis, survey and research. The road safety strategy is assessed by the Department every 3 years. Progress can be assessed by the Parliamentary Select Committee on Transport, by the Road Safety Advisory Panel and the new Road Safety Delivery Board (2008).

2. Adopting a far-reaching road safety vision or goal for the longer term

Great Britain has no specific road safety vision for the long term safety of its road traffic system. In recent years the Department for Transport has run its national *THINK!* Campaign, *A Banner for Road Safety in the UK*.

3. Analyzing what could be achieved in the medium term

The Safety Targets and Accident Reduction Steering (STAR) Group was set up by DfT to provide technical support and advice to ministers on the setting of the 2010 targets. It comprised representatives and technical experts from local authorities, the Royal Society for the Prevention of Accidents, the Parliamentary Advisory Council for Transport Safety, the Transport Research Laboratory (TRL), the Department for Transport and its regional offices and individual experts. This group was subsequently replaced by a new Road Safety Advisory Panel—see next section on *Coordination*.

In preparing the 2010 targets, the DfT commissioned background papers on current performance, forecasting and modelling of different scenarios, and made proposals for follow up action. Analyses included surveys of the current safety performance of different aspects of the road system, future trends, analysis of information on the effectiveness of different interventions in achieving road safety outcomes, socio-economic appraisals and the identification of useful implementation tools which were published in working papers.

In-depth consultation on draft proposals was carried out with key government stakeholders as well as more broadly with road safety stakeholders to assess the level of support for different strategy and program options.

4. Setting targets by mutual consent across the road safety partnership

Against the background of changes in general public service delivery, the first national casualty reduction target was set in Great Britain to reduce casualties by one third by 2000 compared with the average for 1981–85. Although the overall target was not achieved due to increasing minor injuries, deaths declined by 39% and serious injuries by 49%. The target process led to an increased profile for road safety, increased resources and more discussion of national and local action.

Following a period of forecasting, research and analysis overseen by the STAR Group, a consultation exercise was launched in 1996 on developing a new strategy and targets. Bottom-up targets were proposed by the DfT, approved by Cabinet and parliament and published within the new safety strategy, *Tomorrow's Roads: Safer for Everyone* in March 2000. A speed policy review paper and background research findings which underpinned the target-setting were published simultaneously.

Targets in the current strategy comprise final outcome targets, although various intermediate outcomes and outputs data are monitored. Compared with baseline outcomes of 1994–98, new targets were set to achieve a 40% reduction in killed and seriously injured casualties, a 50% reduction in children killed and seriously injured and a 10% reduction in the casualty rate for slight injuries per kilometer travelled by 2010. Local authorities set their own targets, consistent with the national targets, in their Local Transport Plans and performance is monitored.

Box 1: Key themes in the British road safety strategy

1. Safer road use for children
2. Safer drivers—training and testing
3. Safer drivers—drink, drugs and drowsiness
4. Safer infrastructure
5. Safer speeds
6. Safer vehicles
7. Safer motorcycling
8. Safer walking, cycling and horse riding
9. Better enforcement of traffic law
10. Promotion of safer road use

The strategy comprises ten themes (see Box 1) with an implementation timetable outlined for each.

Great Britain has also signed up to highly ambitious targets set by the European Union and the European Conference of Ministers of Transport (now International Transport Forum) to reduce deaths by 50% by 2010 in EU countries and ECMT countries.

5. Establishing mechanisms to ensure stakeholder accountability for results

The *Tomorrow's Roads: Safer for Everyone* Strategy and targets were signed off by ministers for the Department for Transport (then the Department of the Environment, Transport and the Regions), for the Scottish Executive and for the National Assembly for Wales.

The DfT is accountable for the delivery of national road safety targets via its Public Service Agreement targets which mirror national targets. A further public service agreement target was set for the DfT for 2005—to reduce casualties in deprived areas of England more rapidly than in Great Britain as a whole. The DfT's Highways Agency also has a specific Public Service Agreement target to reduce road casualties on national roads and has produced a five year road safety plan.

The majority of local authorities have also entered into Local Public Service Agreements with the DfT which specify road safety targets.

DfT Role: Results Focus

- **The Department for Transport's (DfT) Roads and Vehicles and Standards Directorate is the lead agency for road safety in Great Britain.**
- **The DfT has the main responsibility for managing the country results focus and ensuring that system-wide interventions are agreed and implemented by the responsible authorities across government and wider society to achieve the desired results.**
- **The DfT established a results management framework for appraising performance and identifying what could be achieved in the medium term.**
- **The DfT leads the development and delivery of national safety strategies (the current being the *Tomorrow's Roads: Safer for Everyone* strategy). This strategy includes targets for final outcomes to 2010.**
- **The DfT's responsibility for the achievement of national targets is underpinned by an annual performance agreement.**
- **The DfT established Memoranda of Understanding and local agreements with its partners towards implementing the national strategy.**

Coordination

The DfT works in partnership with a wide range of public-sector and private-sector bodies to meet its Public Service Agreement targets for road safety. The nature of the partnerships varies widely, as does the level of direct control or involvement by the Department.

1. Horizontal coordination across central government

Great Britain does not have a national coordination and decision-making body outside Cabinet. It works mainly with annual bilateral and trilateral agreements with other government partners and a national consultative Road Safety Advisory Panel of a broad range of governmental and non-governmental partners and stakeholders. An inter-governmental Road Safety Delivery Board (2008) has been established for the purposes of knowledge transfer and for monitoring progress with targets and strategy implementation.

2. Vertical coordination from central to regional and local levels of government

Road safety engineering and enforcement in Great Britain are highly decentralized and lead agency partnerships with local authorities and police forces are critical to achieving road safety results.

Department for Transport and local authority partnerships. The encouragement of effective local road safety activity has been carried out in a variety of ways—by different funding mechanisms, by encouraging local authorities to adopt national targets, by requiring annual progress reports and by encouraging local multi-sectoral delivery partnerships. As a result of Great Britain's complex, de-

volved crash reporting system, local and central government and the police also work closely to achieve common reporting standards for road crashes and injuries.

In 1974 a legal duty was placed on local authorities to establish systematic programs for identifying high-risk crash sites and developing remedial measures. The legislation also required local authorities to appoint road safety officers who were responsible for developing local education and publicity programs. Aided by the development of national road safety guidelines, multi-disciplinary specialist safety teams grew up in many local authorities to carry out programs of road safety engineering and information work. National best practice guidelines and codes of good practice were produced on the basis of experience with local authority implementation. The lead agency and local authority associations engaged in nationwide promotion of examples of take up of best practice

In the 1980s central and local government agreed that local safety scheme funding should be ring-fenced to ensure that remedial measures addressing high risk sites and areas were given priority (see next section on *Funding and Resource Allocation*). In 2001, the funding system changed with local authorities preferring to bid for a single allocation to address transport needs following the submission of a 5-year Local Transport Plan. Since 2003, local authorities have been required to submit a statement in their annual progress reports showing how they intend to tackle the road casualty problem in deprived areas and to identify annually the number of killed and seriously injured road casualties per 100,000 of population in their area.

Local safety camera partnerships—police, justice, Highways Agency, local authorities. In 1998 government decided to allow local multi-sectoral partnerships, subject to strict Treasury criteria, to recover the costs of speed enforcement. The national project comprised representatives from a wide range of government and professional sectors including the Association of Chief Police Officers, the Home Office, Department for Transport, Lord Chancellor's Department, the Scottish Executive, National Assembly for Wales, Crown Prosecution Service, Her Majesty's Treasury, the Highways Agency, the County Surveyors Society and the Local Government Technical Advisors Group. The core membership of the partnerships included local authorities, Magistrates' courts, the Highways Agency and the police. Some pilot areas also actively involved their local health sector organizations. An example from Lancashire is shown in Box 2.

All but one of the 52 policing authority areas have introduced the safety camera 'netting off scheme' which has led to a 40% reduction in deaths and serious injuries where speed cameras were implemented at high-risk crash sites. Management arrangements for the program have encouraged closer working arrangements between the police, highway authorities and other local stakeholders to im-

Box 2: Lancashire Road Safety Partnership

The Partnership was established in 2001 and comprises the Lancashire Constabulary, Lancashire County Council and the unitary authorities of Blackpool and Blackburn with Darwen. Partners and stakeholders are NHS Trusts, Highways Agency, Government Office North West and the Lancashire Magistrates' Courts.

The Partnership is one of the largest locally based safety camera partnerships in Great Britain, acting also on drink-driving and seat belt use. It maintains a network of almost 300 fixed camera sites and also has 8 mobile camera vehicles, 6 carried by cars and 2 by motorcycles, which can reach less accessible locations. The mobile cameras operate from 74 core sites and a further 72 sites of community concern put forward by the Community Safety Partnerships. The enforcement operation is supported by the Central Ticket Office which automatically processes all offenses recorded by the cameras. The Department for Transport's (DfT) fourth year evaluation report on the National Safety Camera Program shows reductions in Lancashire of 19.8% in personal injury collisions and 24.8% in killed or serious injury collisions at camera sites. The Partnership has drafted a new Service Level Agreement to ensure that camera enforcement remains an integral part of the Road Safety Strategy, guarantee the future funding of this activity within the Partnership and ensure that Partnership resources are utilized in the most effective and efficient manner possible. The enforcement and education undertaken by the Partnership is supported by a robust and effective communication strategy, which promotes road safety through campaigns against speeding and drink driving and promoting the wearing of seat belts in support of the *THINK!* campaigns mounted by the DfT.

http://www.lancashire.gov.uk/environment/ltp/ltp_web/section_ 10661157937.html

prove road safety. The program has also enabled a more consistent, targeted and evidence-based approach to be established for safety camera enforcement. Some partnerships also promote other key actions in the national road safety strategy to achieve results on decreasing speed, increasing seat belt use and deterring excess alcohol use.

3. Specific delivery partnerships between government, non-government, community and business at the central, regional and local levels

Department for Transport, Home Office, the Association of Chief Police Officers. Road safety has not been a core policing priority for several years in Great Britain. Monitoring indicates that numbers of roads policing officers have declined over recent years, a smaller proportion of resources has been dedicated towards roads policing, and there has been less priority at both national and local levels and a progressive shedding of roads policing tasks to other groups and agencies (PACTS, 2005). A 20% decline in breath testing in England and Wales took place between 1998–2003 with marked increases in the percentage of positive breath tests.

Police forces in Great Britain are required to identify annually the number of killed and seriously injured casualties per 100,000 of population in their area, although there is no annual public service agreement target with the Home Office for road safety and roads policing. However, the national roads policing strategy (2005–2008) was created as a tri-partite annual policy agreement for road safety outputs and agreed between the Association of Chief Police Officers, the Department for Transport and the Home Office (11.1. 2005) with 'reducing road casualties' cited as one of 5 actions to deliver:

- continued operation of the National Safety Camera Program, dealing with road sites and traffic light junctions with a known history of collisions and casualties;
- a national police Drink and Drug Driving campaign, to ensure that people are deterred from this activity by significantly increased risk of detection;
- a national police seat belt campaign, to increase the level of seat belt wearing, especially by rear-seat passengers and children;
- a highly visible police presence on the roads.

Departments for Transport; Education and Skills; and Health have worked in partnership to find ways of reversing the rapid rise in the number of children travelling to school by car, to improve child road safety, and to highlight the links between sustainable travel and health.

Department for Transport and the Health and Safety Executive. In 2004 in partnership with the Health and Safety Executive, guidance to employers on work-related road safety was published. The Task Force on Work Related Road Safety (reporting jointly to ministers and the Health and Safety Commission) existed to produce a Work-Related Road Safety Strategy.

The *Road Safety Delivery Board* was set up in 2008 to improve the delivery of targets amongst the governmental partners but 'without a role in discussing or formulating policy or strategy.' The aims are to identify the best performers, how they achieve their results, how these can be exported to others; identifying problems and obstacles, driving through the solutions and making connections between agencies and fostering better partnership working. The Board also has an oversight function, in respect of casualty reduction. The core membership of the Board brings together senior management from the DfT, Police, Home Office, Highways Agency, Local Authorities, the Fire and Rescue Service, the Driving Standards Agency and devolved administrations in Scotland and Wales.

The *Road Safety Advisory Panel* at national level brings together 32 organizations and acts as a forum for national consultation with other governmental partners and key stakeholders (see Box 3). Its role is to provide advice to ministers on road safety policies and to advise on the three-yearly reviews of progress towards the casualty reduction targets. The Road Safety Advisory Panel meets around 3 times a year. Various sub-groups have been established to provide technical support.

European governmental coordination and partnerships

The *High Level Group on Road Safety* established by the European Commission brings together the heads of road safety for all the member states of the European Union to provide a consultative and coordinating body for EU road safety policy. It meets 2–3 times annually. The DfT played a key role in the establishment and is a member of the *European New Car Assessment Programme* and the *European Road Assessment Programme* which help to improve vehicle and road network safety respectively as well as providing key monitoring data on car industry and road highway engineering performance nationally. Great Britain is a member of the European Conference of Ministers of Transport (now International Transport Forum) and also participates in various EU and UN ECE decision-making bodies on vehicle standards and agreements.

Box 3: Road Safety Advisory Panel Membership

Advisory Group for Motorcycling
Association of British Insurers
Association of Chief Police Officers
AA Motoring Trust
Brake
Child Accident Prevention Trust
Convention of Scottish Local Authorities
County Surveyors' Society
Cyclists Touring Club
Department for Education and Skills
Department of Health
Department for Transport
Disabled Persons Transport Advisory Committee
Driving Standards Agency
Freight Transport Association
Health and Safety Executive
Highways Agency
Home Office
Living Streets
Local Authority Road Safety Officers Association
Local Government Association
Motor Schools Association
National Assembly for Wales
Parliamentary Advisory Council for Transport Safety
RAC Foundation
Royal Society for the Prevention of Accidents
Scottish Executive
Society of Motor Manufacturers & Traders
Trades Union Congress
TRL Ltd (Transport Research Laboratory)
University College London (CTS)
Welsh Local Government Association

Non-governmental organization engagement

Great Britain has an active non-governmental sector in the road safety field which is encouraged and supported in different ways by the Department for Transport. This sector contributes to most of the country institutional management functions.

The Parliamentary Advisory Council for Transport Safety provides evidence-based advice on the safety of the road traffic system to parliamentarians of all parties and encourages action to meet targets. BRAKE is a national road safety charity which promotes road safety and the welfare of road crash victims, as does Road Peace. The Royal Society for the Prevention of Accidents covers all types of accidents and plays an active role in developing advice on work-related road safety. The Local Authorities Road Safety Officers Association (LARSOA) promotes the road safety interest and activity of local authorities. The Slower Speeds initiative embraces environmental and safety concerns in pressing for speed reduction. The Institute for Advanced Motorists (IAM) provides higher-level training and assessment for experienced drivers. Road Safe brings together companies in the motor and transport industries in Great Britain with representatives from government and road safety professionals.

Other NGOs represent the interests of user groups such as pedestrians (Living Streets), motorcyclists (British Motorcyclists Federation), motorists (the AA and RAC) and in the private sector, freight transport (the Freight Transport Association and the Road Haulage Association). The AA was a founder member of the European Road Assessment Programme and the RAC was a prime supporter of the development of the European New Car Assessment Programme of which the FIA, the international body to which RAC is an affiliate, is a member.

Business sector engagement

Over the last thirty years the lead agency in Great Britain has actively encouraged business sector support and activity for road safety. Some activities such as driver training are carried out by the private sector within the framework of government legislation. The DfT includes trade associations such as the car manufacturing industry on the Road Safety Advisory Panel. Support from a wide range of companies and sectors for the national road safety strategy is encouraged by the national *THINK!* campaign.

Health and safety legislation, guidance and national strategies have also been the means by which the DfT together with the Health and Safety Executive have encouraged employers to focus on work-related road safety.

Encouraged by the lead agency the business sector has also supported the research sector. For example, the *UK Co-operative Crash Injury Study (CCIS)* commenced in 1983 and is an ongoing program of research to conduct in-depth investigations into real world car crashes (see *Research and development and knowledge transfer* section). The aim of the study is to provide government and industry with crash injury data that will assist in the development of regulations and improvements in secondary

safety design features to help mitigate injuries to car occupants and other road users. Some 1,600 vehicles are examined each year by teams from the Vehicle Safety Research Centre at Loughborough, Birmingham Automotive Safety Centre and the Vehicle Inspectorate Executive Agency. The data are collected to similar protocols and are combined for analyses. CCIS is managed by TRL Limited, on behalf of the DfT (Vehicle Standards and Engineering Division) who fund the project with Autoliv, Ford Motor Company and Toyota Motor Europe. *Source: http://www.lboro.ac.uk/research/esri/vsrc/research/ccis.htm.*

4. Parliamentary relations at central, regional and local levels

As in the Australian States, Sweden and The Netherlands, strong parliamentary interest and support for road safety has been a key factor in achieving progress in road safety in Great Britain. Since the 1980s, the DfT has developed close working relationships with parliamentary organizations and groups.

The Select Committee on Transport is an all-party parliamentary committee which scrutinizes government policy on transport and publishes reports requiring government response. It has taken a keen interest in road safety matters and played a key role in supporting interventions against some hostile media reporting of the national policy on speed cameras.

The All-Party Parliamentary Group on Road Safety discusses and promotes action to stop death and injury on roads and action to ensure appropriate care and support is provided for people bereaved and injured in road crashes. The national charity, BRAKE, provides administrative support.

The Parliamentary Advisory Council for Transport Safety (PACTS) is an Associate Parliamentary Group, registered charity and a company limited by guarantee (see Box 4). Its charitable objective is 'To promote transport safety legislation to protect human life.' Its aim is to advise and inform members of the House of Commons and of the House of Lords on air, rail and road safety issues. It brings together safety professionals and legislators to identify research-based solutions to transport safety problems having regard to cost, effectiveness, achievability and acceptability.

DfT Role: Coordination

- **Great Britain does not have a national coordinating decision-making body outside Cabinet but DfT establishes bi-**

Box 4: Parliamentary Advisory Council for Transport Safety (PACTS)

The Parliamentary Advisory Council for Transport Safety (PACTS) came together in 1981 in Great Britain around efforts to introduce the compulsory wearing of seat belts in cars. Here, a coalition of medical, research, police, motoring, and insurance organizations and interested parliamentarians from all political parties advocated and, eventually through private members' legislation, introduced compulsory front seat belt use. Although this was generally supported by the majority of professionals and organizations, there was resistance from different quarters on the grounds of civil liberties. However, the marrying of political and technical expertise turned out to be a successful formula.

Aims: PACTS has four functions:

- It provides an independent technical advisory service for parliamentarians on transport safety matters.
- It lobbies and persuades, identifying and promoting research-based solutions to transport safety issues through parliamentary access and contacts.
- It promotes wider publicity and information on safety through conferences, seminars, lectures and website
- It responds to government, parliamentary and public proposals for safety improvements.

Structure: The combination of a registered charity and a company limited by guarantee means that the directors carry the overall legal and financial responsibility for the running of the organization. The Board of Directors comprises politicians, academics, retired public and private sector leaders and consultants. In addition, the development of policy is assisted by the Advisory Committee, meeting three times a year, usually in the House of Commons, attendance at which is open to all members of PACTS. This committee is also served by a number of technical working parties, determined annually. Membership of these working parties is by invitation and is intended to reflect the overall balance of expertise and interest within the organization. PACTS' annual income of around £230,000 (2008) is from membership subscriptions, sponsorship, event income and research funding. The secretariat comprises 3 members of staff.

lateral and trilateral agreements with other government partners in implementing the national safety strategy and monitors targets and encourages developments through its inter-departmental Road Safety Delivery Board.

- **The DfT encourages local authorities to adopt national targets, requires annual progress reports and encourages local multi-sectoral delivery partnerships.**
- **The DfT established a national Road Safety Advisory Panel with a broad range of stakeholders (including the NGO and business sectors) to consult on road safety and the three-yearly reviews of progress towards safety targets.**
- **The DfT also engages regularly with parliamentary committees and groups. European Union road safety coordination is pursued within the European's Commission's High level Group on Road Safety and other committees.**

Legislation

1. Reviewing the scope of the legislative framework periodically

Great Britain has a robust legislative framework for road safety (although it is often noted that its national blood alcohol level is higher than the global good practice identified by the World Health Organization and there are no random breath testing powers to deter drinking and driving). Examples are set out in Box 5.

In Great Britain, legislative needs are considered in developing options for the national strategy. The development of a legislative proposal usually involves examination of different alternatives as well as a regulatory impact assessment and assessment of socio-economic costs and benefits. This assessment considers best estimates of the costs (particularly to local authorities and business) and benefits (to society) of the proposed measure which is published as part of the legislative proposal.

General reviews of road traffic law are carried out from time to time as indicated in the examples in Box 6.

2. Developing legislation needed for the road safety strategy

When a need is identified road safety legislation is prepared by DfT officials including legal experts and presented to parliament in the form of a bill. The DfT's legal section comprises around 30 people of whom 20 deal with road and vehicle matters. It provides services to other sections according to need. Typically a team is set up comprising 3–4 policy experts from the road safety department and one or two legal experts when road safety legislation is being prepared and executed. An impact assessment statement of the costs and benefits of the provision to business and other levels of government is made routinely

Box 5: Examples of legislative measures in Great Britain over 40 years

1967 Introduction of 0.08% blood alcohol limit
1970 Mandatory HGV driving test and registration of driving instructors
1973 Mandatory crash helmet use for motorcycle and moped riders
1978 Maximum 60 and 70 mph limits are made permanent
1982 Two part motorcycle test introduced and provisional license restricted to 2 years
1983 Mandatory front seat belt use in cars and light vans
Learner motorcyclists restricted to vehicles of up to 125 cc
Evidential breath testing
1987 All new cars required to be fitted with rear seat belts
1988 Rear seat belt wearing for children
1990 Compulsory basic training for motorcyclists
1991 High risk drink/driver offender scheme with 0.2% limit
1992 Safety audit becomes mandatory on trunk roads and motorways
Rear seat belt wearing compulsory for adults
Introduction of 20 mph zones
1993 All new goods vehicles over 7.5 ton fitted with 60 mph limiters
1996 Introduction of the driving theory test
1997 Fitting of seat belts to buses and coaches carrying children
2002 Introduction of hazard perception test into driving theory test
2003 Ban on the use of handheld phones in cars
2004 Power to test for drugs at the roadside
2006 Experimental scheme for alcohol interlocks for high risk excess alcohol offenders
2006 High-risk excess alcohol offenders to re-take driving test

Box 6: Reviewing road safety law in Great Britain

Following the Road Traffic Law Review (commonly known as the North Report, Department of Transport and Home Office, 1988) which comprised representatives of the lead agency (DfT), the Home Office and independent experts, a number of legislative changes were made, reflecting concerns about the way in which motoring offenses were dealt with by the criminal justice system. One important recommendation and subsequent legislative provision for road safety strategy was the introduction of the use of camera technology in traffic law enforcement.

In 2004 the government published the first three year review of the strategy *Tomorrow's Roads—Safer for Everyone,* The Road Safety Act 2006 gave effect to several elements of the government's strategy towards achieving the casualty reduction targets.

and published within the format of the bill. Consultation with stakeholders is conducted at an early stage.

The Highway Code is also updated from time to time, as are vehicle and driving standards adapting to technical progress.

Legislative pilots have also been used to trial controversial legislation and also to save parliamentary time whereby an experimental period of legislation can pass into permanent law at the decision of the Minister of Transport. Legislation for the Drink Drive Rehabilitation Scheme for alcohol offenders was introduced in this way.

3. Consolidating legislation

Road safety legislation in Great Britain has developed over a long period of time. Major enactments were the Road Traffic Act 1988, the Road Traffic Offenders Act 1988, the Road Traffic Act 1991 and the Road Safety Action 2006. Legislation has also been developed within other policy frameworks dealing with wider transport and police matters.

For example, the main purpose of the Road Traffic Act 1988 was to consolidate and replace earlier road traffic legislation in the overall interest of improving road safety. This introduced regulation from a wide range of road traffic issues, including driving standards, the construction and use of vehicles and driver licensing and instruction. A considerable number of statutory instruments have been made under the Act since it came into force. A consolidated version of the Act was available online and included details of all the secondary legislation made under each provision of the Act.

4. Finding legislative slots in government and parliamentary programs

Opportunities have arisen to introduce road safety measures in policing, education and health frameworks when parliamentary time is not made available for road traffic or transport measures. For example, the 2004 Road Safety Bill was not enacted due to the calling of a general election, but key measures were enacted through amendments to a Justice Bill which was enacted. In addition the introduction of private members legislation and all-party parliamentary amendments to government bills have provided useful routes for the introduction of legislative measures such as compulsory front seat belt wearing, rear seat belt wearing for children and legislation providing for road humps.

DfT Role: Legislation

- **The DfT has established an in-house capacity to set and update vehicle, roads and user rules and standards (some of which are agreed at EU level, with inspection and compliance carried out by departmental agencies and the police) and to provide related policy advice.**
- **The DfT establishes small in-house rules teams involving policy and legal experts in developing and consolidating major primary legislation.**
- **The DfT carries out impact assessments and consults widely on proposals for legislative change.**
- **The DfT uses a variety of means to find parliamentary slots, where necessary, for road safety legislation.**

Funding and resource allocation

1. Ensuring sustainable funding sources

Road safety funding in Great Britain is allocated annually from general tax revenues under an annual performance agreement to the DfT. The Department for Transport allocates resource to the Highways Agency and local authorities to carry out road safety work through Local Transport Plans which they are legally required to produce. Road safety engineering on local roads is financed by central government Capital Funds that are bid for by local authorities. In the 1980s safety scheme funding was ring-fenced

such that it was used only for safety schemes which proved to be a highly successful method of encouraging activity. Annual funding rose rapidly and by 1997, comprised 6 times the amounts recorded in 1982 (Koornstra et al, 2002).

Funding to police is allocated through the Home Office, to schools' policies through the Department for Education, to the health sector via the Department of Health and to the Health and Safety Executive via the Department for Work and Pensions. Hospitals can claim back road injury treatment costs from insurance companies. Apart from DfT funding, it is not possible to isolate levels of other government departmental funding allocated to safety related work.

Other sources of funding include a cost-recovery system for safety cameras, small grants and private sector funding for promotional activity, projects and non-governmental organization activity (see Boxes 7–9). Large demonstration project programs have provided an additional mechanism for funding road safety and to provide a showcase for innovative approaches (see *Research and development and knowledge transfer* section).

2. Establishing procedures to guide allocation of resources across safety programs

Great Britain has a long tradition in assessing the costs and benefits of road projects and road safety interventions in the funding of national and local road safety. As shown in Box 10 for the year 2003, Great Britain updates its estimates annually of the value of preventing road traffic death and injury and property damage for national cost benefit analysis activity and publishes the results. As in New Zealand, good practice willingness to pay methods for the valuation of what is termed a statistical life are used. This process allows a strong business case to be made to secure funding for road safety projects and programs and allows road safety to be weighted against other costed elements (e.g., reduction in travel time).

Box 7: A cost-recovery partnership for safety cameras in Great Britain

In 1999, a national board was set up to oversee the introduction and operation of a program which allowed the recovery of costs of operating speed and red-light cameras (safety cameras) from fines resulting from enforcement. This included representatives from the Association of Chief Police Officers (ACPO), the Home Office, the Department for Transport, the then Lord Chancellor's Department (now the Department for Constitutional Affairs), the Scottish Executive, the National Assembly for Wales, the Crown Prosecution Service (CPS), Her Majesty's Treasury (HMT), the Highways Agency (HA), the County Surveyors Society (CSS) and the Local Government Technical Advisors Group (TAG). In 2000, the system was piloted in eight areas and results from the first year were so encouraging that the government introduced legislation to extend the system nationally. In order to operate the safety camera cost recovery program, each area was required to form a local partnership and submit an operational case to the national program board. Local partnerships included local authorities, Magistrates' Courts, the Highways Agency and police. Some actively involved their local NHS Trusts. A total of 24 areas operated within the program over the first 3 years (2000 to 2003) and the independent evaluation showed:

- **Reduced vehicle speeds and a decrease in deaths and injuries.** Overall, the proportion of vehicles speeding excessively (i.e., 15 mph more than the speed limit) fell by 80% at fixed camera sites, and 28% at mobile camera sites. After allowing for the long-term trend there was a 33% reduction in personal injury collisions at sites where cameras were introduced. 40% fewer people were killed or seriously injured.
- **A positive benefit-cost ratio of around 4:1.** In the third year, the program had released around £54 million per annum (in England, Wales and Scotland) for local partnerships to invest in safety camera enforcement and supporting education. Prior to cost recovery, fines accrued wholly to the HMT Consolidated Fund. In the third year, societal benefits, in terms of the value of casualties saved, were estimated to be around £221 million per annum.
- **Public support for the use of safety cameras** for targeted enforcement. This was evidenced by public attitude surveys, both locally and at a national level.

All 24 partnerships have had their accounts independently audited to ensure that funds were being used in accordance with the strict government rules under which the safety camera program operated. The management arrangements for the program have encouraged closer working arrangements between the police, highway authorities and other local stakeholders to improve road safety. The program has also enabled a more consistent, targeted and evidence-based approach to be established for safety camera enforcement.

DfT Role: Funding and Resource Allocation

- **The DfT ensures sustainable annual funding for road safety from general tax revenues which it distributes to its agencies through annual agreements and local transport plans. Other sources of funding include a cost-recovery system for safety cameras, small grants and private sector funding for promotion, projects and non-governmental organization activity.**
- **The DfT has used ring-fenced funding to encourage local road safety activity.**
- **The DfT carries out annual in-house review of the value of preventing road traffic deaths and serious injuries to allow a strong business case to be made for expenditure on road safety.**
- **DfT provides in-house lead agency capacity to evaluate safety costs and benefits, program funding and related business cases.**

Box 8: Road safety small grants in Great Britain

Section 40 of the Road Traffic Act 1988, gives the Department for Transport the power to have a Challenge Fund to assist with the cost of projects promoting road safety proposed by organizations other than local authorities. Grants are not payable to individuals. Grants made from the fund may finance the reasonable costs of staff and overheads, which are directly and transparently associated with the delivery of that project. These costs are additional to regular running costs. The government allocates around £200,000 per annum to the Challenge Fund: individual grants are expected to be for sums up to £20,000. Grant funding is for not for profit projects which support Great Britain's road safety strategy and casualty reduction targets for 2010. The Road Safety Act 2006 brought local authorities into the framework.

Source: www.dft.gov.uk[4]

Promotion

1. Promoting the far-reaching road safety vision or goal

Great Britain does not work with any specific road safety vision for the long-term safety of its road traffic system.

2. Championing and promotion at a high level

Champions of road safety strategies and specific interventions have included high profile government ministers and celebrities. The current national road safety strategy was launched by the Prime Minister. The promotion of anti-drink driving by a high-profile Transport Minister contributed to a hardening of public attitudes to excess alcohol and calls for further measures.

3. Multi-sectoral promotion of effective intervention and shared responsibility

Road safety promotion at national and local levels has been a key priority for many years mainly focused on specific themes of the road safety strategy.

In recent years the Department for Transport has run its national *THINK!* Campaign, *A Banner for Road Safety in the UK*. This is part of an overall campaign to improve awareness of road safety, to increase acceptance of measures and

Box 9: Examples of policing/private sector funding partnerships in Great Britain

Target 2000 Strategy—Leicestershire
After Leicestershire Constabulary developed a Target 2000 casualty reduction strategy, Barclays Bank provided a bank manager for 13 months to coordinate the strategy. With the different management skills and a new perspective on the work, the manager's responsibilities were to build partnerships with outside agencies as well as collate accident data, develop action plans, establish working parties and produce management information.

Royal Sun Alliance and Police
Royal and Sun Alliance has worked with the Association of Chief Police Officers in publicizing the National Roads Policy Strategy. The partnership began in 1997 with a national campaign to raise awareness of correctly positioning vehicle head restraints, given that research by the Central Motorway Police Group had shown that 95% of car occupants had incorrectly positioned restraints.

Norfolk Police
When speeding was identified as an important problem in a small village, the Norfolk Police joined forces with the large company to reduce the motor vehicle speed of its employees. The company provided a Pro-Laser speed device to use at high risk locations and the police visited the company and talked about safer driving.

Box 10: The value of preventing road traffic deaths, casualties and crashes in Great Britain

In 2003, 3,247 fatal crashes, 28,913 serious crashes and 181,870 slight crashes were reported. In cost-benefit terms the value of prevention of these 214,030 injury crashes is estimated to have been £13,083 million in 2003 prices and values. In addition, there were an estimated 3.2 million damage-only crashes valued at a further £5,011 million. The total value of prevention of all road crashes in 2003 was therefore estimated to have been £18,094 million.

The values for the prevention of fatal, serious and slight casualties include the following elements of cost:

- loss of output due to injury. This is calculated as the present value of the expected loss of earnings plus any non-wage payments (national insurance contributions, etc.) paid by the employer.
- ambulance costs and the costs of hospital treatment.
- human costs, based on willingness to pay values, which represent pain, grief and suffering to the casualty, relatives and friends, and, for fatal casualties, the intrinsic loss of enjoyment of life over and above the consumption of goods and services.

For non-injury crashes the cost elements are the cost of damage to vehicles and property and costs of police and the administrative costs of crash insurance.

to unite various road safety messages. The Dft sees *THINK*! as building a road safety ethos and a rallying point for all those involved in taking safety forward (see Box 11).

The Department for Transport website states that promotional campaigns alone are not a panacea, nor is their effect immediate, but they can, over time, change social attitudes to risk. A long-term commitment to government-led promotion has helped help to change attitudes necessary to implement the effective interventions needed to meet road safety and more general transport targets.

4. Leading by example with in-house road safety policies

No notable organizational examples were found.

5. Developing and supporting safety rating programs and the publication of their results

Noting that vehicle safety improvements offered the largest single means of reducing casualties in the national strategy, the DfT has played a major role in the establishment and continued development of the European New Car Assessment Programme. The program is a major promotional tool as well as evaluation tool for vehicle safety. The DfT has also played a key role in the establishment of the European Road Assessment Programme (see *Monitoring and Evaluation* section).

6. Carrying out national advertising

The annual budget for DfT national advertising around the *THINK!* Campaign is around £14 million and this activity is contracted out. A range of media channels—TV, radio, press, posters, ambient, etc.—are utilized to provide a national platform to stimulate complementary regional and local authority activity and to encourage private sector companies to cascade messages to their employees and customers. A range of free publicity material is made available to local authorities and others to promote consistency of messages at national and local level. Sports sponsorship with the Rugby Football League and the English Football League is conducted to communicate messages across to a wider audience using a celebrity-based approach.

Box 11: Aims of *THINK!*

- Ensure that there is a high profile for road safety as a matter for general concern
- Complement police and local authority activities
- Encourage broader support from private sector partners
- Get across specific messages to target audiences
- Generate media interest in road safety issues; and does this by
- Involving a broad spectrum of society in promoting safer roads for everyone
- Encouraging and reinforcing attitudes that lead to safer and more considerate behavior by all road users
- Promoting understanding of the need for better road safety behavior
- Contributing to the general aim of reducing road casualties and meeting the casualty targets for year 2010

DfT, 2006

A calendar of publicity events is published and close coordination is carried out locally amongst several stakehold-

ers. The effectiveness of the road safety campaign is monitored continuously by market research surveys.

7. Encouraging promotion at the local level

The DfT has supported publicity and information at the local level over many years and most recently within the context of the *THINK!* campaign. The development and support of Local Safety Partnerships by DfT and its partners has been a major contributor to local casualty reduction effort in support of the national strategy.

DfT Role: Promotion

- **The DfT promotes the shared responsibility for delivery of the road safety strategy and specific strategic themes at national and local levels under the umbrella of the *THINK!* campaign.**
- **The Prime Minister and DfT and other key partner ministers play a key role in launching and promoting road safety strategies.**
- **The DfT contracts out targeted road safety advertising and monitoring in support of the major themes of the national road safety strategy and a calendar of events is maintained.**
- **The DfT played a major role in establishing safety rating programs which promote various aspects of the strategy.**
- **The DfT supports community partnerships which promote aspects of the national strategy at local level.**

Monitoring and evaluation

1. Establishing data systems to set and monitor final and intermediate outcome and output targets

Great Britain has established a wide range of final and intermediate outcome data and exposure data collection arrangements to inform its final outcome target-setting process and to establish and evaluate its road safety programs.

Box 12: The Driver and Vehicle Licensing Agency (DVLA)

The DVLA is an Executive Agency of the Department for Transport (DfT). Through agreed targets, the Agency is accountable to the Secretary of State and ministers and, through them, to parliament and the public, for efficient and effective management of the Agency and its responsibilities.

The primary aims are to maximise the Agency's contribution to improving road safety, reducing crime, improving the environment and the public's experience of government services through the efficient provision of our statutory core activities of driver and vehicle registration.

DVLA, 2006

Exposure data. Vehicle and transport registries sit within an agency within the Department for Transport (see Box 12 on DVLA).

The DfT also carries out the *National Travel Survey* periodically to collect exposure data on road user travel and trips (see Box 13).

Final outcome data

National police reporting system. The STATS19 system is a national police crash reporting system and results are monitored and reported annually in *Road Accidents Great Britain: the Casualty Report*. Police data are forwarded routinely to the DfT and to local authorities. The DfT, local

Box 13: National Travel Survey, Great Britain

Why is the survey carried out?

The National Travel Survey (NTS) is a continuous survey on personal travel. It provides the Department for Transport with data to answer a variety of policy and transport research questions. The survey has been running on an ad hoc basis since 1965 and continuously since 1988. It comprises a face to face interview and 1 week diary of 5,796 respondents with a response rate of 65%.

How is the survey done?

The annual sample size is set at 5,796 private addresses in Great Britain (from the year 2000). The addresses are drawn from the Postcode Address File (a comprehensive list of all delivery points—postal addresses—in Great Britain). A distinctive feature of the NTS is a travel diary which all sampled household members keep for seven consecutive days. The survey switched to computer assisted interviewing (CAI) in 1994 for the main interview. Respondents continue to complete a paper travel diary which the interviewers then input into a specially written program that checks the data. The government statistical service conducts all processes up to the production of a fully edited data file and the publication of an annual technical report.

http://www.statistics.gov.uk/ssd/surveys/national_travel_survey.asp

authorities and the police work closely to achieve common reporting standards for road crashes and injuries.

Health sector data systems. The health sector has a system on road crash injury reporting. Linkage studies between health and police data are made from time to time by the lead agency to ascertain levels of under-reporting in the national police reported database.

Justice sector data. A coroners' study to ascertain levels of excess alcohol in fatally injured drivers and riders is carried out annually. Coroners' data are also used to supplement injury information and crash injury mechanisms in-depth crash investigations.

Intermediate outcome data

Periodic seat belt use, random breath testing and speed surveys in normal traffic are carried out for research purposes. As shown in Box 15, the DfT also established measurement of the safety quality of vehicles.

In-depth monitoring

The lead agency is one of the partners in a co-operative crash injury study (CCIS) which provides in-depth crash investigation of serious and fatal car crashes. Analysis of CCIS database allows monitoring of vehicle safety standards and provides objective information on vehicle safety priorities and the need for adaptation to technical progress.

2. Transparent review of the national road safety strategy in terms of results, interventions and institutional management functions

The road safety strategy is assessed by the Department every 3 years using external research organizations and reports are published on the DfT website. The first review was published in April 2004 and the second review began in 2006. Cost-benefit studies are an integral part of national evaluation. Progress is also assessed by the Parliamentary Select Committee on Transport, the Road Safety Advisory Panel and the Road Safety Delivery Board.

Local authority road safety activity. The road safety activity of local authorities is presented in the Local Transport Plan. As part of the Comprehensive Performance Assessment scheme, Best Value Performance Indicators have been set by Central Government in order to ensure that local authorities can demonstrate they are improving services. One indicator requires the annual calculation of the number of road accident casualties per 100,000 of population broken down by casualty and road user type. In addition, local authorities can set their own local performance indicators and many of these were set relating to speed reductions, child casualties, accident involvement of young and old drivers and accidents in relation to distance travelled. Each year a Best Value Performance Plan has to be submitted reporting on these indicators.

Box 14: Lead agency management of the national road crash injury database in Great Britain

The Department for Transport set up the Standing Committee on Road Accident Statistics (SCRAS) in 1977 to oversee the process for road accident data collection within the STATS19 system. It was given the following terms of reference:

- to consider problems arising in the collection of data on road accidents and make recommendations
- to disseminate information on techniques and procedures developed in connection with the system of accident reporting
- to consider any amendments to the system that may be required and make recommendations at the time of the quinquennial review

The Committee has continued to steer the process of accident data collection since then—particularly dealing with the quinquennial reviews of the survey. The membership of the committee is drawn from a wide range of bodies and includes representatives of central government, local government and the police. The committee is chaired by the Department for Transport which also provides its secretariat.

Department for Transport, 2006

Box 15: DfT development and support of the New Car Assessment Program

The DfT prepared the way for the establishment of the European New Car Assessment Programme (EuroNCAP) by setting up an a national program of crash testing. In EuroNCAP, new car crash safety is assessed according to a scale with the highest rating at 5 stars. DfT funded preparatory crash testing research as well as addressing initially strong criticism from the car industry conducted in the media. The data allows monitoring of national fleet safety quality as well as providing encouragement to the car industry to adapt more quickly to technical progress for particular models than it might through legislation across the board.

Police activity. There are different approaches to road policing by the 52 forces both in terms of policy and the way in which officers are deployed. Some forces operate centralized traffic units, others have Basic Command Units responsible for all policing activity, including roads policing, in a defined geographical area. The Home Secretary has ultimate responsibility for policing and police performance which is regulated and assessed through a system of audit and inspection. Currently the Home Office measures police performance against road casualties per 100,000 population. This is the only performance indicator that relates to road policing and has to be included in local policing plans to allow trend analysis and comparisons to be drawn between forces. The police are also required to develop simple and practical indicators of success which can be used locally and which can be reported to the local police authorities. Indicators may include the percentage of breath tests following collisions which show positive, data from speed monitoring devices such as those at safety camera sites and data on observed levels of compliance of seat belt use. Local opinion polling is carried out to monitor how safe and secure people feel on the roads.

3. Making any necessary adjustments to interventions and institutional ouptuts needed to achieve the desired results

Results of monitoring are fed into strategy review (see *Results Focus*).

DfT Role: Monitoring and Evaluation

- **The DfT is responsible for monitoring the road safety strategy assisted by external research organizations, its Road Safety Delivery Board and the Road Safety Advisory Panel. Reviews of the strategy are carried out every 3 years and are published.**
- **The DfT has established databases to identify and monitor final outcomes against targets and carries out surveys to establish travel patterns, vehicle use and intermediate outcomes.**
- **The DfT monitors local authority road safety performance indicators.**
- **The DfT agencies manage computerized vehicle and driver registries; DfT statistical units and committees oversee the national crash data system and periodic studies establish under-reporting.**
- **The DfT played a major role in establishing the European New Car Assessment Programme to assist monitoring of vehicle fleet safety. Its Highway Agency is a member of the European Road Assessment Programme which monitors aspects of road network quality.**
- **The DfT supports in-depth study of crashes to monitor vehicle safety performance.**

Research and knowledge transfer

1. Developing capacity for multi-disciplinary research and knowledge transfer

Road safety research and development has underpinned road safety policymaking in Great Britain for several decades. A broad-based annual research program focuses on identification of problems, analysis of causative factors, development and trial of interventions and monitoring and evaluation of implemented policy. The last two strategies and sets of targets were developed following a process of analysis, consultation and statistical forecasting. Policy proposals took account of research findings and recommendations for targets were based on detailed analysis of past casualty trends, impact of major policies and assumptions about the effects of future policies.

Until 1990 Department of Transport research was carried out or managed by the Transport Research Laboratory, which has now been privatised (TRL Ltd). Competitive tenders are now sought from a wide range of contractors. Over the last 15 years, a team of experienced researchers has carried out in-house program formulation and management. A substantial amount of multi-disciplinary road safety research is carried out by university departments, research institutes, non-governmental organizations and consulting firms.

2. Creating a national road safety research strategy and annual program

An external advisory panel on road safety research brings together independent experts to assist the Department with identifying program priorities (see Box 16). The DfT external advisory panels on road user safety research and transport, technology and research panels comprise members of different government departments, representatives of local and regional government, professional organizations, industry and independent road safety experts. In addition, the Advisory Group on Driver Training and Testing discusses research in that area and also covers policy matters. Details of the program and results are published annually.

Box 16: Road safety research program in Great Britain 2006/7

The strategy provides an overview of current evidence and research activities that are planned or already underway in the Road and Vehicle Safety and Standards and Roads: Performance and Strategy Directorates of the Department for Transport (DfT).

The road safety research program directly addresses the Departmental objective: 'Keep on track towards the Department's 2010 road safety PSA and develop the Department's strategy for future improvement,' where progress is on course to achieve the casualty reduction targets. A second three year review of overall DfT road safety standards and casualty reduction targets commenced during 2006 and was published in 2007.

Considerable evidence is also generated from collaboration, literature reviews and ongoing policy analysis. However, the greatest source of evidence under this theme is through three complementary research programs on vehicle safety (including Intelligent Transport Systems). A third of the casualty reduction target for 2010 is expected to be met through vehicle design improvements, road user behavior and traffic management.

3. Securing sources of sustainable funding for road safety research

The annual DfT budget for road and vehicle safety research in the 2001/2 year was £9.4 million.

DfT also seeks partners external to government to help fund research. A major vehicle safety research program—the Cooperative Crash Injury Study (CCIS)—has run since 1983 and is an ongoing program of research to conduct in-depth investigations into real world car crashes. The aim of the study is to provide government and industry with crash injury data that will assist in the development of regulations and improvements in secondary safety design features to help mitigate injuries to car occupants and other road users. Some 1,600 vehicles are examined each year by teams from the Vehicle Safety Research Centre at Loughborough, Birmingham Automotive Safety Centre and the Vehicle Inspectorate Executive Agency. The data are collected to similar protocols and are combined for analyses. CCIS is managed by TRL Limited, on behalf of the Department for Transport (Vehicle Standards and Engineering Division) who fund the project with Autoliv, Ford Motor Company and Toyota Motor Europe.

This crash injury research, major research and development activity towards legislative standards and work towards the initial setting up of the European New Car Assessment Programme has led to championing of improvements to car occupant protection standards at EU level bringing benefits internationally.

4. Training and professional exchange

The DfT plays an active international role in knowledge transfer and supports attendance of its personnel at international road safety meetings, seminars, workshops and field visits. Through the Department for International Development, Great Britain has also engaged in knowledge transfer in low and middle-income countries.

5. Establishing good practice guidelines

In order to encourage good practice in road safety locally, the lead agency has encouraged and supported good practice guideline activity over the last few decades conducted either in-house of by professional organizations such as the Institution for Highways and Transportation.

The DfT provides technical guidance to local highway authorities on a wide range of issues. Under the auspices of the DFT, the TRL developed, with the assistance of many local authorities, a Road Safety Good Practice Guide in June 2001 as a tool for the development and coordination of local road safety plans. The DfT also supports a range of conferences and seminars to discuss and disseminate good practice.

6. Setting up demonstration projects

As in other good practice countries, the lead agency has developed and supported demonstration projects to pilot promising approaches and identify any potential implementation problems before publishing guidelines or rolling out projects on a national basis (see Box 17).

DfT Role: Research and Development and Knowledge Transfer

- **The DfT has established in-house capacity to manage its research program and coordinated and supported external research in support of the safety strategy.**
- **The DfT secures funding for road safety research and knowledge transfer in its own budget and engages other funding partners in major research.**

Box 17: The Safer Cities demonstration project of urban safety management, Gloucester, Great Britain

In Great Britain, the DfT invited local authorities to compete for funding of a £5 million urban safety management demonstration project. Against the background of national casualty reduction targets, a Safer City project ran from 1996 to 2001 in the city of Gloucester. An objective to reduce city-wide casualties by one third by 2002 compared with the average 1991 to 1995 was set. Various urban safety management engineering methods were used, as well as enhanced enforcement and supporting publicity.

The project brought together all those working locally in road safety including engineers, emergency services, magistrates, police, education and training staff, public transport operators, planners and research organizations. Political leadership was provided by a steering group of members from the City Council and Gloucestershire County Council which achieved the required close co-operation. While the target was not met for minor injuries overall, the activity was associated with substantial savings in death and serious injuries. Monitoring to date has shown that compared with the 1991–1995 average serious injuries and deaths fell by 38%. The experiences of the Gloucester experiment were used by the Department for Transport as the basis for new guidelines on *Road Safety Strategies for Urban Communities.*

- **The DfT has an annual road safety research program and external advisory bodies to assist in the identification of priorities.**
- **The DfT supports attendance of its personnel at international road safety meetings, seminars, workshops and field visits.**
- **The DfT develops and disseminates good practice guidelines on road safety.**
- **The DfT funds large demonstration projects to encourage local casualty reduction activities.**

Summary: DfT delivery of institutional management functions

Results focus. The Department for Transport's (DfT) Roads and Vehicles and Standards Directorate is the lead agency for road safety in Great Britain. The DfT is responsible for managing the country results focus and ensuring that system-wide interventions are agreed and implemented by the responsible authorities. It has established a results management framework for appraising performance and identifying what can be achieved in the medium term. The DfT leads the development and delivery of national safety strategies and the current strategy includes targets for final outcomes to 2010. DfT accountability for targets is underpinned by annual performance agreements. It has established Memoranda of Understanding and local agreements with its partners to implement the safety strategy.

Coordination. There is no national coordinating decision-making body outside the Cabinet. The DfT establishes bilateral and trilateral agreements with other government stakeholders (e.g., police, Home Office, Department of Health and the Health and Safety Commission) to implement interventions. It encourages the local adoption of national targets, requires annual progress reports and encourages local multi-sectoral partnerships. It set up and consults with an inter-governmental Road Safety Delivery Board and a Road Safety Advisory Panel of stakeholders (including the NGO and business sectors) which both monitor progress towards implementing the strategy and reaching targets. The DfT engages with parliamentary committees and groups. European Union safety coordination is pursued within the European's Commission's High Level Group on Road Safety and other committees.

Legislation. The DfT has established in-house capacity to set, ensure compliance with, and monitor safety standards for vehicles, roads and people, some of which are agreed at EU level, to provide related policy advice. Inspection and compliance are carried out by DfT agencies and the police. The DfT establishes small in-house rules teams of policy and legal experts to develop and consolidate major legislation and carries out impact assessments and consults widely on draft proposals. It uses a variety of means to find parliamentary slots, when necessary, for safety legislation.

Funding and resource allocation. The DfT ensures sustainable annual safety funding from general tax revenues which it distributes to its agencies through annual agreements and local transport plans. Other funding sources include a cost-recovery system for safety cameras, small grants and private sector funding for promotion, projects and non-governmental organization activities. The DfT has used ring-fenced funding to encourage local safety activities and carries out annual in-house reviews of the value of preventing road deaths and serious injuries to allow a

strong business case to be made for road safety expenditure. It provides in-house lead agency capacity to evaluate safety costs and benefits, estimate program funding needs and prepare related business cases.

Promotion. Road safety in Great Britain is not driven by a long-term vision and the DfT promotes the shared responsibility for delivery of the road safety strategy as well as specific strategic themes nationally and locally under the umbrella of the *THINK!* campaign. The Prime Minister and DfT Ministers played a key role in launching and promoting the strategy. The DfT contracts out targeted road safety advertising and monitoring in support of the major themes of the national road safety strategy. It played a major role in establishing safety rating programs which promote various aspects of the strategy and it supports community partnerships at local level to achieve results.

Monitoring and evaluation. The DfT monitors the safety strategy assisted by external research organizations, the Road Safety Advisory Panel and the Road Safety Delivery Board. Reviews are carried out and published every three years. The DfT has set up databases to identify and monitor final outcomes against targets and carries out surveys of travel patterns, vehicle use and intermediate outcomes. It has statistical units and committees which manage the national crash data system and carries out linkage studies of health and police date to establish under-reporting. DfT agencies manage computerized vehicle and driver registries. The DfT played a major role in establishing the European New Car Assessment Programme to assist monitoring of vehicle fleet safety. Its Highway Agency is a member of the European Road Assessment Programme which monitors aspects of road network quality. The DfT supports in-depth study of crashes to monitor vehicle safety performance. It also monitors local authority safety performance indicators.

Research and development and knowledge transfer. The DfT has established in-house capacity to manage its research program and coordinates and funds external research in support of the safety strategy. It secures funding for research and knowledge transfer in its own budget and has engaged other funding partners in major research. The DfT has an annual safety research program and external advisory bodies assist in identifying priorities. It supports staff attendance at international road safety meetings, workshops and field visits, and it develops and disseminates good practice guidelines and funds large demonstration projects to encourage local casualty reduction activities.

Lead agency structures

The aggregate and organizational structures of the lead agency for road safety in Great Britain are set out in Figures 3 and 4.

The Road and Vehicle Safety and Standards Directorate had four main divisions in 2005 with over 80 staff actively engaged in road safety work: Road Safety Strategy, Driver Safety, Transport Technology and Standards (TTS) and Traffic Management. The country focus on results is managed by the Road Safety Strategy Unit (see Figure 4).

These are five other agencies within the DfT with road safety responsibilities (see Figure 3).

Highways Agency (HA). The Highways Agency is responsible for maintaining, improving and managing use of the strategic road network on behalf of the Secretary of State for Transport. This national network comprises over 8,255 kilometers (5,130 miles) of motorways and trunk roads and carries a third of all road traffic in England and two-thirds of all freight traffic, with over 170 billion vehicle kilometers of journeys undertaken each year. The Agency has a specific safety target within its Public Service Agreement to improve safety by reducing road casualties. Its aims are safe roads, reliable journeys and informed travellers. The Agency has 11 main offices in nine regional locations across England. It has an annual budget of around £1.8 billion. The Agency is a member of the European Road Assessment Programme.

Vehicle Certification Agency (VCA). The VCA tests and certificates new models of vehicles and components against European and international safety and environmental performance standards. It also provides a service to manufacturers who wish to be certified as meeting international quality, environmental and safety management system standards. In addition the VCA publishes the definitive data on emissions, fuel consumption and noise. The VCA's employees are based at sites in Bristol, Nuneaton, Detroit (USA), Kelama Jaya (Malaysia) and Nagoya (Japan).

Driver and Vehicle Licensing Agency (DVLA). The principal role of the DVLA is to maintain an up-to-date record of all those who are entitled to drive various vehicles, together with a register of all vehicles entitled to use public

Figure 3: Aggregate structure of the Lead Directorate in the Department for Transport in Great Britain (2005)

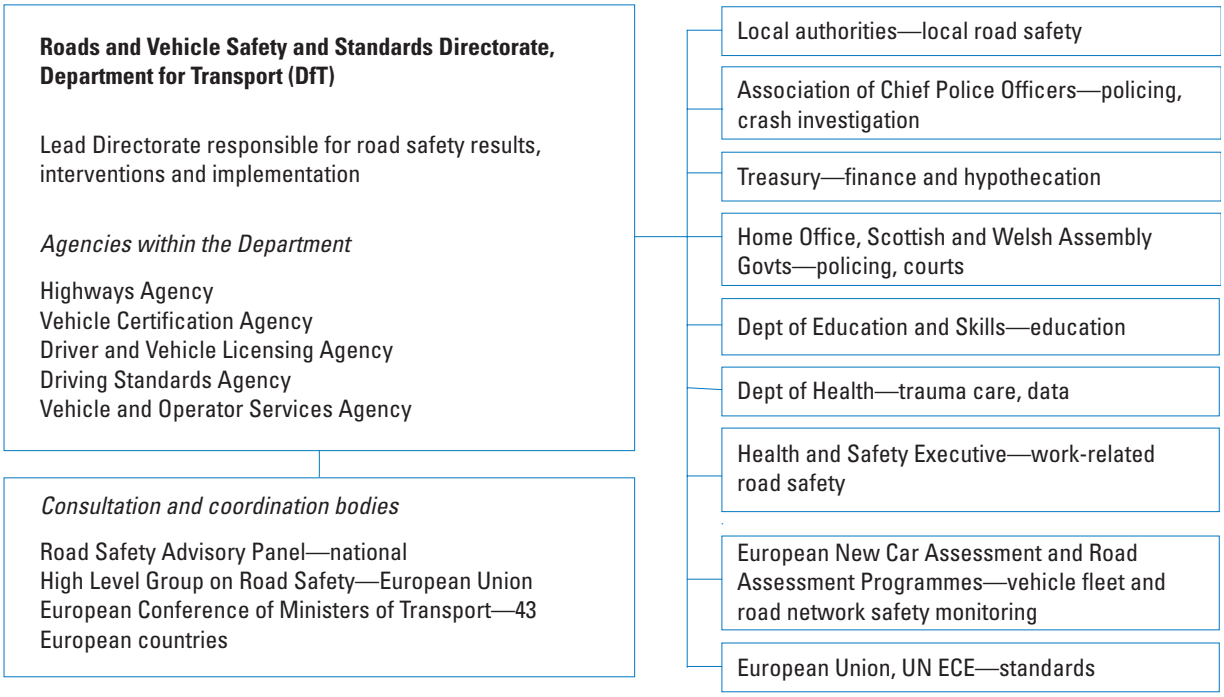
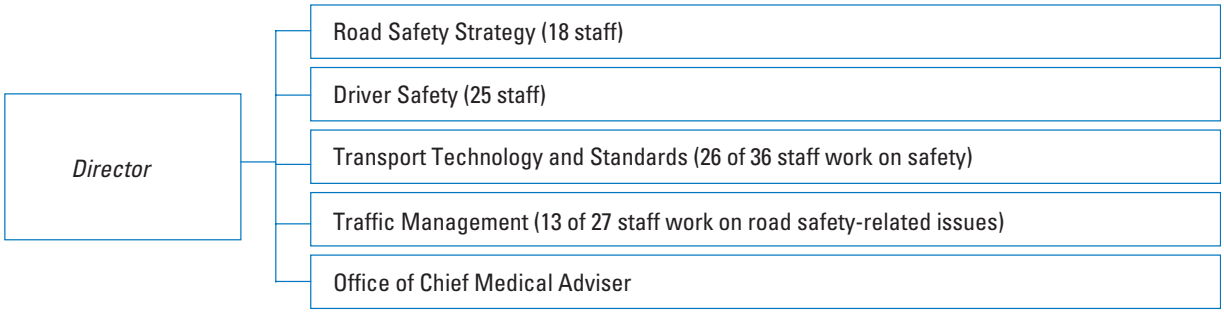


Figure 4: Organizational structure of the Lead Directorate in the Department for Transport, Great Britain (2005)



roads. It also collects around £4.2 billion in vehicle excise duty. The DVLA's main site is in Swansea. It also has a network of 40 local offices throughout Great Britain.

Driving Standards Agency (DSA). The DSA is responsible for promoting road safety through improving driving standards. In carrying out its role to promote road safety, DSA works to improve driving standards and test drivers, motorcyclists and driving instructors through theory and practical driving tests. It maintains the register of approved driving instructors and large goods vehicle instructors and supervises training for learner motorcyclists. The DSA has sites in Nottingham, Edinburgh, Newcastle, Birmingham, Bedford, London and Cardiff and in over 400 driving test centres across Great Britain.

Vehicle and Operator Services Agency (VOSA). The VOSA was formed in April 2003 following the merger of the Vehicle Inspectorate and the Traffic Area Network. The Agency supports drivers, vehicle owners, operators and the providers of the MOT testing scheme. It helps them to comply with vehicle safety and environmental standards through effective testing and training along with advisory and enforcement services. In addition the Agency licenses

operators of HGVs and public service vehicles and registers local bus services. The VOSA's employees based in Bristol, Birmingham, Cambridge, Eastbourne, Edinburgh, Leeds, Swansea and 100 operational sites nationwide.

Bibliography

Eds. Peden M, Scurfield R, Sleet D, Mohan D, Hyder A, Jarawan E and Mathers C (2004). *World Report on Road Traffic Injury Prevention*, World Health Organization, World Bank, Geneva, 2004.

OECD (2002). *What's the Vision?*, Organization for Economic Co-operation and Development, Paris, 2002.

Aeron-Thomas A, Downing AJ, Jacobs GD, Fletcher JP, Deslby T and Silcock DT (2002). *A review of road safety management and practice. Final report.* Crowthorne, Transport Research Laboratory and Babtie Ross Silcock, 2002 (TRL Report PR/INT216/2002).

Koornstra M et al. 2002. *SUNflower: a comparative study of the development of road safety in Sweden, the United Kingdom, and The Netherlands*. Leischendam, Dutch Institute for Road Safety Research, 2002.

Trinca G, Johnston I, Campbell B, Haight F, Knight P, Mackay M, McLean J, and Petrucelli E (1988). *Reducing Traffic Injury the Global Challenge*, Royal Australasian College of Surgeons, 1988, ISBN 0 909844 20 8.

Department for the Environment, Transport and the Regions, *Tomorrow's Roads—Safer for everyone*, 2000, HMSO, London.

Department for Transport, *Annual Report 2004,* HMSO, 2005, London.

Department for Transport, *Delivering better transport: a summary of priorities 2004/05*, HMSO, 2005, London.

Department for Transport, *Technical notes for Spending Review 2002 PSA targets, www.dft.govt*

Gains A, Heydecker B, Shrewsbury J and Robertson S, *The national safety camera programme Three-year evaluation report.*, UCL, PA Consulting Group, DfT, June 2004.

Maltby C, *Best Value, Local Transport Plans and Road Safety: Listening to and Learning from the Profession*, PACTS, London 2003.

McMahon K, *Road safety strategy in Great Britain: research into practice, Proceedings of Conference on Road safety Research, Policing and Education, Sydney, 2003.*

Broughton J, Allsop RE, Lynam DA, McMahon CM (2000). *The numerical context for setting national casualty targets,* TRL Report 382, Transport Research Laboratory, Crowthorne.

Department for Transport, *Highways Economics Note No. 12003, Valuation of the Benefits of Prevention of Road Accidents and Casualties,* DfT, 2004.

Association of Chief Police Officers, Home Office, Department for Transport, *Roads Policing Strategy*, 11.1.2005, London.

Parliamentary Advisory Council for Transport Safety, *Policing Road Risk: Enforcement,Technologies and Road Safety*, Occasional Research Reports, ISSN 1748-8338, September 2005.

Vehicle Certification Agency www.vca.gov.uk

Institution of Highways and Transportation, www.iihs.org

Department for Transport, *Report on the Gloucester Safer City Project*, Department for Transport, London. http://www.dft.gov.uk/stellent/groups/dft_control/documents/contentservertemplate/dft_index.hcst?n=9210&l=1

Department for Transport, TRL Ltd, Institution of Highways and Transportation *Urban safety management guidelines Road Safety Strategies for Urban Communities*, HMSO, London, 2003.

House of Commons Select Committee on Transport, London, http://www.parliament.uk/parliamentary_committees/transport_committee.cfm

Parliamentary Advisory Council for Transport Safety www.pacts.org.uk

1.3 Road safety organization in The Netherlands

National context

KEY FACTS: 2006

Area:	**41,528 sq km**
Population:	**16,358,000**
Kilometers of public road:	**117,430**
Number of licensed motor vehicles:	**8.7 million**
Road deaths per 100,000 of population:	**4.5**
Total police reported road deaths:	**730**

Source: IRTAD, 2008

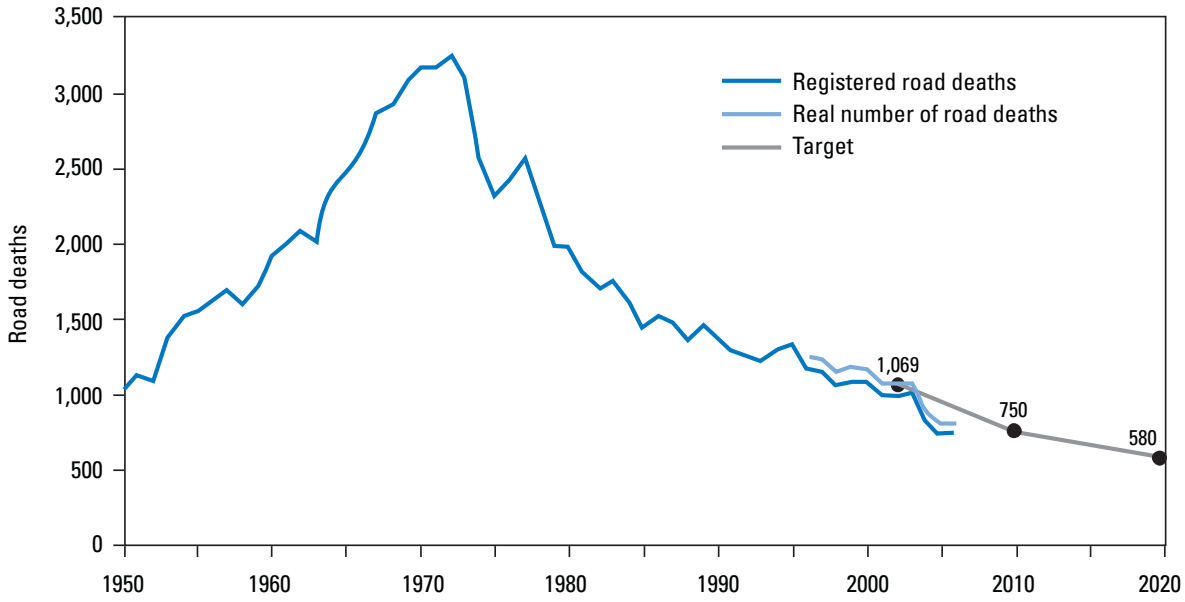
The Ministry of Transport, Public Works and Water Management is the lead agency for road safety in The Netherlands. Road safety is a shared responsibility at governmental level between the European Union (which has had key responsibilities in areas such as vehicle safety and driver licensing), national, regional and local government.

Road safety is highly decentralized in The Netherlands. The Dutch Polder model, on which much of public policy is based, is centred around the concept of decentralizing what can be appropriately decentralized and centralizing what must be central. Central government is responsible for national roads, establishing and monitoring targets, coordination, legislation, funding, promotion, monitoring and evaluation and research and development and knowledge transfer. It supports regional and local governments with road safety knowledge and funding. Regional and local governments draw up provincial, regional and municipal traffic and transport plans which include measures for road layout and influencing behavior through information, education, and police enforcement.

Road safety is pursued within a total transport context of sustainable mobility which is set out in the Mobility Memorandum (the national traffic and transport plan which outlines the traffic and transport policy until 2020) which was approved by the House of Representatives and the Senate in February 2006. Road safety policy is promoted in accordance with the *Sustainable Safety* concept which has much in common with the Swedish *Vision Zero,* both of which are acknowledged internationally as leading *Safe System* approaches worthy of widespread adoption.

The Netherlands is the world leader in road safety performance. There is a long tradition of systematic road safety management and The Netherlands has an international reputation for excellence, particularly for innovation in the field of road safety engineering. Target-setting began in 1983 within the context of the first national road safety plan and has ensured that road safety remains high on the political agenda. Since 1970, there have been substantial reductions in road traffic deaths, as shown in Figure 1. The annual socio-economic direct costs are estimated to

Figure 1: Road traffic deaths in The Netherlands since 1950



be €5.4 billion (medical and material costs, production losses and handling costs), while indirect costs are officially estimated at around €5.6 billion.

This case study focuses on the country delivery of institutional management functions in The Netherlands and the role of the lead agency in working towards long-term goals and interim quantitative targets.

Country delivery of institutional management functions and lead agency role

Results focus

The Netherlands has a rich tradition in country results focus. A long-term road safety vision for the future safety of the road transport system is well established. Leadership responsibilities and accountabilities for action are defined and an organizational framework exists for analysing data and safety performance and setting final outcome targets at national and regional levels.

Lead agency

The Ministry of Transport, Public Works and Water Management (MoT) is the lead agency for road safety in The Netherlands. Road safety is one of five areas of responsibility of the Ministry which employs 13,000 people, has 4 General-Directorates, 10 regional Departments, several specialist services and other support units. The Roads and Traffic Safety Department (RTSD) was set up in 1970 and sits within the Directorate-General for Passenger Transport. Within the Directorate General for Transport and Logistics, there is also is a small section which deals with road safety in relation to freight transport (including small transport vans and including issues such as safety culture in transport companies). The RTSD takes the leadership role.

1. Appraising current road safety performance through high-level strategic review

The MoT reviews road safety performance in-house and also uses external expertise for this task. In-house capacity exists within the Strategy, Programs and Coordination Division and in the AVV, Transport Research Centre, the Ministry's research arm, for appraisal of road safety performance and strategy review. The MoT commissions independent reviews from the Dutch Institute for Road Safety Research (SWOV) and other research bodies to develop the national strategy and monitor progress. Road safety results are evaluated by the MoT every second year.

2. Adopting a far-reaching road safety vision or goal for the longer term

In the early 1990s the MoT invited the SWOV and other Dutch road safety research institutions to determine a new approach to road safety, following indications that further measures were needed beyond the package of interventions implemented to date. Led by SWOV, researchers presented *Towards a sustainable safe traffic system* in 1992 which advocated a preventative, structural and systematic approach to road safety known as *Sustainable Safety.*

Like *Vision Zero*, the *Sustainable Safety* concept focuses on addressing human limitations—*man is the measure*. A sustainably safe traffic system comprises road infrastructure which is adapted to the limitations of human capacity, through proper design; vehicles that are equipped with proper tools and constructed to offer as much crash protection as possible; and users who are adequately informed, educated and, where necessary, controlled. One of the principal goals of the policy is to achieve a uniform and self-explaining national system of speed limits related to road function. In built-up areas, the norm has been established at 30km/h for residential access roads, with a 50km/h limit of urban main roads. The norm on local roads outside built-up areas is 60km/h, with designated local distributors at 80km/h and long-distance main roads and motorways at 100 or 120km/h. Three guiding principles were prescribed to achieve sustainably safe road traffic (see Box 1). An update and broadening of the application of these principles has recently been published in *Advancing Sustainable Safety*. This introduced two further principles: 'forgiving roadsides' to provide a more protective road environment, and 'state awareness' to raise road users' understanding of their differing capabilities to handle the driving task.

Box 1: *Sustainable Safety* is based on three guiding safety principles:

- *Functionality:* to prevent unintended use of the infrastructure
- *Homogeneity:* to prevent major variations in speed, direction, and mass of vehicle at moderate and high driving speeds
- *Predictability:* to prevent uncertainty among road users

Box 2: Current final national and regional outcome targets in The Netherlands

The Dutch target hierarchy is currently limited to final outcomes, apart from a legislative requirement for specific ambulance response times (within 10–15 minutes of a crash).

- Reducing the number of traffic deaths to a maximum of 500 by 2020;
- Reducing the number of injuries requiring hospitalization to a maximum of 17,000 injuries requiring hospitalization in 2010 and a maximum of 12,250 injuries requiring hospitalization in 2020 (compared to 2002 this represents a decline of 7.5% and 34% respectively);
- National objectives must be mirrored equally in regional objectives for all provinces to reduce road deaths and hospital admissions at the same percentage rate;
- Retaining The Netherlands position among the top 4 within the European Union in 2010 and 2020;
- The Netherlands has also signed up to European-wide targets set by the European Union and the European Conference of Ministers of Transport (now International Transport Forum) to reduce deaths by 50% by 2010 in EU countries and by 2012 in ECMT (ITF) countries.

3. Analyzing what could be achieved in the medium term

Work on setting targets (or revising targets) is conducted by a small group of Ministry of Transport officials with preparatory work to support this conducted by the AVV with input from road safety research organizations such as SWOV.

Target-setting in The Netherlands uses a technical bottom-up approach which requires in-depth analysis and forecasting of trends and the modelling of different scenarios. A consultative meeting is carried out with representatives of national, regional and local authorities and, following approval, is presented to parliament.

4. Setting targets by mutual consent across the road safety partnership

A National Road Safety Plan was introduced in 1984. The first target was set in 1985 for 25% fewer deaths and 25% fewer hospitalised victims for the period 1985–2000 and the first long-term plan was issued in 1987. The plan identified various spearheads for action: drinking and driving, the use of safety equipment such as seat belts and crash helmets, speeding, hazardous situations, older and younger users and heavy goods traffic. In 1989, a new version of the plan was introduced which highlighted the importance of action by local and provincial authorities and other stakeholders. In 1990 the target was re-defined as a 50% reduction in deaths and a 40% reduction in injury crashes for the period 1986–2010. The target for 2000 was almost achieved for deaths but not for hospitalizations.

The Mobility Memorandum (2006–2020) stipulated targets against a 1998 baseline that no more than 900 deaths and 17,000 in-patients should occur in 2010 and no more than 580 deaths and 12,250 hospitalizations should occur by 2020. As a consequence of reductions in the number of road deaths in 2004 and 2005, the target for road deaths in 2010 was lowered from 900 to 750. Road safety is pursued in a total transport context and until recently no separate plan or strategy had been developed for road safety since the mid 1980s. In September 2008 a new Strategic Road Safety Plan was approved by parliament and the National Mobility Council with a new target of no more than 500 deaths by 2020 (see Box 2).

The provinces and regions are required to adopt these targets with their administrative and social partners in packages of measures. Regional and local governments draw up provincial regional and municipal traffic and transport plans.

There are no nationally agreed road safety strategy targets for institutional outputs. However, police organizations can and do specify their output targets.

5. Establishing mechanisms to ensure stakeholder accountability for results

The Ministry established contractual agreements with its partners in the *Start-Up Program for Sustainable Safety* (see *Coordination* section).

The Ministry monitors and publishes reports of progress against targets which have been produced by AVV and the

Central Bureau of Statistics. There are "normal" auditing procedures and the minister reports on progress and problems to parliament.

The Inspectorate for Transport, Public Works and Water Management (IVW) monitors and promotes the safety of goods transport on the roads as well as safety on water, in the air, and on the railways.

MoT Role: Results Focus

- **The Ministry of Transport, Public Works and Water Management (MoT) is the lead agency for road safety in The Netherlands. The MoT's Roads and Traffic Safety Department has the central responsibility nationally for the development and coordination of road safety targets at national level. The MoT manages the country results focus and ensures that system-wide interventions are agreed and implemented to achieve these by the responsible authorities across government and wider society.**
- **The MoT has established in-house capacity and supports external capacity for appraising performance and identifying what could be achieved in the medium term.**
- **The MoT pursues the long term vision of *Sustainable Safety* (adopted in legislation) and has established road safety outcome targets in its Mobility Policy Document (2005) as well as regional road safety outcome targets. The MoT has also signed up to European targets to reduce deaths by 50% in EU (by 2010) and ITF countries (2012).**
- **The MoT has used contractual agreements with its partners to achieve results.**

Coordination

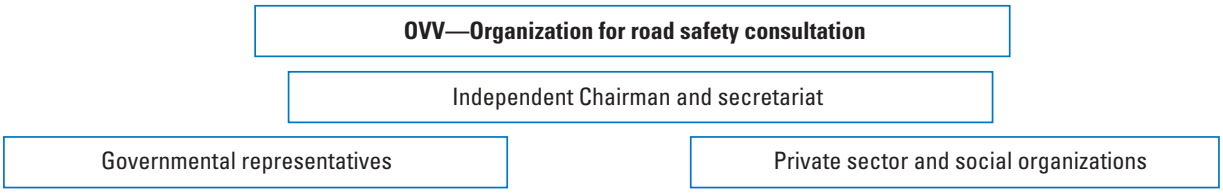
Coordination is carried out at national, regional, local and European levels, given the shared responsibility for road safety. The lead agency's task has been to ensure horizontal and vertical coordination between sectors and at international levels, in order to achieve a coherent national road safety policy.

1. Horizontal coordination across central government

Outside Cabinet there is no national multi-sectoral body which takes decisions on road safety. The Netherlands has relied more upon contractual delivery partnerships with several stakeholders to cement delivery of aspects of the national road safety strategy. In-house capacity exists for this function within the Strategies, Programs and Coordination divisions of the Road Safety Department.

The OVV (Organization for road safety consultation) was set up in 1992 (see Figure 2) and was broadened subsequently (2005) to become the OPV (Organization for passenger transport) with consultation on road safety as one

Figure 2: Multi-sectoral structures for road safety coordination in The Netherlands (1992–2004)



Includes:
Netherlands Police Institute
Public Prosecutor's Office
Inter-Provincial Co-operation Organization (IPO)
Dutch Water Boards (UvW)
Union of Dutch Municipalities (VNG)

Includes:
Royal Dutch Tourist Club (ANWB)
Central Driving Test Organization (CBR)
Driving Education Organization (BOVAG)
Vehicle industry (RAI)
Road haulage industry (TLN)
Road safety Netherlands (VVN)
Pedestrians Association (VGV)
Dutch Cyclists Union
Motorcyclists Association (KNMV)
Dutch Traffic Safety Organization (3VO)
Dutch Association of Insurers
SWOV—Institute for Road Safety Research

Figure 3: Composition of Provincial Safety Boards (ROVs)—1992/1994

Regional representative	Local representative through a chosen delegation	Regional Ministry of Transport Representative	Police representative	Ministry of Justice representative

component. The consultation body (past and present) brings together all key partners and stakeholders, including the private sector. Its statutory role is as a platform for mandatory national consultation on the intended policies of the Minister of Transport in relation to organizational matters and transport and traffic-safety related subjects that are primarily the responsibility of other ministries.

2. Vertical coordination from central to regional and local levels of government

Since 1994 the Ministry of Transport has devolved much responsibility for road safety and the implementation of *Sustainable Safety* to regional and local authorities. At regional level, the Decentralization Agreement of 1994 specified various coordination requirements:

- within the general framework of national policy, policies are drawn up where problems need to be solved;
- each region or metropolitan area should have a Provincial Safety Board (ROV) in which all parties involved in traffic safety coordinate their individual activities at regional and local level;
- each area should coordinate policies at the regional level and local authorities should coordinate locally;
- each region should provide the secretariats of the ROV and encourage activity by local authorities.

Until 2004–05, each of the 12 provinces and 7 metropolitan areas had a ROV (see Figure 3) in which all governmental parties involved in traffic safety coordinated their individual activities at provincial and municipal level. A legal requirement provided for these bodies to be subsidised by central government. Each province provided the secretariats of the ROV and encouraged activity by municipal authorities.

In 2005 the Mobility Memorandum stated that the national quantitative target to reduce deaths would be split up into 19 regional and metropolitan area targets. Each region would have the same target, given that the conditions between regions did not differ greatly. While agreements are established between central and local government, the regions and provinces determine their own plans and interventions to reach these targets. These plans typically cover interventions for sustainably-safe design of regional and local roads, for influencing attitudes and behavior via public information, instruction, and education combined with police enforcement. While municipalities are not required to produce a plan, they have to identify their contribution to the regional plan in their municipal transport policy.

As of 1 January 2005 the state subsidy to the regions and the provinces for road safety was no longer earmarked but included in a combined partial subsidy for regional and local traffic and transport policies. At the same time the legal requirement for coordination and its subsidy was removed which has led to large reported differences in provision. In general, the maximum subsidy is 50% of the project costs. The lead agency provides 'Measure Indicators' to encourage evidence-based activity at regional and local level. The Dutch Institute for Road Safety Research (SWOV) provides independent promotional and technical support.

3. Specific delivery partnerships between government, non-government, community and business at the central, regional and local levels

The MoT has established many partnerships in road safety across government, the business sector and civil society towards achieving targets.

The Start-up Program partnerships for sustainable safety. In 1997 a 5 year agreement was signed between the Minister of Transport, the Association of Local Authorities, the Inter-Provincial Consultation and the Union of Water Boards for a *Start-Up program on Sustainable Safety.*

This *Start-up Program on Sustainable Safety* sets out the clear roles and responsibilities of all of the partners. In this contract, the partners agreed to carry out a specific program of measures. The focus was the re-classification of the road network into 6 types of roads in built up and

non-built up areas and taking into account the function of the road: whether flow, distributor or access.

In addition to establishing a clearer hierarchy in terms of speed management this also comprised changes in rules about priority, especially concerning priority to cyclists, rules about where mopeds are ridden, the marking of priorities at all road junctions, improved public information, strengthened enforcement, and integration with land-use planning policies. Previous experience with 30km/h zones in The Netherlands had shown a crash reduction potential of 23%. With the potential of two thirds of the Dutch urban road network being converted to 30km/h zones, the contract between central and local government delivered re-classification of the road network and conversion of 50% of these into 30km/h zones.

The second phase of *Sustainable Safety* aims to broaden the focus beyond infrastructural measures towards behavioral issues and vehicles as outlined in *Advancing Sustainable Safety* which was published by SWOV in 2006. Broad agreements between partners are currently incorporated within the National Transport Plan (NVVP).

Ministry of Transport, Ministry of the Interior and Ministry of Justice make arrangements about police deployment and the BVOM (bureau for traffic enforcement) provides additional funds for specific enforcement projects. The regional enforcement teams instituted to spearhead road safety have identified drink-driving as one of five major themes to be addressed. Since 2003, these teams have been active in all twenty-five police districts in The Netherlands.

Ministry of Transport and Ministry of Health agreed to coordinated arrangements on public information campaigns on impairment by alcohol and other drugs and on fitness to drive issues for driver licensing.

European and international coordination

The High Level Group on Road Safety established by the European Commission brings together the heads of road safety for all the member states of the European Union to provide a consultative and coordinating body for EU road safety policy. It meets 2–3 times annually. The Netherlands is a member of the European New Car Assessment Programme which helps to improve vehicle safety as well as providing key monitoring data on car industry performance. The Netherlands is a member of the European Conference of Ministers of Transport (now the International Transport Forum) and also participates in various EU and UN ECE decision-making bodies on vehicle standards and agreements (WP1 and WP 29). The Netherlands also supports the World Bank Global Road Safety Facility and is member of the Facility Executive Board. The Netherlands participates in the UN Road Safety Collaboration and has Memoranda of Understanding with Poland, the Czech Republic and the US on road safety.

Non-governmental sector engagement

There is an active non-governmental sector on road safety in The Netherlands which supports and mobilizes the public at large, challenges government about its responsibilities in support of road safety and sets out to exert positive influence on the behavior of the various road user groups through public relations, education and information.

The Dutch Institute for Road Safety Research (SWOV) plays a major role. In addition, a variety of organizations have merged to create the Dutch Traffic Safety Organization (VVN) that incorporates the former Pedestrian Association and Priority for Children and Road Safety in The Netherlands. The Dutch Traffic Safety Organization receives a subsidy from central government to carry out promotional campaigns. The Dutch Consumers Association has played a major role in the activity of EuroNCAP. The motoring and cyclist organizations ANWB and the cycling association Fietserbond are also very active. These organizations ensure that road user interests, including road safety, are well presented.

Business sector engagement

The Ministry encourages transport companies to create a safety culture and offers a range of tools to assist in this task. These include a digital safety scan with which transport companies can gain insight into their safety performance. Training can be provided for lorry drivers using a simulator, and a protocol is offered to assist companies in making agreements to earn discounts in their insurance premiums in exchange for better safety performance.

The business sector supports a range of activities. A wide variety of companies works in partnership with the Dutch Traffic Safety Organization (3VO). The transport sector (haulage) is interested in safety culture in their compa-

nies, the insurance sector deals with safety culture in commercial vehicle use policies, and the motor vehicle industry considers safety as a social responsibility. The private sector is consulted regularly when it comes to defining action plans. Alongside academic institutions, the private sector also participates in the large nationally subsidised transport research program (Transumo) and in independent institutes such as SWOV.

4. Parliamentary relations at central, regional and local levels

An informed all-party approach to road safety policies is encouraged in The Netherlands and good contact and coordination with parliament is maintained by the lead agency and road safety organizations. All-party support from the Parliamentary Standing Committee on Transport, Public Works and Water Management was key to the establishment of *Sustainable Safety* in The Netherlands and its eventual adoption in legislation.

MoT Role: Coordination

- **Outside the Cabinet, there is no national multi-sectoral body which takes decisions on road safety.**
- **The MoT provides in-house capacity for coordination and consultation and has set up contractual delivery partnerships with several stakeholders to cement delivery of aspects of the national road safety strategy.**
- **The MoT established, managed and funded a system of multi-sectoral consultation at the national level to engage all key players with governmental responsibilities in road safety as well as other key players in achieving road safety results.**
- **The MoT engages with parliament, the non-governmental and business sectors in road safety activity.**
- **The MoT engages very actively in international coordination.**

Legislation

The Netherlands has a robust legislative framework for road safety which has evolved over several decades. Following a period of increased motorization between the mid 1940s and the mid 1970s accompanied by sharp increases in road deaths (which peaked in 1972), many legislative measure were introduced over a decade which resulted in an average annual reduction in risk of about 9% (1973–1985). These measures included speed limits for different parts of the network, drinking and driving legislation, traffic calming in built-up areas and motor vehicle occupant protection measures (see Box 3).

1. Reviewing the scope of the legislative framework periodically

Periodic review of legislative needs takes place. Officials in the road safety department of the Transport Ministry develop policy proposals and, if these require a change of legislation, early contact is made with the Ministry's legislative department and other government departments as appropriate. If proposals affect other government departments early contact is also made.

Box 3: Examples of road safety legislation in The Netherlands

1970 Introduction of emergency telephones alongside motorways
1971 Mandatory fitment of seat belts on front seats of new cars; headrests on front seats of cars
1972 Mandatory helmet use for motorcycle riders
Speed limit on motorways for cars and motorcycles of 100 km/h
Speed limit on other rural roads for cars and motorcycle of 80 km/h
Introduction of blood alcohol limit of 0.05% and random breath testing
1975 Mandatory helmet use for moped riders
Mandatory front seat belt use, where fitted
1976 Restraint use requirements for children
Introduction of "woonerf" (home-zones)
1983 Legislation to provide for 30 km/h zones
1984 Periodic vehicle inspection testing for cars more than 3 years old
1987 Introduction of evidential breath testing
1990 Fitment of rear seat belts
1992 Mandatory uses of seat belts in lorries and vans, if fitted
1996 Speed limiters for lorries (over 12 tons) and buses
2000 Mopeds have to use carriageway rather than cycle paths
2002 Priority on arterials and right of way for all traffic from the right
2006 New Blood Alcohol Limit of 0.02% for new drivers,
2006 New driver and moped driver licensing legislation

2. Developing legislation needed for the road safety strategy

A well-developed framework exists for technical input by policy officials and legislative expertise, consultation with the State Council which provides legal advice on each legislative proposal that goes to parliament, and broad consultation with a range of stakeholders including regional and local research organizations, user organizations and other affected bodies at an early stage.

Adaptation to technical progress of European vehicle standards is a resource-intensive process and in-house capacity is provided in the Vehicle Policy Division of the Road Safety Department.

3. Consolidating legislation

Key legislation is consolidated from time to time for ease of reference.

4. Finding legislative slots in government and parliamentary programs

The lead agency plays an active role in finding appropriate slots in government and parliamentary legislative programs.

MoT Role: Legislation

- **The MoT has established in-house capacity to set and update vehicle, roads and user rules and standards, some of which are agreed at EU level, with inspection and compliance carried out by departmental agencies and the police.**
- **The MoT establishes small in-house rules teams involving policy and legal experts in developing and consolidating major primary legislation.**
- **The MoT consults widely at an early stage on proposals for legislative change.**
- **The MoT has the responsibility to find parliamentary slots, where necessary, for road safety legislation.**

Funding and resource allocation

1. Ensuring sustainable funding sources

Whereas *Vision Zero* in Sweden is driven by public health considerations in the first instance, the driving force of safety in The Netherlands has been to reduce socio-economic cost. SWOV has estimated such costs at more than 9 billion Euros annually. Investment in road safety to reduce socio-economic cost is a key theme of *Sustainable Safety.*

Resources are allocated out of general tax revenues. The total national budget to be dedicated to road safety measures (excluding major infrastructure improvement or works) for the period 2004–2010 is planned to amount to €0.4 billion and for the period 2011–2020 to amount to €0.8 billion. Whereas specific allocations were made for many years for road safety into a regional road safety fund, the state subsidy to provincial and municipal governments since 2005 is for regional and local traffic and transport policies in general. The maximum subsidy is 50% of the project costs. The provinces and large urban areas have the responsibility for distributing funding to road safety partners in the municipalities involved.

2. Establishing procedures to guide allocation of resources across safety programs

Cost-benefit analysis is used widely in The Netherlands. The allocation of funding is targeted at those measures which give the most effect at reasonable cost.

MoT Role: Funding and Resource Allocation

- **The MoT ensures sustainable annual funding source for road safety from general tax revenues.**
- **The MoT, until 2005, specifically allocated resource to to the Regional Road Safety Agencies (in addition to their own sources of funding sources) via a road safety fund of around Euro 20 million.**
- **The MoT periodically establishes review of the value of preventing road traffic deaths and serious injuries to allow a strong business case to be made for expenditure on road safety.**
- **The MoT provides in-house lead agency capacity to evaluate safety costs and benefits, program funding and related business cases.**

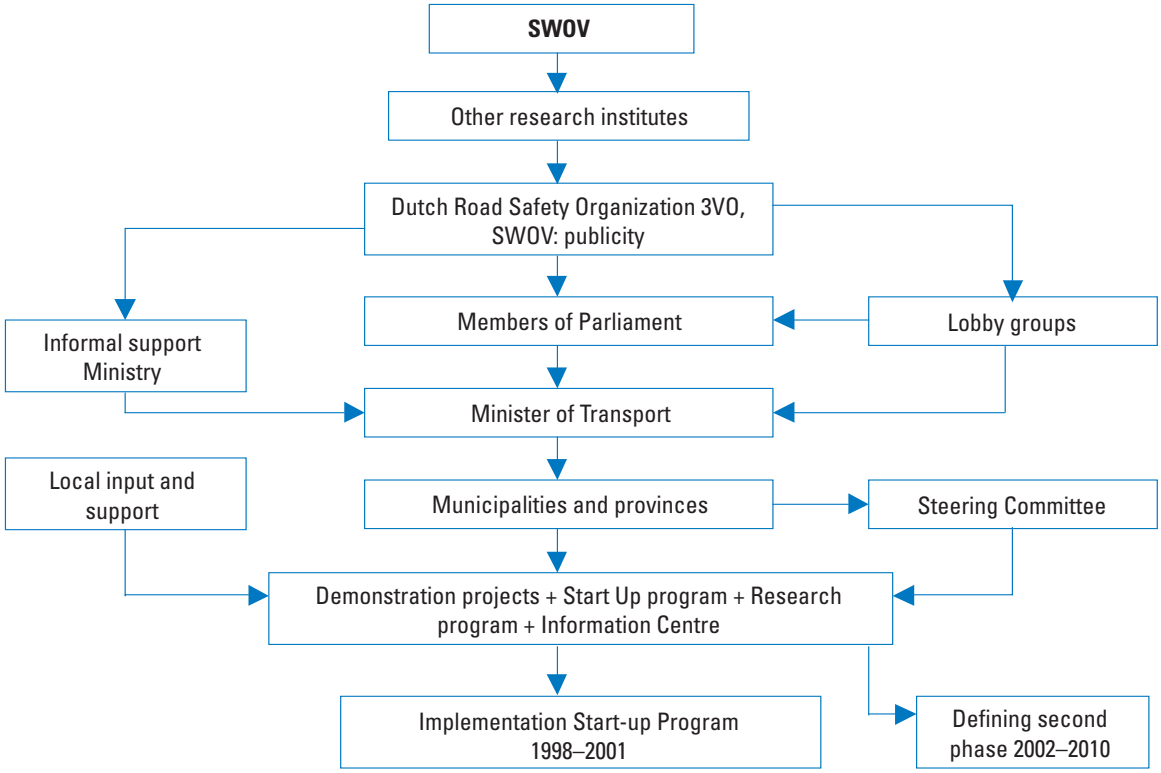
Promotion

1. Promoting the far-reaching road safety vision or goal

Road safety is promoted by national, regional and local governments in accordance with the *Sustainable Safety* concept. The Ministry funded and promoted *Sustainable Safety*, the development of which was managed by the Institute for Road Safety Research (SWOV), as the basis of the Dutch government's approach to road safety work.

The sequence of promotional activity leading to the start of *Sustainable Safety* is outlined in Figure 4. In 2004, SWOV invited 150 road safety professionals to discuss the

Figure 4: The route map for promoting *Sustainable Safety* in The Netherlands



SWOV plays a strategic role in promoting road safety in The Netherlands. Its mission is to make a contribution to promoting road safety by means of knowledge from scientific research. Its targets for the dissemination of such knowledge are national politicians; national, regional and municipal governments; advisory bodies of these governments; fellow researchers in The Netherlands and abroad; education and knowledge institutes; interest groups and the press. Its tools are its website and computerised inter-active road safety information system; its newsletter published three times a year; its research reports; press notices; and conferences, meetings and briefings. SWOV was the instigator of *Sustainable Safety* which is a challenging vision, based on a sound safety principles, with high potential for casualty reduction and one which has received broad support in The Netherlands and much international interest. *Advancing Sustainable Safety* is SWOV's follow up to the original concept, published in 2006.

next steps to achieve further improvements in the future towards helping to define the content of the next stage of *Sustainable Safety*. The responses were published in *Thinking about sustainable safety.* On the basis of these, an updated concept *Advancing Sustainable Safety* covering the period 2005–2010 has been developed and launched.

2. Championing and promotion at a high level

Ministers and parliamentarians (at national and European levels) engage in the championing and promotion of road safety programs in The Netherlands. All-party support from the Parliamentary Standing Committee on Transport, Public Works and Water Management was the key to the adoption of *Sustainable Safety* in The Netherlands.

3. Multi-sectoral promotion of effective intervention and shared responsibility

The MoT has used the consultation bodies at national and regional levels to promote effective intervention and specific initiatives such as the *Start-Up* program (see *Coordination*).

4. Leading by example with in-house road safety policies

No notable organizational examples were found.

5. Developing and supporting safety rating programs and the publication of their results

Alongside lead agencies in Great Britain and Sweden, the MoT played a key role in the development and subsequent support of the European New Car Assessment Programme to promote improvements in vehicle safety (see *Monitoring and Evaluation*).

6. Carrying out national advertising

National and regional and local public information campaigns are a permanent part of the Dutch road safety policy.

The Dutch Traffic Safety Organization receives a subsidy from central government to carry out promotional campaigns. Factsheets are produced on a range of issues by the Ministry's research arm, the AVV.

7. Encouraging promotion at the local level

Sustainable Safety continues to be promoted at the local level. The municipalities played a key role in the *Start-Up* program and in demonstration projects designed to increase professional and public support.

MoT ROLE: PROMOTION

- **The MoT promotes the shared responsibility for road safety using *Sustainable Safety*.**
- **Lead agency ministers and parliamentarians played a key role in launching and promoting *Sustainable Safety*.**
- **The MoT coordinates multi-sectoral promotion and contracts out targeted road safety publicity in support of major road safety interventions.**
- **The MoT helped to set up and support the European New Car Assessment Programme which promotes vehicle safety.**
- **The MoT promotes and encourages the achievement of road safety results to local and regional levels of government.**

Monitoring and evaluation[2]

1. Establishing data systems to set and monitor final and intermediate outcome and output targets

The Netherlands has established a comprehensive set of databases across transport, health and justice sectors to inform road safety problem analysis, target-setting, and the monitoring and evaluation of programs, measures and performance (see Box 4). These include exposure data, final outcome and intermediate outcome data and information on penalties. A range of organizations are engaged in these data activities.

Exposure data

Vehicle and transport registries. The vehicle and driver registries are departmental agencies—the Central Bureau for Driving Licences and the Central Office for Road Traffic.

National Travel Survey (NTS). Since 1978, the Central Bureau of Statistics (CBS) carried out the National Travel Survey (NTS) which has since been conducted by the AVV. The survey's purpose is to describe the travel behavior of the Dutch population. It uses a sample of households, and each person within these households is requested to record all journeys made in a particular day. For each journey, the following is registered:

- place of origin, place of destination, distance travelled;
- time of departure, time of arrival, journey time;
- modes of transport;
- journey purpose.

Box 4: Data systems in The Netherlands (2006)

- Ownership and use of commercial vehicles (CBS)
- Population of the municipalities in The Netherlands (CBS)
- Causes of Death (CBS)
- Use of protection devices
- International Road Traffic and Accident Database IRTAD
- IIS (Injury Surveillance System)
- National Patient Register (NPR)
- National Road Database (NRD)
- Accidents and Physical Activities in The Netherlands (APAN)
- National Travel Survey (NTS)
- Car Panel PAP (CBS)
- Periodic Regional Road Safety Survey (PRRSS)
- Survey of drinking and driving in The Netherlands
- Speed measurements on state/national motorways (TRC)
- Road Statistics (CBS)
- Motor Vehicle Statistics (CBS)
- Passenger Traffic Statistics (CBS)
- Road crash registration (BRON)
- Traffic Offenses

Source: SWOV, 2006

[2]The discussion of monitoring and evaluation in this case study reflects organization up until 2007. In 2008, AVV merged with another governmental research group to form the DVS Centre for Transport and Navigation in the Department of Traffic and Shipping of the Ministry of Transport, Public Works and Water Management.

Other data gathered concerning respondents includes: age group, gender, province, vehicle ownership, and driving license. Road user data are very important to be able to calculate exposure to risk expressed as crash rates in crashes per billion kilometers travelled (SWOV, 2006).

National Road Database (NWB). The NWB makes it possible to analyze road safety in relation to traffic volume and features of the infrastructure. The NWB is a digital database of virtually all public roads in The Netherlands with a street name or number. Separate footpaths and bicycle tracks and unsurfaced roads are also included if they have a street name. If a road has a dual carriageway, they are processed in the database as separate road segments. The geometry of the NWB is identical to the centre lines of the TOP10 maps database of the Dutch Ordnance Survey. Therefore the geometrical accuracy is the same as maps with a scale of 1:10,000. The NWB is a network consisting of junctions joined together by road segments. The NWB 2005 consists of 895,789 road segments and 643,071 junctions. The NWB links various data sources to one another; road crashes are linked to the NWB; registrations of road features make use of the NWB; and road authorities link their traffic counts to the NWB.

Final outcomes

Police data

Road safety statistics were first compiled separately in 1934 and data requirements follow the 1968 UN Vienna Convention. The number and rates of road deaths and injuries in The Netherlands are published annually and jointly by the Ministry of Transport, Public Works and Water Management, Directorate-General for Public Works and Water Management and the Ministry's AVV Transport Research Centre.

The police record road traffic crashes and provide the AVV Transport Research Centre with this data. As in other countries, a large number of casualties go unreported and towards greater accuracy, the AVV, the Central Bureau of Statistics and the SWOV Institute for Road Safety Research have laid down a system of scientific extrapolation methods to determine the official road safety figures for The Netherlands on the basis of data from the National Medical Registers (LMR).

Health sector data

National Patient Register (NPR). The NPR was set up for research and policy purposes. Among other purposes, this database is used to determine the "real" size of the road safety problem. The data are provided by all teaching, general, and virtually all specialised hospitals. The discharge data of patients who have been admitted to a Dutch hospital (i.e., in-patients) form the basis of this database. The NPR contains:

- (anonymous) personal data such as age-group and sex;
- admission date;
- injury diagnoses;
- operation codes;
- type of road accident and transport mode of the patient;
- length of stay;
- type of discharge.

The injury diagnoses are available at a very detailed level (via a code) but are usually presented in a clustered form, such as:

- injury pattern (the percentage distribution of injuries by body parts);
- injury type (such as fractures, wounds, sprains etc.).

Injury Surveillance System. This comprises Accident & Emergency (A&E) data which are collated by the Dutch Consumer Safety Institute and it further contributes to providing a more accurate picture of injuries that would otherwise go unreported. The registered data are personal data, accident type and injuries of all crash victims who were treated in the A&E departments of 17 general and teaching hospitals throughout the country. 15% of the patients registered were victims of road crashes.

Intermediate outcomes

Surveys of intermediate outcomes or performance indicators are carried out by AVV (e.g., on levels of speed, seat belt use, drinking and driving, and a range of other indicators).

Speed surveys. Since 1983, the Ministry's AVV measuring system has measured both the speeds of passing vehicles and the traffic volumes (at 100 locations) by vehicle type. The measurement period is 60 minutes so that the average speed per hour per type can be obtained.

Seat belt use surveys. Observations of the use of seatbelts and child restraints and how head rests are adjusted, are made in a random sample of cars in moving traffic. The

data provide a picture of the national developments in the use of protection devices in cars; linked to a number of personal characteristics, road features, and day of the week. The study is made during four consecutive working days and weekend days from 07.00 to 17.30 h. There are 48 observation locations: in every province on four roads of various types, urban and rural. Observations from a distance provide seatbelt use by gender. If there are any rear car passengers, observations are made from close-by to see if the seatbelts are being used. A questionnaire is also handed out concerning knowledge about and attitudes towards seatbelt wearing; and since 2000, also about the presence of airbags and ABS. The Ministry commissions these surveys from national research organizations (SWOV, 2007).

Survey of drinking and driving. Since 1973, the alcohol consumption of drivers has been systematically studied. Data is available about the percentage of car drivers with a BAC > 0.05% grammes per litre, per province, and has, since 1993, also been available by age, gender, origin, police region, and time of day. Every autumn, a minimum of 1500 motorists per province are tested during weekend nights.

The police measure the blood alcohol content (BAC) or breath alcohol content (BrAC) of a random sample of moving traffic. The breath testing is done with digital breath testers that have been approved by the Dutch Forensic Institute (NFI) and the Ministry of Justice. Besides the BAC or BrAC, the day, time of day, gender, age, origin, main region, province, and municipality size are also registered. Until 1999, the survey was carried out by SWOV. Since 2000, the AVV has carried out the surveys.

Vehicle fleet and road network quality. The Ministry is a member of both the European New Car Assessment Programme and the European Road Assessment Programme which provide intermediate outcome data on aspects of vehicle and road network safety.

2. Transparent review of the national road safety strategy in terms of results, interventions and institutional management functions.

The AVV (now DVS) and the Central Bureau of Statistics play the key role in government in monitoring final outcomes and the effects of targets and analyzing road safety problems. Recent statistical analyses have confirmed that the main contributing factors in deaths in The Netherlands are:

- 20–30% due to alcohol and drugs
- 20% of crashes are due to speeding
- 50% of the serious crashes are caused by single vehicles running off the road
- 16% of the serious crashes involve moped riders
- most of these crashes take place on rural roads with 80 km/h speed limits and on 50 km/h roads inside built-up areas

The *Sustainable Safety* agreements have been evaluated by the *Start Up* partnership. Evaluation of road safety activity is also carried out by national research organizations. For example, the SWOV in co-operation with the Ministry of Interior's Bureau of Traffic Enforcement set up a program to evaluate a 4 year long national police enforcement intensification program carried out in 8 of the 25 police regions, focussing on speeding on trunk and urban through roads, drinking and driving, red light running, seat belt and helmet use by moped riders. The enforcement program is based on a problem analysis of each region.

The Dutch Transport Safety Board (now the Dutch Safety Board) was set up by statute in 1999 to conduct independent investigation into the causes of accidents or incidents in all transport sectors, and to monitor the implementation of recommendations on accidents and incidents. In previous years a Dutch Road Safety Council existed which acted as a road safety watchdog.

3. Making any necessary adjustments to interventions and institutional outputs needed to achieve the desired results

For follow-up from monitoring and evaluation, see *Results Focus* section.

MoT Role: Monitoring and Evaluation

- **The MoT has ensured a comprehensive framework for the monitoring and evaluation of road safety outcomes which is delivered by its agencies assisted by a wide range of organizations.**
- **The MoT publishes road safety results annually and reports these to parliament.**
- **The MoT's research arm—the AVV (now DVS)—manages crash injury databases, carries out periodic monitoring of road safety targets and collects and publishes road safety data, together with the Central Bureau of Statistics, comprising final and intermediate outcome measurement.**
- **The MoT agencies manage the vehicle and driver registries.**

- **The MoT establishes and publishes the socio-economic cost of road traffic injuries periodically.**
- **The MoT helped to establish and participates in the European New Car Assessment Programme to assist monitoring of vehicle fleet safety.**

Research and knowledge transfer[3]

1. Developing capacity for multi-disciplinary research and knowledge transfer

The Netherlands has an active research and development sector and its activities are well supported by the Ministry of Transport and the AVV, one of its specialist departments.

AVV Transport Research Centre is part of the Ministry of Transport and acts as a specialist service to provide knowledge for policymaking. Road safety is a specific research activity alongside a wide range of other transport topics.

SWOV, the Dutch Institute for Road Safety Research is an independent non-governmental organization which is the central research institute for road safety in The Netherlands. Its aim is to pioneer and innovate in road safety research towards safer road traffic. It has a vision of promoting road safety and participates in the social debate and policy preparation.

SWOV is overseen by a Board of Governors with an independent Chairman, a representative from a municipality, the RAI Association, the ANWB motoring organization and a representative commissioned by the SWOV Employees Council. The Board determines SWOV's research strategy and types of cooperation, as well as budgets, financial reports and requests for subsidy. It meets 4 times a year. In 2006, SWOV employed 55–65 staff. The total budget in 2003 was Euro 4.5 million. Its programs of research which are mainly funded (90%) by the Ministry of Transport with external project funding coming from the European Union and other sources. The structure of SWOV is set out in Figure 5.

TNO, the Netherlands Organization for Applied Scientific Research is another major research institute which has a broader remit than road safety but carries out a significant amount of safety research. A small part of its work is subsidized by the Ministry of Transport and it relies upon external funding for road and vehicle safety, with a large part coming from the car industry.

In addition, various universities and educational institutes work on aspects of road safety including the University of Gröningen and the Technical University of Delft.

2. Creating a national road safety research strategy and annual program

Road safety forms one part of the MoT AVV's large research program. There is no published road safety research program.

3. Securing sources of sustainable funding for road safety research

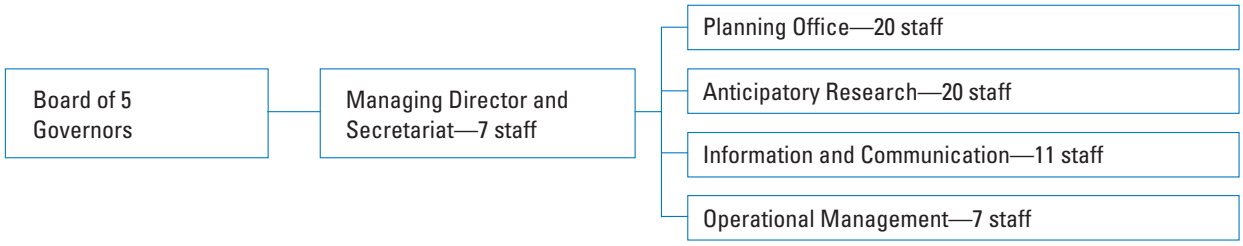
The MoT ensures sustainable annual funding for both in-house and external road safety research.

4. Training and professional exchange

The MoT plays an active international role in knowledge transfer and supports attendance of its personnel at international road safety meetings.

[3]The discussion of research in this case study reflects organization up until 2007. In 2008, AVV merged with another governmental research group to form the DVS Centre for Transport and Navigation in the Department of Traffic and Shipping of the Ministry of Transport, Public Works and Water Management. The road safety research unit within DVS has similar road safety functions to those of AVV.

Figure 5: The structure and staffing of SWOV (2006)



5. Establishing best practice guidelines

The MoT also play a key role in commissioning guidelines. New guidelines have been developed for road safety infrastructure measures such as roundabouts, speed humps, 30 km/h zones, school zones and so on.

CROW, the Centre for Regulation and Research in Civil Engineering and Traffic Technology is a non-profit making foundation which brings together national government, provinces, municipalities, contractors, public transport organizations, consultants and educational establishments to cooperate on the basis of common interests in the design, construction and management of roads, traffic and transportation facilities. It is responsible for developing and maintaining the national design standards for roads and traffic provisions on national highways, rural roads and in urban areas. One of its key road safety initiatives is to produce urban safety guidelines and be a key agent in the implementation of sustainable safety principles by formulating and publishing guidelines for the layout and maintenance of sustainably safe roads. Some activity is financed by the Ministry of Transport.

A new organization has been created recently around knowledge transfer—the KpVV. Dutch professionals are very active in the international arena (e.g., OECD, ECMT, PIARC, EU, EEVC, FERSI, ETSC and the World Bank Global Road Safety Facility).

6. Setting up demonstration projects

The MoT co-financed four large-scale demonstration projects in the western part of the Province of Zeeland, the area of Oosterbek, the area of Grubbenvost and part of the NW Overijssel. The aim was to gather practical experience and transfer knowledge about the application of and decision-making processes involved in implementing sustainable safety principles in conformity with the CROW guidelines.

MoT Role: Research and Development and Knowledge Transfer

- **The MoT has established both in-house capacity and external capacity for research and development and knowledge transfer aimed at achieving road safety results.**
- **The MoT secures funding for road safety research and knowledge transfer in its own budget.**
- **The MoT supports attendance of its personnel at international road safety meetings for professional development.**
- **The MoT supports and disseminates good practice guidelines on road safety and demonstration projects to assist regional and local activity.**

Summary: MoT delivery of institutional management functions

Results focus. The Ministry of Transport, Public Works and Water Management (MoT) is the lead agency for road safety in The Netherlands. The MoT's Roads and Traffic Safety Department (RTSD) has the central responsibility for the development and coordination of road safety targets, strategies and programs at national level. It manages the country results focus and ensures that system-wide interventions are agreed and implemented to achieve related targets by the responsible authorities across government and wider society. The MoT has established capacity for appraising performance and identifying what could be achieved in the medium term. It pursues the long-term vision of *Sustainable Safety* (adopted in legislation) and has established road safety outcome targets in its Mobility Policy Document (2005) as well as regional road safety outcome targets. It has also signed up to European targets to reduce deaths by 50% in EU (by 2010) and ECMT (now ITF) countries (2012), and has established contractual agreements with its partners to achieve results.

Coordination. Outside the Cabinet there is no national multi-sectoral governmental body set up specifically to take decisions on road safety. The MoT provides in-house capacity for coordination and consultation and has set up contractual delivery partnerships with several stakeholders to cement delivery of aspects of the national road safety strategy. The MoT established, managed and funded a system of multi-sectoral consultation at the national level to engage all key players with governmental responsibilities in road safety as well as other key players in achieving road safety results. It engages with parliament, the non-governmental and business sectors in road safety activity. It also engages actively in international coordination.

Legislation. The MoT has established in-house capacity to set and update vehicle, roads and road user rules and standards, some of which are agreed at EU level, with inspection and compliance carried out by departmental agencies and the police. It also establishes small in-house rules teams engaging policy and legal experts in developing and consolidating major primary legislation. The MoT

consults widely on proposals for legislative change at an early stage.

Funding and resource allocation. The MoT ensures a sustainable annual funding source for road safety from general tax revenues. Until 2005 it specifically allocated resources to the Regional Road Safety Agencies (in addition to their own sources of funding sources) via a road safety fund of around €20 million. The MoT periodically reviews the value of preventing road traffic deaths and serious injuries to allow a strong business case to be made for expenditure on road safety. It provides in-house lead agency capacity to evaluate safety costs and benefits, estimate program funding needs and prepare related business cases.

Promotion. The MoT promotes the shared responsibility for road safety in accordance with the *Sustainable Safety* strategy which lead agency ministers and parliamentarians played a key role in launching and promoting. The MoT coordinates multi-sectoral promotion and contracts out targeted road safety publicity in support of major road safety interventions. It helped to set up and supports the European New Car Assessment Programme which promotes vehicle safety. It also promotes and encourages the achievement of road safety results to local and regional levels of government.

Monitoring and evaluation. The MoT has ensured a comprehensive framework for the monitoring and evaluation of road safety outcomes which is delivered by its agencies and assisted by a wide range of organizations. It publishes road safety results annually and reports these to parliament. Its research arm—the AVV (now DVS)—manages crash injury databases, carries out periodic monitoring of road safety targets, and collects and publishes road safety data, together with the Central Bureau of Statistics (comprising final and intermediate outcome measurement) and it carries out periodic monitoring of road safety targets. MoT agencies manage the vehicle and driver registries. The MoT establishes and publishes the socio-economic cost of road traffic injuries periodically. It also participates in the European New Car Assessment Programme to assist monitoring of vehicle fleet safety.

Research and development and knowledge transfer. The MoT has established both in-house capacity and external capacity for research and development and knowledge transfer aimed at achieving road safety results. It secures funding for road safety research and knowledge transfer in its own budget. The MoT supports attendance of its staff at international road safety meetings for professional development and supports and disseminates good practice guidelines on road safety and demonstration projects to assist regional and local activities.

Lead agency structures

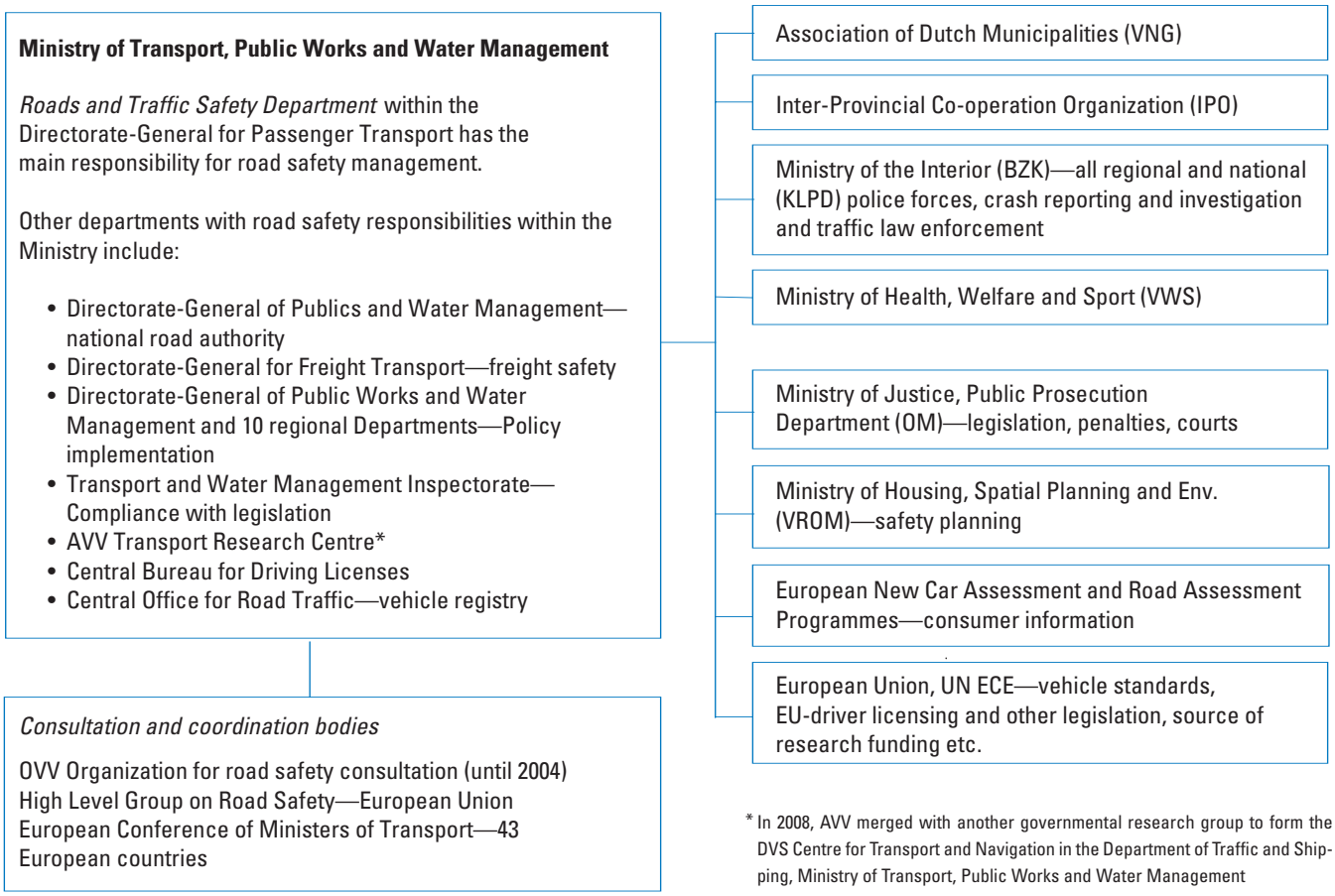
The aggregate and organizational structures of the lead agency for road safety in The Netherlands are set out in Figures 6 and 7.

Coordination structures and a description of related processes are set out in the section on *Coordination* and in Figure 2.

The consultation body (formerly OVV, now OPV) brings together all key partners and stakeholders, including the private sector. Its statutory role is as a platform for mandatory national consultation on the intended policies of the Minister of Transport in relation to organizational matters and transport and traffic-safety related subjects that are primarily the responsibility of other Ministries (see Figure 2 and section on *Coordination*).

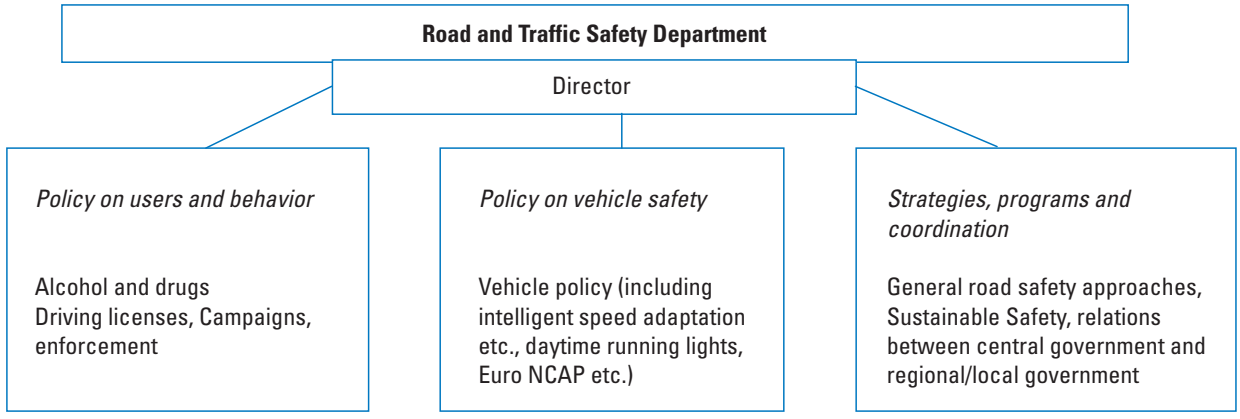
The Roads and Traffic Safety Department (RTSD) was set up in 1970 and sits within the Directorate-General for Passenger Transport. In 2005 RTSD comprised 24 staff members, including an international coordinator. Within the Directorate General for Transport and Logistics, there is also is a small section which deals with road safety in relation to freight transport (including small transport vans and including issues such as safety culture in transport companies).

Figure 6: Aggregate structure of the Road and Traffic Safety Department in Ministry of Transport, Public Works and Management, The Netherlands (1992–2004)



* In 2008, AVV merged with another governmental research group to form the DVS Centre for Transport and Navigation in the Department of Traffic and Shipping, Ministry of Transport, Public Works and Water Management

Figure 7: Organizational structure of the Road and Traffic Safety Department in Ministry of Transport, Public Works and Management, The Netherlands (2005)



Bibliography

Ministerie van Verkeer en Waterstaat, *Mobility Policy Document*, The Hague, 2005.

ECMT (2004). *Road safety: Implementation of the objective—50% killed by 2012, Monitoring Procedure*, CEMT/CM (2004) 12, Paris.

European Commission, *A European Road Safety Action Program: Halving the number of road accident victims in the European Union by 2010: A shared responsibility* http://europa.eu.int/comm/transport/road/roadsafety/rsap/index_en.htm

Eds. Peden M, Scurfield R, Sleet D, Mohan D, Hyder A, Jarawan E and Mathers C (2004). *World Report on Road Traffic Injury Prevention*, World Health Organization, World Bank, Geneva, 2004.

OECD (2002). *What's the Vision?* Organization for Economic Co-operation and Development, Paris, 2002.

Aeron-Thomas A, Downing AJ, Jacobs GD, Fletcher JP, Deslby T and Silcock DT (2002). *A review of road safety management and practice*. *Final report.* Crowthorne, Transport Research Laboratory and Babtie Ross Silcock, 2002 (TRL Report PR/INT216/2002).

Koornstra M et al. 2002. *SUNflower: a comparative study of the development of road safety in Sweden, the United Kingdom, and The Netherlands*. Leischendam, Dutch Institute for Road Safety Research, 2002.

Wegman F, Elsenaar P (1997). *Sustainable solutions to improve road safety in The Netherlands.* Leidschendam.

Institute for Road Safety Research, 1997. (SWOV Report D–097–8).

Institute for Road Safety Research (SWOV) www.swov.nl

Jeijkamp AH and Kraay JH, *Road safety in The Netherlands: we all work together,* AVV Transport Research Center, Ministry of Transport, Rotterdam. April 2001.

Kraay JH, *Mobility and road safety: Dutch road safety policy 2001–2020*, Paper presented to 21st Annual South African Transport Conference, Pretoria, July 2002.

Wegman F, *Sharing responsibility: central and local government partnership*, ETSC Best in Europe Conference, September 2000, Brussels.

Kraay JH, *The Netherlands Traffic and Transport Plan: Road safety with a special focus on speed behavior*. Paper presented to Intelligent Speed Adaptation, Nagoya, May 2002.

AVV Transport Research Centre, http://www.rws-avv.nl/. The Netherlands.

Ministry of Transport, Public Works and Water Management, http://www.verkeerenwaterstaat.nl/. The Netherlands.

Wegman F & Dijkstra A, *Sustainable Safety In The Netherlands: The Vision, The Implementation And The Safety Effects*, 3rd International Symposium On Highway Geometric Design, Chicago, Illinois, June 26–July 2, 2005.

European Commission, Country Profiles Road Safety—The Netherlands, 2005. http://ec.europa.eu/transport/roadsafety/road_safety_observatory/doc/profiles/pdf/countryprofile_nl_en.pdf

Wegman F and Aerts A Eds., *Advancing Sustainable Safety, National Road Safety Outlook for 2005–2020*, SWOV Institute for Road Safety Research, Leidschendam, 2006.

Ministry of Transport, Public Works and Water Management, AVV, *Road Safety in The Netherlands, Key Figures 2006.*

1.4 Road safety organization in Sweden

National context

KEY FACTS: 2006

Area:	**449,964 km^2**
Population:	**9.5 million**
Kilometers of public road:	**215,000**
Number of licensed motor vehicles:	**5.2 million**
Road deaths per 100,000 of population:	**4.9**
Total road deaths	**445**

Source: IRTAD, 2008

Road safety in Sweden is a shared responsibility at governmental level between the European Union (which has key responsibilities in areas such as vehicle safety and driver licensing), and national and local government. Road safety is pursued within a total transport context characterized by the demand for integrated service delivery that meets the multiple goals of sustainable development. While the Ministry of Industry, Employment and Communications has legal responsibility for national road safety, the Swedish Road Administration (SRA) is the national authority assigned the overall sectoral responsibility for the entire road transport system.

Road safety in Sweden is more centralized than most of the other high-income case study countries. The road network is divided into national roads (the vast majority), local authority roads and private roads. Regionally, Sweden is divided into 21 counties and 289 municipalities which, within certain limits, can make local decisions in road safety.

Sweden has a long tradition in road safety work and is a global leader. Road safety is a national priority. Sweden's aim is to create a well-developed, extensive and long-term sustainable transport system that enables safe and secure accessibility and eliminates the risk of fatal and serious road crashes. Road safety is integrated into urban planning, the design of the road environment, quality assurance in transport, work environment measures and vehicle development. Legislation underpins a long-term goal and interim road safety targets for motivating and involving a broad spectrum of stakeholders.

In the 1940s and 1950s the motorization level in Sweden increased rapidly and the number of road traffic deaths increased in parallel. This development continued until the transition from left to right hand traffic in 1967. This event marked the start of systematic road safety management and of a long-term trend in decreasing death rates, as shown in Figure 1. A stand-alone agency for road safety was created in 1968—the National Road Safety Office—which had coordination responsibility but little executive responsibility and resource. Deaths declined over a period of around 15 years but then started to increase. After an investigation into how road safety management could be made more efficient, the National Road Safety Office became part of the SRA in 1993.

Since 1997 Sweden has been working towards its highly ambitious long-term goal to eliminate death and serious injury in its road traffic system. *Vision Zero* has been a key driver of innovation based on well-established safety principles and wider implementation of key interventions. The general focus since its introduction has clearly been leading edge work towards sustainable longer term improvements to save lives and prevent serious injuries into the future. *Vision Zero* has also created significant international interest. Several European countries and Australian States have based safety strategies on this concept.

This case study focuses on the country delivery of institutional management functions in Sweden, the lead agency role and the structures and processes put in place to meet long term goals and interim quantitative targets.

Country delivery of institutional management functions and lead agency role

Results focus

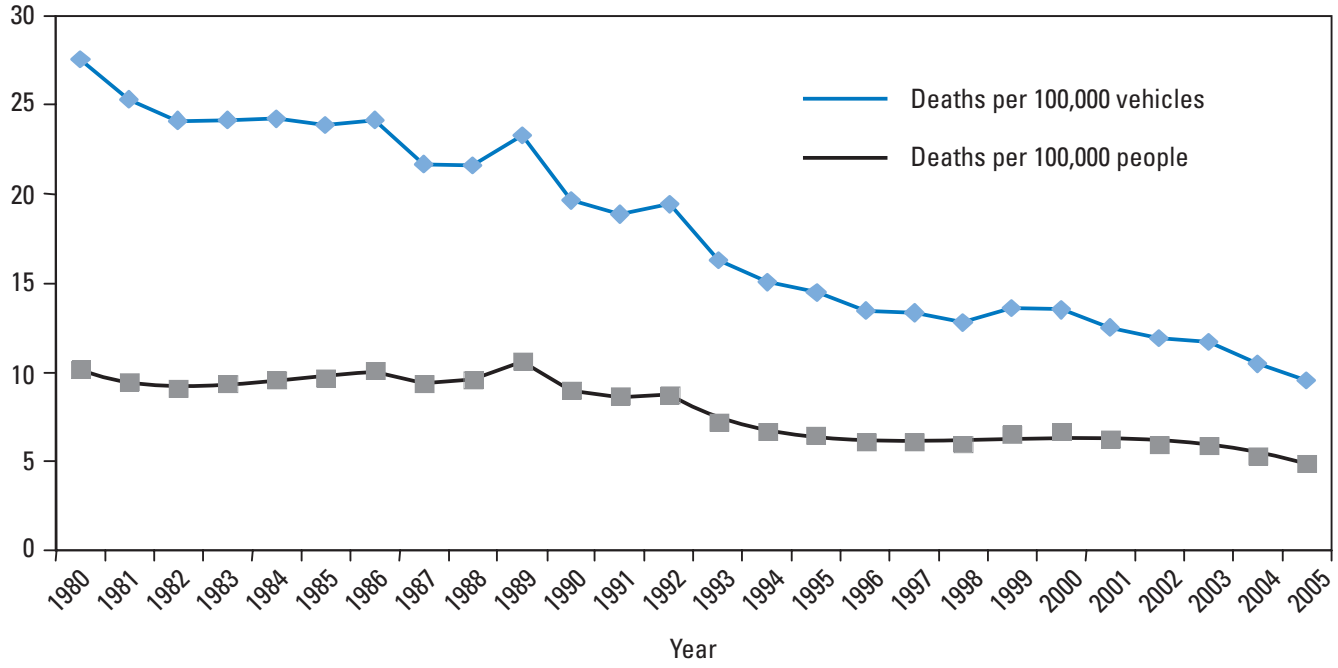
Sweden has a long tradition in country results focus and has defined a new performance frontier for country ambition for road safety. A long-term road safety vision for the future safety of the road transport system has been set, leadership responsibilities and accountabilities for action are well defined, and an organizational framework exists for analysing data and safety performance and setting final and intermediate outcome targets at national level.

Lead agency

The SRA is the accountable lead agency for road safety in Sweden.[4] Its mission is to create a safe, environmentally sound and gender-equal road transport system that con-

[4]Some of the SRA's institutional management functions including legislation and inspection are being transferred to a new Swedish Transport Agency which was established in January 2009. A new road safety strategy department was established in SRA's Society and Traffic Department in 2008.

Figure 1: Road deaths per 100,000 vehicles and population 1980–2005



Source: SRA, 2006

tributes to regional development and offers individuals and the business community easy accessibility and high transport quality. Road safety is integrated into all areas of operation.

1. Appraising current road safety performance through high-level strategic review

A Commission of Inquiry into Road Traffic Responsibility was set up in 2000 to review shared institutional responsibilities and the establishment of a new Inspectorate in support of *Vision Zero*.

The SRA establishes and reviews road safety performance in-house, in cooperation with other government agencies (e.g., the Swedish Institute for Transport and Communications Analysis (SIKA) and the Road Traffic Inspectorate) and external experts and discusses these within its consultation bodies. The SRA chairs reviews of road safety performance, commissions background papers and makes proposals for follow-up action.

A full road safety management capacity review by independent experts using the assessment framework used in World Bank road safety work was commissioned by the SRA in 2007 and published in 2008 (Breen, Howard & Bliss, 2008). The aim of the review was to assist in the preparation of interim targets and a new road safety strategy to 2020. The review's purpose was to examine the capacity of the current road safety management system to deliver *Vision Zero* and identify priority initiatives to be taken to ensure success. Information and assessments were provided by more than 40 stakeholders at senior management level in government, civil society and business.

2. Adopting a far-reaching road safety vision or goal for the longer term

The *Vision Zero* is that *eventually no one will be killed or seriously injured within the road transport system*. In 1998, *Vision Zero* was adopted as a goal of the National Transport Policy (see Boxes 1–2).

Vision Zero is profoundly influencing global road safety thinking and policy. It has led to innovative strategies and solutions which have inspired and engaged national stakeholders as well as road safety professionals worldwide.

3. Analyzing what could be achieved in the medium term

There is a long tradition of research and analysis in the target-setting process is Sweden. Analytical work has

Box 1: The Swedish *Vision Zero*

Vision Zero is a traffic safety policy developed in Sweden in the late 1990s and based on four elements: ethics, responsibility, a philosophy of safety, and creating mechanisms for change. The Swedish Parliament voted in October 1997 to adopt this policy and since then several other countries have followed suit.

Ethics. Human life and health are paramount. According to *Vision Zero* life and health should not be allowed in the long run to be traded off against the benefits of the road transport system, such as mobility. Mobility and accessibility are therefore functions of the inherent safety of the system, not vice versa as it is generally viewed today.

Responsibility. Until recently responsibility for crashes and injuries was placed principally on the individual road user. In *Vision Zero* responsibility is *shared* between the providers of the system and the road users. The system designers and enforcers—such as those providing the road infrastructure, the car industry and the police—are responsible for the functioning of the system. At the same time the road user is responsible for following basic rules, such as obeying speed limits and not driving while under the influence of alcohol. If road users fail to follow such rules, the responsibility falls on the system designers to redesign the system, including rules and regulations.

Safety philosophy. In the past the approach to road safety was generally to put the onus on the road user. In *Vision Zero* this is replaced by an outlook that has been used with success in other fields. Its two premises are: human beings make errors; and there is a critical limit beyond which survival and recovery from an injury are not possible. It is clear that a system that combines human beings with fast-moving, heavy machines will be very unstable. It is sufficient for a driver of a vehicle to lose control for just a fraction of a second for a human tragedy to occur. The road transport system should therefore be able to take account of human failings and absorb errors in such a way as to avoid deaths and serious injuries. Crashes and even minor injuries on the other hand, need to be accepted. The important point is that the chain of events that leads to a death or disability must be broken, and in a way that is sustainable, so that over the longer time period loss of health is eliminated. The limiting factor of this system is the human tolerance to mechanical force. The chain of events leading to a death or serious injury can be broken at any point. However, the *inherent* safety of the system—and that of the road user—is determined by people not being exposed to forces that go beyond human tolerance. The components of the road transport system, including road infrastructure, vehicles and restraint systems, thus need to be designed in such a way that they are interlinked. The amount of energy in the system must be kept below critical limits by ensuring that speed is restricted.

Driving mechanisms for change. To change the system involves following the first three elements of the policy. While society as a whole benefits from a safe road transport system in economic terms, *Vision Zero* relates to the citizen as an individual and his or her right to survive in a complex system. It is therefore the demand from the citizen for survival and health that is the main driving force. In *Vision Zero* the providers and enforcers of the road transport system are responsible to citizens and must guarantee their safety in the long term. In so doing they are necessarily required to cooperate with each other, for simply looking after their own individual components will not produce a safe system. At the same time the road user has an obligation to comply with the basic rules of road safety. In Sweden the main measures undertaken to date include:

- setting safety performance goals for various parts of the road traffic system;
- focusing on vehicle crash protection, and support for the consumer information program of the European New Car Assessment Programme (EuroNCAP) and securing higher levels of seat-belt use and fitting smart, audible seat-belt reminders in new cars;
- installing crash-protective central barriers on single-carriageway rural roads and encouraging local authorities to implement 30 km/h zones;
- wider use of speed camera technology; and an increase in the number of random breath tests;
- the promotion of safety as a competitive variable in road transport contracts.

While the *Vision Zero* does not say that the road safety historically have been wrong, the actions that would have to be taken are partly different. The main differences probably can be found within how safety is being promoted; there are also some innovations that will come out as a result of the vision, especially in infrastructure and speed management.

A tool for all. *Vision Zero* is relevant to any country that aims to create a sustainable road transport system, and not just for the excessively ambitious or wealthy ones. Its basic principles can be applied to any type of road transport system, at any stage of development. Adopting *Vision Zero* means avoiding the usual costly process of trial and error, and using from the start a proven and effective method.

Source: World Report on Road Traffic Injury Prevention (2004)

Box 2: Adopting *Vision Zero* and the role of the lead agency

The Swedish *Vision Zero* was an initiative of the Swedish Road Administration (SRA), the lead agency for road safety. In 1995, the SRA started to express the idea that road safety should follow the same principles that healthcare had been following for many years, namely that everything possible should be done to prevent the loss of human life. The Road Safety Director started to formulate a number of ethical rules on which road safety work could be based.

After further development by the SRA, *Vision Zero* was launched and vigorously promoted by the lead agency and the Transport Minister. The introduction of Vision Zero facilitated lead agency communication with parliamentarians and decision-makers on road safety and changed political attitudes at national, regional and local levels. The marketing of *Vision Zero* towards politicians proved successful and in 1997 *Vision Zero* was raised in parliament and approved, with a 10 year numerical target as a first step, as the basis for the future road safety work in Sweden.

Vision Zero secured more money for road safety and rapid acceptance locally where much road safety work in Sweden is carried out. Another effect of *Vision Zero* was to help create demand amongst the public for action on the part of policymakers. In its promotional work, the SRA secured cross-government support for the *Vision Zero* strategy in national transport policy and secured its role as the main driver for road safety work in Sweden.

typically been commissioned from several research organizations and consultants to assist with the preparation of new road safety programs and targets. These identify the key problem areas and the potential contribution of a variety of interventions. Consultation takes place with key stakeholders through a range of consultation bodies. At the invitation of the Ministry of Industry, Employment and Communications, the SRA has recently proposed a range of new interim quantitative targets to government, including intermediate outcomes.

4. Setting targets by mutual consent across the road safety partnership

Final outcome targets

Sweden's most recent interim road safety target was to reduce deaths by 50% by 2007 compared with 1996 levels. While there were 70 fewer deaths annually since 1997, the interim target was not met.

Swedish practice in recent years has been for top-down quantitative national fatality targets to be set. The target was mandated by parliament in 1997 together with *Vision Zero*. In 1999, an 11 point plan was presented by the Swedish Ministry of Industry, Employment and Communications setting out measures to address the interim target (see Box 3).

The effects of these measures were assessed by the SRA in 1999 and it was concluded that the 11 point program would probably be insufficient to realise the target set for 270 fatalities in 2007. Since 2000, there has been very significant road safety activity but no subsequent published plan of specific and agreed multi-sectoral casualty reduc-

Box 3: Swedish government's 11 point plan (1999)

- *Safer traffic in built-up areas.* Separating various categories of road users. Where various categories of road users have to share the same space, reduce the speed limit.
- *Roundabouts.* Conversion of intersections to roundabouts.
- *Safer vehicles.* To increase passive vehicle safety (crashworthiness) standards. The Swedish Road Administration is a member of the European New Car Assessment Programme (Euro NCAP).
- *Cable guard rails.* Special central crash barriers
- *Safer motorways.* Safety improvement of older motorways by placing guards rails at steep cliffs, and replacing rigid posts and guard rails with types that yield.
- *Right speed.* Review of speed limits on national roads, in order to adjust the speed limit to the safety standard of the road. Sweden is advanced in research into Intelligent Speed Adaptation (ISA), with currently thousands of equipped vehicles.
- *Seat belt reminders.*
- *Cycle helmets.* Campaigns to increase the use of cycle helmets.
- *'Knights of the road.'* Timely help at a crash scene can save lives and reduce the seriousness of injuries. Professional drivers are often the first on site, and are being trained in first aid.
- *Speed surveillance.* Enforcement of speed limits by speed cameras.
- *Safer road transport.* Safer commercial vehicle operations.
- *Travel policy in companies.* Integrating safety into company travel policy, demanding employees to abide by the speed limit, to use seat belts, and not to drink and drive.

Box 4: Key road safety objectives in the SRA 2008–2017 plan

The long term goal is that no-one should be killed or seriously injured in traffic. The intermediate goal to 2007 is no more than 270 deaths. A new interim target is being formulated.

- On parts of the network with speed limits of 90 or 110 km/h and more than 3500 vehicles a day, 90% of traffic shall be separated by 2015 and 70% of traffic shall be separated on larger state roads irrespective of traffic volume.
- The number of children in urban and rural areas who can travel safely to school shall increase annually to 2017.
- By 2010, 50% of all new cars used by companies in Sweden shall have alcohol interlocks.
- The use of cycle helmets shall be increased by 2017.
- Traffic on roads with automatic speed cameras should be doubled by 2010 compared with 2006.
- By 2010, all new cars sold in Sweden should have seat belt reminders
- Citizen's knowledge about the basis for safe and sustainable use of the system should increase.
- Every year should see improvements in vehicle technology. Between 2008–17, these should result in at least 10 fewer deaths than the previous year.

tion measures has been implemented to address the 2007 target. The SRA works to its long term strategic plan for 2008–2017 (see Box 4).

The national interim targets were disaggregated regionally with each SRA region required to reduce deaths by the same proportion as the national target. Municipal targets and plans have been set in several cities and municipalities including Stockholm and Göteborg. The vehicle manufacturer Volvo has also set a target that by 2020, no-one should be killed or severely injured in or by a Volvo.

Sweden has also signed up to targets set by the European Union and the European Conference of Ministers of Transport (now ITF) to reduce deaths by 50% by 2010 in EU countries and ECMT countries.

Intermediate outcome targets

Sweden was one of the first European countries to establish a results management framework using intermediate outcome targets. In the 1995–2000 program 11 intermediate outcome targets were set, including increasing seat belt use, reducing speed or reducing drinking and driving (see Box 5).

It is anticipated that targeting and monitoring a range of intermediate outcomes will provide the basis for the new strategy to meet its interim casualty reduction targets.

5. Establishing mechanisms to ensure stakeholder accountability for results

The SRA's responsibilities for road safety are set out every year in its Annual Report. The SRA target is the same as the national target but further annual goals are specified

Box 5: Intermediate outcomes targeted in the 1995–2000 program

- Percentage of the population who regard road accidents as a public health problem
- Percentage above the legal BAC limit in police checks
- Percentage of all vehicle kilometers of driving exceeding speed limits
- Percentage of vehicles following too closely
- Proportion of streets that do not satisfy safety standards
- Proportion of rural roads that do not satisfy safety standards
- Percentage of car occupants using safety devices
- Safer cars index for crashworthiness
- Percentage of pedestrians and cyclists using reflective devices
- Percentage of cyclists wearing helmets
- Average response time from emergency call to treatment

in performance agreements. For example in 2003, the specified goal was to implement cost-effective road safety measures on the state road network so that the number of deaths is reduced. Measures that aim to improve traffic safety of children are to be prioritised.

The outputs and contributions of other key partners are based on formal *Declarations of Intent* and are published on the SRA website. The independent review in 2007 noted that to achieve the high ambition of *Vision Zero* the lead agency role required strengthening and broad engagement across the government partnership was called for. It concluded that internal reviews by agencies and Ministries would be needed to ensure that management capacity is available to deliver agreed targets en route to *Vision Zero*.

SRA Role: Results Focus

- **The SRA has the main responsibility in Sweden for managing the country results focus.**
- **The SRA reviews performance, proposes goals and targets and carries out intervention in the road network.**
- **The SRA developed and leads *Vision Zero* and is responsible for the achievement of national targets, underpinned by a performance agreement with the Ministry of Industry, Employment and Communications.**

Coordination

In recent years, the SRA has been expanding its external partnership capacity to deliver the challenging *Vision Zero* strategy which, in addition to its own efforts, necessitates meaningful shared responsibility for road safety by all those who have an effect on, or participate in road traffic.

1. Horizontal coordination across central government

The Cabinet supported by the Ministry of Industry, Employment and Communications and SRA is at the top of the national decision-making hierarchy.

Within SRA three organizational entities deal with the coordination of interventions, each having their own small secretariat situated within the SRA. These are:

- the SRA's Director General's *Advisory Council on Road Safety* which is a high-level group of 7 governmental and non-governmental stakeholders which meets twice a year. It was set up as an advisory group to the Director-General with members invited individually.
- the *National Coordination Assembly* (NCA) has 8 members (Ministry of Enterprise, Energy and Communications, Swedish Association of Local Authorities and Regions, National Society for Road Safety, National Police Board, Swedish Work Environment Authority, Folksam, Toyota Sweden AB, Swedish Road Administration), brings together 15–20 people and meets 6 times a year. The aim is 'to share knowledge and coordinate the activities of key players with the intention of making *Vision Zero* a reality.' A NCA steering group acts as a reference group for proposals for the new interim target.
- the *National Road Safety Assembly* (started in 2002 at the instruction of the Ministry of Industry, Employment and Communications) brings together a very broad group of stakeholders (about 40—road user and transport industry stakeholders are prominent) at national (3 meetings a year) and regional levels. The Assembly works in specific areas: speed, drinking and driving, seat belt use, children and young people in traffic and two wheeled motor vehicle crashes and reports over 3000 individual activities (see Box 6).

The consultation/coordination hierarchy for road safety in Sweden is set out in Figure 2.

The independent review in 2007 noted that an effective inter-departmental decision-making body for policy, legislation and budgets could enhance Sweden's impressive

Box 6: The National Road Safety Assembly, Declarations of Intent, and the OLA method in Sweden

The Assembly promotes and coordinated the wider shared responsibility in *Vision Zero* by bringing together representatives from around 30 national organizations affected by road traffic issues—companies, government agencies, trade unions and interest organizations. It aims for parties to issue declarations of intent and devise measures to promote improved road safety in the areas of speed, safety systems, sobriety on the roads and children and young people in traffic. The declarations are published on the SRA website and are the product of the OLA method. The OLA is a new method devised by the lead agency for promotion co-operation and allocation of responsibility between partners working in road safety in Sweden. The SRA's new 100% investigation of fatal crashes provides a data-led focus for this 3 phase process following a road death carried out at national and regional levels:

Phase 1: Parties involved come to a consensus around a problem scenario—*objective* facts

Phase 2: Based on these facts, ideas for short and long term *solutions* are identified

Phase 3: Each party then devises measures to avoid such a death occurring again formulated as *declarations of intent* which are followed through.

To date OLAs have been carried out in the following areas: heavy good vehicles in urban areas, bus passenger safety, safer moped traffic, young drivers aged 16–24, safer heavy goods vehicle transport and moped safety. The Inspectorate follows up all national OLA projects and makes random checks of regional projects.

Figure 2: Multi-sectoral coordination arrangements for road safety in Sweden (2008)

array of consultation/ coordination bodies in the delivery of *Vision Zero* and interim targets.

2. Vertical coordination from central to regional and local levels of government

Responsibility for infrastructure in Sweden has primarily been with central government and in 1991 it became directly responsible for the whole national network. The main road safety engineering programs have always been defined at national level. The seven regional SRA offices prepare long-term strategies in support of targets based on long-term SRA strategic guidelines and annual instructions in their annual transport polices and programs. The regional office liaises with local government and pump-primes local initiatives. Agreements between the municipalities and the regional offices for specific actions are common.

In 2007, the National Police Board started to coordinate the national road safety policing strategy with the 21 autonomous county police authorities. Specific allocations of funding outputs and equipment have been used by SRA to encourage roll out of effective activity at regional level towards achieving national road safety results.

Vertical coordination of activity also takes place within the framework of the National Road Safety Assembly.

3. Specific delivery partnerships between government, non-government, community and business at the central, regional and local levels

SRA and the Swedish Work Environment Authority. A strong partnership exists between the SRA and the Swedish Work Environment Authority in pursuit of safer work-related travel and the shared responsibility of employers for road safety.

SRA and local authority partnerships. The SRA at national level has also developed a strong working partnership with the Swedish Association of Local Authorities and Regions which is represented in the National Assembly for Road Safety. In 1992 and in partnership with the lead agency, 102 local authorities re-classified their road network to better reflect safety needs under the *Safer Traffic in the Municipalities* program. Since 1998 local authorities have been able to reduce urban speed limits to 30km/h, which has led to increased implementation of 30km/h streets in Sweden. In support of this activity, the Swedish Association of Local Authorities in co-operation with the SRA and Swedish Police created a tool for planning and implementation called *Calm Streets*. This outlines a strategy for lower speeds in urban street networks and has engaged about 90 municipalities. In partnership with the SRA, local authorities conduct traffic network analysis and action programs with the work partially funded by the SRA.

SRA and police partnerships. A strong partnership between SRA and the police at regional and national levels has been developed. Formal contractual agreements have resulted in enhanced and data-led enforcement activity which continues to develop. SRA funding, for example, has boosted police activity on enforcing excess alcohol legislation.

SRA and the National Agency for Education collaborate and monitor road safety education in schools.

Non-governmental sector engagement

The non-governmental sector is active in Sweden and is well supported by the SRA. For example, the SRA has actively over a long period of time engaged and provided financial support for the main umbrella organization, the *National Society for Road Safety (NTF),* and contributed around 60% of NTF's funding. NTF participates in all the SRA coordination committees. NTF consists of 23 county road safety federations, 70 national, interest and professional organizations and many local voluntary associations. The national office employs 27 staff and there are around 80 regional office staff. Its key function is promotion of *Vision Zero.* NTF's objectives are to stimulate public awareness of the right to safe road traffic in which deaths and serious injuries are considered unacceptable, increase people's will to call for and their ability to contribute to safe road traffic and to promote awareness of the importance of road safety to public health. The SRA has also established important working relationships with the *Swedish Association of Motorists Against Drink Driving (MHF),* to promote interventions aimed at reducing drinking and driving and the *Swedish Automobile Association* to establish and promote Euro RAP.

Business sector engagement

The SRA has actively and successfully engaged with the business sector. Together with the Swedish Work Environment Authority and other partners, it has worked with transport industry groups towards specific outcomes. SRA has also developed effective partnerships with the car and truck and insurance industries to advance the fitment nationally of key technologies (e.g., seat belt reminders, alcohol interlocks and electronic stability control (see Box 7)).

The Swedish Work Environment Authority encourages employers who operate vehicles as part of their work to develop road safety policies and programs (e.g., seat belt use, driving without alcohol and drugs), monitoring of employees compliance with these rules by the employer, and the installation of safety equipment in vehicles (e.g., seat belt reminders, alcohol ignition interlock for commercial vehicles).

The SRA had also encouraged Swedish car manufacturers to engage in demonstration projects. Saab, for example, fitted seat belt reminders, speed limiters and alcohol-interlock devices in vehicles used in the Trollhättan demonstration project. Volvo and Folksam also engage in national co-operative research and Folksam Research has developed a used car safety rating system to provide objective information for prospective car buyers.

European coordination

There is also coordination with European partners as Sweden is a member of the European Union and UN ECE which determine international vehicle safety standards. At EU level, the SRA, as an agent of the Ministry of Industry, Employment and Communications, contributes to bodies

Box 7: Lead agency initiatives to engage the business sector in Sweden

Examples include:

- Helping to establish the European New Car Assessment Programme publishing ratings on the crash performance of new cars which has led to significant improvements in safe car design
- Using safety ratings in SRA travel policies to encourage demand for improvements in vehicle safety
- Encouraging local car industry to fast track the fitment of seat belt reminder systems
- Encouraging road haulage and taxi companies to adopt a range of safer practices e.g., the fitment of alcohol-lock devices to detect excess alcohol and the fitment of seat belt reminders by stipulating safety demands such as these in transport contracts.
- Engaging the business sector and other organizations through establishing the National Assembly for Road Safety. This consultative and coordinating body encourages traffic stakeholders to make far-reaching promises to improve road safety. The taxi and road haulage sectors, for example, made commitments regarding the increased use of seat belts, better observance of speed limits and driving without alcohol.

such as the European Commission's *High Level Working Group on Road Safety* and its sub-groups and *the Motor Vehicles Working Group* which work on the EU road safety policies. The SRA was also a key founding partner of the *European New Car Assessment Programme* (Euro NCAP) which is currently chaired by the SRA Director of Safety. SRA has actively supported the *European Road Assessment Programme (Euro RAP*) and provides key technical expertise for the development of its protocols. These provide consumer information and safety rating to road users in Europe. Sweden was also a member of the *European Conference of Ministers of Transport* (now ITF) and played an active part in its work. SRA has also actively supported specific activities of the Brussels-based *European Transport Safety Council.*

4. Parliamentary relations at central, regional and local levels

The ministry and the SRA engaged actively in parliamentary relations in the development of *Vision Zero*. The Swedish Parliament's Committee on Transport and Communications comprising 17 members deals with road safety. The parliament has a discussion on road safety at least once a year and influences the road safety budget. Road safety problems have been investigated by the Committee and policies developed. This Committee played a key role in enshrining the *Vision Zero* policy in legislation and introducing numerical fatality reduction targets to 2007 to encourage fast action and focus. In 2004, the Committee organized a European meeting of parliamentary Select Committees on Transport to discuss priority actions for European Union road safety policy.

At regional level, elected representatives have taken part in SRA regional meetings. The Swedish Association of Local Authorities and Regions has produced a guide *One Moment*, which it has distributed to elected representatives. Funded by the SRA, the guide is to increase awareness of the key road safety issues and principles involved in *Vision Zero*

SRA Role: Coordination

- **The SRA established, chairs, manages and provides a dedicated secretariat in-house for three coordination bodies which engage all the main players with governmental responsibilities in road safety as well as other key players in addressing *Vision Zero* and national targets. These bodies, however, are designed more for sharing knowledge, discussing interventions and stimulating stakeholder contributions rather than being decision-making bodies at the national level.**
- **The SRA also ensures that there is vertical coordination between governmental bodies and funds tools and specific road safety outputs for use by regional and local authorities.**
- **In recent years, the SRA has expanded its external partnership capacity to deliver the *Vision Zero* concept and has developed partnerships with a wide range of professional, research, non-governmental, user and industry groups.**
- **The SRA tries to ensure stakeholder accountability through its OLA process which involves the use of Declarations of Intent.**

Legislation

Sweden has enacted a broad range of legislative instruments over the last 50 years which provide the foundation for road safety work as illustrated by the examples presented in Box 8. Of particular note is that Sweden has a combination of the lowest blood alcohol limits and speed limits in Europe. An interesting omission in relation to international practice is a working penalty points system and the use of owner-liability procedures in speed camera enforcement.

The two main Acts related to road safety are the Road Traffic Ordinance (1998:1276) and the Road Act (1971:948) which, together with other legislation on road traffic, are primarily administered by the Ministry.

1. Reviewing the scope of the legislative framework periodically

The SRA, in consultation with its partners, reviews legislative needs from time to time.

Commissions of Inquiry. Before the government submits a proposal for a new law to the Riksdag (Swedish Parliament), it normally has to examine the various alternatives available. This task is assigned to a Commission of Inquiry comprising experts, officials or politicians. The Commission of Inquiry submits its recommendations in a report. The government then refers the report to various public agencies, organizations and municipalities for consideration.

The government set up a Commission of Inquiry into Road Traffic Responsibility in 2000. It recommended to the government that *Vision Zero* and the responsibility of

Box 8: Examples of road safety legislation in Sweden

1951 Introduction of 0.05% blood alcohol limit and 0.15% (with more severe penalties)
1972 Differentiated speed limits
1975 Mandatory front seat belt use
Motorcycle helmet use
1976 Driving tests for motorcyclists
1977 Mandatory use of daytime running lights
1978 Mandatory moped helmet use
1979 Mandatory cycle light use at night
1983 Mandatory front seat belt use in taxis
1986 Rear and front reflectors required on bicycles
Mandatory rear seat belt use by adults in cars
1987 Mandatory use of restraint systems for children
1988 Speed limit of 100 km/h reduced to 90 km/h during the summer
1990 New theory test to be passed before the driving test
Blood alcohol limit is lowered from 0.05 to 0.02%
Evidential breath testing
1993 SRA taken over responsibility for road safety from the Road Safety Office
1995 Steel wire median barriers allowed on motorways
1997 *Vision Zero* strategy is approved by parliament
Reduced speed limits from 100 to 90 km/h on certain roads
1998 Local communities have the right to decide on lowering speed limits to 30 km/h
2000 Priority for pedestrians on pedestrian crossings
2005 Mandatory bicycle helmet use for children under 15 years of age

the system designers for road safety be regulated by law and that a road traffic inspectorate be established. Legislative provisions for *Vision Zero* and the establishment of an inspectorate were subsequently enacted.

Periodic review of the legislative needs of the strategy by government takes place on a measure by measure basis. For example, in 2005, the compulsory use of bicycle helmets for children under 15 was introduced. Legislation was approved in 2007 to amend the Swedish classification of speed limits. Results of a review of alcohol interlocks were published in 2007. A new strategy provides for the introduction of alcohol interlocks for all convicted drinking and driving offenders (one third are recidivists); a change in EU rules to introduce alcohol interlocks or other techniques that prevent impaired driving in all new commercial buses and lorries (drinking and driving is as common here as in other driving); companies to be encouraged to fit alcohol interlocks to company cars; alcohol interlocks in all public transport and enabling legislation to be introduced. In several instances, however, the SRA has proposed important amendments to legislation which have not been taken up (e.g., age of access to moped use and definitions of shared institutional responsibility for *Vision Zero*).

2. Developing legislation needed for the road safety strategy

Proposals from government. Once the Commission of Inquiry has presented its report to the government, the government adopts a position on the recommendations and proposals in the report and from the various referral bodies. It then presents its own proposal for a new law in a government bill. The government bill is normally sent to the Council on Legislation which examines whether the new law conflicts with any existing legislation. Government then sends the proposal to parliament which is forwarded to the relevant parliamentary committee.

Members of parliament. The Riksdag can also submit proposals concerning legislation in the form of private member's motions. These motions may be submitted by one member or by a group of members. Private member's motions are submitted after the government has submitted a Bill to the Riksdag and must be based on the proposal put forward by the government.

The Committee on Transport and Communications of 17 members representing the parties in proportion to their relative strengths in the Riksdag deals with matters relating to railways, postal and telecommunications (PTT) services, roads, road transport and safety, shipping, civil aviation and meteorological services, information technology (IT) and communications research. The members of the parliamentary committee discuss the matters that are raised in the committee with their party colleagues in the Riksdag followed by Chamber debates and votes. Government is then informed of its decision leading to implementation.

With primary legislation or enabling legislation in place, many road safety regulations are introduced by simpler procedures.

3. Consolidating legislation

Key legislation is consolidated from time to time.

4. Finding legislative slots in government and parliamentary programs

A special road traffic legislation unit exists within the SRA to deal with government legislation. The main role, however, is performed by the Ministry of Industry, Employment and Communications which also takes on the liaison role with other government departments in deciding on legislative needs and exploring opportunities for legislative slots. Around 10 people in the transport policy department of the Ministry work on road safety.

SRA Role: Legislation

- **The SRA has established a comprehensive legislative framework which has evolved over the years.**
- **The SRA proposes vehicle, roads and user rules and standards, some of which are agreed at EU level, with inspection and compliance carried out by departmental agencies and the police.**
- **The SRA has established in-house capacity to propose, ensure compliance with and monitor road safety standards for vehicles, roads and people as well as to provide policy advice.**
- **The SRA establishes small Commissions of Inquiry in developing and consolidating major primary legislation.**

Funding and resource allocation

1. Ensuring sustainable funding sources

Road safety in Sweden is mostly funded by government and through general revenue which is then distributed to the SRA and other sectors.

In 1999, following the introduction of *Vision Zero*, funding to the SRA was doubled with a total of SEK 8.5 billion to be made available for road safety over 10 years. An increased and earmarked allocation was made to allow resource for road safety engineering measures such as roads with median cable barriers, safer intersections and road shoulders. SRA has also directly funded several police outputs aimed at casualty reduction. Recent annual expenditures by SRA on road safety include: approximately SEK 1.8 billion spent on infrastructure safety projects (2+1 treatments), with approximately SEK 80 million provided to police for operation of the speed camera program, approximately SEK 200 million spent on other road safety programs and some SEK 150 million spent on road safety research.

In addition, around 75% of the sale of personalized licence plates is allocated primarily to road safety. The SRA is also permitted to retain a proportion of parking fines to cover administration costs, around 35% of each fine.

2. Establishing procedures to guide allocation of resources across safety programs

Vision Zero is not bound by procedures that will trade-off safety for other gains. However, procedures are established for benefit-cost analysis which is used to identify priorities for infrastructure spending, although such analyses are not used widely for other types of intervention in Sweden. Estimates of socio-economic costs are not formally established annually.

SRA Role: Funding and Resource Allocation

- **The SRA ensures sustainable annual funding for road safety from general tax revenues which it allocates to its agencies through annual agreements and transport plans in support of *Vision Zero* intervention.**
- **The SRA has used ring-fenced funding on a regional basis to encourage local road safety engineering activity and *Vision Zero* demonstration projects as well as directly funding some police outputs to achieve results.**
- **Procedures are established for benefit cost analysis which is used to identify priorities for infrastructure road safety spending.**
- **Estimates of the value of preventing death and serious injury are not made annually, nor is cost-benefit analysis used widely in resource allocation for road safety work in the public sector.**

Promotion

1. Promoting the far-reaching road safety vision or goal

Sweden has been active in promoting evidence-based road safety work, particularly in recent years through *Vision Zero* which has led the wide implementation of evidence-based measures, leading by example measures and the creation of new mechanisms for multi-sectoral promotion and engagement.

The introduction of *Vision Zero* (see Box 2) in Sweden marked a fundamental change in the promotional strategies for road safety. Prior to *Vision Zero* the emphasis in the promotional activity of the Swedish Roads Administra-

tion and the National Society for Road Safety was on how people in the community should behave. After *Vision Zero* the emphasis in the activity of both organizations was the individual's right to health in the transport system and the importance of demanding safer systems from the road operators. The promotion of *Vision Zero* requires engagement with society over the right to safety and the promotion of systems that are intrinsically safe, providing all parties meet their responsibilities.

2. Championing and promotion at a high level

The introduction of *Vision Zero* facilitated communication on road safety with politicians and decision-makers and changed political attitudes at national, regional and local levels. The Swedish Minister of Transport at that time engaged fully in advocacy of *Vision Zero*. The consequence of this positive attitude towards *Vision Zero* was to secure more money for road safety and rapid acceptance locally where much road safety work in Sweden is carried out.

3. Multi-sectoral promotion of effective intervention and shared responsibility

In *Vision Zero* responsibility is *shared* between the providers of the system and road users. The system designers and enforcers—such as those providing the road infrastructure, the car manufacturing industry and the police—are responsible for the functioning of the system. At the same time, the road user is responsible for following basic rules, such as speed limits and not driving while under the influence of alcohol. If road users fail to comply with such rules, the responsibility falls on the system designers to redesign the system, including rules and regulations. The key stakeholders are brought together by government by means of a range of coordination arrangements to create partnerships and commitments to deliver this shared responsibility (e.g., the National Road Safety Assembly). The Assembly encourages members to issue declarations of intent and devise measures to promote improved road safety in the areas of speed, safety systems, sobriety on the roads and children and young people in traffic. The declarations are published on the SRA website.

4. Leading by example with in-house road safety policies

Another effect of *Vision Zero* was to help create demand for action on the part of policymakers and to create a market for road safety in Sweden. SRA cites evidence that safety is now selling in Sweden. In 2006, 91% of new cars sold were fitted with electronic stability control, 80% of new cars sold in Sweden were fitted with seat belt reminders and just over 50% of new cars sold in Sweden were 5 star (Euro NCAP car occupant rating). This fast-tracking of fitment of safety equipment has been encouraged by in-house policies.

Using safety ratings in travel policies. SRA has created a demand for road safety products and services as well as demonstrating the consistency of its approach by introducing in-house road safety policies. The rationale is that organizations are responsible for the work transport activity of their employees and should take active steps to reduce risks and promote safe and environmentally sound travel. The SRA has adopted a travel policy requiring a high level of safety using European New Car Assessment Programme information, limited weight and limited fuel consumption on all cars owned or rented. Most road safety stakeholders in Sweden now have safe travel polices.

Incorporating safety demands in transport contracts. Contracts have also been used to encourage safer transport services. The SRA has, for example, stipulated that the award of road transport contracts is conditional on the fitting of alcohol interlocks in all vehicles used by its contractors. In Sweden, alcohol interlocks are now installed in over 2000 vehicles and, since 2002 two major truck suppliers have been offering alcohol interlocks as standard equipment on the Swedish market. Advice has also been provided to local government on how to be more oriented towards safety in their dealings and contractual arrangements with suppliers of transport services and vehicles.

5. Developing and supporting safety rating programs and the publication of their results

The SRA has played a major role in the establishment and continued development of the European New Car Assessment Programme and European Road Assessment Programme (see *Monitoring and Evaluation* section). SRA using these safety ratings in its results management framework and publishes results widely.

6. Carrying out national advertising

In recent years, this activity has been carried out mainly by the National Society for Road Safety (NTF) and other non-governmental organizations have been active in promoting specific road safety issues through information and publicity.

7. Encouraging promotion at the local level

The Swedish Association of Local Authorities and Regions has been active in promoting road safety to professionals and elected representatives at local level, as has the NTF through its regional offices.

SRA Role: Promotion

- **The SRA promotes the shared responsibility for road safety using *Vision Zero*.**
- **Lead agency ministers and parliamentarian played a key role in launching and promoting *Vision Zero*.**
- **The SRA coordinates multi-sectoral promotion and contracts out targeted road safety information which, in recent years, has been directed more to organizational stakeholders than the general public.**
- **The SRA helped to set up, chairs and supports the European New Car Assessment Programme which promotes vehicle safety. It has helped to develop and supports the European Road Assessment Programme.**
- **The SRA promotes the need to achieve road safety results to local and regional levels of government.**

Monitoring and evaluation

Sweden has a long tradition in monitoring and evaluation of road safety. This, in general, is carried out comprehensively by the lead agency (at national and regional level), the Swedish Institute for Transport and Communications Analysis (SIKA), the Road Traffic Inspectorate (since 2003), research organizations, the municipalities and independent national and international experts.

1. Establishing data systems to set and monitor final and intermediate outcome and output targets

Vehicle and transport registries. The Traffic Registry and the Driving Standards Division of the SRA are profit centres that work within the framework of law and regulations. The units are responsible for the road traffic registry, driving licence system, and driver testing and supervision of examiners.

Final, intermediate outcome and exposure data. Official road traffic crash statistics are based on police data. The Swedish Institute for Transport and Communications Analysis (SIKA) is responsible for general and official statistics in the field of communication and transport. It publishes reports, statistical publications and annual reports (e.g., fatal and serious injuries in police reported road accidents and the number of vehicles registered in different categories).

The Swedish Traffic Accident Data Acquisition (STRADA) is a new information system which brings together police and hospital information to provide a better overall picture of serious road crash injury occurrence and consequence.

Intermediate outcome data is collected annually and published in the SRA's Annual sectoral Report. The SRA has been instrumental in developing the technical protocol for the European cooperation program EuroRAP in 2001 which aims to provide information of road infrastructure safety. To date, around 7,000 km of national roads have been road safety classified according to EuroRAP.

In depth crash investigation. In 2003, the SRA was given the responsibility for coordinating and carrying out in-depth studies of all road traffic crashes. It conducts in-depth crash investigation of all fatal crashes and identifies whether or not fatal and serious injury could have been prevented.

2. Transparent review of the national road safety strategy in terms of results, interventions and institutional management functions

Final and intermediate outcomes are monitored against targets and by the SRA in its published Annual Report, the Swedish Institute for Transport and Communications Analysis (SIKA) and the Road Traffic Inspectorate, which also report on suggested improvements on the basis of specific studies and investigations. The research sector in Sweden and abroad (e.g., VTI and TOI) are also engaged in aspects of current performance review. Casualty results and performance indicators are published annually.

The Road Traffic Inspectorate was established in 2003 as a division of the SRA to monitor take up of *Vision Zero* by system designers and providers. While it enjoys a large degree of independence it is not entirely independent, as many stakeholders would have preferred. The Managing Director of the Road Traffic Inspectorate reports directly to the Board of SRA organization, and otherwise has a separate annual budget, program and decision-making hierarchy. It has sixteen staff members and an annual budget of around SEK 20,000,000 ($US 2.6 million). The tasks of the Inspectorate are as follows:

- To monitor and analyse conditions that could substantially affect the design and functioning of the road transport system through taking a holistic view of the

road safety goals adopted by public authorities, municipalities and others.
- In dialogue with the players referred to above, work to ensure that they apply a systematic procedure to prevent road accidents that result in death or serious injury.
- To cooperate with other players to improve traffic safety on roads.
- To initiate research and development within the road safety sector and monitor research of importance to the operations at the Inspectorate.

The Road Traffic Inspectorate follows up all national OLA projects identified in the Coalition for Road Safety and makes random checks of regional projects. To date OLAs have been carried out in the following areas: heavy good vehicles in urban areas, bus passenger safety, safer moped traffic, young drivers aged 16–24, safer heavy goods vehicle transport and moped safety.

A University of Lund study for the Road Traffic Inspectorate in 2005 carried out a review of the SRA's in-depth studies of all fatal crashes and its work in respect of OLA. The Inspectorate concluded in 2006 that *the National Assembly project*, now renamed *Joint Campaign for Road Safety,* has been given well-defined goals and organizational structure by SRA. However, there is no evaluation or analysis, as yet, of the extent to which these areas contribute to the road-safety goal. It is recognised that the declarations of interest by stakeholders require active monitoring. SRA is moving to provide an increased focus on measurement of levels of achievement.

The Road Traffic Inspectorate's management system for quality is based on ISO 9001:2000. The approach is process-based with production processes that are linked with the Inspectorate's duties. The *Analysis* process creates and communicates analyses and conclusions regarding the conditions in road traffic. *Discussion* creates improved conditions in road traffic. *Interaction* creates the prerequisites for improved conditions and *Research & Development* creates and communicates new knowledge on the conditions in road traffic.

An independent peer review of road safety in Sweden was commissioned by the SRA in 2007. Sweden is the first high-income country to carry out and publish a qualitative assessment of current road safety management, using the World Bank framework and assessed its capacity to address the *Vision Zero* goal (Breen, Howard and Bliss, 2008). This involved transparent review of the national road safety strategy and its performance along the dimensions of results focus for the system as a whole, for interventions, and for institutional management functions.

At local level a special road safety audit for the road safety plans of municipalities was introduced in 2006 by the Swedish Association of Local Authorities and Regions. To date, around 30–35 municipalities have been assessed using this methodology.

3. Making any necessary adjustments to interventions and institutional ouptuts needed to achieve the desired results

Results of monitoring are fed into in-house and consultation body review (see *Results Focus*).

SRA ROLE: MONITORING AND EVALUATION

- **Sweden has a long tradition in monitoring and evaluation of road safety. This, in general, is carried out comprehensively by the lead agency (at national and regional level), the Swedish Institute for Transport and Communications Analysis (SIKA), the Road Traffic Inspectorate (since 2003), research organizations, the municipalities and independent national and international experts.**
- **The SRA and its partners have established databases to identify and monitor final and intermediate outcomes against targets and the results are published annually.**
- **The SRA played a key role in the establishment of the European New Car Assessment Programme and European Road Assessment Programme, both of which monitor vehicle fleet and aspects of road network safety.**
- **The SRA established the Road Traffic Inspectorate to help monitor road safety performance and the effectiveness of stakeholder activity.**
- **The SRA commissioned and published a road safety management capacity review in terms of results, interventions, and institutional management functions.**

Research and knowledge transfer

1. Developing capacity for multi-disciplinary research and knowledge transfer

Sweden has long recognized the importance of road safety research in informing its road safety strategies and activities. A recent report carried out by the Institute for Trans-

port Economics in Oslo (TOI) confirmed that research has had a major impact on Swedish road safety policy development and road safety results. The SRA maintains a 'total effect' catalogue which outlines the effectiveness of different interventions.

A number of research funding organizations were amalgamated in 2001. VINNOVA and the SRA are the two national governmental agencies which provide government funding for road safety research as well as in-house capacity and management. A large variety of organizations—both from Sweden and abroad (e.g., TOI and Monash)—engage in national as well as EU-funded research. These include the Swedish National Road Research Institute (VTI), the Traffic Inspectorate, Folksam Research, Chalmers University of Technology, the Universities of Lund and Uppsala, and Volvo.

Swedish National Road Research Institute (VTI). Conducts a wide range of research in the road transport field including road safety. Its research is mainly funded by government.

Folksam a Swedish insurance company has carried out road safety research for many years and produces and publishes safety ratings on in-car safety. Research focuses on in-depth car crash investigation. Many projects are conducted together with Swedish universities (e.g., Chalmers Institute for Technology), government and the car industry. In 1999, Folksam introduced a safety and environmental policy for all rental cars used by Folksam policyholders.

Volvo has long been involved in in-car safety research towards improved safety design and has a vehicle safety test centre in Göteborg which conducts full-scale crash tests, simulations and component testing.

2. Creating a national road safety research strategy and annual program

There is no published national road safety research and development program.

3. Securing sources of sustainable funding for road safety research

There is a large public sector budget for road safety research with major governmental support for vehicle technology and industry-led programs. A joint SRA/industry working group has been established to examine the potential benefits of new technologies under development.

4. Training and professional exchange

The SRA has been active in encouraging the transfer of knowledge on best practice and has supported national organizations and international organizations (e.g., activities of the European Transport Safety Council) towards this end. The Swedish International Development Agency (SIDA) works with road safety in international development and is a member of the World Bank Global Road Safety Facility.

5. Establishing good practice guidelines

SRA has cooperated with the Swedish Association of Local Authorities in preparing a range of technical guidelines, planning tools and road safety handbooks (e.g., on school transport for local use). The Association has been successful in communicating a wide range of good practice to practitioners in the municipalities for the implementation of *Vision Zero* strategies (e.g., *Calm Streets* (1998)), and to elected representatives (e.g., *One Moment*). It is currently producing a catalogue of proven cost-effective local measures.

6. Setting up demonstration projects

The SRA has also funded demonstration projects such as *En Route to Vision Zero* at Trollhättan to illustrate how *Vision Zero* can work in practice. The 2 year project commenced in 2000 and was carried out in co-operation with the Trollhättan Municipality, Saab Automobile AB, the National Society for Road Safety, the Police Authorities, the Swedish Association of Local Authorities and the Western Götaland regional authorities. In this project a 39km circuit of ordinary municipal streets and state roads was redesigned according to the principles of *Vision Zero* including raised pedestrian crossings, bus stops in the shape of an hour glass preventing cars from passing while the passengers board and alight, advanced traffic signals, roundabouts, central guardrails and separated cycle lanes on the highway as well as removal of intersections and fixed objects. The inhabitants of Trollhättan were informed and engaged throughout the project. Road safety professionals from all over the world come to Trollhättan and could drive along the circuit in a number of best practice Saab 9–5 cars equipped with an alcohol interlock, a new type of seat belt reminder and an Intelligent Speed Adaptation system. A study showed that 75% of the 53,000 inhabitants gave positive feedback to the demonstration project.

SRA Role: Research and Development and Knowledge Transfer

- **Sweden has a long and internationally recognized tradition in road safety research which has had a major impact on policy and results.**
- **The SRA has ensured secured funding and capacity for road safety research and knowledge transfer.**
- **The SRA supports attendance of its personnel at international road safety meetings, seminars, workshops and field visits.**
- **The SRA and its partners have developed and disseminated best practice guidelines on road safety.**
- **The SRA funds *Vision Zero* demonstration projects.**

Summary: SRA delivery of institutional management functions

Results focus. The Swedish Road Administration (SRA) is the accountable lead agency for road safety in Sweden. It has the main responsibility in Sweden for managing the country results focus, reviewing performance and proposing goals and targets and carrying out interventions in the road network. The SRA developed and leads *Vision Zero* and is responsible for the achievement of national targets underpinned by a performance agreement with the Ministry of Industry, Employment and Communications.

Coordination. The SRA established, chairs, manages and provides a dedicated in-house secretariat for each of the three consultative bodies which engage governmental partners in road safety as well as other key stakeholders in addressing *Vision Zero* and national targets. These bodies aim to share knowledge, discuss interventions and stimulate stakeholder contributions rather than act as decision-making bodies at the national level. The SRA also ensures that there is vertical coordination between governmental bodies and funds tools for use by regional and local authorities, as well as specific road safety outputs. In recent years it has expanded its external partnership capacity to deliver the challenging *Vision Zero* concept and has developed effective road safety partnerships individually and through its consultation bodies with a wide range of professional, research, non-governmental, user and industry groups. It seeks to ensure stakeholder accountability through its OLA process which involves the use of Declarations of Intent.

Legislation. The SRA has established a comprehensive legislative framework which has evolved over the years. It proposes vehicle, roads and road user rules and standards, some of which are identified and agreed at EU level, with inspection and compliance carried out by departmental agencies and the police. The SRA has established in-house capacity to propose, ensure compliance with and monitor road safety standards for vehicles, roads and people as well as to provide policy advice. It establishes Commissions of Inquiry when developing and consolidating major primary legislation.

Funding and resource allocation. The SRA ensures sustainable annual funding for road safety from general tax revenues which it allocates to its agencies through annual agreements and transport plans in support of *Vision Zero* interventions. It has used ring-fenced funding on a regional basis to encourage local road safety engineering activity and *Vision Zero* demonstration projects, as well as directly funding some police outputs to achieve results. Procedures are established for cost-benefit analysis to identify priorities for infrastructure road safety spending. However, estimates of the value of preventing death and serious injury are not made annually, nor is cost-benefit analysis or cost-effectiveness analysis used widely in resource allocation for safety work in the public sector.

Promotion. The SRA promotes the shared responsibility for road safety using called for by the *Vision Zero* strategy. Ministers and parliamentarians played a key role in launching and promoting *Vision Zero.* The SRA coordinates multi-sectoral promotion and contracts out the dissemination of targeted road safety information which recently has been directed more to organizational stakeholders rather than the general public. It helped to set up, chairs and supports the European New Car Assessment Programme which promotes vehicle safety. The SRA also promotes the need to achieve road safety results to local and regional levels of government.

Monitoring and evaluation. Sweden has a long tradition in the monitoring and evaluation of road safety. This is carried out comprehensively by the lead agency (at national and regional levels), the Swedish Institute for Transport and Communications Analysis (SIKA), the Road Traffic Inspectorate (since 2003), research organizations, the municipalities and independent national and international experts. The SRA and its partners have established databases to identify and monitor final and intermediate outcomes against targets and the results are published annually. Safety rating programs are used to monitor aspects of vehicle fleet and road network safety respectively. It established the Road Traffic Inspectorate to help monitor

road safety performance and the effectiveness of stakeholder activity. In 2007–8 the SRA commissioned and published an independent road safety management capacity review using the World Bank's assessment framework.

Research and development and knowledge transfer. Sweden has a long and internationally recognised tradition in road safety research which has had a major impact on policy and results. The SRA has ensured secured funding and capacity for road safety research and knowledge transfer. It supports the attendance of its staff at international road safety meetings, seminars, workshops and field visits. The SRA and its partners have developed and disseminated good practice guidelines on road safety. The SRA also funds *Vision Zero* demonstration projects.

Lead agency structures

The aggregate and organizational structures of the lead agency for road safety in Sweden are set out in Figures 3 and 4.

Coordination structures and a description of related processes are set out in the section on *Coordination* and in Figure 2.

The overall responsibility for road safety rests within the Journeys by Citizens Department which is one of two main horizontal Departments of the SRA. A Traffic Safety Director sits within the Director-General's senior management team who has the central controlling function for all road safety work. Road safety expertise sits mainly within the Society and Traffic Department of the SRA. The operational activity is mainly conducted by the 7 regional offices. Road safety is integrated into the multiple goals of sustainable development with the SRA's road safety responsibilities set out in a 1998 policy statement (see Box 9).[5]

[5] Some of the SRA's institutional management functions including legislation and inspection (and the Inspectorate) are being transferred to a new Swedish Transport Agency which was established in January 2009. A new road safety strategy department was established in SRA's Society and Traffic Department in 2008.

Figure 3: Aggregate structure of the lead agency for road safety in Sweden (2005)

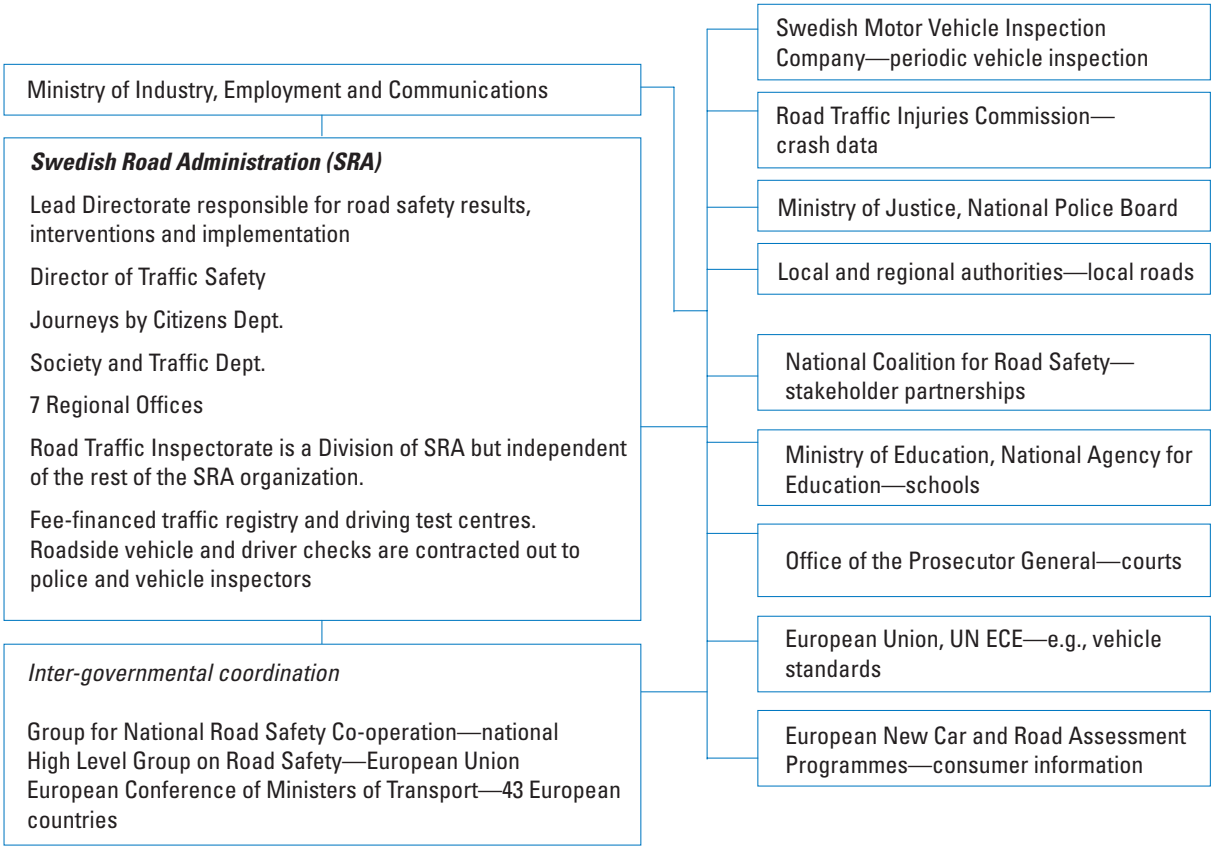
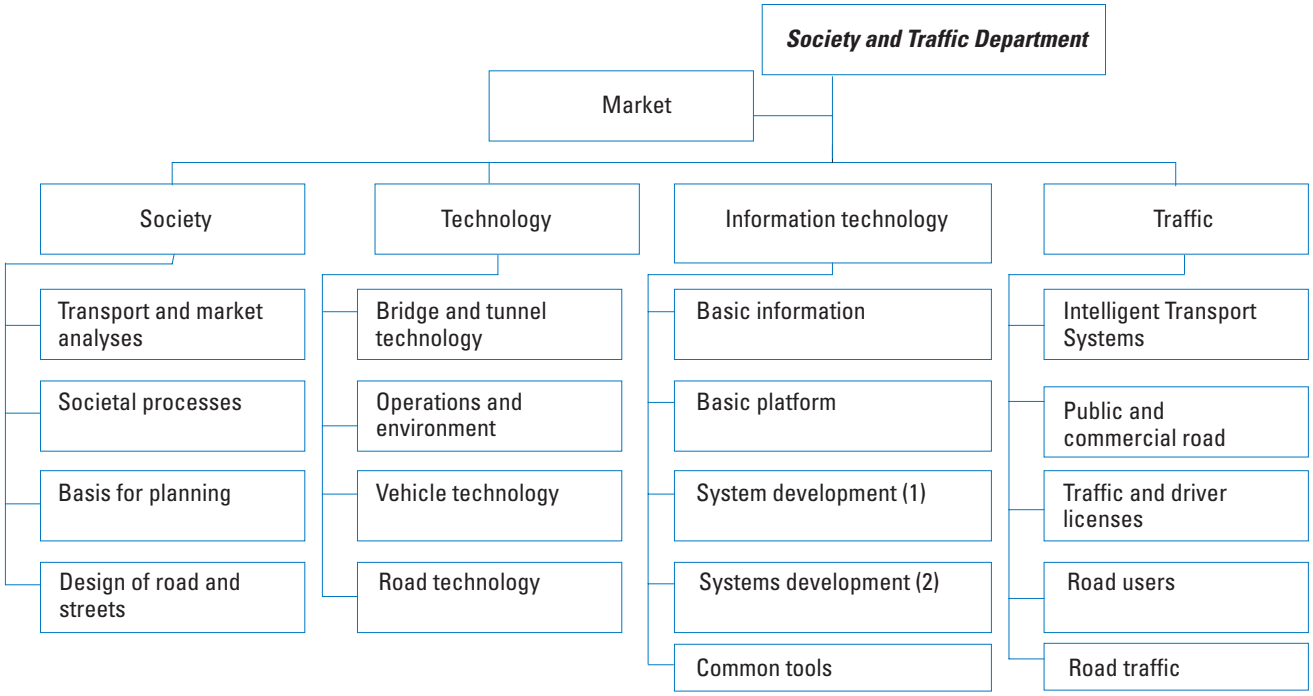


Figure 4: Organizational structure and processes of the Society and Traffic Department of the Swedish Road Administration (2006)



Box 9: Role and responsibilities of the SRA for road safety—1998 Policy Statement

- 'The Swedish Road Administration has been commissioned with the overall responsibility for road safety within the road transport system. Every head of division is responsible for the effect his/her area of responsibility has on road safety. Road safety endeavours shall be conducted as an integral part of other operations.
- In its capacity as the central administrative agency responsible for the entire road transport system, the Swedish Road Administration has been commissioned with the overall responsibility for road safety within the road transport system and shall monitor and actively promote developments within this area. This also means an obligation to endeavour to improve the transport system as a whole as required by road safety considerations.
- In its capacity as road manager the Swedish Road Administration is responsible for road safety on the state road network. Included in this responsibility is that the construction and maintenance works contracted by the Swedish National Road Administration shall be subjected to stringent environmental demands and that the Administration shall encourage contractors to develop production methods that are adapted to road safety.
- As an organization the Swedish Road Administration is responsible for road safety in all internal activities. Our dominant position as a road authority offers us a great potential for being able to promote road safety considerations in technological developments relevant to our sphere of operations.
- The Director-General is ultimately responsible to the Board of Directors for ensuring that road safety is taken into consideration within all areas of operation at the Swedish Road Administration.
- Every head of division is to ensure that road safety is taken into consideration within his/her area of responsibility. He/she shall also endeavour to ensure that fellow colleagues increase their awareness and knowledge about the impact of their own activities and that of the entire road transport system on road safety. It is also incumbent on him/her to set the style and through his/her leadership strive to increase road safety awareness. This obligation also includes ensuring adherence to this policy.
- Every employee at the Swedish Road Administration shall be familiar with the road safety policy and work according to its intentions.
- All employees are expected to set a good example through respecting traffic rules and otherwise exhibiting good conduct in traffic, both during and outside working hours.
- The Traffic Safety Director's department monitors the work conducted on road safety within the entire organization and throughout the road transport system as a whole.'

Source: SRA, 2006.

The recent independent review on road safety management noted that the SRA has been the lead agency for road safety since 1993 and has established an international reputation over the years for enlightened road safety leadership.

Before 2002 a single organizational unit existed for road safety. Since then road safety functions have been distributed among a number of sections.

Bibliography

Eds. Peden M, Scurfield R, Sleet D, Mohan D, Hyder A, Jarawan E and Mathers C (2004). *World Report on Road Traffic Injury Prevention*, World Health Organization, World Bank, Geneva, 2004.

OECD (2002). *What's the Vision,* Organization for Economic Co-operation and Development, Paris, 2002.

Aeron-Thomas A, Downing AJ, Jacobs GD, Fletcher JP, Deslby T and Silcock DT (2002). *A review of road safety management and practice. Final report.* Crowthorne, Transport Research Laboratory and Babtie Ross Silcock, 2002 (TRL Report PR/INT216/2002).

Koornstra M et al. (2002). *SUNflower: a comparative study of the development of road safety in Sweden, the United Kingdom, and The Netherlands*. Dutch Institute for Road Safety Research, SWOV, Leidschendam, 2002.

Trinca G, Johnston I, Campbell B, Haight F, Knight P, Mackay M, McLean J, and Petrucelli E (1988). *Reducing Traffic Injury the Global Challenge*, Royal Australasian College of Surgeons, 1988, ISBN 0 909844 20 8.

Lie A and Tingvall C (2005). *Government Status Report*, Sweden Roads Administration, ECMT, 23rd March, 2005.

Road Traffic Inspectorate (2004). *Systematics in the road safety work of local authorities—experience from eight local authorities,* 2004, Borlänge.

Road Traffic Inspectorate (2004). *Developments in road safety since the Vision Zero Decision in 1997 with a focus on the 11-point programme*, 2004, Borlänge.

Swedish National Road Administration (2004). *Annual Report 2003*, Publication 28E, Borlänge.

Swedish National Road Administration (2004). *Sectoral Report 2003*, Publication 2004, 29E, Borlänge.

Tingvall C. *The Zero Vision*. In: van Holst H, Nygren A, Thord R, Eds. (1995). *Transportation, traffic safety and health: the new mobility*. *Proceedings of the 1st International Conference, Gothenburg, Sweden* Berlin, Springer-Verlag, 1995:35–57.

Riksdagen, http://www.riksdagen.se/templates/PageWFrame_6577.aspx

Wahlstrom H and Fredriksson S (2002). *A vision zero town—Trollhättan, Sweden*, Proceedings Best in Europe 2002—Safer Cities.

European Transport Safety Council (2002). Brussels, June, 2002.

European Commission (2005). *Road Safety Country Profile—Sverige (Sweden)*, Brussels, October 2005. http://ec.europa.eu/transport/road/roadsafety/profiles/pdf/countryprofile_sv_en.pdf

Tingvall C, Belin M, Johansson and Lie A, *A Swedish Perspective "Vision Zero" Passive and Active Vehicle Technologies,* Swedish National Road Administration, Trafinz Conference, 2006, Queenstown.

Breen J, Howard E, and Bliss T (2008). *Independent Review of Road Safety in Sweden*, Jeanne Breen Consulting, Eric Howard and Associates, and the World Bank.

1.5. Road safety organization in the State of Victoria, Australia

National and state context

KEY FACTS: 2006

Area:	**237,629 km^2**
Population:	**5,128,310**
Kilometers of public road:	**199,406 km**
Number of licensed motor vehicles:	**3.75 million**
Road deaths per 100,000 of population:	**6.6**
Total road deaths	**337**

Source: VicRoads, Victoria

The State of Victoria, located in the south eastern corner of mainland Australia, occupies only 3% of the nation's land mass but has one quarter of the country's population, more than 70% of whom live in Melbourne. While geographically small on the Australian scale, Victoria is larger than many European countries.

Australia has a National Road Safety Strategy 2001–2010 which was drawn up and is administered by the Australian Transport Safety Bureau (ATSB) which is part of the Australian Department of Transport and Regional Services in Canberra. The National Strategy reflects the aspirations of its 5 states and 2 territories. It was adopted by the Australian Transport Commission (ATC) comprising the Ministers of Transport from all the states and territories in Australia. The ATC is supported by two national organizations: Austroads and the National Transport Commission.

VicRoads is the road agency within the Department of Infrastructure which leads the preparation and delivery of the State road safety strategy and targets. It reports to the Minister for Roads and Ports. VicRoads was formed in 1989 during a period of corporatization of government services.

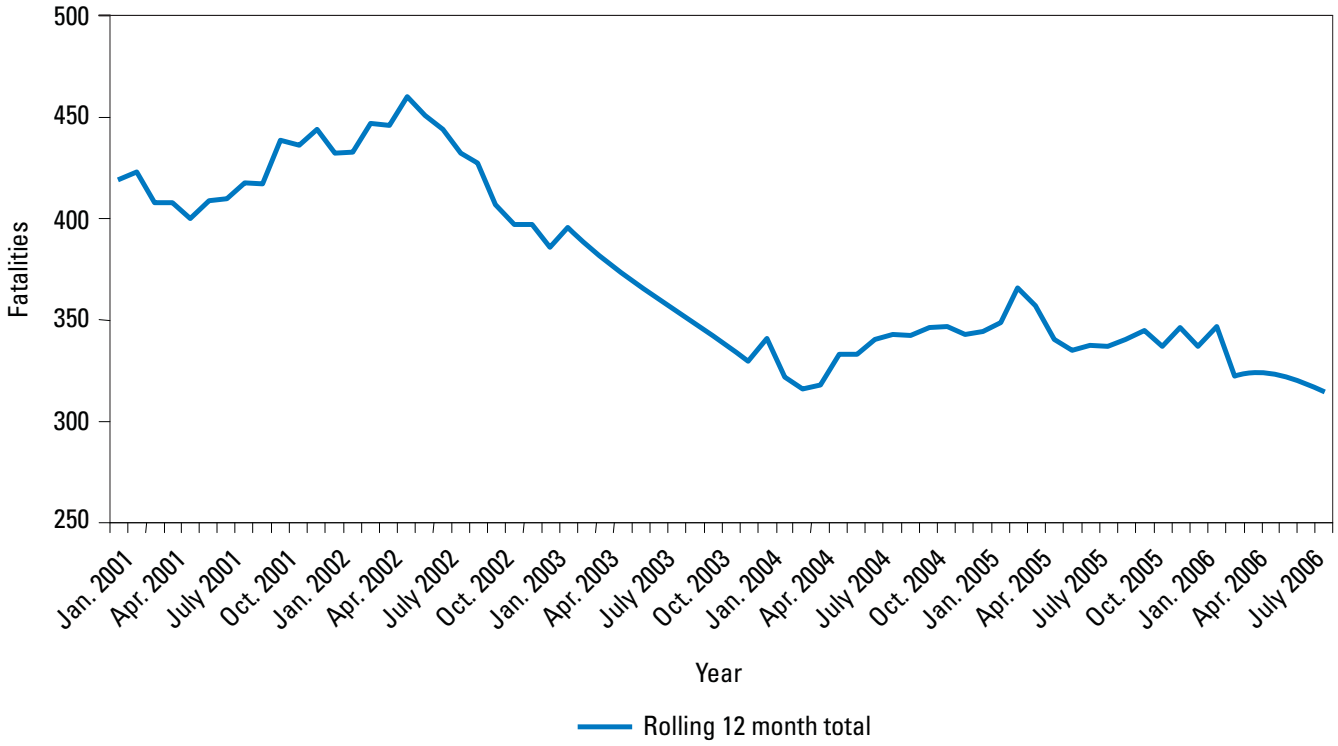
Road safety responsibilities in Victoria are shared at national, state and local levels. The state has responsibilities for setting and securing compliance with standards for the planning, design and operation of the road network, driver, licensing and testing, emergency medical care and the development of road safety visions, strategies and targets for Victoria. Responsibility for road safety is shared between federal, state, local, and government as well as private operators. Others increasingly rest with local authorities, who are responsible for road safety engineering and other activities on local roads. Decentralization of the operational activity of the State Police has also taken place.

Victoria has a performance-based approach to the government delivery of services. Over the years, state agency strategic planning and output planning have emerged as the key drivers of implementation. Road safety is integrated into transport and health policies and promoted to local government, developers and the planning community as a prime consideration in significant land use planning and development decisions. Improving road safety is one of the key priorities of the Victorian government's vision for building friendly, confident and safe communities under *Growing Victoria Together*. Prompt and effective medical treatment is estimated to have the potential to prevent up to 11% road deaths in Victoria and the strategy states that the responsible sectors will undertake to develop and implement improved trauma and emergency services in Victoria, supported by the key road safety agencies. Road safety strategies also reflects the contribution of public transport to achieving the government's goals by addressing issues such as the safety and accessibility of the State's train, tram, bus and taxi interchanges. The *Arrive Alive!* Strategy was delivered in accordance with the *Linking Victoria* transport strategy, the *Victorian Motorcycle Road Safety Strategy 2002–2007* and *Victoria's Vehicle Safety Strategy 2004–2007.*

Victoria has long been regarded, nationally and internationally, as an innovative leader in road safety policy and action and in its efforts to reduce road casualties. Victoria's road traffic death per 100,000 of population is at the forefront among nations with similar levels of motorization and similar patterns of urbanisation and vehicle mix/road use. This is attributed to a regularly reviewed and clearly defined strategy which sets out the roles and accountabilities of agencies, and an integrated and strategic approach by the key stakeholders with good liaison and strong performance management in outputs and contracts. A continuing and substantial decrease occurred within the life of the last strategy 2002–2007 (see Figure 1).

Victoria's emphasis has been principally on the strategy of setting and securing compliance with key road safety rules, although a new *Safe System* approach has recently been devised. Road safety legislation has been enforced vigorously and Victoria operates one of the most controlled road use regimes in the western motorized world. In 2002 over 1.4 million Victorians were breath tested under the random breath testing program and over 30 million drivers had their speed checked by cameras. Sig-

Figure 1: Road fatality trends in Victoria, January 2001–August 2006



Source: VicRoads, 2007.

nificantly, the community has accepted the restrictions as being in the public interest due to the willingness of the primary institutions (the transport agency, the government injury compensation insurer and the police) to work cooperatively, the advocacy of opinion-leaders from the medical profession and academia, support from the all-party Parliamentary Committee and, especially in the earlier years, strong media support.

This case study focuses on State delivery of institutional management functions, the lead agency role and the structures and processes put in place to achieve road safety results.

State delivery of institutional management functions and lead agency role

Results focus

Leadership responsibilities in the State of Victoria and accountabilities for action are well defined and relate closely to the coordination function. An organizational framework exists for analyzing data and safety performance and setting final and intermediate outcome targets at State level as well as allowing effective response to the national agenda.

Lead agency

VicRoads (the Victoria Road Corporation) is the lead agency for road safety in the State of Victoria. VicRoads works very closely in a partnership with the Transport Accident Commission, Victoria Police and the Department of Justice, who play a major role and whose ministers have also signed up to the national road safety strategy.

Road safety is one of four core businesses for VicRoads led by a General Manager, who reports to the Chief Executive. VicRoads has a dedicated Road Safety Department comprising 55 staff. VicRoads' stated road safety aim is to achieve a sustainable reduction in the number and severity of road crashes and the cost of road trauma by delivering road safety programs that target all road users.

1. Appraising current road safety performance through high-level strategic review

VicRoads' Road Safety Department leads performance review, target-setting work and road safety strategy development and dedicates a large part of its road safety department to the Strategies and Programs Section which has five units.

In developing new targets and strategies, substantial in-house review and discussion of road safety performance takes place in consultation with partner organizations in the coordination hierarchy.

2. Adopting a far-reaching road safety vision or goal for the longer term

The Victorian government road safety agencies have adopted the *Safe System* approach. This approach anticipates that no-one should lose their life or be permanently disabled on Victoria's roads if they are obeying the road rules, and the key safe system elements are in balance and at "best practice" levels. This approach has much in common with the *Vision Zero* and *Sustainable Safety* concepts. Its emphasis however, is on aiming to obtain road user compliance with adequate road rules and thereafter balancing three key areas: safer roads and roadside collisions, safer vehicles, and a safer speed environment. The approach is based on the premise that crashes will happen (despite the focus on prevention) and that people should be able to withstand the external forces of collisions to avoid the outcome of death or serious injury.

The *Safe System* approach was adopted in Victoria in 2003 as a basis for reducing road trauma. A new State strategy *arrive alive 2008–2017* incorporating this approach was introduced in February 2008 (though this has not specifically stipulated a long term goal of elimination of deaths and disability, as in *Vision Zero*).

3. Analyzing what could be achieved in the medium term

A bottom-up targeting process is used in determining Victoria's final outcome targets. Preparatory technical work was carried out by the Monash University Accident Research Centre for Victoria's last two road safety strategies. A safety impact analysis of a variety of initiatives in the draft a strategy was conducted. On the basis of this and traffic and casualty forecasting, the lead agency proposed targets and a strategy which followed the input and consultation findings from the key partners in the coordination hierarchy. The projected outcome target was based on detailed analyses which established likely outputs by the main stakeholders for certain key policy initiative inputs.

4. Setting targets by mutual consent across the road safety partnership

Final outcome targets

Victoria has engaged in strategic road safety planning and target-setting since 1990, although the first target of a 50% reduction in deaths and plan was not published. This was followed by the first formal strategy (though without targets and accountability mechanisms) in 1995—*Safety First 1995–2000*. The government's last road safety strategy, *Arrive Alive!* was underpinned by a final outcome target to reduce death and serious injuries on Victorian roads by 20% between 2002–2007. It was proposed by the lead agency and approved by the Ministerial Council and the Victorian parliament. The strategy addressed a total of 17 key system-wide road safety challenges and Victoria achieved a 19.7% reduction between 2002 and 2007. In the new *arrive alive 2008–2017 strategy*, the Victorian government aims to reduce deaths and serious injuries by 30% by 2017.

Output targets. Police road safety outputs have been a feature of police and road safety strategies for many years. For example, reducing the road casualty toll and the incidence of road trauma by 20% by 2007 as targeted in *Arrive Alive!* was one of four policing performance targets in Victoria Police's published business plan for 2003/4. In this plan, Victoria Police's road traffic law enforcement activity was based on analysed trends and patterns in the available information, to determine which activities would have the greatest impact in terms of reducing the level and impact of road trauma on the Victorian community. Two sets of Victoria Police output targets dealt explicitly with road safety: *targeting driver behavior* and *partnership policing*.

The *targeting driver behavior* output focused on initiatives, programs and operations designed to reduce the incidence of impaired driving and other traffic offenses. The quantity measures for this output reflect specific strategies employed by police to effect driver behavior and effectiveness is measured by the level of compliance with road traffic laws. The 2003/2004 output targets and results are presented in Table 1.

5. Establishing mechanisms to ensure stakeholder accountability for results

The roles and responsibilities of the key governmental stakeholder are set out in Victoria's road safety strategy and in annual stakeholder plans. VicRoads works in close partnership with the Transport Accident Commission, Victoria Police and the Department of Justice, who play a major role and whose ministers sign up to national road safety strategies.

Each agency reports to the Ministerial Council on Road Safety. The Chief Executive of VicRoads, which is respon-

Table 1: Performance measure of institutional outputs—Victoria Police

	Targets 2003/2004	Result 2003/2004
Number of incidents/collisions investigated	38,000	38,138
Number of heavy vehicle operations investigated	13	14
Number of drug-impaired driving assessments conducted	230	164
Number of alcohol screening tests conducted	1,300,000	1,203,251
Number of vehicles detected speeding	932,000	1,001,282
Number of targeted police operations conducted	18	18
Percentage of fatal collisions investigated involving inappropriate speed	30	45.5
Percentage of fatal collisions investigated involving fatigue	8	7.5
Percentage of fatal collisions investigated involving alcohol/drug use	20	27.5
Percentage of heavy vehicle prosecutions which are successful	90	92.5
Percentage of drivers tested who fail preliminary/random breath tests	0.5	0.4
Total cost of output	$119.2m	$125.6m

sible for road safety strategy within the tri-partite partnership, has the reduction of road crash death and injury as a formal criterion in the performance-driven employment remuneration package. The road safety policing performance targets were noted in the previous section.

VicRoads Role: Results Focus

- **VicRoads leads the management of state focus on achieving safety results and works to ensure that system-wide interventions are agreed and implemented by the responsible authorities.**
- **VicRoads proposed the *Safe System* approach which has been adopted by government.**
- **VicRoads has established a results management framework for appraising performance and identifying what could be achieved in the medium term. It leads the development and delivery of safety strategies and action plans agreed with its high-level coordinating body. This strategy includes interim targets for deaths and serious injuries as well as institutional outputs for policing activity.**
- **VicRoads' responsibility for the achievement of state road safety targets is underpinned by a performance agreement with the Minister of Transport. VicRoads is also annually accountable for a range of outputs associated with the safe planning, construction, and operation of state roads.**
- **Stakeholder accountability is established by the main governmental stakeholders who sign up at the highest level to a published strategy with quantitative targets.**
- **VicRoads has established substantial in-house capacity for road safety strategy development and its coordination, legislative needs, funding and resource allocation, monitoring and evaluation, knowledge transfer and the management of external research and development.**

Coordination

1. Horizontal coordination across central government

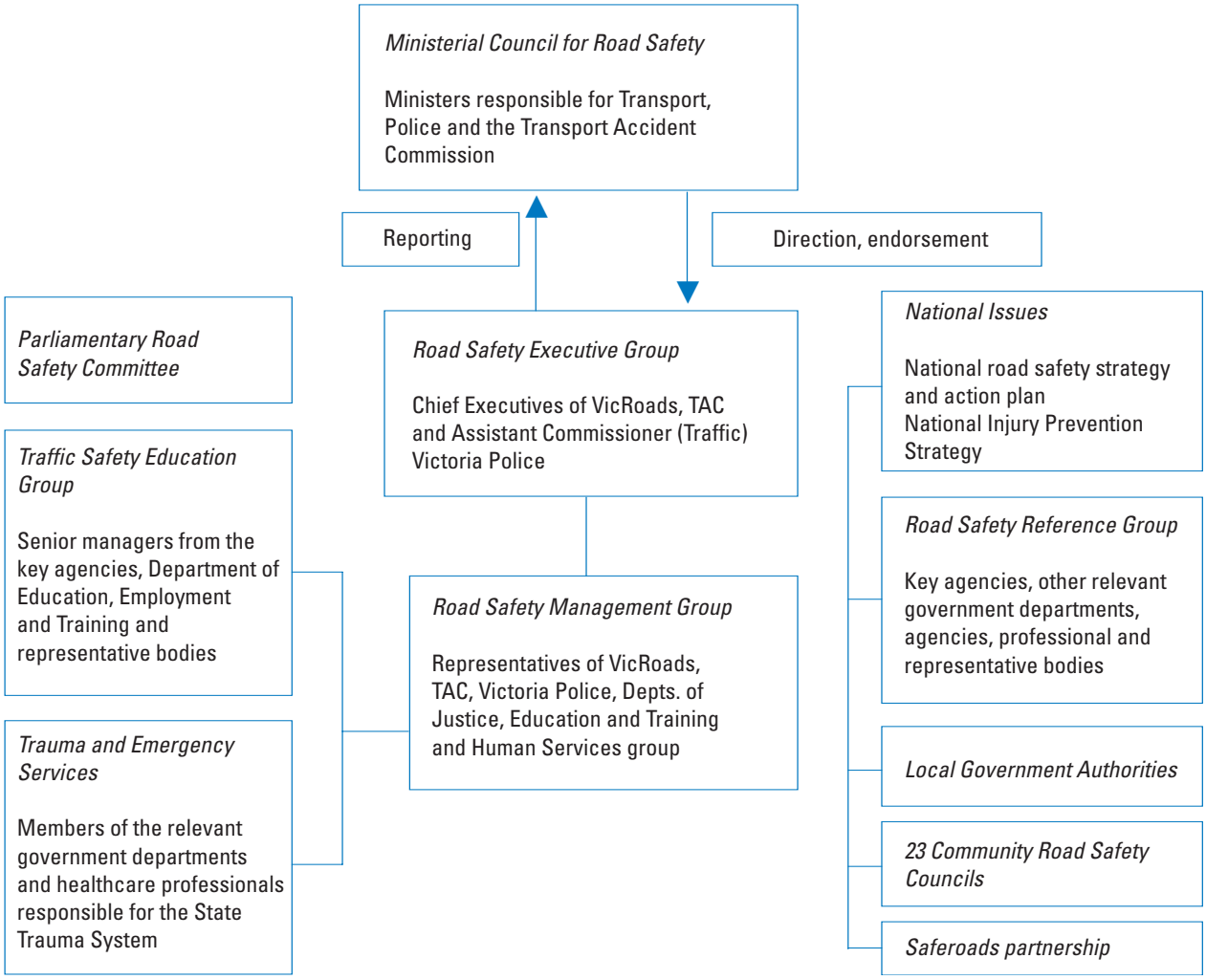
One notable feature of road safety organization in Victoria is the sophistication of coordinated activity at multiple levels to allow high-level decision-making, as well as broad consultation in the lower levels of the hierarchy, to achieve results. The structure of the coordination hierarchy is shown in Figure 2.

The *Ministerial Road Safety Council* was established in 1999 which comprises the ministers responsible for VicRoads, the TAC, and Victoria Police as well as the Department of Justice. With Victoria's past focus on behavioral legislation, the partnership between the four state agencies has provided a robust means of achieving difficult implementation, where more than one agency is required to be involved, in communication to the public when difficulties in implementation arise and, above all, in achieving support from government for new and sometimes challenging initiatives.

The Council meets four times each year and ensures the achievement of a coordinated approach to road safety in Victoria. It has provided a powerful voice in Cabinet for the pursuit of road safety policies and has been critical in achieving support across government for funding of new initiatives as well as legislation. The role of Chair of Council rotates at each meeting. The group has signed off successive *Arrive Alive!* road safety strategies.

The *Road Safety Executive Group* comprises the chief executive officers and senior road safety representatives of

Figure 2: Multi-sectoral structures for road safety coordination in Victoria, Australia (2005)



the same organizations represented on the Ministerial Road Safety Council to which it reports, supports and from which it receives direction. The Group determines strategic directions, monitors and reports progress to the government through the Ministerial Council. The Group meets approximately four times annually and the role of the Chair rotates between agencies.

The *Road Safety Management Group* with representation from senior road safety officer from the four key stakeholders and the Departments of Education and Training and Human Services meets monthly and the chair is rotated. There are many specialist groups linked to the Management Group including Education, Local Government and Community Road Safety Councils. There is a link to national road safety activity through a national forum which meets twice yearly. With VicRoads as the key link, the group coordinates implementation of the road safety strategy, develops and implements programs and interventions to give effect to the strategy, reviews identified programs, identifies and implements research priorities, maintains links with the National Road Safety Strategy, promotes a coordinated state-wide program of activities, and supports development and implementation of educational initiatives including the Traffic Safety Education Action Plan.

The *Road Safety Reference Group* meets quarterly and is chaired by the VicRoads' General Manager of Road Safety. It comprises a broad range of stakeholders, including road user, road transport industry and medical organizations. The Group develops action and research proposals,

sets up issue-based action groups to tackle major concerns and coordinates the activities of its members.

The *Transport Industry Safety Group* meets 6 times each year. It comprises the road safety partners, transport industry and unions, the WorkSafe Authority and the State Coroner's Office and focuses on heavy vehicle-related safety issues.

Local government. Each municipality identifies local issues, develops and implements municipal road safety strategies and action plans, builds links with community groups interested in road safety and Community Road Safety Councils and interventions to give effect to the strategy

The *Saferoads Partnership* between the Municipal Association of Victoria, Local Government Professionals, VicRoads, Victoria Police, the TAC and the Royal Automobile Club of Victoria was established in 1999 with the aim of reducing the incidence and severity of road crashes in municipalities through multi-action programs, increased use of local government networks and increased road safety awareness and resourcing at the local level. A Memorandum of Understanding between the Saferoads partners has been established setting out clearly the roles and responsibilities of each partner. Councils are encouraged to develop municipal road safety strategies and incorporate them into their Corporate Plans. VicRoads and local authorities provide 50% funding to programs.

There are 24 *Community Road Safety Councils* in Melbourne and rural areas comprising representatives of government stakeholders, and a range of organizations and individuals. Their aims are to develop and implement community programs consistent with Victoria's road safety strategy, and to develop support and close liaison between the groups involved. CRSCs play a significant advocacy and public awareness role in promoting road safety at a local level. Their funding comes from VicRoads ($1.89 million in 2005–2006) and local business and community groups.

The *Traffic Safety Education Group* consists of senior managers from the key agencies, the Department of Education, Employment and Training and representative bodies. The Group plans activities, organizes/implements activities, monitors implementation of actions.

Trauma and Emergency Service consists of members of the relevant government departments and health care professionals responsible for the provision of the Victorian State Trauma System. The Victorian Trauma Foundation aims to provide a better system of trauma care for all Victorians who are critically injured on the road, at work or at home to be achieved through better coordination and improved infrastructure and research within the trauma system. One of the Foundation's initial priorities is to establish systems for monitoring and evaluating the processes and outcomes of trauma management. The Foundation includes representation of key stakeholders and professionals involved in the management of trauma services in Victoria, and oversees funding allocation for projects urgently required and most likely to deliver measurable improvements.

A dedicated and funded coordination secretariat sits within VicRoads (see Box 1).

Victoria Police is an arm of the Department of Justice, and its role in road safety is enforcement, crash investigation, reporting and prosecution and community education which it carries out over five regions and a network of 63 local policing areas. It employs more than 13,100 people, including police, public servants, forensic officers, reservists and protective security officers operating out of 328 police stations and other facilities. Victoria Police's annual budget in 2003/04 was approximately $1.2 billion.

Box 1: The role of the coordination secretariat in Victoria

The Road Safety Department of VicRoads provides the secretariat for the work of all coordinating committees for road safety in Victoria. The primary role of the secretariat is to:

- Initiate, develop and deliver road safety strategies and programs that contribute to the road safety outcomes of strategies such as the *Arrive Alive! Victoria's Road Safety Strategy 2002–2007* having regard to the trends in road trauma.
- Coordinate and influence the development and implementation of road safety strategies, provide effective support and facilitate the management of the road safety management and coordination structure.
- Work in partnership with national umbrella organizations, local government and community groups to increase their involvement, participation and commitment to improving road safety outcomes.
- Improve existing partnerships and establish new external partnerships to increase their contribution to Victorian road safety programs.

The Traffic and Transport Services Department of Victoria Police is one of many support departments for the five regions and provides technical support and coordination for the road safety activity of Victoria Police as well as other traffic functions. The department has its own separate budget and it also manages other non road safety-related activity. There are approximately 458 members of staff.

The Traffic and Transport Services Department's State Traffic Advisor coordinates the Regions' Traffic Officers Forum which meets monthly, to work towards road safety strategies agreed with corporate partners. Enforcement activity in Victoria is coordinated with publicity and other events organized by other stakeholders using an annual diary of events. Various units have been established within the Department to carry out or advise on traffic safety activity:

- *Policy Unit* (13 staff) was established in 2000. The role of the Unit is to develop, plan and evaluate road safety legislation, policies and programs in agreement with the State Road Safety Strategy.
- *The Traffic Alcohol Section* (63 staff) was established in 1961 and runs seven 'booze buses' within their fleet. It has the responsibility for the coordination of 'booze bus' operations, blood sampling systems, breathtesting and training, legal and technical services, and education about drink and drink impaired driving. The Section undertakes around one million random breath tests per year via the metropolitan bus program. They manage the hospital blood sampling system and provide proactive programs in support of compliance with the drink driving legislation. The Section manages all drink driving technology across the State providing legal and technical support to police personnel. As well as bus operations, the Section provides a targeted covert enforcement operation directed at repeat drink-drivers.
- *The Road Safety Task Force* (22 staff) is primarily oriented towards targeted traffic enforcement that involves the detection and apprehension of offending drivers. The Highway Section consists of unmarked vehicles targeting traffic and commercial heavy vehicle operations. Enforcement operations are balanced by the provision of advice and training to other areas within Victoria Police and the transport industry. Success has been achieved within the transport industry through continuing liaison, education programs and safety-based strategies undertaken in cooperation with employer and employee representative groups.
- *Safety Camera Program* (41 staff). Over 150 speed cameras and 75 red light cameras currently operate throughout Victoria. Police carry out additional speed enforcement measures, using mobile radar laser equipment, in areas where speeding has been identified as a problem. On average over 2.8 million vehicles are checked every month. The aim of speed and red light cameras is to change driver behavior, not to catch out motorists and raise revenue. Since being introduced safety cameras have contributed to a significant decrease in the number of fatal and serious injuries on Victoria's roads.
- The *Special Solos (Motorcycles)* (21 staff) provide a specialist service both on and off road throughout the State. The key area of deployment is targeted traffic law enforcement on road infrastructure and off-road in forests and parks. Members are committed to increasing awareness of motorcycle safety within the community and work with government and community groups to achieve safer roads for riders.
- The *Major Collision Investigation Group* (40 staff). The MCIG is normally required to inspect and investigate fatal hit-run vehicle collisions, fatal crashes where there is evidence of criminal negligence by a surviving driver, and multiple vehicle collisions involving three or more fatalities. In relation to fatal motorcycle collisions, the MCIG maintains an investigative role only. This role is restricted, however, to those situations where there is evidence that the surviving motorcycle rider or the driver of another vehicle involved, was criminally negligent in causing the fatality.
- Victoria Police has also put in place an in-house vehicle fleet management and safety policy which, amongst other things, is designed to provide employees with the safest vehicles possible.

Delivery partnerships of Victoria Police feature as output targets in their annual plan. The partnership approach to road safety requires coordination with other agencies and service providers, involving Federal, State and Local Government organizations and non-government organizations. Road safety comprises one of six targeted partnerships and 123 road safety partnerships were targeted for 2003/4 (see Table 2).

Transport Accident Commission (TAC). The TAC is a Victorian governmental organization set up in 1986. Its role is to operate a no-fault injury insurance scheme and to provide investment in road safety interventions, public

Table 2: Victoria Police delivery partnerships performance measures

Performance Measure	Target 2003/2004	Result 2003/2004
Youth issues	158	167
Family violence	82	83
Substance abuse/drugs	81	112
Road safety	123	135
Public transport	116	134
Community safety	360	437
Total cost of output	$28.9m	$30.4m

awareness, and advertising. Funding used by the TAC to perform these functions comes from payments made by Victorian motorists when they register their vehicles each year with VicRoads. The TAC's mission is to reduce road trauma and its impact on the lives of crash victims in a caring, efficient and financially responsible manner. Its role is set out in legislation (see Box 2) and in the government's road safety strategy.

The TAC's road safety strategy is to:

- be a leader in innovative, effective road safety programs and communications;
- invest significant resources in areas:
  - likely to deliver highest safety impact as evidenced by reputable research
  - where the problem is well defined and behavior is modifiable
  - where there is strong legislation/enforcement support
- evaluate the costs and benefits of all major programs;
- support the initiatives of key road safety partners.

2. Vertical coordination from central to regional and local levels of government

Key responsibilities for road safety are devolved to local highway and regional police authorities in Victoria and, as in other countries, steps have been taken to provide central encouragement and support through a variety of mechanisms.

The importance of local activity was underlined in the state road safety strategy with the stated aim of strengthening linkages with local government through provision of support in the development and implementation of municipal road safety strategies and through the work of Local Priority Policing Committees.

Box 2: Transport Accident Act 1986 and the road safety objectives of the TAC

- To collect and assess data and statistics in relation to transport accidents.
- To provide advice to the minister in relation to matters specifically referred to the Commission by the minister and generally in relation to the administration of the Act and the compensation scheme under the Act.
- To promote the prevention of transport accidents and safety in use of transport.
- To promote, so far as is possible , a program designed to secure the early and effective medical and vocational rehabilitation of persons injured as a result of transport accidents to whom or on behalf of whom the Commission is or may become liable to make any payment under the Acting Powers of the Commission.

Local Priority Policing was introduced in 1999 and, organizationally, Victoria Police went from a Central to a Regional command structure. District Traffic Management Units comprise traffic personnel who are also available for other duties as required. Local Safety Committees established under the Local Priority Policing Strategy are consulted about the allocation of traffic enforcement resources at high-risk locations and to address high-risk behaviors. Enforcement activity in Victoria is coordinated with publicity and other events organized by other stakeholders using an annual calendar of events (see Box 3). A range of delivery partnerships with other stakeholders has been established.

Local road safety partnerships. The lead agency has developed, supported and participated in various initiatives aimed at encouraging local activity in road safety. These include the *Saferoads* partnerships and *RoadSafe*—the network of Community Road Safety Councils.

Saferoads is a partnership between Local Government Professionals, Municipal Association of Victoria, VicRoads, Victoria Police, TAC and RACV. The Saferoads strategy launched in 1999 was an important milestone for local road safety. The Strategy launched by local government aims to reduce the incidence and severity of road casualties through multi-action programs, increased use of government networks and increased road safety awareness and resourcing at the local level. A Memorandum of Understanding between the Saferoads partners has been es-

Box 3: Police partnerships in Victoria and the Road Safety Calendar

All day to day traffic policing activity is a consequence of the Victorian Road Safety Strategy which is a dedicated partnership between Victoria Police, VicRoads and the Transport Accident Commission (TAC). The Chief Commissioner of Police and the Chief Executive Officers determine overall protocols, budgets, direction and goals for the forthcoming year's commitment. Once the protocols have been determined, the department heads meet to determine issues such as enforcement strategies and other relevant operational activity.

The Road Safety Calendar is then published and circulated to all stakeholders. Victoria Police circulate it to all District Commanders for implementation. The Calendar is updated every 6 months. The Calendar coordinates publicity and enforcement by indicating what and when enforcement activity is to be carried out and when activities are to be advertised in the press. The calendar encourages unified state-wide enforcement but is sufficiently flexible to allow traffic policing to address any unique local problems.

tablished setting out clearly the roles and responsibilities of each partner. Councils are encouraged to develop municipal road safety strategies and incorporate these into their Corporate Plans. Community Road Safety Councils play a key coordinating role.

RoadSafe involves the community in reducing road trauma by addressing local road safety issues. It consists of a coordinated network of 24 RoadSafe Community Road Safety Councils across Victoria. Membership includes interested volunteers such as:

- road user groups
- heath/education professionals
- local government
- emergency services
- media representatives
- senior/youth representatives
- local businesses
- Victoria Police

RoadSafe groups develop over 100 local community road safety initiatives each year. Initiatives target drink driving, speed, fatigue, older road user safety, young drivers, pedestrian safety, bicycle safety, road safety for children, child restraint use, motorcyclist safety and vehicle safety.

3. Specific delivery partnerships between government, non-government, community and business at the central, regional and local levels

VicRoads and TAC are members of the Australasian New Car Assessment Programme (ANCAP) and promote its safety ratings. They also promote the Used Car Crash Ratings program to encourage fleet and private vehicle purchasers to give priority to safety when buying a vehicle.

The VicRoads Vehicle Information Package (VIP) provides important current and historical vehicle registration information that enables prospective purchasers to make more informed decisions when buying a second-hand car.

Non-governmental engagement

A range of non-governmental and community organization are represented on in the coordination hierarchy in the Road Safety Reference Group and in Saferoads. The leading non-governmental road safety organization in Victoria is the leading road injury prevention research organization—Monash University Accident Research Centre (MUARC) which, at senior level, champions the state focus on results and evidence-based interventions and carries out research, monitoring and evaluation (see research and knowledge transfer section).

The Royal Automobile Club of Victoria is also an active in promoting the State road safety strategies through Saferoads, in particular, and in communicating views on road transport policy, including road safety, to government, parliament and the media.

Business sector engagement

In Victoria business support for road safety is encouraged by the lead agency in a variety of ways. The road transport and vehicle manufacturing industries are represented in Victoria's road safety co-ordination hierarchy in the Transport Industry Safety Group which meets 6 times each year.

Work-related road safety is promoted by a national strategy and improved fleet safety is a key objective of *Victoria's Vehicle Safety Strategy* and associated action plan. VicRoads has also adopted an in-house safe fleet purchase policy and has produced guidance to employers on safer driving. At local level, in 2005, 30 municipalities had developed safe driving policies, stimulated by Saferoads Programs.

Business sector support for promotion of the national road safety strategy is sought, for example, through support for events such as the annual Saferoads conference.

4. Parliamentary relations at central, regional and local levels

An all-party Parliamentary Road Safety Committee has existed in Victoria since the 1970s. Its public inquiries paved the way for much of the government's innovative action including the introduction of seat belt legislation and a range of other measures. It has proven to be an effective means of de-politicizing issues and ventilating matters for public debate. VicRoads and other road safety partners engage with the Committee in the coordination hierarchy and contribute to briefings and hearings. For example, in 2005–2006, VicRoads coordinated the preparation of the draft government response to the Committee inquiries into the *Country Road Toll* and *Crashes Involving Roadside Objects*. The government supported 57 of the 70 recommendations in the former and 48 out of 50 recommendations in the latter.

The *Parliamentary Road Safety Committee* comprises seven members of parliament drawn from both Houses and all Parties. The Committee elects the Chair. The Committee has a secretariat of 4—an executive officer, two research officers and an officer manager.

The functions of the Committee are set out in legislation and are: '. . . to inquire into, consider and report to the parliament on any proposal, matter or thing concerned with (a) road trauma; (b) safety on roads and related matters.' The Road Safety Committee does not have legislative or regulatory powers. It holds public inquiries, reporting to parliament with recommendations and government is required to respond within 6 months. There are five distinct phases of the Inquiry process:

1. The Committee advertises its Terms of Reference and calls for submissions (providing guidance to the public on how to make a submission). A Discussion Paper may be prepared and published.
2. The Committee gathers information, including fact and opinion found in submissions and presented in Public Hearings, inspections and field trips.
3. The Committee considers the arguments, evidence and data it has gathered. Findings and recommendations are agreed upon.
4. The Committee tables a report, including its recommendations, in the parliament.
5. The minister who initiated the Inquiry or who has portfolio responsibility for the matter addressed by the Inquiry (usually the Minister for Transport) is responsible for replying to the Committee's recommendations. The minister has six months from the date of the tabling of the report to respond. The minister may accept, reject, modify or adapt the Committee's recommendations and the response is tabled in parliament.

The Committee typically investigates one major road safety issue in each calendar year and since 1992 it has produced 11 reports (www.parliament.vic.gov.au/committees).

VicRoads Role: Coordination

- **VicRoads manages a system of multi-sectoral coordination to engage all key players with governmental responsibilities in road safety as well as other key players in the state road safety strategy.**
- **VicRoads has established strong delivery partnerships for the strategy and key interventions with the police, the government insurance organization and the Department of Justice.**
- **VicRoads provides in-house capacity for the secretariat of the coordination hierarchy and its committees.**
- **VicRoads establishes tools and programs for use by regional and local authorities and develops and supports community programs and partnerships (Saferoads) at local level.**
- **VicRoads engages actively with the Parliamentary Road Safety Committee, the research, business and non-governmental sectors.**

Legislation

Victoria has been a world leader in legislation designed to curtail high risk behaviors and facilitate the enforcement of such legislation. Examples of legislative measures are shown in Box 4.

1. Reviewing the scope of the legislative framework periodically

VicRoads as the Victorian government's road authority has the responsibility of establishing road and user standards for the network. This also includes the setting of speed limits on state and national roads.

The General Manager—Road Safety from VicRoads through the Road User Behavior Unit and the VicRoads Legal Services Department have responsibility for reviewing and developing proposals for major road user safety legislation in consultation with the road safety partnership. The key governmental partners in this process are the Department of Justice Enforcement Unit, the Department of Justice Legal Services for criminal on-road offenses and Victoria Police who review enforceability. One

Box 4: Key legislative interventions in Victoria over a 40 year period

1961 Compulsory helmet wearing for motorcyclists
1970 Compulsory seat belt wearing for all passenger vehicle occupants
1974 Compulsory testing for blood alcohol level of injured persons (over 14 years) treated at hospital
1976 Legislation to permit random breath testing (RBT)
1981 Compulsory use of child restraints where children are carried in front seats
1983 Red light cameras introduced
1984 Zero blood alcohol law for first year drivers (extended in 1987 to the first three years of licensing)
1986 Speed cameras introduced
1990 Compulsory helmet wearing for bicyclists
1992 Zero blood alcohol level for heavy vehicle drivers
1998 Speed camera operation by civilians
2001 Mandatory loss of license for BAC > 0.07
2003 Legislation to permit random roadside saliva testing to detect drivers under the influence of illicit drugs
2003 Mandatory alcohol interlocks for repeat drink driver offenders @ BAC 0.15 and above
2003 Introduction of point-to point speed measurement legislation
2004 Implementation of random drug testing.

person is allocated to road safety in VicRoads' Legal Services Department.

2. Developing legislation needed for the road safety strategy

The Minister for Transport (VicRoads' Minister) has responsibility for the Road Safety Act (and Regulations) which are subject to Cabinet and parliamentary approval. Prior to consideration by the Cabinet, proposals are required to be circulated to major departments for comment. The initiating department collates comments further and lodges the bill. When bills are introduced into the House, the Opposition often requests full briefings by the Road Safety Department staff. A Business Impact Assessment is required for legislative proposals to Cabinet and Regulatory Impact Statements (published for comment) are required for regulations.

Vehicle standards legislation is introduced at federal level, although Victoria participates in research and development and is consulted, along with other states, on the content of national proposals for Australian Design Rules and standards agreed internationally. The peak body for decision making on these matters is the Australian Transport Council (ATC). VicRoads is responsible for licensing vehicle testers and premises to carry out annual roadworthiness testing on vehicles prior to registration transfer, for the clearance of vehicle defect notices and for carrying out random vehicle testing site audits. Auditing and the provision of field support for the network of 37 private sector inspectors within the Vehicle Identity Validation System is also carried out by VicRoads. VicRoads approves signatories to the Victorian Vehicle Assessment Signatory Scheme whereby signatories can certify that modified, individually constructed or imported vehicles comply with Victoria's standards for registration.

Victoria uses its coordination hierarchy as well as public consultation processes to consult on new policy options and strategies.

3. Consolidating legislation

The consolidation of road safety regulations takes place every 10 years. State experts from the lead agencies also play a role in helping to consolidate federal legislation. For example, in the interests of ensuring that road rules were up to date and consistent throughout the country, Australian Road Rules were harmonized and consolidated in 1999 which eliminated many differences between the rules of different states which had existed mainly for historical reasons. Legal teams from road safety departments in the state lead agencies played a key role in this process.

4. Finding legislative slots in government and parliamentary programs

VicRoads uses its coordination body to explore the opportunities for legislative slots in developing governmental programs of legislation with its road safety partners at the higher levels of the hierarchy.

VicRoads Role: Legislation

- **VicRoads uses its coordination hierarchy to find legislative slots for road safety and for consultation on proposals for legislative change.**
- **VicRoads establishes in-house capacity to help set, ensure compliance with and monitor road safety standards for vehicles, roads and people as well as to provide policy advice.**

- **The road safety department plays a major role in developing, consulting on and consolidating major primary road safety legislation.**
- **The lead agency provides a Business Impact Assessment for legislative proposals to Cabinet and Regulatory Impact Statements (published for comment) are required for regulations.**

Funding and resource allocation

1. Ensuring sustainable funding sources

The principal sources of funding for road safety in Victoria are state government funding, some national government funding and revenue raised from the compulsory state injury insurance scheme administered by the TAC as well as revenue from speed and red light camera fines. A road safety levy was originally set at 3% of the injury insurance premium but the current level is 10%. Victoria's governmental expenditure on road safety for 2004/5 is shown in Box 5.

The VicRoads Road Safety Department administers road improvement funding through VicRoads' five rural regions and two metropolitan regions. In 2002, additional allocations for safer road infrastructure were made, as a prerequisite for achieving *Arrive Alive* targets, resulted in substantial increases. In the 2003/2004 financial year, $71 million (representing 7.5% of VicRoads total expenditure) was allocated to road safety.

The Transport and Traffic Services Department of Victoria Police has a budget of around $29 million. In addition, each region's budget allocates a certain amount of resources to traffic operations and road safety outputs.

The Transport Accident Commission's annual budget for road safety initiatives is approximately $25 million. Of this around, 80% is spent of public education campaigns (production and media placement) and the remainder on other road safety programs.

2. Establishing procedures to guide allocation of resources across safety programs

VicRoads has established procedures to guide the allocation of resources. It uses the human capital approach to assessing socio-economic cost components. A strong business case identifying costs and benefits is made to ministers before interventions are funded.

VicRoads Role: Funding and Resource Allocation

- **VicRoads ensures dedicated funding sources for road safety from the National Road Fund and provided a means through the Road Safety Administration program to finance road safety outputs from different ministries.**
- **VicRoads reviews periodically the value of preventing road traffic deaths and serious injuries to allow a strong business case to be made for expenditure on road safety.**
- **VicRoads provides in-house lead agency capacity to evaluate safety costs and benefits, estimate program funding needs and prepare related business cases.**

Box 5: Victoria's expenditure on road safety 2004/5

Victoria's expenditure on road safety (across Victoria Police, VicRoads, the Department of Justice and the Transport Accident Commission (TAC)) in 2004/5 was formally estimated at more than $370 million:

- $53 million in direct expenditure on road safety programs in VicRoads
- $62 million for the safer roads infrastructure program ($240 million over the life of the program)
- $18 million for the state-wide blackspot program ($240 million over the life of the program)
- $149 million for general road infrastructure improvement of which (10 percent was estimated to be for safety improvements) and $195 million of VicRoads expenditure on maintenance (of which 10 percent was considered as a contribution to road safety)
- $50 million for processing traffic infringements
- $25 million for road safety awareness, enforcement and technology programs at the TAC
- $130 million for Victoria Police road enforcement and road incident traffic management

In the 2005/6 budget, the government announced that from 1 July 2005, all speed and red-light camera fines revenue would be spent on road safety. In 2005/6, revenue is predicted to increase to $233.4 million.

Sources: Ministerial Council for Road Safety and the Department of Justice, Auditor-General of Victoria's Report, *Making travel safer: Victoria's speed enforcement program*, Melbourne 2006

Promotion

1. Promoting the far-reaching road safety vision or goal

The *Safe System* concept provides the future vision for road safety work in Victoria and is the focus of current promotional effort within the framework of *Arrive Alive!* strategies.

2. Championing and promotion at a high level

Political leadership from government ministers is established in the *Arrive Alive!* strategies with each of the lead agencies coming together in the Ministerial Council for Road Safety.

The Monash University Accident Research Centre (MUARC), makes an important contribution to high-level championing of the road safety strategy. The mission of MUARC is through '. . . high-standard research and independent recommendations, to challenge and support citizens, government and industry to eliminate serious health losses due to injury.' As well being a leading contributor of research and evaluation of road safety policies, MUARC contributes to parliamentary hearings and public debate.

3. Multi-sectoral promotion of effective intervention and shared responsibility

Strong partnerships have been formed by the main agencies to promote effective intervention and shared responsibility (see Box 6).

4. Leading by example with in-house road safety policies

Both VicRoads and the TAC have in-house road safety and fleet purchasing policies.

5. Developing and supporting safety rating programs and the publication of their results

VicRoads is a member of and supports the Australasian New Car Assessment Programme. The program is supported by Australian and New Zealand automobile clubs, the state government road and transport authorities of Victoria (VicRoads), NSW, South Australia, Queensland, Tasmania and Western Australia and the New Zealand government.

VicRoads also funds and publishes Used Car Safety Ratings (developed by Monash University Accident Research Unit) on its website.

6. Carrying out national advertising

The TAC's primary role in the Victorian government's road safety strategy is to develop effective communication Programs on speeding, drink-driving, fatigue, driver inexperience, and safer vehicles. In addition to major media campaigns addressing these issues, lower budget tactical campaigns address other issues of concern such as motorcycle safety and youth risk taking. Other programs managed by the road safety area include:

- research and demonstration projects to explore and showcase new technologies and ways of addressing road safety issues e.g., TAC *Safecar* project which trialled a range of high end safety technologies in average fleet vehicles
- enhanced enforcement projects in partnership with police to develop new enforcement technologies and innovative traffic enforcement programs
- websites and other on-line products to assist targeted road user groups (e.g., the learnerslog.com.au—an interactive logbook which enables learner drivers to enter their driving hours and experiences on line and howsafeisyourcar.com.au—a website that allows motorists to compare the safety ratings of cars they are thinking about purchasing).

The majority (80%) of its annual road safety budget ($25 million) is spent on media campaigns to influence attitudes and support traffic enforcement and to developing and supporting education. The TAC has also provided financial support for police activity, in supporting breath

Box 6: Promotion by transport, justice, insurance and research sectors in Victoria, Australia

Australia's achievements in setting key safety rules such as seat belt use and appropriate blood alcohol limit and securing good compliance through hard-hitting publicity combined with high visibility enforcement are widely recognised. A key element of the State of Victoria's success in traffic law enforcement has been the level of cooperation and coordination reached between different governmental, parliamentary and research institutions to promote and secure compliance with evidence-based measures. Highly effective promotional activity combined with data-led policing and use of speed cameras on the part of VicRoads, the Transport Accident Commission (TAC), Victoria Police and Monash University Accident Research Centre led to a general, network-wide effect in speed reduction in urban areas and a 30% reduction crashes on urban arterial roads.

testing and providing speed detection equipment. It also undertakes road safety research.

TAC has also sought to maximize promotional opportunities for road safety from its sports and music sponsorships such as appointing a young Victorian footballer as the TAC Youth Road Safety Ambassador. Besides its VicRoads and Victoria Police partnerships, it has developed partnerships with not-for-profit organizations such as REACH which targets the welfare of young people.

7. Encouraging promotion at the local level

Community Road Safety Councils play a significant advocacy and public awareness role in promoting road safety at a local level supported by the lead agency.

RoadSafe involves the community in reducing road trauma by addressing local road safety issues. It consists of a coordination network of 24 RoadSafe Community Road Safety Councils across Victoria. Membership includes interested volunteers such as:

- road user groups
- heath/education professionals
- local government
- emergency services
- media representatives
- senior/youth representatives
- local businesses
- Victoria Police

Saferoads Strategy provides a framework for councils to develop and implement local road safety strategies targeting key local issues to save lives and reduce the devastating costs of road crashes. Saferoads is a partnership between Local Government Professionals, Municipal Association of Victoria, VicRoads, Victoria Police, TAC and RACV.

VicRoads Role: Promotion

- **VicRoads promotes the shared responsibility for delivery of the road safety strategy through the *Safe System* approach.**
- **Lead agency ministers play a key role in launching and promoting the strategy.**
- **VicRoads participates in multi-sectoral promotion in support of the major themes of the strategy.**
- **VicRoads supports the Australasian New Car Assessment Programme.**
- **VicRoads develops community road safety strategies and tools to promote the state strategy at local level.**
- **VicRoads provides in-house capacity for promotion of the state strategy and community programs.**

Monitoring and evaluation

1. Establishing data systems to set and monitor final and intermediate outcome and output targets

Responsibilities for different crash data/exposure data/health data systems fall principally to VicRoads, the TAC, the Department for Human Sciences and Victoria Police. Monash University Accident Research Centre (MUARC) plays a key role in managing and hosting information systems, including the Victorian Injury Surveillance and Applied Research Centre (VISAR). The National Coroners Information System (NCIS) is at the Institute of Forensic Medicine and the Victorian Trauma Registry (VSTORM) is based at the Department of Epidemiology and Preventive Medicine.

Socio-economic costs. The socio-economic costs of crashes in Victoria in 2003 were estimated by the Victorian Auditor General at $3.4 billion (on the basis of lost output and direct costs).

Vehicle and transport registries. The Transport Registry comprising vehicle and driver registries is part of the VicRoads organization.

Travel data. VicRoads has collected in-house or commissioned key data for several decades. For example, the Victorian Activity and Travel Survey (VATS) was launched in 1993 as a continuous year round household survey of travel patterns in Melbourne.

Final outcomes

Police-reported data. About 38,000 crashes per year are reported to the police on a standardized collision report form. Initial crash reports are received within 10 days, although crashes involving fatalities are reported daily on incident fact sheets. There are five levels of collision investigation, although these are not applicable to all crashes:

1. Reporting—basic data collection and identification of vehicles and persons
2. At-scene investigation—examination and recording of physical evidence
3. Technical preparation—delayed data collection by those with special training

4. Professional reconstruction—investigation requiring engineering and scientific skills
5. Cause analysis—determination of the cause of the collision

The data collected from the collision reports are used to do the following:

- Identify and validate safety camera sites.
- Identify black spot intersections and locations (VicRoads).
- Identify areas for enforcement and local road safety initiatives.
- Assist with the deployment of Booze Buses.
- Identify locations for road environment improvements (VicRoads, TAC and police).
- Report under the Victoria Police Business Plan.
- Measure road trauma outcomes each year.
- Update the Victoria Police Intranet and Internet Web pages.
- Map locations and trends.
- Deploy resources.
- Provide information for the Victoria Police Media Unit.

A minor crash is reported, fault is established, and a penalty notice may be issued if the law is breached. A moderately serious crash is reported with a scene investigation, and a brief is prepared or a penalty notice is issued. A major crash is reported, and depending on the circumstances, the scene is investigated, a technical investigation and reconstruction are conducted, and the result is preparation of a summary and a criminal or coroner's brief of evidence.

VicRoads enhancement of crash data. Crash data input from Victoria Police is and used to identify and understand road safety issues, develop policy and strategy, develop programs and projects, measure performance and benchmarking, evaluate outcomes, and conduct safety research and development.

The Road Information Systems group at VicRoads supports road crash data systems management. The data collection and data support activities are conducted under contract to the Road Safety Department at VicRoads. The information from the police collision forms obtained from Victoria Police is GIS coded and linked to other information databases in VicRoads. Accident classification is added as well as alcohol data from the hospitals and coroner. VicRoads' Road Crash Information System (RCIS) provides access to fatality accidents within 24 hours and information on injury accidents within about 2 months delay. The RCIS is used to identify high-risk sites and lengths of road and to provide updates on government performance indicators. A parallel system has been developed for Intranet and Internet access on the VicRoads website which is updated every 6 months.

The Transport Accident Commission's claims database contains details of road crash victims whose injuries are serious enough to allow them to make a claim for damages under the no-fault compulsory insurance scheme.

The Monash University Centre for Coronial Information was established in 1997 to manage the development of a National Coroners' Information System (NCIS). Information contained in the Coroner's database includes medical reports, pathologist reports on causes of death, witness and police reports. This data supplements crash data already in the police and VicRoads crash databases.

MUARC is responsible for the *Victorian Injury Surveillance and Applied Research Program (VISAR)* which has been funded by the Department of Human Services since 1993. It provides a comprehensive injury surveillance system, including death data from the Australian Bureau of Statistics, coroner data from the National Coronial Information System, as well as hospital admissions and emergency department data.

The Victorian State Trauma Registry monitors the state wide system of trauma management in order to reduce preventable deaths and permanent disability from major trauma. It was established in 2001 coordinated by the VSTORM group based at the Department of Epidemiology and Preventive Medicine at Monash University. The Victorian State Trauma Registry aims to collect information on major trauma patients from every hospital and healthcare facility managing trauma patients across the state. In its second year of operation, the registry collected information from 129 facilities.

The *National Transport Injury Database (NTID)* was initiated by the Australian Transport Safety Bureau in 2002. It contains hospital data for all patients in Australian hospitals and is checked and amended for duplicates, anomalies etc.

Annual monitoring of final outcome targets takes place in Victoria and is published on VicRoads and TAC websites.

There is monitoring in annual reports of a range of final outcomes shown in Box 7.

Periodic reporting of road crash fatalities (daily) and road crash information (monthly and on demand) is used for many purposes.

Intermediate outcomes

VicRoads commissions surveys of free travel speeds in Melbourne and regional Victoria every six months. It calculates average speeds for the Melbourne sites, median speeds for the rural sites and 85th percentile speeds for all sites. VicRoads also commissions seat belt surveys from time to time. The Transport Accident Commission assembles the Victoria Police data on BAC testing rates monthly. The Australian Road Assessment Programme (AusRAP) provides monitoring data of elements of the safety of the road network across Australia, including Victoria. VicRoads is a member of the Australian New Car Assessment Programme (ANCAP) and contributed $150,000 to the crash testing program in 2005–2006.

Outputs

The outputs of Victoria Police which contribute to output targets are given in Table 1.

2. Transparent review of the national road safety strategy in terms of results, interventions and institutional management functions

The road safety strategy is subject to a mid-term review with a program for the implementation of road safety priorities being carried out throughout the life of the strategy. There is parliamentary scrutiny of performance with an annual report for VicRoads to the Road Safety Committee.

Evaluations of individual measures to reduce crash incidence and severity are carried out by independent research organizations. The contracts for these tasks are usually funded and managed by VicRoads and/or TAC. The proposals are either put out to tender or are put into the baseline program of MUARC or, if funded by Austroads, can be put on the ARRB Group program. For example, MUARC undertook evaluations of the 'booze bus' and speed camera programs including their supporting publicity campaigns. Other projects estimated the contribution of other factors to the overall reductions in casualty crashes including the accident black spot program, bicycle helmet wearing and the downturn in the economy.

A multi-disciplinary in-depth crash investigation project was put out to tender by VicRoads and won by MUARC. The project includes interviews with hospital victims and

Box 7: Final outcomes—performance indicators used by VicRoads

Road safety strategies and coordination

Annual fatalities
Serious casualties
Casualties
Casualties per 100 million vehicle kilometers
Number of serious casualty crashes per 100,000 population
Number of serious casualty crashes per 100 million vehicle kilometers
Number of persons killed per 100,000 population
Number of persons killed per 100 million vehicle kilometers
Number of persons killed per 10,000 vehicles registered
Number of persons hospitalized per 100,000 population
Number of persons hospitalized per 100 million vehicle kilometers
Social cost of serious casualty crashes per 100,000 population
Social cost of serious casualty crashes per 100 million vehicle kilometers

Safer roads

Estimated percentage reduction in crashes at treated blackspot/black length sites
Number of blackspots/black lengths treated
Number of crashes where fixed objects were hit
Number of crashes involving trains at level crossings

Safer road users

Number of motorcycle fatalities per 10,000 motorcycles
Number of pedestrian fatalities per 100,000 population
Number of truck occupant fatalities per 100 million vehicle kilometers
Number of drivers (and riders) killed with a blood alcohol concentration (BAC) greater than .05
Number of pedestrians killed with a blood alcohol concentration (BAC) greater than .05
Percentage of drivers killed detected with an illegal blood alcohol concentration (BAC)
Young drivers (and riders) killed/seriously injured as a percentage of all drivers (18 to 25 years)
Older drivers (and riders) killed/seriously injured as a percentage of all drivers (60 plus years)

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looks at issues including enforcement, vehicle and road design and driver behavior. A team of trained investigators and road safety experts investigate approximately 80 representative crashes involving a fatality or severe injury.

3. Making any necessary adjustments to interventions and institutional ouptuts needed to achieve the desired results

Regular review of road safety performance is carried out by the lead agency and partners and presented and discussed in the state coordination committees. The *Arrive Alive 2008–2017 strategy* states that 'analysis of trends in road trauma will continue during the life of the strategy to ensure that planned initiatives remain applicable. Over five years, changes will occur that may require adjustment of the proposed initiatives before implementation, to allow Victoria to take advantage of the latest approaches to road safety and trauma reduction.'

VicRoads Role: Monitoring and Evaluation

- **Monitoring of the road safety strategy is a VicRoads responsibility and performance reviews and follow up are discussed within the coordination hierarchy.**
- **VicRoads and other governmental stakeholders have established roads authority, insurance and health sector databases to identify and monitor final and intermediate outcomes and outputs against targets.**
- **VicRoads establishes and publishes the socio-economic cost of road traffic injuries on a periodic basis.**
- **VicRoads manages the vehicle and driver registries, carries out travel surveys and participates in the Australasian New Car Assessment Programme to assist monitoring of vehicle fleet safety.**
- **VicRoads reports annually on road safety performance to parliament.**

Research and knowledge transfer

1. Developing capacity for multi-disciplinary research and knowledge transfer

Victoria has well-developed capacity for road safety research. While much of the early research was carried out in-house, most research is now carried out by external research institutions which are independent of government.

A variety of research organizations and universities contribute to building road safety knowledge both in transport and health sectors. Monash University Accident Research Centre (MUARC) and the Australian Road Research Board are two examples of leading research institutions carrying out road safety research in Victoria.

Monash University Accident Research Centre (MUARC). MUARC was established in 1987 and is Australia's largest multi-disciplinary, injury and injury prevention research institute covering transport, the workplace, the home, and recreational and other community locations. It carries out over 60% of Victoria's road safety research. MUARC is independent of government and receives external funding from a range of sources. It publishes its accounts annually and subjects its activity to regular independent review. It works co-operatively with both public and private sector organizations to define the scope of research projects and encourage the adoption of recommended injury prevention measures. Many of the senior researchers at MUARC are active at the national and international level.

MUARC is part of Monash University and has a Board of Management which brings together senior representatives of governmental agencies responsible for road safety and a road user organization. The Board monitors the general performance and direction of the Centre's program. The Centre has around 100 staff and postgraduate students covering many disciplines. Most staff are involved principally with road safety. The annual income is around $8 million. The two main sources of funding are government and research grants (mainly from commercial research).

MUARC was set up originally to meet a need for an independent, multi-disciplinary research organization to undertake longer term road research as well as safety evaluation. It was considered that outsourcing research to a University Centre would be more effective and efficient than undertaking it within government departments.

The Centre evaluated the 'booze bus' and speed camera programs including their supporting publicity campaigns. The initial process and outcome evaluations provided early feedback to the police and TAC, which was used to fine tune the programs. The large benefit/cost ratios calculated for these two programs (greater than 20:1) were important in decisions to continue investment of considerable resources in these programs. Further analyses, for additional projects, estimated the contribution of other factors to the overall reductions including

the accident black spot program, bicycle helmet wearing and the downturn in the economy. MUARC has provided policy and strategic advice based on research, through representation on the Victorian Road Safety Coordination Council and its successor, the Road Safety Reference Group. Staff have provided advice on the results of Victorian road safety initiatives to road safety authorities and police internationally. MUARC also carried out a road safety impact analysis of the initiatives of the state road safety strategy. In addition MUARC coordinates the Victorian Trauma Registry.

ARRB Group (formerly Australian Road Research Board). The ARRB's founding purpose in 1960 was to conduct public interest research, and this endeavor continues. With its head office based in Melbourne, the ARRB group carries out consultancy and research on various aspects of road safety, road safety strategy, road user behavior and road safety engineering. It also develops crash risk analysis tools and good practice guidelines.

2. Creating a national road safety research strategy and annual program

The *arrive alive 2008–17* strategy includes an integrated road safety research component to be delivered primarily via a restructured Monash University Accident Research Centre (MUARC) baseline program to which VicRoads and partners contribute financially. An MOU was drafted which specifically aligned the baseline program with the arrive alive strategy and the associated action plans. The *arrive alive 2008–17* strategy states that 'Victoria will remain at the forefront of road safety research through continual interaction with global experts, the Monash University Accident Research Centre and other research specialists. A significant step in research will be the establishment of a specific program with MUARC to develop solutions for activities central to achieving strategy goals and ensuring targets are achieved.'

3. Securing sources of sustainable funding for road safety research

VicRoads together with other governmental partners such as the Transport Accident Commission ensures annual support for research through the strategy and from own budgets.

4. Training and professional exchange

VicRoads runs a professional exchange program involving staff secondments of one or more years' duration between VicRoads, the ARRB Group and Monash University Accident Research Centre. It also runs a road safety course aimed at professionals working in road safety in Australia and internationally. VicRoads also plays a role in international road safety development initiatives.

5. Establishing good practice guidelines

Aided by professional organizations such as Austroads, ARRB, the Royal Australian College of General Practictioners, MUARC, the Community Road Safety Council and Saferoads partnership, VicRoads and its governmental road safety partners develop and fund a range of activities focused on developing professional knowledge and promoting best practice. In developing new guidance typically VicRoads sets up an Advisory Group comprising a range of stakeholders and experts such as the Speed Limits Advisory Group or the Work-related Road Safety Advisory Group to encourage multi-sectoral approaches and ownership.

Austroads is the association of Australian and New Zealand road transport and traffic authorities. Austroads members are the six Australian state and two territory road transport and traffic authorities, the Federal Department of Transport and Regional Services (DOTARS), the Australian Local Government Association (ALGA), and Transit New Zealand. It plays a key role in knowledge transfer in Victoria by carrying out research, preparing guidelines and other tools for information exchange. Austroads has set up a National Road Safety Taskforce with senior road safety representatives from all state road authorities and the federal Australian Transport Safety Board to oversee the national road safety research program.

6. Setting up demonstration projects

Demonstration projects are undertaken periodically by the road safety partnership in support of the road safety strategy and to demonstrate emerging technologies. For example, the TAC SafeCar project aimed to stimulate demand in Australia by company fleet car owners, and in the longer term by the general community, for in-vehicle ITS technologies that have significant potential to reduce the incidence and severity of road trauma. This was a joint research, development and evaluation project involving as key partners the Victorian Transport Accident Commission, Ford Australia and the Monash University Accident Research Centre (MUARC). This group was supported by VicRoads and a broad range of local and international supporting partners from government and industry including

Autoliv, Barker Technics Pty Ltd, Bosch, Digital Device Development Group Pty Ltd, Intelematics, OzTrak, PC Host, the Royal Automobile Club of Victoria, Victoria Police and Wiltronics Research Pty Ltd.

VicRoads Role: Research and Development and Knowledge Transfer

- **VicRoads has ensured the establishment of comprehensive state-wide capacity for road safety research and knowledge transfer and, with its partners, assigns annual budgets for road safety external research.**
- **VicRoads ensures in-house capacity for road safety research management.**
- **VicRoads and its partners align research provision to strategy needs.**
- **VicRoads makes provision for training and professional exchange program and runs an annual international road safety course.**
- **VicRoads supports the production and dissemination of good practice guidelines, as well as demonstration projects.**
- **VicRoads plays a role in international development initiatives.**

Summary: VicRoads' delivery of institutional management functions

Results focus. VicRoads (the Victoria Road Corporation) is the lead agency for road safety in the state of Victoria. It leads the management of the state's focus on achieving road safety results and works to ensure that system-wide interventions are agreed and implemented by the responsible authorities across government and wider society. VicRoads works with a *Safe System* approach adopted by government. It has established a results management framework for appraising performance and identifying what could be achieved in the medium term, and leads the development and delivery of safety strategies and action plans agreed within its high-level coordinating body. This strategy includes interim targets for deaths and serious injuries, as well as institutional outputs for policing activity. VicRoads' responsibility for the achievement of state road safety targets is underpinned by a performance agreement with the Minister of Transport. It is also annually accountable for a range of outputs associated with the safe planning, construction, and operation of state roads. Accountability is established by the main governmental partners who, at the highest level, sign up to a published strategy with quantitative targets. VicRoads has established appropriate in-house capacity for road safety strategy development and its coordination.

Coordination. VicRoads manages a system of multisectoral coordination to engage all key players with governmental responsibilities in road safety as well as other key players in the state road safety strategy. It has established strong delivery partnerships of the strategy and key interventions with Victoria Police, the Transport Accident Commission (the government insurance organization) and the Department of Justice. VicRoads provides in-house capacity for the secretariat of the coordination hierarchy and its committees. It establishes tools and programs for use by regional and local authorities and develops and supports community programs and partnerships (Saferoads) at the local level. VicRoads engages actively with the Parliamentary Road Safety Committee, and the research, business and non-governmental sectors.

Legislation. VicRoads has built in-house capacity to help set, ensure compliance with, and monitor road safety standards for vehicles, roads and people as well as to provide policy advice. It plays a major role in developing and consolidating primary road safety legislation. VicRoads provides a Business Impact Assessment for legislative proposals to Cabinet, and Regulatory Impact Statements (published for comment) are required for new regulations. It also uses its coordination hierarchy to find legislative slots for road safety and for consultation on proposals for legislative change.

Funding and resource allocation. The principal sources of funding for road safety in Victoria are state government funding, some national government funding, and revenues raised from the compulsory state injury insurance scheme administered by the TAC and from speed and red light cameras. A road safety levy was originally set at 3% of the injury insurance premium and the current level is 10%. VicRoads reviews periodically the value of preventing road traffic deaths and serious injuries to allow a strong business case to be made for expenditure on road safety. It provides in-house lead agency capacity to evaluate safety costs and benefits, estimate program funding needs and prepare related business cases.

Monitoring and evaluation. Monitoring of the road safety strategy is VicRoads responsibility and performance reviews are discussed within the coordination hierarchy. VicRoads and other governmental stakeholders have estab-

lished roads authority, insurance and health sector databases to identify and monitor final and intermediate outcomes and outputs against targets. VicRoads establishes and publishes the socio-economic cost of road traffic injuries on a periodic basis. It manages the vehicle and driver registries, carries out travel surveys and participates in the Australasian New Car Assessment Programme to assist the monitoring of vehicle fleet safety. VicRoads reports annually on road safety performance to parliament.

Research and development and knowledge transfer. VicRoads has ensured the establishment of a comprehensive state-wide capacity for road safety research and knowledge transfer and, with its partners, assigns annual budgets for road safety external research. It ensures in-house capacity for road safety research management. VicRoads and its partners align research provision to strategy needs. VicRoads makes provision for training and professional exchange programs. It also supports the production and dissemination of good practice guidelines, as well as demonstration projects. VicRoads plays a role in international development and runs an international road safety training course.

Lead agency structures

The aggregate and organizational structures of the lead agency for road safety in Victoria are set out in Figures 3 and 4.

Coordination structures and a description of related processes are set out in the section on *Coordination* and in Figure 2.

VicRoads has a dedicated road safety department with 55 staff. The department comprises a broad range of policy units covering the safety of different elements of the road traffic system and allowing the delivery of its management functions. The size of the strategy and programs unit reflects the substantial program development role of VicRoads as well as its multi-sectoral coordination role.

Figure 3: Aggregate structure of the lead agency for road safety in Victoria, Australia (2005)

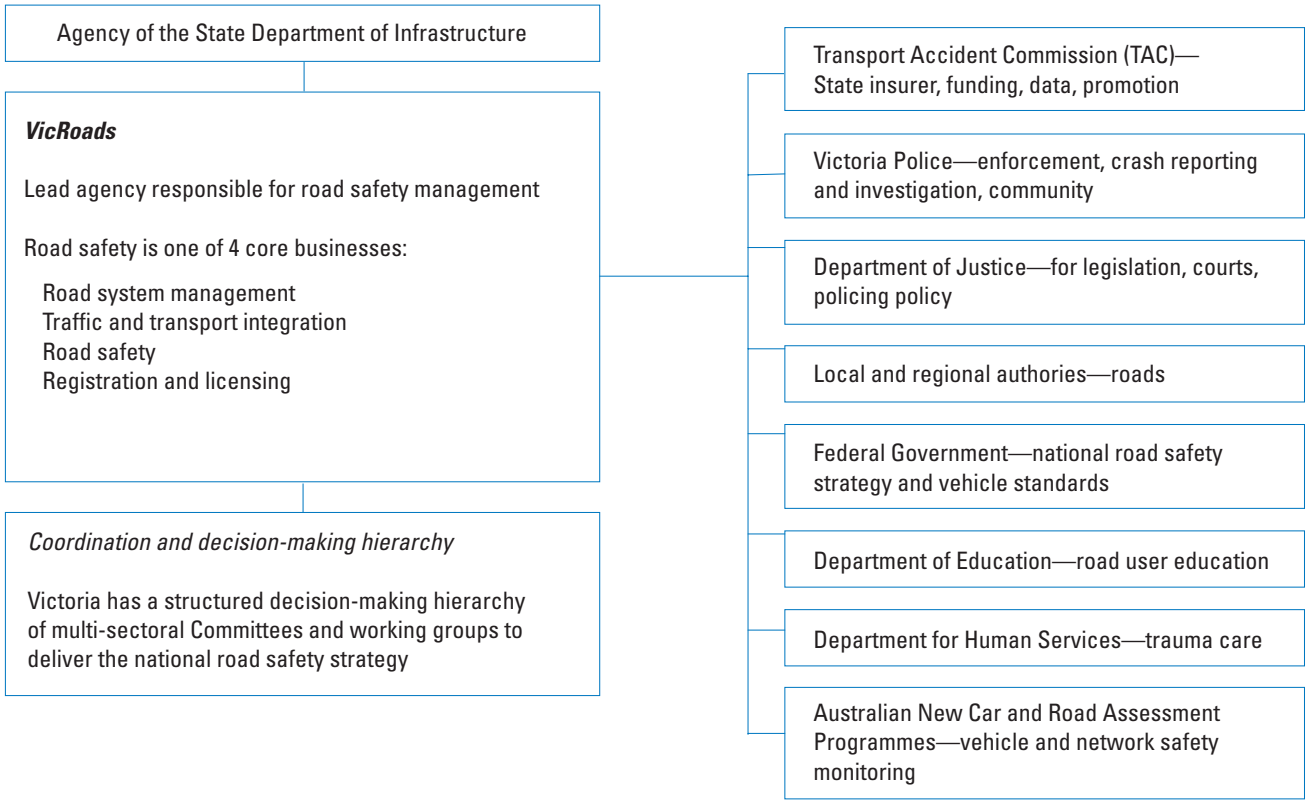
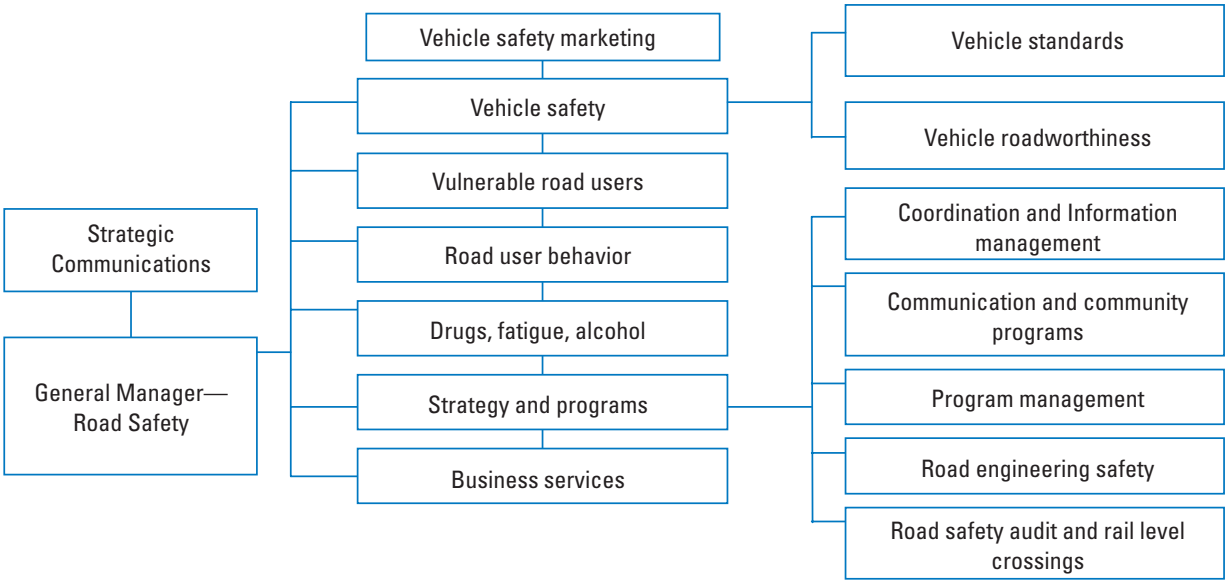


Figure 4: Organizational structure of VicRoads' road safety department (2005)



Bibliography

Eds. Peden M, Scurfield R, Sleet D, Mohan D, Hyder A, Jarawan E and Mathers C (2004). *World Report on Road Traffic Injury Prevention*, World Health Organization, World Bank, Geneva, 2004.

OECD (2002). *What's the Vision?*, Organization for Economic Co-operation and Development, Paris, 2002.

Aeron-Thomas A, Downing AJ, Jacobs GD, Fletcher JP, Deslby T and Silcock DT (2002). *A review of road safety management and practice. Final report.* Crowthorne, Transport Research Laboratory and Babtie Ross Silcock, 2002 (TRL Report PR/INT216/2002).

Trinca G, Johnston I, Campbell B, Haight F, Knight P, Mackay M, McLean J, and Petrucelli E (1988). *Reducing Traffic Injury the Global Challenge*, Royal Australasian College of Surgeons, 1988, ISBN 0 909844 20 8.

Scrafton D (2005). *Transportation Policy in New Zealand and Australia*, in *Handbook of Transport Strategy, Policy and Institutions,* edited by KJ Button and DA Hensher, Elsevier 2005.

www.arrivealive.vic.gov.au, VicRoads Publication Number 00762, Melbourne.

Johnston I, *Halving deaths from road traffic crashes—a case study from Victoria*, *Australia 1989–2004, Addendum, Transportation performance measures in Australia, Canada, Japan and New Zealand,* US DOT, FHA, October 2005, Washington.

VicRoads Annual Reports 2003/4, 2005/6, VicRoads http://www.vicroads.vic.gov.au/

VicRoads, Victoria Police, Transport Accidents Commission *Arrive Alive Victoria's Road Safety Strategy 2002–2007.*

VicRoads, Victoria Police, Transport Accidents Commission Victoria's road safety strategy: arrive alive 2008–2017, 2008.

VicRoads, Victoria Police, Transport Accidents Commission *Victoria's Vehicle Safety Strategy and Associated Action Plan 2004–2007*, Melbourne, 2004.

Victoria Police, *Delivering a Safer Victoria, Business Plan 2003–2004*, Melbourne, 2003.

Victoria Police, *The Way Ahead Strategic Plan 2003–2008*, Melbourne.

Hayes IW, Victoria Police, *The changing paradigm of traffic enforcement from the perspective of someone who has been part of both the past and the present,* Paper presented to the Road Safety Research, Policing and Education Conference, November 2001, Melbourne.

Transport Accident Commission, *Annual Report 2004*, Melbourne, 2004.

Monash University Accident Research Centre (MUARC) www.monash.edu.au/muarc/

Monash University Accident Research Centre Annual Report 2003, Melbourne, 2004.

Delaney, Diamantopolou K, Cameron M. *MUARC's speed enforcement research: principles learnt and implications for practice*. Melbourne, Monash University Accident Research Centre, 2003 (Report No. 200).

Clark B, Haworth N and Lenné M, *The Victorian Parliamentary Road Safety Committee—A History of Inquiries and Outcomes*, Report No. 237, Monash University Accident Research Centre, Mebourne, June 2005.

Auditor-General, Victoria, Making travel safer: Victoria's speed enforcement program, Melbourne 2006.

Haworth N, *Road safety strategy 2001–2006: Update of estimates of possible reductions*, MUARC, Melbourne 2001.

Howard E, *Implementing a Safe System Approach to Road Safety in Victoria*, Road safety research, policing and education conference, Perth, November 2004.

Ministerial Council for Road Safety and the Department of Justice, Auditor-General of Victoria's Report, *Making travel safer: Victoria's speed enforcement program,* Melbourne 2006.

1.6 Road safety organization in the State of Western Australia

National and State context

KEY FACTS: 2006

Area:	**2,529,875 km^2**
Population:	**2,050,884**
Kilometers of public road:	**151,199**
Number of licensed motor vehicles:	**1.9 million**
Road deaths per 100,000 of population:	**9.9**
Total road deaths	**202**

Source: Office of Road Safety, Western Australia

Western Australia (WA) is the largest of the six states and two territories that make up the Commonwealth of Australia. It occupies the western third of the Australian mainland and covers an area which is over four times the size of the area of France. However it is home to only 10% of the country's total population, with 80% of the state population living in the capital city Perth.

Each Australian state has responsibility for roads, health and education, police services, motor vehicle registration and driving licensing. Vehicle standards however, are largely determined at the national level. Transport is also primarily a state concern, although federal government funds are provided for national roads. Local government is responsible for constructing and maintaining most roads not included in the national or state network. National and state government funding is provided for some state-managed and locally maintained roads under various schemes, including a national black spot funding program. Within the framework of the *National Road Safety Strategy 2001–2010*, all states and territories cooperate and work within an agreed National Road Safety Action Plan.

WA's experience in developing and implementing a results-oriented road safety strategy is enabling it to play a key role in relation to the National Strategy. Its development reflects the assistance and support received from other jurisdictions and especially from the state of Victoria (see previous case study).

With over 50,000 kilometers of sealed and 127,000 kilometers of unsealed roads, and minimal passenger rail services outside Perth, WA relies extensively on its road network for transporting both people and freight and many Western Australians travel long distances by motor vehicle for business, to attend educational institutions, access health services or simply for recreation or social purposes.

While roads, in general, are of a reasonable standard, given the kilometers covered and the low population density, most major roads outside the Perth metropolitan area have two undivided traffic lanes and are not of a standard that would be considered high in many other developed countries. Given its size, and strong dependence on road transport, Western Australia faces some very special challenges in attempting to reduce road trauma in rural and remote areas, especially amongst the indigenous (Aboriginal) population.

Road crashes are one of the leading causes of premature death in WA, with an average of 39 years of potential life lost per death. The estimated cost to society of fatal and serious injury road crashes is high, around $1.8 billion annually. Significant progress, however, has been made in reducing road death rates during the last 15 years as shown in Figure 1.

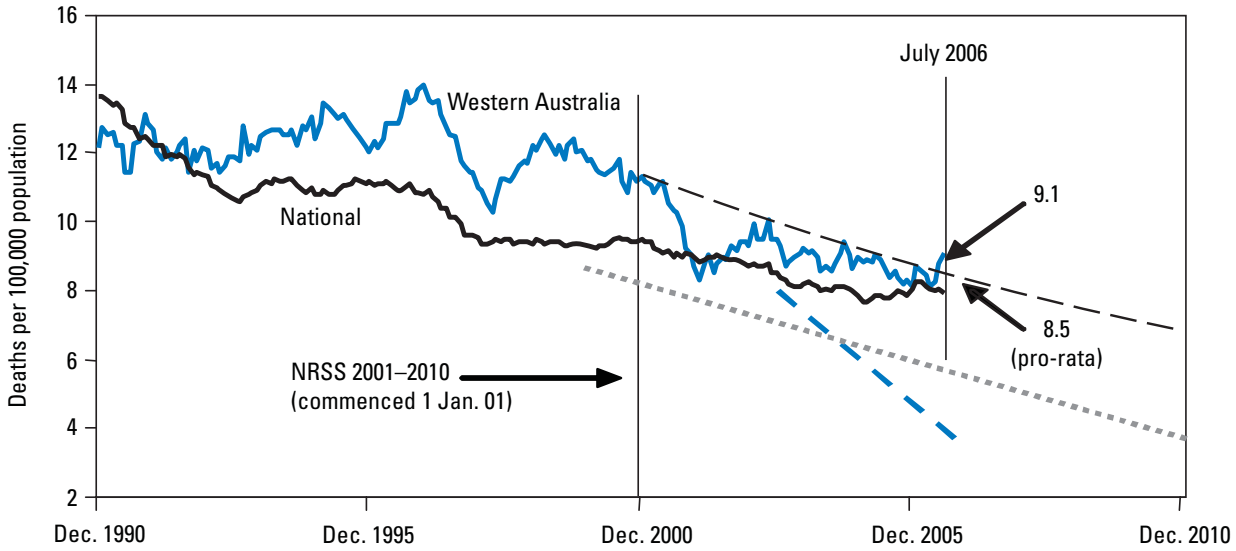
The Office of Road Safety (ORS) forms part of the Department of the Premier and Cabinet. It is the lead agency within government for the development, coordination, communication (including mass media), monitoring and reporting on progress of road safety policy and strategy. It works in close partnership with the state coordinating body—the Road Safety Council.

The current institutional arrangements for managing road safety owe their origin to a Parliamentary Committee. In 1995 the Fifth Report of the Select Committee on Road Safety *Administration and Coordination of Road Safety in Western Australia* reported that the key inhibitors to significant improvements in road crash statistics included:

- lack of a central agency to take responsibility for road safety;
- inadequate coordination of road safety efforts;
- inappropriate allocation of ministerial portfolios and organizational responsibilities;
- inadequate levels of funding for some aspects of safety
- improvement; and
- an inadequate framework to enable road trauma issues to be identified and overcome.

In early 1996, the state goverment recommended 'fundamental administrative changes to improve road safety in Western Australia.' In 1997, the Office of Road Safety (ORS),

Figure 1: Deaths per 100,000 population in Western Australia—1900–2006



and the Road Safety Council (RSC) of WA were established in legislation. The police service, which previously had been responsible for road safety, continues its data collection, crash investigation and enforcement functions.

In recent years the WA government has moved to place a greater emphasis on outcomes, outputs and strategic goals in its corporate governance requirements. Broad goals and strategic outcomes for the state are set out in *Better Planning: Better Services—A Strategic Planning Framework for Western Australia.* Goal number one within that framework 'is to enhance the quality of life and well being of all people throughout Western Australia.' Strategic outcomes for that goal include: 'safe and secure Western Australian communities;' and 'enhanced, safety, security and well-being of the vulnerable within our community.' The government's regional development policy, *Regional Western Australia—A Better Place to Live,* also includes as a priority 'a substantial reduction in regional road fatalities.'

This case study focuses on state delivery of institutional management functions, the lead agency role and the structures and processes put in place to achieve road safety results.

Results focus

Western Australia moved to a results-oriented focus in managing road safety, with the publication of the *Way Ahead* road safety strategy in 1997, *Arriving Safely: Road Safety Strategy for Western Australia 2003–2007* and in its new strategy *Towards Zero* which was adopted in March 2009. An organizational framework exists for analysing data and safety performance and setting final and intermediate outcome targets at state level as well as allowing effective response to the national agenda.

Lead agency

The Office of Road Safety (ORS) is an unusual lead agency type, comprising a small road safety dedicated coordinating agency with a staff of 22. It is hosted by a parent agency that has a stated objective of reducing the number of serious injuries and fatalities on Western Australian roads, but does not have core responsibility for primary service delivery in any road safety or transport-related function. The ORS serves, in effect, as the governmental executive arm of the Road Safety Council (RSC)—the main road safety advisory body which has legislative responsibility for advising government on programs and initiatives for reducing road trauma in WA.

1. Appraising current road safety performance through high-level strategic review

High-level strategic review of road safety outcomes is carried out by the Road Safety Council which also makes recommendations to government on next steps.

An Annual Review of outcomes is provided by the ORS, endorsed by the Road Safety Council and tabled in both Houses of Parliament by the ORS Minister.

The ORS has responsibility for monitoring road safety performance in Western Australia and for communicating results to the Road Safety Coordination Council. It carries out this function with the assistance of external expertise.

2. Adopting a far-reaching road safety vision or goal for the longer term

The *Safe System* approach was adopted in Western Australia in 2003. In March 2009, parliament approved the *Towards Zero* strategy with its long term goal of eliminating road traffic deaths and serious injuries, following a proposal from the lead agency and coordination council. The strategy will be published shortly.

3. Analyzing what could be achieved in the medium term

The *Arriving Safely (2003–2007)* targets and strategy and the *Towards Zero* targets were developed independently by the Monash University Accident Research Centre (MUARC) in Victoria. A key aspect of *Towards Zero* was to develop a model to encompass the projected benefits of a combination of best-practice *Safe System* interventions to allow the definition of challenging and achievable targets for the medium term. To identify the best mix of initiatives for Western Australia's road safety strategy attention was primarily directed to a relatively small number of large and severe problems, using proven high impact solutions.

The process for the development of the strategy for 2008–2020 involves a greater degree of community and stakeholder engagement than has been the case previously. The strategy development process involved four phases.

- Phase 1–Gauging views and engaging the community and stakeholders and undertaking scientific research into best practice
- Phase 2–Identifying the preferred strategy for WA
- Phase 3–Formal Acceptance of the strategy by government.
- Phase 4–Communicating the endorsed WA Road Safety Strategy 2008–2020 to the public and stakeholders

The proposed strategy and the associated documentation were finalised in conjunction with the Office of Road Safety and the Road Safety Council. The strategy focuses on evidence-based intervention to reduce road trauma and maps out the commitment and actions required from government, industry and the community to work towards this long term vision (see Box 1).

Levels of funding have still to be ascertained but if all recommendations of the *Towards Zero* Strategy were to be fully implemented it has been estimated that there would be a 40% reduction in current road deaths and serious injuries by 2020.

4. Setting targets by mutual consent across the road safety partnership

Final outcome targets. Arriving Safely specified an interim outcome target to reduce the number of deaths per 100,000 of the population to a level that was equal to the best in Australia (expected to be a rate of about 5 per 100,000 people) which was not met. The Road Safety Council adopted a corresponding goal which was to reduce hospitalisations as result of a road crash to a rate of 72.4 per 100,000 of the population. In adopting this target, WA hoped to be able to encourage improvements across the different components of the *Safe System* approach through concerted, additional effort.

Intermediate outcome targets. These have not been used in WA road safety strategies.

Output targets. These have not been specified in the road safety strategies but are set in annual performance agreements. For example, the performance agreement of the Executive Director of the ORS includes a requirement to conduct four major media campaigns per year. The police have agreed outputs for a range of enforcement activity in line with road safety strategy objectives.

For each of the 10 strategy components (see Box 2), a set of performance indicators (PIs) was identified through which progress of the Strategy was monitored (see *Monitoring and evaluation).*

Box 1: Interventions expected to contribute to results

- Safer roads and roadsides—expected to contribute 27– 43% of the improvement, depending on level of investment
- Safer road users—expected to make a 20% contribution
- Safer speeds in urban areas—expected to make a 9% contribution
- Safer vehicles—expected to make an 8.5% contribution

RSC, 2003

Box 2: 10 components of *Arriving Safely* 2003–2007

Safer Road Users	*Classes of Initiative*
Countering drink driving	Improving the effectiveness of enforcement
Reducing speeding	Improving the safety of roads
Increasing restraint use	Protecting vehicle occupants
Reducing fatigue	Planning a safer road transport system
	Reducing travel speeds
	Safer modes of travel

5. Establishing mechanisms to ensure stakeholder accountability for results

The *Arriving Safely* strategy and targets were endorsed by the state government in 2003 and signed by the Minister for Community Safety. Annual performance agreements underpinned agency responsibilities and the ORS used Memoranda of Understanding to underpin working relationships. However, no governmental agency was directly accountable for achieving outcome targets in terms of reducing deaths and serious injuries, as is the case in the other high-income jurisdictions described in these case studies.

ORS Role: Results Focus

- **The ORS is responsible within government for leading, developing, coordinating, promoting and monitoring the state safety strategy, program and targets.**
- **The ORS ensures that background papers on road safety performance are presented and discussed in the coordination body to inform new activity.**
- **The ORS has studied and proposed a far-reaching road safety vision for the longer term which has been adopted, commissioned modelling of future road safety potential by experts and proposed new targets and strategies to the road safety partnership.**
- **The ORS uses Memoranda of Understanding to underline agreements about the way in the members work together in matters related to road safety.**

Coordination

1. Horizontal coordination across central government

The main multi-sectoral bodies in WA's coordination and decision-making hierarchy are the Ministerial Council on Road Safety, the Road Safety Council and the Road Safety Senior Officers Support Group. The Office of Road Safety provides the executive arm.

The coordination hierarchy for Western Australia structure is shown in Figure 2.

The Road Safety Council of Western Australia was established in 1997, to advise government on programs and initiatives for reducing the level of road trauma in Western Australia. Chaired by an Independent Chairman, the Road Safety Council comprises representatives from the range of governmental agencies with responsibilities for road safety as well as a motoring organization. The principal functions of the Council are results management and implementation arrangements. Interventions or policy outputs are carried out by the Council's members.

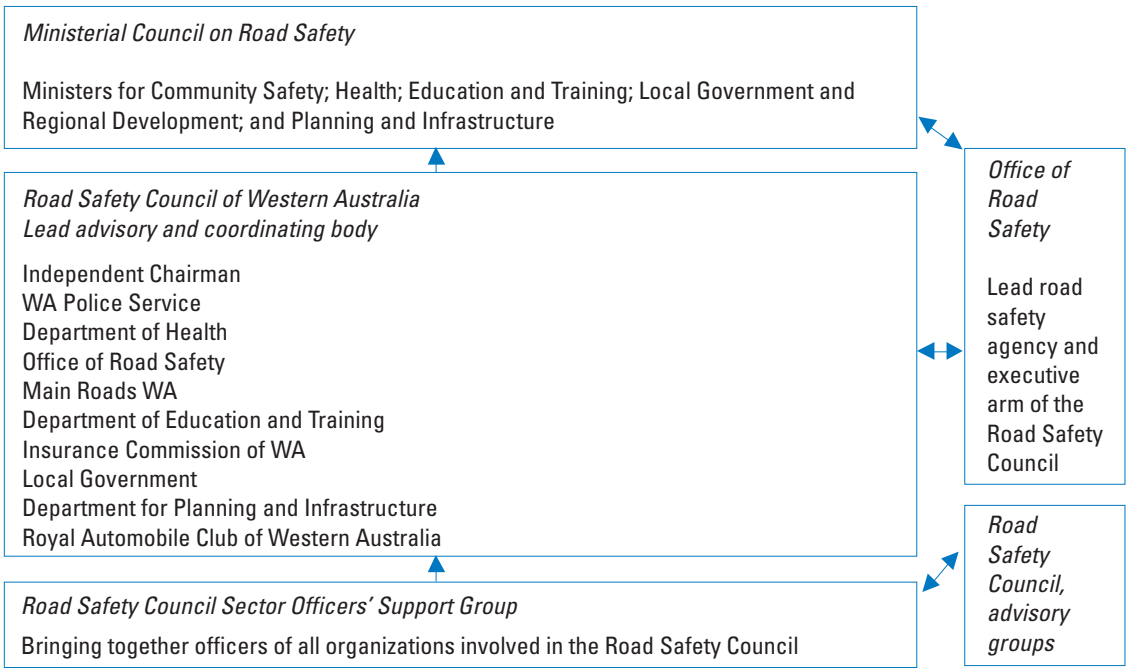
The Council's functions set out in the Road Safety Council Act 2002 are:

(a) identify measures to improve the safety of roads in the State and to reduce the deaths of people, the injuries to people, and the damage to property, resulting from incidents occurring on roads in the State;
(b) recommend to relevant bodies and persons the action that should be taken to implement those measures;
(c) coordinate the implementation of those measures by relevant bodies and persons;
(d) evaluate and monitor the effectiveness of those measures;
(e) evaluate and monitor the safety of roads in the State; and
(f) recommend to the Minister how money standing to the credit of the Account should be spent to implement those measures and to facilitate the performance of the Council's functions.

The Road Safety Council brings together representatives of all the key operational agencies and road users which reports to a Ministerial Council which is comprised of the five ministers responsible for the main member agencies and which is chaired by the Minister for Community Safety who is also currently the Minister for Police. The Executive Director of the ORS is a member of the Road Safety Council.

The work of the Council is supported at an operational level by the Road Safety Council Officers Support Group (ROSCOS). Membership mirrors that of the RSC, with the same government and non-governmental agencies being represented. ROSCOS is chaired by the Director of Policy and Strategy from the Office of Road Safety. ROSCOS also provides a formal and an informal forum for the sharing of ideas and for networking between agencies with differ-

Figure 2: Multi-sectoral coordination in Western Australia (2006)



ent but often interlocking responsibilities (for example Police and Main Roads are both involved in activities designed to achieve 'safer speeds').

Under these institutional arrangements, the RSC and the ORS are together able to provide strong leadership and coordination in the key areas of policy, research, program evaluation, and community education and encourage activities towards achieving the targets and priorities for action set out in the road safety strategy. The structure also provides role clarity and together with RTTF funding, has promoted the development of delivery partnership. The ORS and the RSC provide the policy framework, funding, research and evaluation support that allows operational agencies and community groups to implement projects. As part of its coordinating role, the RSC publishes an annual calendar that lists the dates for each campaign and other major road safety events. This enables all agencies at both head office and local levels to plan supporting initiatives.

2. Vertical coordination from central to regional and local levels of government

Local partnerships. The Western Australian Local Government Association's *RoadWise Program* is designed to encourage local government involvement and facilitate community participation in the implementation of the WA Road Safety Strategy. Primarily funded through the Road Trauma Trust Fund, *RoadWise* supports road safety officers based in all ten regions of the state who build and support a community road safety network. Local road safety committees, the formal part of this network, provide a mechanism for the planning and coordination of local road safety action, promotion and advocacy.

Since its inception the Road Safety Council has encouraged each region of the State to develop and implement road safety initiatives relevant to that region. The Narrogin Road Safety Forum described in Box 3 is an example of the type of local activity that the Council has encouraged and supported.

3. Specific delivery partnerships between government, non-government, community and business at the central, regional and local levels

ORS and Main Roads WA partnership. ORS has developed a strong partnership with Main Roads WA in articulating the strategic priority of 'safer roads and more forgiving roadsides' and working towards their improvement and in researching future preventative measures such as the application of intelligent transport systems (ITS).

Box 3: Narrogin Road Safety Forum (2006)

The region's relatively poor safety record was a catalyst for a road safety forum organized in Narrogin in Western Australia's wheat belt (population of town + shire is about 5,300). Arranged by a local member of parliament with support from the Office of Road Safety and the Road Safety Council, and compared by a former celebrity sportsperson, it included a Youth Forum (65 students from two schools) and a Stakeholder Forum (53 adult members of the community). Participation and discussion in interactive surveys provided the impetus to agree on actions at a community level designed to address some of the key road safety issues in that region.

ORS and WA Police partnership. The strong partnership between the ORS and the Police Service in combined publicity and enforcement is a cornerstone of the state's road safety strategy and one of the key recommendations following the review in 1996.

ORS, RSC and WorkSafe. While not a member of the RSC, the state government agency WorkSafe has a considerable interest in road safety from an occupational health and safety perspective. WorkSafe has been responsible for developing legislation and an associated code of practice to manage fatigue in commercial vehicle drivers. WorkSafe inspectors now also promote fatigue management information when visiting worksites across the state. The RSC and the ORS have supported this initiative through a funding grant from the Road Trauma Trust Fund (RTTF).

Pre- and novice driver education partnership. Education authorities including the Catholic Education Office, the Independent Schools Association and the Department of Education and Training are implementing the school-based *Road Aware* program that focuses on encouraging at least 120 hours of supervised driving by novice drivers and on developing positive road user attitudes among young people. *Road Aware* was developed with research and evaluation support provided by the RSC and the ORS. It is also one of the major educational projects funded from monies provided to the RTTF by the Insurance Commission of WA.

Non-governmental engagement

The Royal Automobile Club of WA (RAC) is involved in promoting several aspects of road safety including the new car safety ratings of ANCAP and the Used Car Safety Ratings data produced by Monash University. The RAC is a member of the Road Safety Council and advocates on key road safety issues such as increased funding for safer roads initiatives and other key road safety polices and strategies.

A range of non-governmental organizations also contribute to road safety advocacy and promotion. From the health sector, the Injury Control Council of Western Australia is a non-profit community-based organization involved in a number of injury prevention and control activities in Western Australia and has published a review of road trauma.

Business sector engagement

The ORS and the RSC have initiated a new partnerships program with the business sector. One aim of the project is to encourage companies to establish a road safety policy within their organization. A manual produced by ORS to assist corporate businesses in developing such a policy covers seven key areas that they should address. These include a safer vehicle fleet purchasing policy and the establishment of a workplace road safety program. A wide range of companies are participating in this initiative. They range from major national and international petrol and car hire companies to state-run rubbish collection agencies with large fleets. ORS provides advice and support to these organizations as well as allocating funding for the development and provision of materials in the expectation that business will contribute time, resources and training to ensure the policies are implemented.

The corporate sector, both government and non-government, is a key target group in terms of influencing fleet purchasing policies. The ORS contributed to a review of the state government's vehicle fleet buying policy which resulted in recommendations to promote the purchase of vehicles with high safety ratings and safety features. A new government fleet purchasing policy which reflects these proposals will eventually result in safer vehicles being available on the used car market.

Partnerships have also been developed with commercial companies and media networks contracted by ORS for media campaigns but who then provide free, or bonus activity or advertising space for RSC road safety messages to the public. These measures are showing at least a five-fold return on the monetary value of the funding provided.

4. Parliamentary relations at central, regional and local levels

The role of parliamentary scrutiny and promotion of the establishment of a lead agency and appropriate coordinating arrangements in the 1990s has been mentioned previ-

ously. The Western Australian parliament continues to take an interest in road safety and in general, a bi-partisan approach applies when new legislation is introduced. In July 2007 an independently chaired bipartisan Parliamentary Reference Group was established to allow all members of parliament to work together to reduce death and serious injury on Western Australian roads.

The ORS supports the Premier, Minister for Community Safety and the parliament on matters of road safety. For example, the Executive Director of the ORS, often with a Finance Officer will participate in the annual budget estimates hearings in the Legislative Assembly with the Minister for Community Safety and in the Legislative Council (Upper House) with a designated government minister to answer questions from the parliament on financial, policy and operational matters relevant to road safety. During the passage of legislation, officers from the ORS and key agencies will contribute information to the parliament.

The Executive Director also represents the ORS and road safety agencies in various parliamentary enquiries into road safety in WA, other States and at the national government level, giving evidence on road safety best practice, performance and problems.

ORS Role: Coordination

- **The ORS manages and supports the coordination activities of the Road Safety Council thoughout the state, road safety task forces and provides administrative support to the Ministerial Council for Road Safety.**
- **The ORS creates road safety partnerships with key stakeholders in pursuit of strategy objectives.**
- **The ORS ensures that parliament, the business and non-governmental sectors are engaged in road safety strategy development and coordination.**
- **The ORS supports the development of local partnerships and community programs and partnerships at local level.**

Legislation

Western Australia has developed a comprehensive framework of road safety legislation covering intervention and organizational issues summarized in Box 4.

1. Reviewing the scope of the legislative framework periodically

The ORS, in consultation with its partners, reviews legislative needs from time to time. Most new road-safety related legislation is initiated by the ORS and RSC on the basis of research into the causes of road crash injuries.

2. Developing legislation needed for the road safety strategy

When new legislation is proposed, the Police Service is extensively consulted and a working party, advisory group or task force is generally established under the auspices of the RSC for the life of the particular project. Such working groups, advisory groups or task forces also include

Box 4: Key legislative provisions for road safety in WA

The *Road Safety Council Act 2002* establishes the Road Safety Council as an independent co-ordinating body responsible for advising the goverment on road safety matters. This legislation therefore provides the administrative framework within which the lead agency and other organizational arrangements described in this case study operate in WA. The legislative basis for the establishment of the Road Trauma Trust Fund is also now contained in this Act.

The *Road Traffic Act 1974* (RTA) and its accompanying Regulations provide the framework for enforcement designed to prevent road crashes by changing and improving road user behavior. This Act is administered by the Department for Planning and Infrastructure which is responsible for vehicle and driver licensing.

Of particular relevance are the provisions of the RTA and Regulations that deal with:

- the requirements that a person must meet in order to be issued with a driver's license;
- the conditions that a person must observe while driving; for example not driving
  - after having consumed alcohol over the limit of 0.05;
  - using a hand held mobile telephone while driving;
  - wearing helmets or correctly fitting seat belts; and
  - above the posted speed limit.

In 2001 WA introduced a 50 kilometer speed limit in most built-up areas. This was initially a very contentious proposal but the Road Safety Council and the ORS worked closely through the established mechanisms to inform and educate the community to the extent that it became feasible to gain parliamentary support for this legislation. The success of the measure can be gauged by the fact that independent research has estimated a saving of 64 lives in first 2 years and a reduction in crashes overall of 20 percent.

WA works at federal level on vehicle safety standards.

road user representatives as well as members groups who are particularly affected. The documentation has to indicate the extent to which stakeholders support the proposed legislation.

The extent to which legislation can be effectively used to manage behavior will often be determined by the level of support for that measure within the community. For this reason WA has monitored road safety attitudes, beliefs and behaviors across the community. For the past six years it has conducted weekly surveys on key behavioral and enforcement issues such as speeding, fatigue, non wearing of restraints and drink driving.

3. Consolidating legislation

ORS contributes to consolidation of rules at national level.

4. Finding legislative slots in government and parliamentary programs

The ORS works with its governmental partners in the RCS to ensure that opportunities are found to introduce any necessary legislation for the delivery of the road safety strategy.

ORS Role: Legislation

- **The ORS reviews legislative needs for the strategy in consultation with its partners in the coordination body.**
- **The ORS plays a role in developing and consulting the road safety partnership and public on proposals for major primary road safety legislation.**
- **The ORS uses its coordination hierarchy to find legislative slots for road safety and for consultation on proposals for legislative change.**
- **The ORS establishes in-house capacity to provide policy advice.**

Funding and resource allocation

1. Ensuring sustainable funding sources

There are several sources of road safety funding in WA. These comprise a Road Trauma Trust Fund, a sponsorship contribution from the government's personal injury insurer (just over 1% of premiums from 3rd party motor vehicle premiums), and central and local government funding to transport, health and justice sectors.

Road Trauma Trust Fund (RTTF). The Fund is managed by the Office of Road Safety and under the Road Safety Act (2002) receives one third of fine income from speed and red light cameras annually and an annual contribution from the Insurance Council of Western Australia (ICWA). Approximately $12 million per annum is allocated, but with increases in penalties for speeding that took effect in 2007, this amount is expected to increase significantly. The WA government has guaranteed that monies paid into the RTTF will be not less than $15 million per annum at least up to 2009. This arrangement ensures that the RSC can allocate priorities and budget in advance for expenditure in the year ahead. Base funding of about $1.3m (which is a direct allocation from Treasury mainly for ORS staff resources), together with a grant of approximately $4 million per annum from ICWA, gives the RSC an assured annual budget of around $20million per annum. Each year the Council recommends resource allocations to the Minister. As lead agency, the Office of Road Safety retains direct control of all funding required for the major media and other community education initiatives and campaigns (approximately $8.9 million) and for policy and research and coordination activities (approximately $5.5 million). The remaining available funds (approximately $7 million per annum) are allocated to priorities identified within the road safety strategy. The Fund provides a transparent means of funding road safety and an opportunity to fund outputs which are directly related to the road safety strategy as outlined below for 2004/5 in Table 1.

Treasury funding in key stakeholder budgets. Government has also committed additional funds to WA Main Roads for safer roads and to WA Police for enforcement activities. It has been calculated that for the 2005/2006, this additional expenditure totalled $76 million. Over the same period the Commonwealth government provided funding for safety-related road improvements valued at $5 million while a similar amount was contributed by local government. Although the ORS/RSC do not control the allocation of this additional funding, they play a significant part in influencing how the monies are spent. Governmental road safety expenditure for 2004–05 is summarized in Table 1.

The ORS has a Treasury funded central budget of $1.1m which covers staffing costs. In 2005/06 in the RTTF, ORS was responsible for managing a total of about $12m including: about $300,000 for core operations (travel, office costs, etc) about $7m for mass media communication work (e.g., speeding, drink driving, seatbelt and fatigue campaigns etc) about $1m for research into road safety issues about $4m for specific road safety projects including the monitoring of progress.

Table 1: Summary of road safety expenditure—2004–05 (RTTF and Agency)

Strategy Component	RTTF Expenditure	Agency Expenditure	Total $ 000
Safer Road Users			
Countering drinking and driving	1,334		1,334
Reducing speeding	478		478
Increasing restraint use	990		990
Fatigue	910		910
Improving enforcement	565	104,000	104,565
Safer Roads and Roadsides			
Improving the Safety of Roads	545	64,790	65,335
MRWA blackspot program		8,102	8,102
Federal blackspot programs		4,290	4,290
MRWA road enhancement program		44,138	44,138
DPI cycling infrastructure projects		6,500	6,500
DPI Country railway grant program		780	780
DET traffic management for schools		980	980
Safer Vehicles			
Protecting vehicle occupants	220		220
Safer Speeds			
Reducing travel speeds	1,512		1512
Supporting a Safe System Approach			
Safer Modes of Travel		185	
Planning a Safe System Approach		*	
Ensuring effective implementation	2604	+	2604
Other supporting initiatives	4263		4263
Researching and measuring progress	720	+	720
TOTAL	14,091	168,975	183,066

* Not possible to identify separately
+Figure not available at time of table creation

2. Establishing procedures to guide allocation of resources across safety programs

Cost-benefit and cost-effectiveness analyses of different interventions are used in external reviews of road safety performance and in road safety engineering work.

ORS Role: Funding and Resource Allocation

- **The ORS manages the funding of road safety programs and recommends disbursement of the Road Trauma Trust Fund.**
- **The ORS facilitates evaluation of project cost-effectiveness and project prioritization.**

Promotion

1. Promoting the far-reaching road safety vision or goal

Arriving Safely and the *Safe System* approach have provided the framework for promoting road safety in WA.

2. Championing and promotion at a high level

High-level promotion is carried out by ministers, senior representatives of the key governmental agencies and the Chair of the Road Safety Council. All major reports on road safety in WA are issued by the Road Safety Council and include a foreword from the independent chair. Ministerial endorsement is included on major strategy documents.

3. Multi-sectoral promotion of effective intervention and shared responsibility

To emphasise that road safety management is being addressed through a coordinated approach and that all the responsible agencies in WA are providing consistent and cohesive representation and information, the logos of agencies represented on the Council are reproduced on all publications produced by the RSC. While individual agencies continue to be responsible for developing and preparing pamphlets and reports relevant to their operational responsibilities, the ORS chairs a group of key agencies which, as one of its communications topics, covers the review of new documents to ensure that messages given to the general public are consistent and reflect the latest available research.

4. Leading by example with in-house road safety policies

The ORS and the Road Safety Council have developed a whole-of-government Fleet Policy that will include consideration of vehicle safety features as part of purchasing criteria.

The development of a Safe Driving Policy framework is aimed to assist government agencies develop workplace policies that ensure safe driving practices are implemented to maintain the health, safety and welfare of employees.

5. Developing and supporting safety rating programs and the publication of their results

Western Australia is a member of the Australasian New Car Assessment Programme. ORS has carried out major campaigns to promote safer vehicles to the community.

The ORS, in partnership with the Royal Automobile Club, has developed a safer vehicles communications strategy that will increase public awareness and promote the benefits of driving safer vehicles. The campaign promotes star safety rating for cars and encourages the uptake by new and used car buyers of special safety features such as front and side curtain air bags, electronic stability control technology, active head restraints and seat belt reminder systems.

6. Carrying out national advertising

At least four major television and radio campaigns per year targeting unsafe behaviors are developed and planned by the ORS on behalf of the RSC and participating agencies. There is close consultation with the Police Service in order to ensure that enforcement activities complement the media campaigns.

Special campaigns are also funded through the RTTF and are similarly planned and managed by the ORS. These may reinforce a message at an appropriate time (e.g., double demerit points applying over a holiday period), or relate to the introduction of new legislation (e.g., increased penalties for speeding). While most of these campaigns are state-wide, particular attention is paid to specific local areas where the new laws are likely to have most impact. Mass media (television and radio) campaigns are mainly aimed at increasing public awareness of the impact of road crashes and also at influencing social attitudes to issues such as speeding, non-use of restraints, fatigue and drink-driving. The campaign development process is a cycle informed by the latest research, policy direction and evaluated outcomes from previous campaigns.

Sporting sponsorships have also been used to communicate road safety messages to young people, especially young males. For this reason the RSC, with funding provided by the Insurance Commission of WA, sponsors the WA Country Football League, which in turn promotes the use of seat belts to young males in rural Western Australia.

7. Encouraging promotion at the local level

Local promotion of the road safety strategy is carried out by the RoadWise program through the road safety officers. RSC regional visits are also used to promote the *Arriving Safely* road safety strategy with a view to ensuring that the majority of local road safety efforts are targeted towards priority issues. Of the 680 road safety local events recorded by the ORS in 2005–06, 73 per cent were related to one or more of the four major causes of road traffic injuries: speed, drink-driving, failure to use seat belts restraints and fatigue.

ORS Role: Promotion

- **The ORS promotes and facilitates a shared approach to road safety across all government agencies, local government and other stakeholders.**
- **The ORS widely promotes the State Road Safety Strategy and the Annual Priorities Program.**
- **The ORS manages public relations activities, media, campaigns and mass media initiatives, community engagement, agenda setting initiatives, partnership programs and other promotional campaigns at state level.**
- **The ORS promotes local efforts in support of the state road safety strategy.**

Monitoring and evaluation

1. Establishing data systems to set and monitor final and intermediate outcome and output targets

Performance in delivering the road safety strategy is measured through outcome measures (usually crash numbers or rates), intermediate measures (safety-related behaviors and attitudes which are expected to influence the likelihood of being involved in a crash) and process measures (the type and amount of resources being expended to tackle road safety issues). These Performance Indicators (130 in total) are compared to a baseline period (January 1998 to December 2000) and to an annual value to track progress at regular intervals over the term of the Strategy.

Various agencies are responsible for the maintenance of databases to support monitoring.

Final outcomes

The two major data collection systems used to analyse crash data and thus report progress against the targets set out in the WA road safety strategy are:

- Police Reported Crash Data which is maintained by Main Roads Western Australia in the Integrated Road Information System (IRIS); and
- Hospital admissions (Department of Health).

A data matching process is conducted to link police reported injuries with hospital records to ensure a more complete and robust picture is obtained.

Data is analysed by a Perth-based independent private sector organization, Data Analysis Australia. Data definitions are in accordance with Australian Bureau of Statistics guidelines for reporting and classifying road crashes. However there have been some interpretation difficulties in the past resulting in the RSC establishing an inter-agency *Measuring Progress Advisory Group* to determine how the available data, information and knowledge can best be collected and shared. This group also monitors the progress against the Strategy objectives and makes recommendations to the Council on effective ways of measuring progress against *Arriving Safely* targets and on policies and processes to improve the sharing and application of road safety information and knowledge.

Intermediate outcomes

Speed monitoring. Travel speed measurements on higher speed roads (excluding 50 km/h roads) have been taken at approximately 210 sites across the state in order to measure compliance and trends over time. Data collected by Main Roads WA at a selection of metropolitan and rural sites. An independent study measured before and after average speeds on 50 km/h roads when the limit was introduced in legislation in 2001.

Excess alcohol. For drink-driving and drivers charged for drink-driving offenses. Police collect data on the number of drivers tested.

Seat belt use. Final outcomes are monitored, otherwise normal use is monitored from self-reporting surveys.

Vehicle fleet safety. Crash performance data is provided by the Australasian New Car Assessment Programme.

Safer roads. Main Roads WA has developed Safety Performance Charts and Crash Incident Charts to assist the systematic safety analysis of the state road network. The Safe Roads Program targets safety improvements on rural and urban state roads.

Outputs

Monthly Traffic Management and Road Safety Trends reports produced by the Western Australia Police (WAPOL) form the basis of monitoring enforcement outputs (see Box 5).

2. Transparent review of the national road safety strategy in terms of results, interventions and institutional management functions

Road safety results are initially published in the annual report of the Department of the Premier and Cabinet. The ORS also commissions the production a *Road Crash Statistics Report* for each year. This is distributed by the RSC with the aim of providing the latest available annual statistics for Western Australia using police reported data (from IRIS) but also with the inclusion, for comparative purposes, of some tables using hospital admission data. Police road safety data is also published on the WA Police website.

In addition to monitoring progress against outcome targets, the ORS also monitors and evaluates the effectiveness of all major programs such as *Road Aware*, media campaigns and the impact of new legislation such as the introduction of the 50 km/h speed limit in built-up areas.

Box 5: Annual police outputs monitored in the State Traffic Enforcement Program

Traffic patrol hours
Number of vehicles stopped
Total infringements issued
Total arrests
Total summons
Vehicles monitored for speeding by speed camera
Non-camera speed contacts—briefs, infringements and cautions
Drivers tested for drink-driving
Drivers charged for drink-driving offenses
Seatbelt Contacts—briefs, infringements and cautions
Non RBT tests
Other traffic contacts—briefs, infringements and cautions
Vehicle work orders

An annual review of road safety performance is compiled by the ORS, approved by the Road Safety Council and presented by the ORS Minister to government.

3. Making any necessary adjustments to interventions and institutional ouptuts needed to achieve the desired results

Progress is reviewed on the basis of information collated by ORS in the Road Safety Council (see *Results Focus*).

ORS Role: Monitoring and Evaluation

- **The ORS has lead responsibility for the monitoring of the road safety strategy and is accountable for this in an annual performance agreement.**
- **The ORS ensures that data systems are established to identify and monitor final and intermediate outcomes and outputs. It coordinates the maintenance of an integrated data and information network to facilitate road safety research, development, management and reporting.**
- **The ORS publicises monitored outcomes and feeds safety data into the Road Safety Council for review and discussion.**
- **The ORS is a member of and supports the Australasian New Car Assessment Programme which monitors vehicle fleet safety research.**

Research and knowledge transfer

1. Developing capacity for multi-disciplinary research and knowledge transfer

The ORS coordinates and manages road safety policy development and research on behalf of the Road Safety Council. Research and program evaluation experts are responsible for developing terms of reference for each project, for letting and monitoring contracts as well as for assessing the quality and adequacy of the data analysis and reports provided. Information on the range of projects supported is given in Box 6.

Building local capacity. Much of the initial research and data analysis that has underpinned WA's road safety strategies was undertaken by MUARC in Victoria and the Accident Prevention Research Unit (Roadwatch) at the University of Western Australia's Department of Public Health (see Box 7). Research and evaluation contracts are also awarded to locally-based tertiary education organizations, such as Edith Cowan University and the University of Western's Australia's School of Population Health. The aim has been to build up local expertise and to allow for knowledge transfer to all organizations involved in managing road safety issues.

To further facilitate the achievement of this locally-based research and expertise, the RSC is supporting the establishment of a new independent Road Safety Research Centre. The intent is to support the RSC with high quality research which can provide a basis for planning, developing, monitoring and evaluating proposed and existing road safety initiatives. This arrangement should help to build WA's capacity to provide independent high quality information to the RSC and will allow this state to collaborate more effectively with other Australian and international road safety organizations. Initially the scope of the work will be to develop a database front-end that will provide all road safety stakeholders with access to up-to-date road safety statistics in a web-based environment, to conduct cost-benefit analyses of various road safety initiatives

Box 6: Road Safety Council Research Program projects

These have included:

- Community Attitude Monitor—comprehensive tracking of attitudes to road safety issues
- Princess Margaret Hospital Road Trauma Data Collection Study
- speed limit review of roads in the metropolitan area
- determinants of fatigue related crashes in Western Australia
- review of out-of-hospital management of severe trauma in WA
- measuring effectiveness of non-media community education methods
- continuous evaluation of community education campaigns
- annual evaluation of progress towards meeting the objectives detailed in *The Way Ahead: Road Safety Directions For Western Australia*
- evaluation of *The Way Ahead: Road Safety Directions For Western Australia*
- evaluation of the new graduated driver training and licensing system
- youth cohort study
- an audit of driver training and education programs
- investigation into best practice in speed enforcement
- the inclusion of a broad set of administrative datasets for data linkage

Box 7: Road safety research in the University of Western Australia

The Road Accident Prevention Research Unit (Roadwatch) at the University of Western Australia's Department of Public Health (now the Injury Research Centre within the School of Population Health) carried out a range of key projects funded by the Road Trauma Trust Fund. Projects during 1998–99 included:

- a comparison of police- and hospital-reported injuries and crashes in Western Australia
- the cost of crashes and injuries in Western Australia
- review of the random breath testing program
- speed-related crashes in Western Australia
- developing and monitoring road safety performance indicators
- alcohol-related crashes in Western Australia
- Aboriginal involvement in road crashes in Western Australia
- road safety performance modelling
- neurotrauma-linked database
- road safety risk factors study
- road safety practices study

and to further investigate means of building road safety expertise within Western Australia.

2. Creating a national road safety research strategy and annual program

All organizations represented on the Road Safety Council are involved in determining the priorities for research. The Road Safety Council Research Advisory Group (RAG) provides input from key road safety stakeholders to ensure the needs of all agencies are represented.

Emphasis is placed on making the information obtained available to other researchers, community leaders and organizations involved in road safety activities.

3. Securing sources of sustainable funding for road safety research

The Road Trauma Trust Fund supports road safety research and developing research capacity. A budget of $500,000 for 2006/2007 was allocated to the new Road Safety Research Centre.

4. Training and professional exchange

The ORS also monitors world good practice and trends in road safety and keeps the Road Safety Council informed on national and international developments.

The ORS works closely with other road safety stakeholders in other Australian States and Territories and New Zealand jurisdictions and the Organization for Economic Cooperation and Development (OECD) nations on road safety initiatives. There is extensive networking and knowledge sharing between road safety stakeholders throughout Australia and New Zealand.

Western Australia also has its Chapter of the Australasian College of Road Safety the professional association for road safety practitioners and researchers.

5. Establishing good practice guidelines

The ORS contributes to the production of technical guidance for highway authorities on a range of road safety issues. For example, the ORS supported the scientific review of enforcement good practice and the preparation of a good practice enforcement manual. This is now used by the police as the basis for their applications for funding of traffic enforcement operations above core business levels. A review of education good practice was used to develop the $2m per annum school roads safety education program.

6. Setting up demonstration projects

The ORS sets up and reports on demonstration projects in support of the road safety strategy. For example, in order to stimulate community interest and demand for advisory Intelligent Speed Adaptation (ISA) devices, the Western Australian Road Safety Council has undertaken a major project in support of the State Road Safety Strategy funded by the Federal Office of Road Safety (ORS) and Main Roads Western Australia. The WA ISA project involves the development and demonstration of a low cost compact ISA unit that can be retrofitted to most modern vehicles and is marketable to the public. To stimulate community interest in ISA the trial is focusing on key opinion leaders from political, road safety, health, industry and media circles. The objective of the WA demonstration trial is threefold:

1. To create demand within the general community for ISA as a tool that will support drivers in choosing speeds that are at or below the prevailing speed limit;
2. To demonstrate that reliable ISA is technically possible on a large geographical scale;
3. To develop the systems within government (notably road agencies) that are necessary for the implementation of ISA on a statewide (or even national) basis.

ORS Role: Research and Development and Knowledge Transfer

- **The ORS coordinates the funding of road safety research, development and demonstration projects in support of the State road safety strategy and helps to develop state capacity for external research.**
- **The ORS encourages and contributes to the development and dissemination of good practice guidelines on road safety. It plays an active role in technical guidance for highway authorities on a range of road safety issues.**

Summary: ORS delivery of institutional management functions

Results Focus. The Office of Road Safety (ORS) is the lead agency for road safety in Western Australia and is responsible within government for leading, developing, coordinating, promoting and monitoring the state road safety strategy, program and targets. The ORS ensures that background papers on road safety performance are presented and discussed in the coordination body to inform new activity. The ORS has studied and proposed a far-reaching road safety vision for the elimination of death and serious injury for the longer term which has been adopted by government and parliament. It commissioned the modeling of future road safety improvements by experts and proposed a new strategy and targets to the road safety partnership. The ORS uses Memoranda of Understanding to underline agreement reached on how members work together in matters related to road safety.

Coordination. The ORS manages and supports the coordination activities of the Road Safety Council throughout the state, and related road safety task forces and provides administrative support to the Ministerial Council for Road Safety. It creates road safety partnerships with key stakeholders in pursuit of strategy objectives and ensures that parliament, the business and non-governmental sectors are engaged in road safety strategy development and coordination. The ORS also supports the development of partnerships and community programs at the local level.

Legislation. The ORS reviews legislative needs for the strategy in consultation with its partners in the coordination body. It plays a key role in developing and consulting the road safety partnership and public on proposals for major primary road safety legislation and uses its coordination hierarchy to find legislative slots for road safety and for consultation on proposals for legislative change. The ORS establishes in-house capacity to provide policy advice.

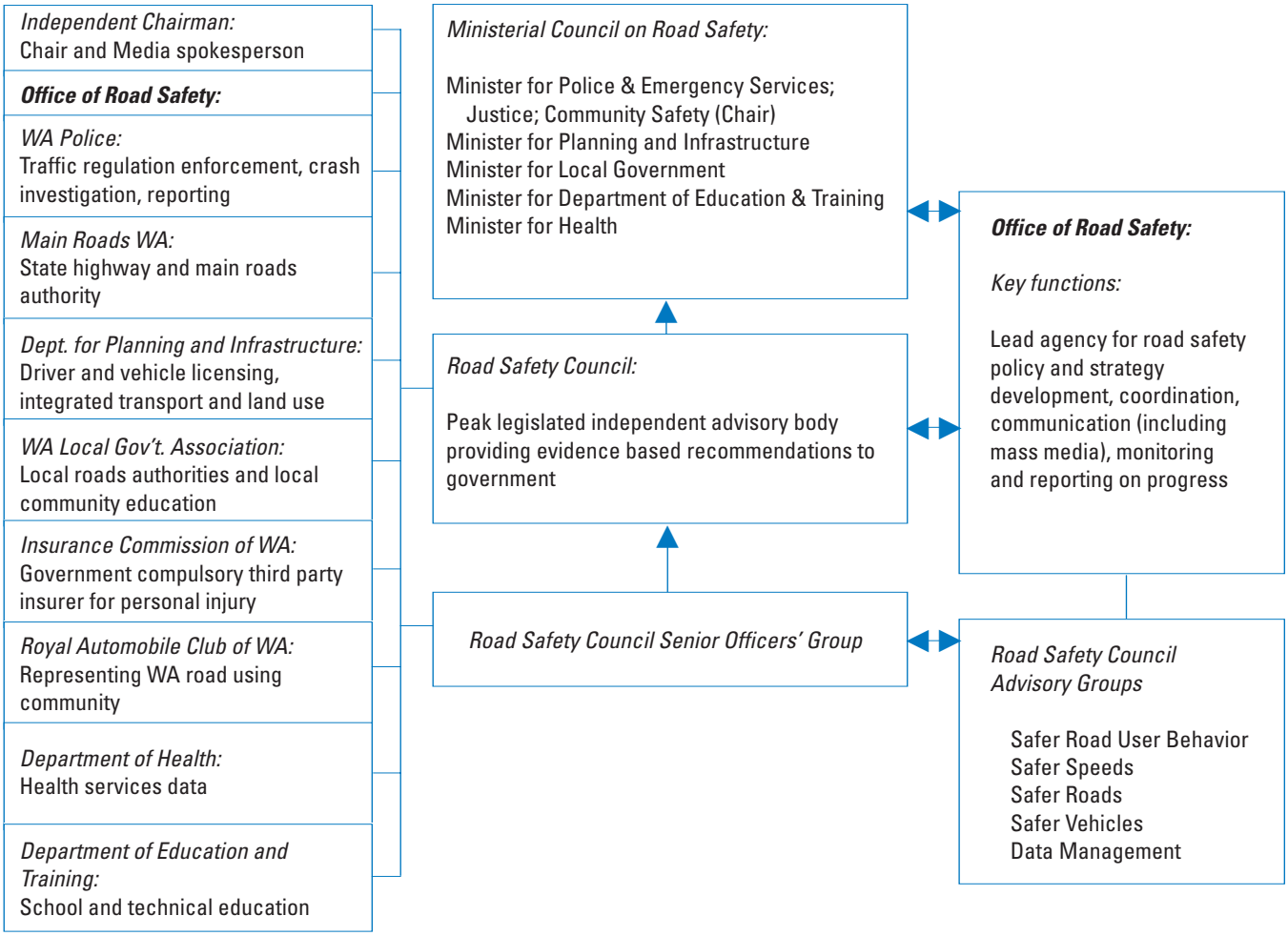
Funding and resource allocation. The ORS manages the funding of road safety programs and recommends disbursement of the Road Trauma Trust Fund which transparently allocates resources. It also facilitates evaluation of project cost-effectiveness and project prioritization.

Promotion. The ORS promotes and facilitates a shared approach to road safety across all government agencies, local government and other stakeholders. It widely promotes the State Road Safety Strategy and the Annual Priorities Program. The ORS manages public relations activities, media, campaigns and mass media initiatives, community engagement, agenda-setting initiatives, partnership programs and other promotional campaigns at the state level. It also promotes local efforts in support of the state road safety strategy.

Monitoring and evaluation. The ORS has lead responsibility for the monitoring of the road safety strategy and is accountable for this in an annual performance agreement. It ensures that data systems are established to identify and monitor final and intermediate outcomes and outputs and coordinates the maintenance of an integrated data and information network to facilitate road safety research, development, management and reporting. The ORS publicizes monitored outcomes and provides safety data to the Road Safety Council for review and discussion. It is also a member of the Australasian New Car Assessment Programme which monitors vehicle fleet safety research.

Research and development and knowledge transfer. The ORS coordinates the funding of road safety research, development and demonstration projects in support of its strategy *Arriving Alive* and helps to develop state capacity for external research. It encourages and contributes to the development and dissemination of good practice guidelines on road safety. The ORS also plays an active role in technical guidance for highway authorities on a range of road safety issues as well as jointly producing guidance materials (e.g., with professional associations such as AustRoads and ARRS, and with research organizations).

Figure 3: Aggregate structure of the Office of Road Safety (2006)



Lead agency structures

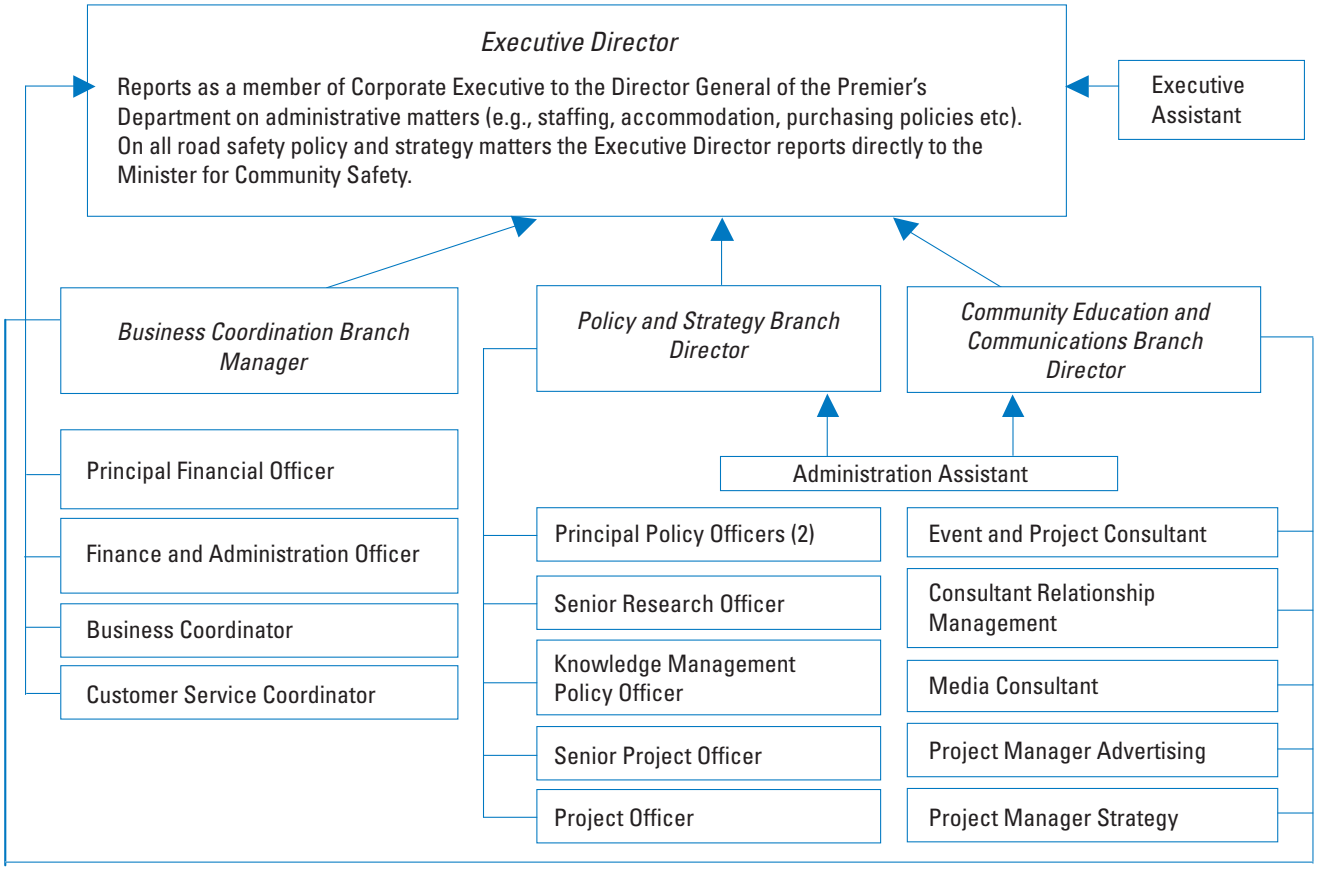
The aggregate and organizational structures of the lead agency for road safety in Western Australia are set out in Figures 3–4.

Coordination structures and a description of related processes are set out in the section on *Coordination* and in Figure 2.

Since 2001, the Office of Road Safety has been located within the Department of the Premier and Cabinet which oversees the management of government business within the State. In addition to reporting to the Director General of that Department, the Executive Director of the ORS also has direct access and reports to a minister with specific responsibility for Community Safety, which includes road safety.

These arrangements have elevated the status of road safety within government and provide for an independent and whole of government approach.

Figure 4: Organizational and reporting structure of the Office of Road Safety, Western Australia (2006)



Bibliography

Australian Transport Council, Australian Transport Safety Bureau, Commonwealth Department of Transport and Regional Services: *The National Road Safety Strategy 2001–2010.*

Australian Transport Council, Australian Transport Safety Bureau, Commonwealth Department of Transport and Regional Services: *The National Road Safety Action Plan 2003 and 2004.*

Department of the Premier and Cabinet, Government of Western Australia Better *Planning: Better Services. A Strategic Planning Framework for the Western Australian Public Sector.* Perth WA, 2003.

Department of the Premier and Cabinet, Government of Western Australia. *Strategic Plan 2004/2006,* December 2003.

Department of the Premier and Cabinet, Government of Western Australia. *Annual Report 2005/2006.*

Department of Regional and Local Government, Government of WA *Regional Western Australia: A Better Place to Live,* Perth WA November 2003.

Environmental Protection Authority, Government of Western Australia, *The State of the Environment—Human Settlements: 7.2 Transport.* Draft report June 2006.

Road Safety Council of Western Australia, *Arriving Safely: Road Safety Strategy for Western Australia 2003–2007.*

Road Safety Council of Western Australia, *Annual review of Road Safety in Western Australia 2003,* December 2004.

Road Safety Council of Western Australia, *Annual review of Road Safety in Western Australia 2004,* December 2005.

Road Safety Council of Western Australia, *Reported Road Crashes in Western Australia 2003,* June 2006.

Western Australian Legislative Assembly Select Committee on Road Safety: *Fifth Report-Administration and Coordination of Road Safety in Western Australia*, March 1995.

Crackel L*, Intelligent Speed Adaptation—Western Australia's Demonstration Project,* ORS, Road Safety Forum, Perth, November 2009.

2. Countries in transition

Sections 2.1–2.2 present case studies of developing road safety management practice in Poland and Malaysia, both of which are making efforts to reverse road casualty trends against the background of increased motorization and the acknowledged need to strengthen road safety management capacity. Country delivery of the institutional management functions is summarized in lesser detail than in the previous six case studies, given that the two countries are in the process of establishing the foundation of their road safety management systems and delivery activities.

The example of Malaysia highlights the recent development of a new and appropriately sized road safety department which acts as its lead agency, working in a national coordination hierarchy and assisted by strong technical support to develop a country focus on results. The example of Poland highlights the challenges faced by the National Road Safety Council in the absence of appropriately resourced lead agency capacity and a source of sustainable annual funding—needs that have been identified in the national road safety strategy.

2.1 Road safety organization in Malaysia

National context

KEY FACTS: 2006

Area:	**330,252 km^2**
Population:	**26.6 million**
Kilometers of public road:	**72,781**
Number of licensed motor vehicles:	**15.8 million**
Road deaths per 100,000 of population:	**23.6**
Total road deaths:	**6,287**

Source: Road Safety Department, Malaysia

Malaysia is situated in the heart of South East Asia and is divided into West Malaysia and East Malaysia. West Malaysia is a Peninsular, which comprises 11 states. East Malaysia comprises the two states of Sabah and Sarawak, which are situated on the Island of Borneo. The capital and the largest city, Kuala Lumpur, is on the Peninsula.

Over the last decade Malaysia has experienced rapid socio-economic growth. The population of the country increased from 21.2 million in 1996 to 26.6 million on 2006. Of the total motor vehicle fleet, motorcycles and private cars contribute 48% and 42% respectively. The number of registered vehicles increased from 7.7 million in 1996 to 15.8 million in 2006 with an average rate of growth of over 9% annually. Gross Domestic Product is increasing by around 4.5% annually.

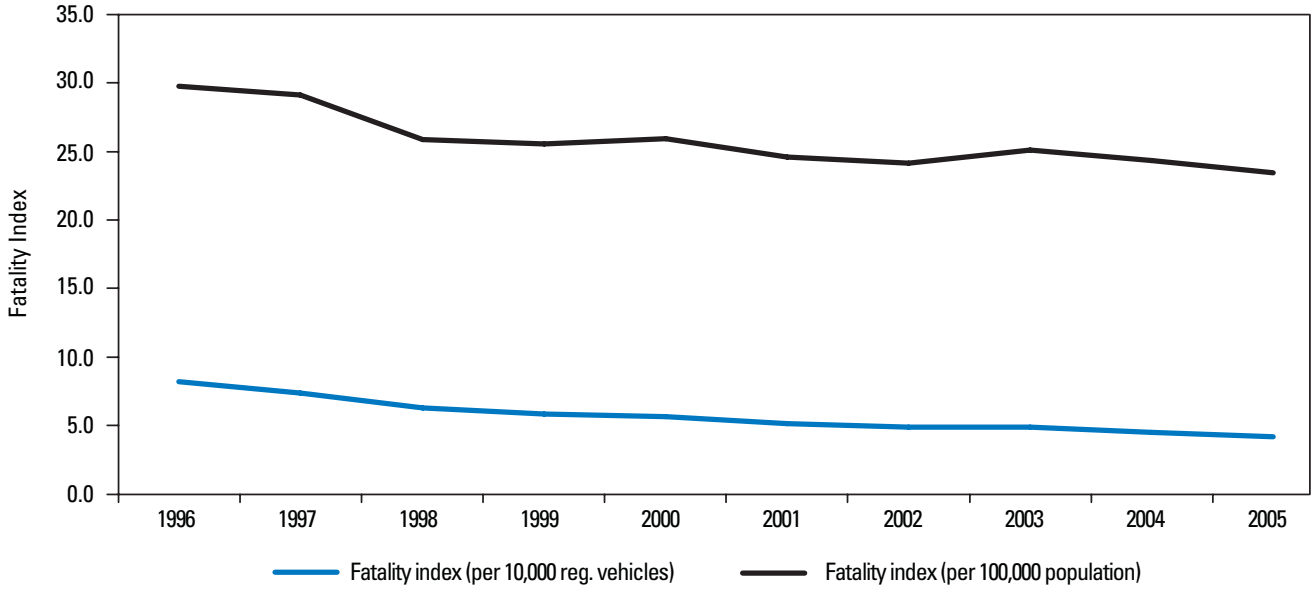
Between 1996 and 2006 deaths increased by 9% while the death rate per 10,000 registered vehicles almost halved (see Figure 1). During the 1990s per capita death rates rose and deaths in road traffic crashes increased from 4,048 deaths in 1990 to a peak of 6,304 in 1996. The upward trend in deaths dropped in 1997 after consistently positive growth since 1986. The increases were largely as a result of increased motorization, due to an expanding economy and rising population. The number of deaths per 10,000 vehicles decreased from 8.2 in 1996 to 4.2 in 2003.

The total cost of road traffic crashes in 2003 was estimated at RM9.3 billion (US$2.4 billion) which comprised 2.4% of Malaysia's GDP. About 42% of all hospital admissions result from road crashes. Motorcyclists comprise 58% of total deaths with car occupants and pedestrian contributing 20% and 10% respectively.

Road safety awareness began with the establishment of the Federal Road Safety Council in 1955 which was set up as an advisory non-governmental organization to the Minister of Transport. This became the Malaysian Road Safety Council in 1963. The turning point, however, for road safety was in 1990 when a major crash causing 15 deaths focused attention on the issue. A Cabinet Committee on Road Safety was formed to strengthen road safety initiatives. The post-1996 decreases were accompanied by further strengthening of road safety organization, high-level leadership from the Prime Minister and a successful program of motorcycle safety measures. Road safety research and scientifically driven initiatives are now recognized as critical factors in road casualty reduction.

The government's mission and vision is that by 2010, Malaysia will have an efficient, safe and effective transportation system and services towards the enhancement of the country's natural competitiveness.

Figure 1: Deaths per 10,000 registered vehicles and per 100,000 population from 1996–2005



Country delivery of the institutional management functions and lead agency role

Results focus

Lead agency

There is the leadership and political will to improve road safety at the highest level in Malaysia. A cabinet committee which is chaired by the Prime Minister brings together Ministers of Transport, Home Affairs, Education and Works, with the Ministry of Transport providing the secretariat. In 2004, road safety was nominated as one of the national priority issues.

The Ministry of Transport (MoT) is the lead agency for road safety in Malaysia. It oversees the development and regulation of air, land, and sea transport. It sets strategic and policy directions and, through its statutory agencies, carry out operations and regulatory functions relating to transport. In November 2004, a new Road Safety Department (RSD) was established within the Land Transport Division of the Ministry of Transport.

Prior to the formation of the RSD, safety activity was carried out by individual Departments (and separate budgets) which came together in a multi-sectoral non-statutory advisory body, the Malaysian Road Safety Council. The Council is now integrated into the RSD.

Appraising current road safety performance through high-level strategic review

Road safety in Malaysia has been in the process of development in recent years with new lead agency and research arrangements being established. High-level review of final outcomes takes place prior to the development of road safety targets and strategies, but the extent to which this is formalised has not been ascertained.

Adopting a far-reaching road safety vision or goal for the longer term

There is no formal long-term vision or goal for road safety in Malaysia.

Analyzing what could be achieved in the medium term

The Road Safety Research Centre at University Putra Malaysia (UPM) has played a key role in performing analytical work to inform target setting, identify evidence-based program activities and monitor progress against targets. The last two targets set in Malaysia were based on statistical models developed by Road Safety Research Centre. The Head of the Centre was represented on the Road Safety Council's Executive Board and acted as technical adviser to the Malaysian government on road safety.

Box 1: First target-setting in Malaysia

In 1990 and against rising road traffic deaths, a target to reduce road traffic fatalities by 30% by the year 2000 was set by the newly formed Cabinet Committee for Road Safety and various actions were taken. The upward trend of fatalities was reversed in 1997 after the Malaysian goverment established a 5-year national road safety program to meet the fatality reduction target. Strategies were categorized into crash prevention and reduction, injury control and post injury reduction. Among the new initiatives were:

- The National Accident Database System
- The Five Stages Road Safety Auditing
- The National Black Spot Programs
- Road Safety Research and Evaluation
- Motorcycle Safety Program (1997)
- National Targeted Road Safety Campaign
- Revision of the Road Transport Act (Revision 1999)
- Integrated Enforcement
- New Helmet Standard MS1-1996
- New Children's Motorcycle Helmet Initiative

By 2001, this concerted action was estimated to have led to an 11% reduction in deaths and a new target was announced by the Malaysian government in 2002 to reach 4 deaths per 10,000 vehicles by 2010.

The Malaysian Institute for Road Safety Research (MIROS) was established as a governmental research organization in January 2007 and contributes strongly to developing the country results focus.

Setting targets by mutual consent across the road safety partnership

Final outcome targets:

Malaysia has been setting quantitative targets since 1997, as outlined in Box 1.

In October 2005 under the 9th Malaysia Plan and with aspirations to match the safety levels of the best in the world, the Malaysian government announced the development of a new national road safety program with new interim targets:

- reducing the number of road deaths per 10,000 registered vehicles by 60% from 4.2 in 2005 to 2.0 in 2010;
- 10 deaths per 100,000 population compared to the current 23 deaths per 100,000 population;
- 10 deaths per 1.0 billion vehicle kilometer travelled compared to the current 18 deaths per 1.0 billion vehicle kilometer travelled.

In April 2006 the Prime Minister launched the *Road Safety Plan of Malaysia (2006–2010)* which outlines a detailed multi-sectoral road safety strategy and action plan (see Box 2). The proposed measures are ambitious and cover a range of areas including inter-agency coordination, traffic legislation, law enforcement (raising the actual level of detection for traffic offenses from 20% to 90%), safety planning and design, road safety education (a three-phase road safety education program in schools), accident data collection, improvement of hazardous locations, emergency assistance, public campaigns, driver training, and research, targeting motorcyclists with speed management measures.

MoT RSD Role: Results Focus

- **The Ministry of Transport, through its Road Safety Department (RSD) is responsible within government for leading the country results focus.**
- **The MoT RSD develops, coordinates, promotes and monitors the country road safety strategy, program and targets, currently within the framework of the *Road Safety Plan of Malaysia (2006–2010)*.**
- **Interim quantitative targets have been set for road safety strategies since the 1990s.**
- **In-house capacity is established as well as external support for universities and a newly established governmental road safety research organization.**

Coordination

Horizontal coordination across central government

There is strong acknowledgement within central government that road safety is a shared responsibility. Multi-sectoral coordination is carried out principally by the cabinet committee (see Box 3) and, in respect of promotional activity, by the Road Safety Council (RSC) which was established in 1954 (see Figure 2).

Box 2: The 9 strategies of the Malaysian Road Safety Plan 2006–2010

1) Enhance and sustain effective educational and psychological measures;
2) reduce human error by incorporating and utilizing state-of-the-art technologies;
3) enhance and complement current engineering approaches;
4) enhance and achieve a more comprehensive and effective implementation of road safety initiatives and programs through community participation in all programs involving employers, community leaders, politicians, religious leaders, educationists, professional bodies, voluntary organizations and youth groups;
5) encourage modal shifts and use of public transport to reduce exposure particularly to the high risk groups especially motorcyclists;
6) focus on critical gaps in road safety (other than those already mentioned) with the aim of achieving the optimum cost-benefit in resource deployment;
7) focus on high risk road users most frequently involved in accidents i.e., motorcyclists/pillion riders, car drivers and passengers and pedestrians;
8) review and enhance road safety legislation;
9) promote policy of shared funding of road safety programs between the public and the private sectors for effective implementation of road safety programs.

Source: Road Safety Plan of Malaysia (2006–2010, Dept of Road Safety, 2006)

The RSC is a registered society with a membership of 47, comprising 30 government agencies and 17 non-governmental agencies. The patron of the council is the Prime Minister and its chair is the Minister of Transport. The undersecretary of the Land Transport Division is the secretary general of the council, and the treasurer comes from one of its 47 members.

Based in the Land Transport Division and now integrated into the new Road Safety Department, the council has a secretariat, with four full-time staff members, and an executive committee comprising 15 members (12 from the membership, appointed by the transport minister, and three from the Ministry of Transport). The membership comprises mainly representation from government departments.

The RSC meets about four times a year and annually receives a report which reviews the road safety situation in each state. Its funds come mainly from a grant from the Ministry of Transport. Its main activities are promotional but it also allocates some funds for road safety research and allocates a portion of the grant to all member states to carry out road safety activities, such as workshops, seminars, talks, campaigns, competitions, quizzes, and exhibitions.

The RSC has succeeded in substantially increasing awareness of the importance of road safety. Over the last decade, individual RSC members have initiated road safety education, engineering, and enforcement and the existence of the more recently re-established cabinet committee has led to strong commitment and follow-through, although funding has always been a constraint. In addition to the newly formed Road Safety Department, the key government departments on the RSC's Executive Council with responsibilities for road safety include:

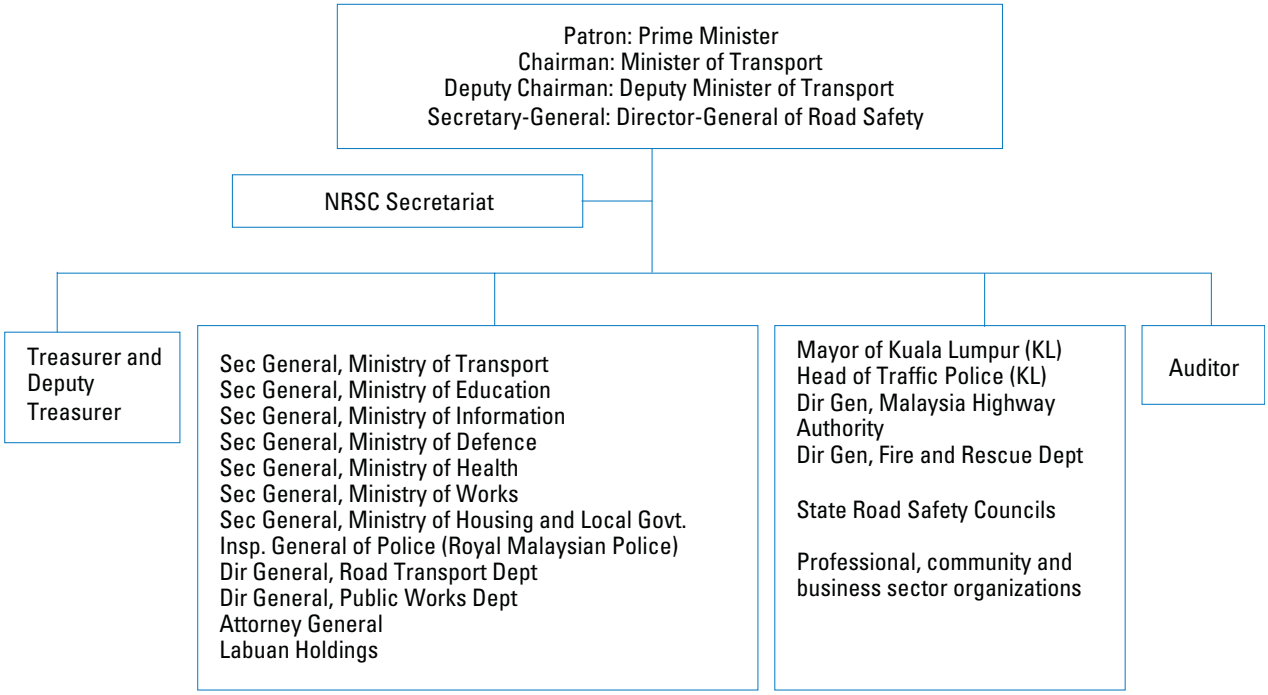
Box 3: Cabinet Committee on Road Safety

Prime Minister (Chairman)
Deputy Prime Minister

Minister of Transport
Minister of Housing and Local Council
Minister of Works
Minister of Information
Minister of Education
Minister of Finance II
Federal Territory Minister
Minister of Entrepreneur Development and Cooperation
Minister of Health
Minister of Youth and Sports
Deputy Minister of Internal Security
Minister of Energy, Water and Communication
Minister of Women, Family and Community Development
Minister of Domestic Trade & Consumer Affairs

Ministry of Education. This Ministry is a Cabinet Committee member and is represented in the Road Safety Council as well as at the Executive Council. Road safety education has not been taught formally in schools but the new

Figure 2: Multi-sectoral road safety coordination in the Malaysian Road Safety Council



road safety plan foresees an intensive new program engaging children at three stages during their school education. The Curriculum Unit in the Ministry is responsible for road safety education in schools and works together with respective state education departments and state road safety councils. Its main activities to date have been in organizing talks and exhibitions for schoolchildren (with help from the police and the road transport department).

Ministry of Health. This Ministry is a Cabinet Committee member responsible for healthcare in Malaysia and is represented in the Road Safety Council as well as its Executive Council. It is responsible for a key source of accident and injury data but the data systems are different in public and private sector hospitals. A central trauma register does not yet exist. Two units at the Ministry deal with road safety. They are the Violation and Injury Prevention Unit which helps to produce leaflets on road safety and the Non-communicable Diseases section of the Division of Disease Control which is involved in surveillance, promotion (e.g., bicycle helmet programs), training, and research in injury prevention.

Ministry of Home Affairs. This Ministry is a Cabinet Committee member responsible and is represented in the Road Safety Council as well as its Executive Council. PDRM is an agency under the Ministry of Home Affairs and has a traffic police unit that is responsible for road traffic and for enforcing traffic laws throughout the country. PDRM is the primary data source for all road accidents. It also performs investigations on a smaller scale on all road crashes. PDRM is represented on the Road Safety Council, including the Executive Committee. In PDRM, there are six departments. Traffic Police is one of the nine divisions under the Department of Internal Security and Public Order. The Traffic Police branch is divided into six units: Administration/Positions, Logistic Traffic Cop, Technical/Research and Development/Statistics/Computerized Accident Reporting System, Investigation, and Enforcement. *The Logistic Unit* ensures logistical support for any operational and accident investigation activity or task. *The Traffic Cop Unit* is responsible for issuing summonses for traffic offenses. *The Patrol Unit* has 480 heavy motorcycles and 240 four-wheel drive vehicles for its Selective Enforcement Unit. For patrolling, there are 1,225 heavy motorcycles and 1,225 light motorcycles. The *Technical, Research and Development, Statistics, and Computerized Accident Reporting System Unit* is in charge of collecting and processing accident data. *The Investigation Unit* is responsible for managing the complaints received and investigating road traffic accidents involving death and serious injury. Investigators are assisted by officers who are the first on the scene of a crash,

who do the initial assessment of the crash. *The Enforcement Unit* focuses on enforcing laws and traffic rules to increase compliance by road users. It maintains a highly visible presence through patrolling and enforcement. This unit also has to ensure a smooth flow of traffic. In addition, it has to ensure all criminal information is channelled to the traffic police on duty.

Ministry of Works. This Ministry is a Cabinet Committee member. The Road Planning Division represents this Ministry on the Executive Council of the Road Safety Council and is responsible for the construction and maintenance of roads and associated facilities, such as motorcycle lanes, pedestrian crossings, and others, through its three main agencies: Highway Planning Unit, Malaysia Highway Authority, and Public Works Department (PWD). The Highway Planning Unit assists in identifying the black spot sites nationally. This information is then used by PWD to carry out black spot treatment.

Ministry of Information. The Ministry of Information is a member of the Road Safety Council and its Executive Council. The ministry's main role is to assist in generating publicity through media campaigns. It has two television stations and a few radio stations that are used to disseminate information on road safety. The ministry also assists the Road Safety Council during various holiday periods by increasing the frequency of publicity campaigns through various media. In addition, the ministry coordinates (in airing exposure) with the media advertisement company commissioned by MOT to develop media advertisements on road safety.

Ministry of Housing and Local Government. This Ministry is an RSC member and is represented on the Executive Council. Within the Ministry the Department of Fire and Rescue responds to all emergencies, including road accidents. In addition all municipal councils come under the jurisdiction of the Ministry who play an important part in planning and designing safe roads and environments within municipal areas.

Vertical coordination from central to regional and local levels of government

Road safety in Malaysia has to date been a centralized activity and the key partnerships needed for effective road safety activity between central and local government and between police and highway authorities have not yet been established.

The new road safety program stipulates that state road safety plans will need to be drawn up with state targets which will be assessed and evaluated by the road safety department and reported to Cabinet.

Specific delivery partnerships between government, non-government, community and business at the central, regional and local levels

Governmental partnerships

The multi-sectoral arrangements which are in place create a firm basis for effective multi-sectoral activity between central government agencies. Beyond campaign activity, however, partnership development between agencies seems to have been limited by available funding and until recently the absence of a lead road safety department.

The road safety department works with the private sector to promote road safety awareness and runs a scheme allowing companies to call on the department to send trainers into the work place to talk about good safety practice. Many companies now include road safety in training health and safety officers.

Key partnerships between the lead agency and the education and police departments have been established. The education ministry is about to embark on a new three-phase road safety program in schools.

Excellent links have been forged between the government and the research sector which have been referred to earlier. The Highway Planning Unit (HPU) has assisted the Public Works Department by identifying hazardous road locations through the crash data collection process initiated in the early 1990s.

Non-governmental organization engagement

The main non-governmental organization focusing solely on road safety is the Road Safety Research Centre at the University Putra Malaysia. Several organizations engage in various road safety activities:

The Automobile Association of Malaysia (AAM) promotes road safety in its bimonthly magazine and by selling, renting and offering technical advice on the fitting of infant carriages and child restraint seats. AAM also carries out independent vehicle inspections at its headquarters.

Rescue and Aid Malaysia carries out first responder lessons for the general public, particularly schoolchildren. It also provides ambulance services in some areas.

Business sector engagement

The road safety department works with companies to promote road safety awareness and many companies now include road safety in training health and safety officers.

There are various trade associations representing industries such as car manufacturing (Malaysian Motor Traders Automotive Association) and insurance (General Insurance Association of Malaysia (PIAM)) which also have a strong interest in road safety outcomes and support a variety of activities.

In 2007 Scania Malaysia announced that it would commence a program to promote better road safety and fuel economy for heavy vehicles.

Parliamentary relations at central, regional and local levels

There is no committee structure in the Malaysian parliament in which individual topics such as transport or road safety are discussed.

MoT RSD Role: Coordination

- **The MoT has established a dedicated, funded coordination secretariat within the Road Safety Department (RSD) which manages and supports the coordination activities of the Road Safety Council and provides support to the ministerial road safety cabinet committee.**
- **The multi-sectoral horizontal arrangements which are in place create a firm basis for effective multi-sectoral activity between central government agencies. Beyond campaign activity, however, partnership development between agencies has been limited in the past by available funding and the absence until recently of a lead road safety department.**
- **The road safety strategy envisages the adoption of targets at state level requiring state coordination arrangements.**
- **The MoT RSD engages with the non-governmental, business and research and professional sectors in developing road safety strategy activity.**

Legislation

Reviewing the scope of the legislative framework periodically

A wide body of legislation regulating transport was established in 1987. The Road Transport Act 1987 (ACT 333) and Commercial Vehicles Licensing Board ACT 1987 (ACT 334) are comprehensive laws regulating transport, including vehicle registration, vehicle licensing, drivers' licensing, drivers' licensing for conductors of public service vehicles, employee vehicles and goods vehicle, inspections of vehicles, and road engineering. In the *Road Transport Rules*, 44 rules cover goods vehicles, motorcycles, motor vehicles, road traffic, and traffic signs. In February 2006, Malaysia contracted into the UNECE type approval system for motor vehicle legislation and standards.

Developing legislation needed for the road safety strategy

Reviewing and enhancing road safety legislation is one of the main objectives of Road Safety Plan of Malaysia 2006–2010 and programs include:

- reviewing all subsidiary legislation under the Road Transport Act 1987 pertaining to safety (e.g., The Highway Code, Construction and Use Rules 1959, Safety Helmet Rules, Seatbelt legislation, etc. including fines/punishment for various violations);
- introducing relevant new legislation on road safety setting out the role, objectives and functions of the lead agency, periodic review of the Act and subsidiary legislation in line with policy and programs;
- setting out the roles and responsibilities of the key stakeholders engaged in education, engineering and enforcement;
- studying standards and regulations related to road safety (including construction, signage, road furniture, etc); standards and regulations related to vehicle safety; and standards and regulations related to safety equipment (including motorcycle and bicycle helmets, luminous stickers, safety vests for riders, etc).

MoT RSD Role: Legislation

- **Reviewing and enhancing road safety legislation is one of the main objectives of the Road Safety Plan of Malaysia 2006–2010.**
- **The MoT RSD provides capacity for road and road user rules and standards, vehicle standard development and national road standards in the context of the road safety strategy and inspection and road user compliance operations are carried out by the police.**

Funding and resource allocation

Ensuring sustainable funding sources

Road safety funding is primarily the responsibility of central government, supported as necessary by regional provincial governments, although road safety funding is not allocated specifically in budgets.

The operational budget approved for 2006 was RM2.8 million for operations and RM23.8 million for campaigns. The establishment of the Road Safety Department with its Administration and Finance Division is expected to improve road safety funding levels over time.

Funding for multi-sectoral activity is limited. To date the three main sources of road safety funding received by RSC comprise a grant from national and state level to conduct road safety education programs; a stand alone grant for approximately RM 45 million for a media campaign and sponsorship received from private sectors and NGOs. Private companies (e.g., from the oil, car manufacturing and insurance industries) sponsor road safety campaigns and activities.

The need to put in place an effective system of government budgeting and funding (both for joint multi-sectoral activity and for individual government departments with responsibilities for road safety) which provides adequate and sustainable funding for road safety activities is generally acknowledged. The *Road Safety Plan of Malaysia (2006–2010)* sets out key implementation points affecting funding.

- additional government annual grants should be allocated accordingly to support the intensified road safety initiatives since the setting up of the Road Safety Department in November 2004;
- a new levy to be imposed on sale of all new vehicles and channelled towards the Road Safety Trust Fund;
- similar levies are also proposed on motor insurance premiums;
- petroleum companies to contribute a percentage of their revenues to promote road safety; and
- priority funding for incorporation of safety as an integral part of road design as well as crash blackspot treatment remedial programs.

MoT RSD Role: Funding and Resource Allocation

- **The MoT RSD provides capacity for the management and funding of road safety programs.**
- **The Road Safety Plan provides for the establishment of sources of annual, sustainable funding for road safety (e.g., increased governmental allocations and levies on insurance) and MoT RSD provides capacity for this work in its Administrative and Finance Division.**

Promotion

Multi-sectoral promotion of effective intervention and shared responsibility

Road safety promotion has been the primary function of the Road Safety Council with support from the research sector, professional organizations and the private sector. The RSC has been successful in increasing awareness of road safety nationally. High-level multimedia campaigns have been carried out on road safety targeted at motorcycle, pedestrian, and car occupants in support of legislative change and enforcement activity (e.g., the Motorcycle Safety Campaign (I), 1997–2000, and Motorcycle Safety Campaign (II) and Pedestrian Safety Campaign, 2001–2002). The Ministry of Information owns two television stations which have assisted this activity.

The Asian Development Bank within the Association of South East Asian Nations (ASEAN) network has also helped to highlight the importance of national road safety programming, road safety capacity development and targets. The preparation of a draft national road safety strategy aimed to stimulate discussion and act as a catalyst in advancing road safety. The draft plan became a component of an ASEAN Regional Road Safety Plan aimed at reducing the huge economic and social losses being sustained by the Region.

A key strategy of the *Road Safety Plan of Malaysia (2006–2010* is to enhance and achieve a more comprehensive and effective implementation of road safety initiatives and programs through community participation involving employers, community leaders, politicians, religious leaders, educationists, professional bodies, voluntary organizations and youth groups. Road safety initiatives and programs are to be implemented to promote community, professional and worker participation (see Box 4).

MoT RSD Role: Promotion

- **The MoT RSD, in collaboration with the Road Safety Council, promotes and facilitates a shared approach to road safety across all government agencies, local government and other stakeholders.**
- **The MoT RSD in collaboration with the Road Safety Council manages public relations activities, media, campaigns and mass media initiatives, community engagement, agenda setting initiatives, partnership programs and other promotional campaigns at national level.**

Box 4: Promoting shared responsibility to achieve results

Local Community Programs
- local community projects to educate users on road safety.

Programs for Professional Groups
- road safety coordinators within all professional groups can contribute to community projects and other safety interventions at the local level;
- medical and emergency services staff are to be trained in improving road trauma care; and
- academic institutions and organizations should offer training, workshops and post graduate courses for road and traffic engineers.

Programs for Employers and Workers
- employers involvement programs in road safety;
- workers road safety module; and
- road safety as an integral part of safety programs for workers in addition to guidelines on safety at the workplace under occupational health and safety requirements.

Monitoring and evaluation

Establishing data systems to set and monitor final outcome, intermediate outcome and output targets

Final outcomes. The traffic police are responsible for the collection and processing of data in Malaysia and, since 1992, have used a centralized computerized accident reporting system (CARS) and microcomputer accident analysis package system. Both systems operate at the district level but are stand-alone data systems. There is no direct link between these systems from the district level, where data are entered, to the federal traffic branch, where data are analysed. Traffic police also collect data on fatal and serious crashes manually. There is no state-wide accident data base system with states accessing data manually. There is a high rate of discrepancy between traffic police data and health data (which is not kept in one standard format). Central/regional government and police/highway authority partnerships are not yet well-developed in this area.

The road safety plan foresees the development of inter-agency crash data standardization programs (collection, storage, analysis, publication and dissemination of data). The aim is to establish an effective communication platform with all related parties for integrated data exchange on drivers and accidents amongst key agencies.

Standard indicators of deaths, serious injuries, minor injuries and damage only accidents are used together with death rates per 10,000 vehicles, per 100,000 population. Quantitative targets for casualty reduction are expressed in death rates per 10,000 vehicles and numbers of deaths.

Intermediate outcomes. There is no systematic survey work to collect national intermediate outcome data on behaviors causally related to crashes such as vehicle speeds, drinking and driving and restraint use. The development of a vehicle safety database (to rank the make and type of vehicle in terms of safety) is foreseen in the *Road Safety Plan 2006–2010*.

Transparent review of the national road safety strategy in terms of results, interventions and institutional management functions

A formal road safety management capacity review has not yet been undertaken in Malaysia.

MoT RSD Role: Monitoring and Evaluation

- **With strong technical support from the Malaysian Institute for Road Safety Research, UPM and other institutions, the MoT RSD takes the lead in monitoring road safety strategy performance.**
- **The Road Safety Plan foresees the development of inter-agency crash data standardization programs (collection, storage, analysis, publication and dissemination of data). The aim is to establish an effective communication platform with all related parties for integrated data exchange on drivers and accidents amongst key agencies.**
- **The development of a vehicle safety database (to rank the safety performance of vehicles) is also foreseen in the *Road Safety Plan 2006–2010*.**

Research and development and knowledge transfer

Developing capacity for multi-disciplinary research and knowledge transfer

Most road safety research to date has been carried out in university and colleges in Malaysia. The University Putra Malaysia (UPM)'s Road Safety Research Centre has played a lead role in identifying and promoting research-based improvements nationally (see Box 5). In January 2007, a new national governmental road safety research institute was founded within the Ministry of the Transport—the

Box 5: The Road Safety Research Centre, University Putra Malaysia (2007)

The Road Safety Research Centre (RSRC) was established in year 1995 in the Faculty of Engineering and is dedicated to road and traffic safety engineering research. It plays a major role in providing technical support to national road safety policy.

Mission and Vision: The RSRC aims to be an internationally recognised centre of excellence dedicated to the advancement of road safety, traffic and pavement engineering research for the benefit of humankind. The missions of the centre are to:

(1) Continuously conduct fundamental and applied research related to road accident, vehicle safety, traffic and pavement engineering in Malaysia, the region and the world, in general.
(2) Tackle problems as research questions and translate the research findings as policies, programs and interventions.
(3) Disseminate and share findings with communities internationally.

Activities: Among the major field of research are road safety modelling and management, motorcycle conspicuity, motorcycle behavior modifications, motorcycle helmets, vehicle safety, motorcycle injury control, accident costing, motorcycle facilities and standards, exposure control, pedestrian safety, high skid resistance pavement.

Road Safety Research Centre, University Putra Malaysia, 2006

The Road Safety Research Centre at University Putra Malaysia (UPM) plays a key role in performing analytical work to inform target setting, identifying evidence-based program activity and in monitoring the progress of targets. Before moving into another field of activity, the Head of the Centre represented UPM on the Road Safety Council's Executive Board and was technical adviser to the Malaysian goverment on road safety.

Funding: The source of funding comes mainly from contract research (RM1 million annually and the Ministry of Science and Technology Malaysia (RM500K/year). In addition, the Unit receives other short term contracts (3–6 months) from transport related companies such as PLUS, PUSPAKOM, Shell Malaysia etc.

Staffing: The Centre fulfils its research and consultancy functions through the collaboration of key researchers from the Unit of Highway and Traffic Engineering at the Civil Engineering Department and other researchers from disciplines such as mechanical engineering, economics, social science, communication, epidemiology, medicine and agencies concerned with road safety. The Centre has 12 full time academic staff, 6 PhD full time students, 7 MS full time research students, 2 post doctorates (vacant posts) 30 MS students by taught course (short project/dissertation), 1 technician and a secretary.

Malaysian Institute of Road Safety Research which has significant research capacity.

Other universities also undertake road safety research, but on a smaller scale. For example the University Malaysia launched a helmet initiatives program in 1995, with collaboration from Ministry of Science and Technology, Malaysia, and World Health Organization, through the Intensified Research Priority Area research grant. The University Utara Malaysia (UUMP) and the University Teknologi Mara (UiTM) also carry out road safety research and jointly organize a biennial transport research to which around 12–20 papers on road safety are published.

The current road safety strategy foresaw a strengthening of road safety research by means of the following:

- continuation of existing research programs in collaboration with University Putra Malaysia;
- setting up the Malaysian Institute of Road Safety Research to ensure comprehensive research and funding support for research programs to be institutionalized for sustainable and integrated long-term planning;
- evaluating the impact of all road safety initiatives and programs to ensure compliance to targets for optimization of resource utilization; and
- researching new measures and initiatives.

In addition the strategy envisaged the introduction of crash investigation programs to be conducted for all crashes involving fatalities; priority for investigating crashes involving two or more fatalities; and proposing remedies/policies/new safety programs based on crash investigation research findings.

Establishing good practice guidelines

Professional organizations such as an the Institution of Engineering and the Road Engineering Association of Malaysia engage in knowledge transfer by producing guidelines and recommendations and running training courses, seminars and workshops.

MoT RSD Role: Research and Development and Knowledge Transfer

- **The current road safety strategy promotes a strengthening of road safety research by increasing in-house capacity and external support of joint programs with UPM.**
- **The MoT RSD provides capacity for road safety research management in its Planning, Research and Development division. The Malaysian Institute for Road Safety Research has been created as a governmental road safety research body.**
- **The MoT RSD encourages and contributes to the development and dissemination of good practice guidelines on road safety.**

Summary: MoT RSD delivery of institutional management functions

Results focus. The Ministry of Transport (MoT), through its Road Safety Department (RSD) is the lead agency for road safety in Malaysia. It is responsible within government for leading, developing, coordinating, promoting and monitoring with strong technical support the country road safety strategy, program and targets, currently within the framework of the *Road Safety Plan of Malaysia (2006–2010).*

Coordination. The MoT has established a dedicated, funded coordination secretariat within the Road Safety Department (RSD) which manages and supports the coordination activities of the Road Safety Council and provides support to the ministerial road safety cabinet committee. The multi-sectoral horizontal arrangements which are in place create a firm basis for effective multi-sectoral activity between central government agencies. Beyond campaign activity, however, partnership development between agencies have been limited in the past by available funding and the absence until recently of a lead road safety department. The road safety strategy envisages the adoption of targets at state level requiring state coordination arrangements. The MoT RSD engages with the non-governmental, business and research and professional sectors in developing road safety strategy activity.

Legislation. Reviewing and enhancing road safety legislation is one of the main objectives of *Road Safety Plan of Malaysia 2006–2010*. The MoT RSD provides capacity for road and user rules and standards, vehicle standard development, national road standards against the needs of the road safety strategy. Inspection and road user compliance is carried out the police.

Funding and resource allocation. The MoT RSD provides capacity for the management and funding of road safety Programs. The Road Safety Plan provides for the establishment of sources of annual, sustainable funding for road safety (e.g., increased governmental allocations and levies on insurance) and MoT RSD provides capacity for this work in its Administrative and Finance Division.

Promotion. The MoT RSD in collaboration with the Road Safety Council promotes and facilitates a shared approach to road safety across all government agencies, local government and other stakeholders. It manages public relations activities, media, campaigns and mass media initiatives, community engagement, agenda setting initiatives, partnership programs and other promotional campaigns at national level.

Monitoring and evaluation. With strong technical support, the MoT RSD take responsibility for the monitoring of the road safety strategy. The *Road Safety Plan 2006–2010* promotes the development of inter-agency crash data standardization programs (collection, storage, analysis, publication and dissemination of data). The aim is to establish an effective communication platform with all related parties for integrated data exchange on drivers and accidents amongst key agencies. The development of a vehicle safety database (to rank the safety performance of vehicles) is also planned.

Research and development and knowledge transfer. The current road safety strategy promotes a strengthening of road safety research by increasing in-house capacity and external support of joint programs with UPM. The MoT RSD provides capacity for road safety research management in its Planning, Research and Development division. The Malaysian Institute for Road Safety Research has been created as a governmental road safety research body. The MoT RSD encourages and contributes to the development and dissemination of good practice guidelines on road safety.

Lead agency structures

The aggregate and organizational structures of the lead agency for road safety in Malaysia are set out in Figures 3 and 4. There has been substantial institutional strengthening in recent years with the introduction of a new lead agency for road safety and a governmental road safety research institution. The capacity being built in both organizations is a very positive development.

Figure 3: Aggregate structure of Road Safety Department in the Ministry of Transport in Malaysia (2006)

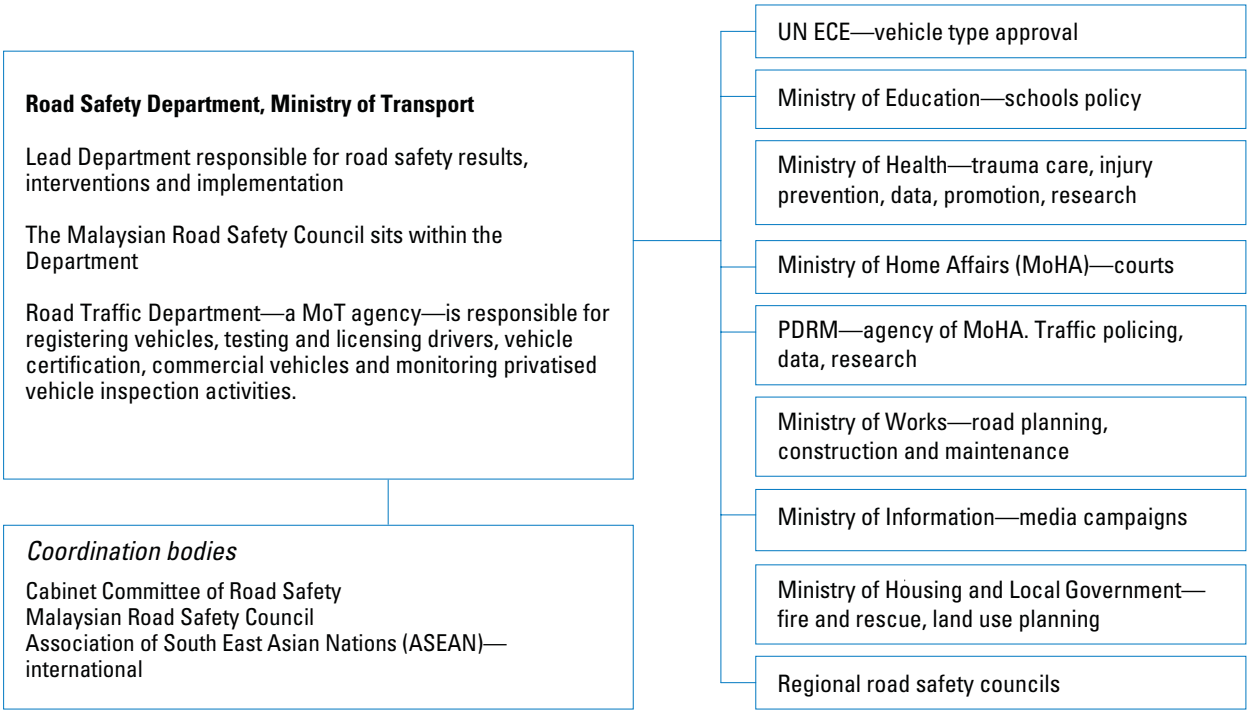
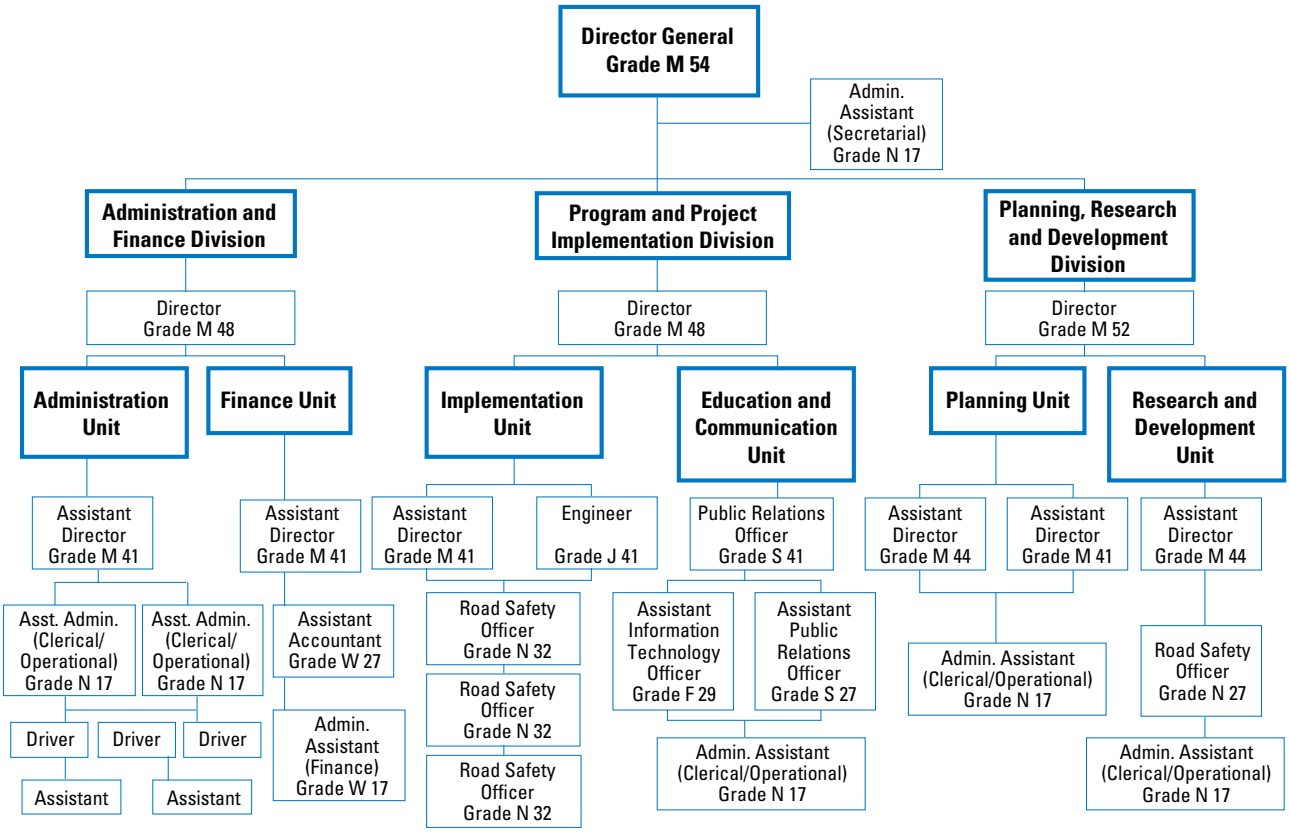


Figure 4: Organizational structure of MoT RSD (2006)



Coordination structures and a description of related processes are set out in the section on *Coordination* and in Figure 2.

The Road Safety Department

This new department takes the day-to-day lead in road safety matters and its role is to plan, coordinate, implement and evaluate the road safety efforts and activities of government agencies and non-governmental organizations in Malaysia. The Road Safety Department comprises three divisions with a staffing level of 31 people (see Figure 4):

- Planning, Research and Development
- Program and Project Implementation
- Administration and Finance

Bibliography

ADB *Asean Regional Road Safety Programme Country Report.*

ADB *Asean Regional Road Safety Programme Draft National Road Safety Plan.*

Statement by The Honourable Dr. Wee Ka Siong Member of Parliament, Plenary of the 60th session of the United Nations General Assembly Tuesday, 25 October 2005.

Law T, Umar RS and Wong SV, *The Malaysian Government's Road Accident Death Reduction Target for 2010*, IATSS Research, Vol 29 No 1, 2005.

Department of Road Safety, Ministry of Transport, Malaysia, April, 2006.

Baguley CJ and Mohd. Shafii Mustafa *Engineering approaches to reversing a worsening road accident trend in Malaysia*, International Forum on Road Safety Research, Shangri-la Hotel, Bangkok, Thailand, 2S-2 7 October 1995. Road Safety Forum, Thailand.

Mohamad Nizam Mustaf, *Overview of Current Road Safety Situation in Malaysia, Presentation to UNESCAP, 2006.*

2.2 Road safety organization in Poland

National context

Key facts: 2006

Area:	**322,577km^2**
Population:	**38.1 million**
Kilometers of public road:	**382,615**
Number of licensed motor vehicles:	**18.03 million**
Road deaths per 100,000 of population:	**13.8**
Number of road deaths:	**5,243**

Source: IRTAD, 2008

Poland is situated in the centre of Europe, in the eastern European Union country territories, and at the crossroads of the main transport routes leading from the west to the east and from the north, across the Baltic Sea, to the south of the continent.

Since 1990 Poland has experienced a rapid rate of motorization rising from 9 million vehicles to 18 million vehicles in 2006. The number of passengers almost doubled, accompanied by an increase in annual vehicle/kilometers and a rapid expansion of road freight and passenger transport. In 1990 some 39% of the population travelled by car. By 2000 this rate increased to 69% and rises annually. Against this background, the number of deaths decreased by 34% between 1991 and 2006. However, in 2007 there was a 6% increase in deaths setting the country back to its 2001 level. Poland has one of the worst road safety records in the EU with per capita death rate of more than twice the levels achieved in Sweden, the Netherlands and Great Britain in the 1970s. The social and economic costs of road crashes in Poland account for more than 2% of GDP.

According to the National Road Safety Council of the Poland, other factors characterizing the situation on Polish roads have included: low compliance with basic safety regulations, lack of effective enforcement, poor infrastructure, mixed traffic, linear villages, under-performing emergency medical and rescue services, a general lack of awareness about the importance of road safety, the lack of regular, long-term cooperation between the administration, civil society and NGOs and insufficient political and social support to road safety initiatives.

However, Poland's current road safety program aspires to substantial improvements in performance and funding. An organizational framework for road safety in Poland is gradually emerging. There have been developments in professionally led road safety planning and road safety partnerships; and there is increasing public awareness of road safety problems and the importance of road safety measures, especially those dealing with excessive speed and alcohol impairment. The current program *GAMBIT 2005* is carried out within overarching policies such as National Development Plan for 2007–2013, National Transport Policy 2005–2025 (included medium to long term goals to reduce deaths as one of 10 priorities) and the Transportation Development Policy 2007–2013 (see Box 1).

Box 1: Key developments in road safety organization in Poland

1993	World Bank Roads Project with component for road safety (US$ 5 million)
1993/4	Establishment of the National Road Safety Council and Secretariat in the Ministry of Transport and Maritime Economy (now Ministry of Transport)
1994	Commissioning of the strategy *Integrated Improvement of Road Safety in Poland—GAMBIT* to a coalition led by the Technical University of Gdansk
1996	Completion of the *GAMBIT* strategy and adoption by NRSC
1996	Integration of *GAMBIT* into National Health Program 1996–2005
1996	Establishment of first Regional Road Safety Councils
1997	Roads II Project with increased funding available for road safety (USD 25 million)
1997	Introduction of the *GAMBIT plan* in selected regions
2001	Council of Ministers adopts *GAMBIT 2000* as National Road Safety Plan for 2001–2010
2002	Amended Road Traffic Act gives NRSC executive authority and establishes 16 Regional Road Safety Councils
2004	In April 2004 by signing the European Road Safety Charter Poland endorsed the Community road safety goals.
2005	*GAMBIT 2005* is adopted. *Vision Zero* is adopted in the National Transport Policy 2006–2025
2007	Integration of GAMBIT 2005 into National Health Program 2007–2015
2007	Ministry of Science commissioned project of 'Integrated System of Transport Safety'

Results focus

Lead agency

Legal responsibility for road safety mainly rests with the Ministry of Infrastructure (national transport policy, supervision of the Director General of National Roads and Motorways and the Chief Inspector of Road Transport). The Ministry of the Interior (public administration and the authority for the Chief of Police) also has key responsibilities.

The Minister of Infrastructure chairs the National Road Safety Council (NRSC), an inter-ministerial coordinating body, which since 1993 has assisted the Council of Ministers on road safety issues. The deputies are undersecretaries of state at the Ministry of Transport and the Ministry of the Interior. In practice, leadership of road safety in Poland rests with the NRSC (see *Coordination* section for further information).

The small number of road safety staff in the Ministry of Infrastructure and the NRSC significantly limits the ability of these organizations to carry out the wide range of functions needed from a lead agency and coordinating body. The urgent need to develop capacity in road safety in governmental institutions was a stated aim in *GAMBIT 2005*.

Appraising current road safety performance through high-level strategic review

Review of road safety performance in Poland has been carried out under the auspices of the NRSC with the assistance of international and national research expertise.

The plans for the strengthening of road safety management envisaged in the *GAMBIT 5* road safety strategy were informed by NRSC conclusions concerning strengths and weaknesses of current arrangements, although a full road safety management capacity review has not been conducted.

Adopting a far-reaching road safety vision or goal for the longer term

In 2005 the National Transport Policy (NTP) (2006–2025) formally adopted the Polish *Vision Zero*. While elimination of death and long term injury is not set out as the ultimate goal, as in the Swedish *Vision Zero*, the strategic objectives of Polish *Vision Zero* are set out in the NTP as follows:

- Human health and life is put before mobility and other functional objectives of the transport system.
- Everyone should feel responsible for road accidents and eliminating their effects.
- The road system and vehicles should be designed, constructed and used in such a way as to minimize and compensate human errors.
- All transport management system procedures should take into consideration the safety of transport users.

The medium term quantitative target is no more than 2800 road traffic deaths by 2013 with a long term goal of no more than 1000 road traffic deaths by 2025.

Analyzing what could be achieved in the medium term

The Technical University of Gdansk has been involved in the analytical work associated with the target-setting in successive *GAMBIT* strategies and most recently for *GAMBIT 2005*.

In 1994 the *GAMBIT* road safety plan comprised early road safety work in Poland and was adopted by in 1996 by the NRSC, into the national health plan in 1996 and into selected regional activity in 1997.

Setting targets by mutual consent across the road safety partnership

Final outcomes

The first National Road Safety Program with targets, *GAMBIT 2000*, was adopted in 2001. A target was set to reduce the number of road deaths to 4,000 by 2010—a reduction of 36% compared to the 2000 figures. Following EU accession in 2004, Poland endorsed the EU target to reduce deaths by 50% by 2010.

In 2005 the National Road Safety Program for the years 2005–2007–2013 *(GAMBIT 2005)* was adopted setting out the government's priorities for the next 10 years and a new safety target—to reduce deaths by 50% to 2,800 was agreed. In June 2005, the National Transport Policy 2006–2025 adopted an interim quantitative target to achieve no more than 2,800 road traffic deaths by 2013 and a long term goal of no more than 1,000 road traffic deaths by 2025.

GAMBIT 2005 aims to reach its target by means of operational programs of three years duration, annual progress reports, and sectoral and local road safety programs. There are 5 objectives:

(1) Creating the basis for performing effective and long-term road safety actions;

(2) Improving safe behavior of road users (through action on speed, alcohol, seat belts);
(3) Pedestrian, children and cyclist protection (by various means);
(4) Developing and maintaining safe road infrastructure (through inspection, audit and systematic crash analysis and re-shaping the road network to improve road safety);
(5) Reducing the severity and consequences of road accidents (through improved of vehicle and roadside crash protection and post impact care).

The first objective aims for further strengthening of road safety organization and management and focuses on 3 areas:

a) *Road safety organizational structures.* Developing legislation, improving the institutional structures of central government, and improving organizational structures of regional and local institutions;
b) *Road safety management.* Organizing cooperation and coordination, organizing professional road safety personnel training system, improving road safety programming, creating a road safety information system, introducing a road safety monitoring system, forming a research body for road safety, mandatory audit procedures for road safety, and introducing a stable road safety financing system;
c) *Sector actions*. Including improving road safety education in schools, improving the driver training and testing system, updating and increasing the effectiveness of road traffic law enforcement and jurisdiction, improvements related to the technical inspection of vehicles, and development of a road rescue system.

MoT/NRSC Role: Results Focus

- **The Ministry of Infrastructure (MoI) has legal responsibility on behalf of government for road safety and the National Road Safety Council (NRSC) is, in practice, the lead agency. The NRSC sits within the MoI and currently has insufficient road safety management support to lead the country to achievement of ambitious targets and goals of the National Transport Policy 2005–2025 and *GAMBIT 2005*, the national road safety strategy.**
- **Poland has signed up to ambitious EU targets to reduce deaths by 50% by 2010.**
- **In June 2005, the National Transport Policy 2006–2025 adopted strategic objectives of the Polish *Vision Zero* strategy.**
- **The *GAMBIT 2005* strategy envisaged significant strengthening in road safety management.**

Coordination

Horizontal coordination across central government

The NRSC was established in 1993 following the Resolution of the Council of Ministers and funded by the Ministry of Infrastructure and the World Bank.

The NRSC was initially chaired by Deputy Prime Minister, Prime Minister and then successively by Ministers of Transport (currently the Minister of Infrastructure), although the minister does not have executive authority over other ministries. The members include senior representatives from the main sectors concerned with road safety. As a multi-disciplinary inter-governmental coordination body, the members of NRSC are nominated by the Prime Minister.

The NSRC has executive powers and its main activities, as defined in 1994, included:

- creating an administrative framework at national and local level
- encouraging and coordinating road safety activities across sectors
- increasing road safety awareness via national road safety campaigns
- allocating funding from the Road Safety Component of World Bank loans

The basis for recent coordinated road safety efforts of the NRSC was laid down upon the completion of *GAMBIT 2000* and was approved by government in 2001. In 2002, the NRSC was provided with an enhanced legal mandate and vested with greater authority (see Box 2).

Box 2: NRSC tasks set out in legislation in 2002

- Making recommendations for state policy on road safety.
- Evaluating road safety programs.
- Integrating research, legal acts, international agreements and staff training programs.
- Initiating and providing opinion on legal acts and international contracts dealing with road safety.
- Initiating the education of public administration staff on road safety (capacity building).
- Working closely with social institutions and NGOs.
- Implementing road safety education, publicity and promotion campaigns.
- Monitoring and evaluating road safety activities.

The executive agency of the NRSC—the Secretariat—was established in 1994 with a staff of two, the Director and Secretary, and is located in the Ministry of Infrastructure. Currently there are only 6 permanent staff in the NRSC's road safety department. It provides an important consistent link among the sectors. Its main activities include:

- administrative and technical support to the NRSC
- representing the NRSC at public events, when the Chairman cannot be present
- overseeing the allocation of the Road Safety Component of the WB loans
- networking among the ministries represented in the NRSC
- networking with NGOs and private sector companies involved in road safety

Clear identification of the roles of multi-sectoral organizations and individual sectors, their responsibilities and the financial mechanisms for achieving program goals has yet to be established. The organizational structure of the NRSC is set out in Figure 1.

Vertical coordination from central to regional and local levels of government

In parallel with the development of the central coordination body, a nationwide decentralized road safety structure was brought into existence in the late 1990s and regional road safety councils were set up in all 16 regions. They are presided over by regional governors and comprise representatives of lower administrative degrees, as well as Police, Fire Brigade, Education and Roads at regional level. Regional road safety councils have been assigned an inventory of tasks similar to, though of lesser scope, than those of NRSC (see Box 3). The Highway Code specifies that the regional authorities are responsible for ensuring the establishment and operation of the RRSCs.

In some regions transport projects co-financed by the World Bank and regional government specified a road safety component. With regional government forging close links with the university sector on regional road safety planning, the *GAMBIT* road safety plan was introduced in several regions in 1997. However, with far-reaching administrative reform announced in 1998 which included a reduction in the number of regions from 49 to 16 in 1999, road safety coverage by all these regions began only after 2000.

Specific delivery partnerships between government, non-government, community and business at the central, regional and local levels

While there are few formal partnerships as yet in Poland, there is strong awareness amongst road safety professionals about the benefit of multi-sectoral delivery of road safety, whether inter-governmental or between government and the NGO sector. This is most developed in the partnership activities between:

- different sectors co-operating on specific issues, (e.g., education, rescue), underpinned by legislative requirements which have supported implementation of multi-sector initiatives
- regional government and the university sector in *GAMBIT* planning to deliver the road safety component of World Bank project loans.

Non-governmental sector engagement

Through its secretariat, the NRSC and regional councils have regular contact and involvement with the NGO sector.

There are numerous non-governmental organizations from sectors such as transport, academia, health and education who are involved in the informal organization of road safety, especially on the local level. These comprise the Polish Motor Association and the Polish Red Cross, the GAMBIT Foundation, research institutes such as technical universities, notably in Gdansk, Krakow and Warsaw, the Motor Transport Institute and the Road and Bridge Research Institute, the Chamber of Polish Insurers, individual insurance companies, publishers of transport magazines and some private companies, including partners of the Global Road Safety Partnership (GRSP) in Poland. The Polish Committee of the GRSP was established in 2000. The Polish GRSP Program is based on a tri-sectoral approach (public-private-NGO). The national secretariat of GRSP was hosted by the NRSC.

The non-governmental sector contributes to a variety of national road safety strategy actions. For example, one of the aims of the National Road Safety Program in Poland is to improve knowledge and awareness on road safety. Towards this end the Motor Transport Institute in partnership with NRSC, SWOV, and GRSP Poland are developing an on-line information system on the country's road safety situation, actions taken, good practices and a knowledge base.

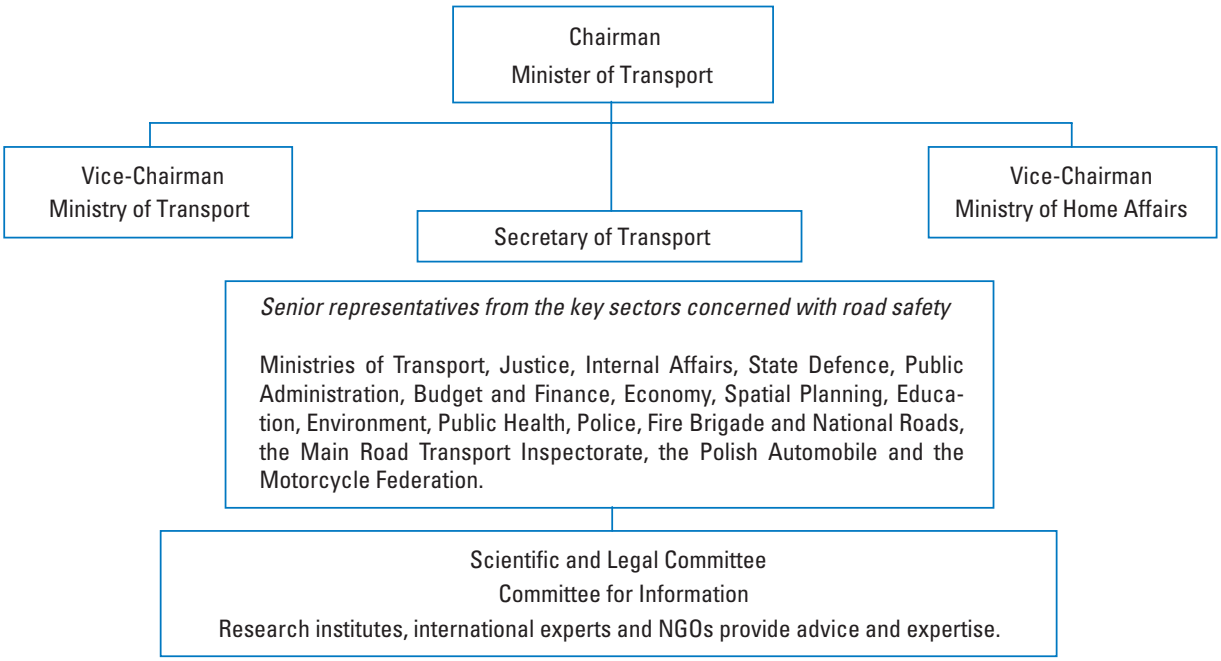
Business sector engagement

The business sector within the Global Road Safety Partnership (GRSP) has been particularly active in road safety in Poland since 2000 and includes Daimler Chrysler Polska, Renault Polska, Shell Poland, BP Poland, 3M Poland, Michelin, ABB, Vessel.

Over the past six years GRSP and partners in Poland have implemented over 30 initiatives targeting a wide variety of road safety issues in the country. In 2005 partners decided to consolidate efforts and work together more consistently on common initiatives.

In 2006 the GRSP in Poland launched a nationwide initiative on aiming to help companies and organizations operating in Poland to improve their road safety performance. The *Safe Fleet Guidelines* are a collaborative effort, bringing together the knowledge and experience of the Partners in Poland to provide a practical tool for improving work-related road safety.

Figure 1: Organizational structure of the National Road Safety Council



Box 3: Role of the Regional Road Safety Councils in Poland

The Regional Road Safety Councils are legally required to develop road safety plans supporting the multi-sector goals of the national plan as well as providing annual reports on their progress and road safety development. These plans are submitted to parliament and to the Polish President. The National Road Safety Council coordinates Regional Road Safety Councils in each region. Central funding is used to co-finance road safety schemes in various regions of the country. Their primary tasks include:

- developing regional road safety plans based upon the national strategy
- giving opinions on provincial legal acts regarding road safety
- confirming a plan of expenses of the Road Traffic Centres allocated for road safety
- initiating education of the public administration staff and road safety training
- co-operating with relevant social and non-governmental organizations
- initiating education and information activity
- analysis and evaluation activities
- local authorities and the private sector projects: these projects are generally small-scale and may not necessarily be in line with national plan or priorities or a coordinated part of the program.

Parliamentary relations at central, regional and local levels

There is no all-party parliamentary committee with road safety as its sole focus. The NGO sector held a workshop with the Transportation Committee of the Polish Parliament to discuss ways of motivating the Committee and the parliament to become more actively involved in road safety. The Global Road Safety Partnership was invited to help start a formal discussion in the parliament on the benefits of improved road safety.

MoI/NRSC Role: Coordination

- **The MoI supports and funds the NRSC's dedicated coordination secretariat and supports the coordination activities of the Road Safety Council and provides support to the Ministerial Road Safety Cabinet Committee.**
- **The horizontal and vertical coordination arrangements which are in place create a basis for multi-sectoral activity between central government agencies. However, partnership development between agencies is limited by available funding and the absence of a lead road safety department capacity.**
- **The NRSC engages with the non-governmental, business and research and professional sectors in developing road safety strategy activity.**

Legislation

Reviewing the scope of the legislative framework periodically

The legislative framework is being aligned gradually to European Union requirements. Road safety legislation is being strengthened. With some exceptions, the main legislative provisions for road safety are in line with European norms.

In the last decade the penalty points system was introduced (1993) plus the requirement to carry children in special restraints, the use of daytime running lights from 1 October till the end of February, new penalties for drinking and driving offenses (2002), and high risk sites were marked with special signs. In May 2004 Poland introduced the 50 km/h speed limit in built-up areas, but the new limit applies only between 5am and 11pm and 60 km/h applies outside these hours. The new Highway Code also set out a number of essential provisions. Other relatively recent legislation included bringing into existence the Road Transport Inspectorate to enforce regulations on commercial road transport, legislation on driving hours in commercial road transport and legislation providing for an integrated medical rescue system. New regulations are now being prepared for driver training and testing and supervised driving and provisional driving licenses for novice drivers.

Developing legislation needed for the road safety strategy

The NRSC has the role of developing and coordinating road safety legislation. For example, in February 2005 the NRSC appointed a new Working Committee with representatives from several ministries and central bodies. The Committee was asked to prepare proposals for new legal regulations on road traffic enforcement. The focus of the Committee was the introduction of a legal basis to allow automatic traffic enforcement to increase the efficiency of penalty procedures. *GAMBIT 2005* envisaged further development of the legislative framework.

MoI/NRSC Role: Legislation

- **The main legislative road safety requirements are in line with European norms.**
- **The NRSC has the role of developing and coordinating legislation on road safety.**
- ***GAMBIT 2005* envisaged further development of the legislative framework.**

Funding and resource allocation

Ensuring sustainable funding sources

Road safety activity is financed mainly from the national and regional budgets, although multiple source funding is encouraged and supported by public and private sectors.

A stated aim of the National Road Safety Program (*GAMBIT 2005)* is to introduce a stable road safety financing system (see Box 4). The establishment of a road safety fund financed from non-governmental sources, which would support the co-operation among the sectors, was proposed in *GAMBIT 96.* Around 1.5 billion PLN is allocated to road safety on an annual basis.

National government funding. The Polish government provided specially allocated funding to the Transport Ministry (now Infrastructure) for initial establishment of the NRSC, including the creation of a Secretariat, which was entrusted with overseeing the allocation of the road safety component of World Bank loans. Resources were allocated in support of initiatives such as:

Box 4: Funding needs specified in national road safety strategy

GAMBIT 2005 indicated that 25 billion PLN (6.6 billion Euros) would be required to realize the objectives of the road safety program 2005–2013, although in practice this sum has not yet been allocated to *GAMBIT 2005*. The financing of road safety is expected to be conducted by the following means:

- budgets of different sectors, regional and local authorities and non governmental organizations
- sectoral operational program—Transport 2004–2006 as well as Road Infrastructure Operational program 2007–13
- local EU programs (structural funds)
- international financial institutions' loans
- National Road Fund.

- publicity and information campaigns, preparation and distribution of information materials;
- sponsorship of conferences, seminars and public ceremonies focusing on road safety;
- commissioning and financing of studies and research works;
- financial support to NGOs and foundations organizing road safety competitions;
- financing various regular road safety magazines for use in schools.

The first National Road Safety Plan foresaw funding at national levels to come primarily from the budgets of different Ministries and decisions taken by the NRSC on initiatives that can be funded out of these separate budgets. For example, infrastructure improvements, including black spot treatment, are financed from government revenue, most of which is from the budget of the Ministry of Transport and Construction. However, a specific allocation within budgets has not been formally mandated for road safety activities.

Regional and local government funding. Regional government receives funding from central government and international finance from organizations such as the World Bank (to which regional authorities have to contribute 40% of total project funding). Some funding of NRSC activity has taken place in several regions.

In the absence of a regular central government allocation for road safety, local authorities have been looking increasingly to partnerships with the private sector and NGOs at local level. These are usually initiated by local organizations which have identified a specific need or problem.

Road user fees. A system of regional road traffic centres (RRTC) has been set up which provides a source of funding for regional and local road safety activities. The funding comes from the following sources:

- Charges for driver licensing tests
- Charge for educational courses for professional drivers
- Charges for traffic schools for offenders

Legislation in 1997 authorized the provision of funds for road safety from the Regional Road Traffic Centres (RRTC) to finance initiatives such as information campaigns focusing on road traffic rules and regulations, improving driver behavior and attitude and other unspecified initiatives. Funding from the RRTC is supporting the development of regional road safety plans and programs in a number of regions.

International financing. External loans from two World Bank Roads Projects with specific road safety components have pump-primed multi-sectoral partnerships and financed large scale targeted road safety activities. In 2002, funding from the World Bank Roads II Project supported the development of the Regional Road Safety Councils in 3 pilot regions. Activities included in this pilot project are institutional development and capacity building, including the development of a training program in road safety for the NRSC to be used to train regional decision makers and technicians from various sectors. All initiatives were financed 60% from the WB loan and 40% from regional funds. Funding to improve road infrastructure according to international standards is also provided by other international donors such as the EU and EBRD, although these do not have specific road safety components.

Insurance sector. A small source of funding for road safety activities is provided by Polish insurance companies. Based upon insurance sector legislation from 1995, 1% of vehicle premiums can be used by individual companies to fund road safety activities. Few insurance companies have actually used this source to fund road safety.

Private sector funding. Typical types of initiatives sponsored by private sector companies include educational programs mainly addressed to school children, low cost schemes and police equipment.

MoI/ NRSC Role: Funding and Resource Allocation

- **A stated aim of the National Road Safety Program *(GAMBIT 2005)* is to introduce stable road safety funding.**
- **Road safety in Poland is heavily reliant on international donor assistance. A stated aim of the NRSC is to allocate funding from the Road Safety Component of World Bank loans.**

Promotion

Promoting the far-reaching road safety vision or goal

Road safety is promoted nationally through the Polish *Vision Zero* and the *GAMBIT 2005* program.

Championing and promotion at a high level

Road safety activity in Poland has benefited from several road safety champions in Poland, the most notable being the Director of the Secretariat of the NRSC and the Head of Highway Engineering Department at the Gdansk University of Technology who also worked as Under Secretary of State at the Ministry of Infrastructure (2004–2005). In Poland, active champions were found to have an important positive impact on both the further development of road safety management according to international good practice and the encouragement of partnership interventions across sectors (including public and private). Champions have also been important in generating funding for local road safety interventions.

Multi-sectoral promotion of effective intervention and shared responsibility

To date several publicity actions and media campaigns have been coordinated and co-financed with the participation of NGOs in order to raise awareness among the general public and decision-makers. Numerous promotional events and publicity campaigns on road safety have been supported.

MoI/ RSC Role: Promotion

- **Road safety is promoted nationally by MoT/RSC through *Vision Zero* and the GAMBIT 2005 program.**

Monitoring and evaluation

1. Establishing data systems to set and monitor final and intermediate outcome and output targets

While Poland has collected data on road crashes since the 1970s, the development of transport, health and justice sector databases to assist road safety work is very recent. The preparation of vehicle and driver databases is underway, the national computerized crash injury database is being updated, and regional databases require harmonization. The collection of intermediate outcomes data has just begun. It is expected that in the near future that Poland's participation in European CARE, SafetyNET and IRTAD programs will contribute to improvements. The Ministry of Infrastructure which has begun working on an integrated transport data base (Road and Bridge Research Institute) and the road safety observatory (Motor Transport Institute).

Final outcomes

The national computerized crash injury database was established in 1991 and the system of information collection and processing is supervised by the police. Work on a new system for data processing is currently underway. There is a requirement for the police reporting of crashes and a statistical report of road crashes and casualties nationally is produced annually by the police. Police data is available to all road safety stakeholders.

Poland uses standard performance indicators for final outcomes (number of killed, killed/100 accidents, killed/100,000 inhabitants, fatalities by age group etc), which are monitored on a quarterly basis using data collected by the police. Its definition of other injury severity is imprecise.

Intermediate outcomes

The systematic monitoring of vehicle speed, seat belt use and levels of drinking and driving envisaged in *GAMBIT 2005* has begun. Poland joined the EuroRAP program in 2006. The Polish partners include the Polish motoring and motorcycling clubs, local authorities, the General Directorate for National Roads and Motorways, the Foundation for Civil Engineering Development, Gdansk University of Technology and Toyota Poland.

Transparent review of the national road safety strategy in terms of results, interventions and institutional management function

Since 2002 annual reports on road safety performance are prepared by the NRSC and presented to the Polish parliament and Prime Minister. Regional councils are also legally required to report on progress.

MoI/NRSC Role: Monitoring and Evaluation

- **The NRSC has responsibility for monitoring road safety outcomes and work is underway to improve various registries and crash injury data systems.**
- **Some intermediate outcome data is also being collected. Poland participates in the European Road Assessment Programme.**
- **Annual reports on progress with road safety are presented to parliament.**

Research and development and knowledge transfer

Developing capacity for multi-disciplinary research and knowledge transfer

The research sector is well-developed in Poland and has played a major role in promoting the need for good practice road safety management as well as raising the profile of road safety amongst policymakers. Such activity has received the full support of the NRSC and its importance is acknowledged in the National Road Safety Plan.

Multiple research activities have been commissioned and accomplished in order to provide the road safety decision-making process with sound knowledge base and actual data backup necessary in planning further steps. The Technical Universities of Gdansk (in which *GAMBIT* originated) and Kracow and the Motor Transport Institute play a key role. Other research institutes include the Warsaw University of Technology, and the Road and Bridge Research Institute.

Establishing good practice guidelines

There is an on-going joint project between the NRSC and the Motor Transport Institute to develop an on-line information system on the country's road safety situation, actions taken and good practice.

There has also been regular interaction by road safety professionals with countries having a longer and more developed road safety tradition. Contact and exchanges with international experts has increased the awareness of international best practice in road safety among road safety professionals.

Short term support from international organizations (e.g., World Bank and European Union) has enabled some pump-priming for multi-sectoral knowledge transfer and institutional development, However, no formal or regular programs for capacity building among road safety professionals yet exist nationally, although this is foreseen in *GAMBIT 2005*.

MoI/NRSC Role: Research and Development and Knowledge Transfer

- **The research sector has played a major role in Poland in encouraging evidence-based organization and practice.**
- **The NRSC has developed strong partnerships with the research sector for road safety strategy development.**
- **There is an on-going joint project between the NRSC and the Motor Transport Institute to develop a national road safety observatory.**
- ***GAMBIT 2005* promotes strengthening of research and knowledge transfer activity.**

Summary: MoI/NRSC delivery of institutional management functions

Results focus. The Ministry of Infrastructure (MoI) has legal responsibility on behalf of government for road safety and the National Road Safety Council (NRSC) is, in practice, the lead agency. The NRSC sits within the MoI and currently has insufficient road safety management support to lead the country to achieve the ambitious long-term goal and interim target of the *National Transport Policy 2006–2025* and *GAMBIT*, the national road safety strategy. Poland has also signed up to ambitious EU targets to reduce deaths by 50% by 2010. The *GAMBIT 2005* strategy, however, envisaged significant strengthening in road safety management and set out policy objectives.

Coordination. The MoI supports and funds the dedicated, coordination secretariat within the NRSC and manages and supports its coordination activities. The horizontal and vertical coordination arrangements which are in place create a basis for multi-sectoral activity between central government agencies. However, partnership development between agencies is limited by available funding and the absence of a lead road safety department capacity. The NRSC engages with non-governmental, business and research and professional sectors in developing road safety strategy activity.

Legislation. The main legislative road safety requirements are aligning to European norms. The NRSC has the role of developing and coordinating legislation on road safety.

GAMBIT 2005 envisages further development of the legislative framework.

Funding and resource allocation. The National Road Safety Program (*GAMBIT 2005)* aims to introduce stable road safety funding. Road safety in Poland is heavily reliant on international donor assistance. For example, a stated objective of the NRSC is to allocate funding from the Road Safety Component of World Bank loans.

Promotion. In 2005 the National Transport Policy formally adopted a long term vision of zero deaths on Polish roads. Road safety is promoted nationally by MoI/NRSC through *Vision Zero* and the *GAMBIT 2005* program.

Monitoring and evaluation. The NRSC has responsibility for monitoring road safety outcomes and work is underway to improve various registries and crash injury data systems. Some intermediate outcomes data is also being collected. Poland participates in the European Road Assessment Programme. Annual reports on progress with road safety are presented to parliament.

Research and development and knowledge transfer. The research sector has played a major role in Poland in encouraging evidenced-base organization and practice. The NRSC has developed strong partnerships with the research sector for road safety strategy development. There is an on-going joint project between the NRSC and the Motor Transport Institute to develop a national road safety observatory. *GAMBIT 2005* promotes strengthening of research and knowledge transfer activity.

Bibliography

GAMBIT 2005, *National Road Safety Programme 2005–2007–2013*, Ministry of Infrastructure, Republic of Poland, 2005, ISBN 83-88025-50-30.

National Road Safety Council of Poland, *Poland: Road Safety Overview*, Ministry of Infrastructure, May 2004.

Downing A and Elsig K, World Bank Study *Multi-sectoral and Partnership Approaches to Road Safety: Case Studies of Poland and Hungary, June 2002,* unpublished.

Zielinska A, *Adjustment of the Polish road safety database to European Union standards*, paper presented to conference Road Safety on Four Continents, Warsaw, May 2005.

Jamroz K and Kaczmarek J, *Monitoring of safety belt use on national and regional level*, Paper presented to conference Road Safety on Four Continents, Warsaw, May 2005.

GRSP Website/Knowledge, 2006.

European Commission, *Country Road Safety Profile*, 2006.

Witkowski A, Ostaszewska E, and Hill J, *The role of the Polish Automobile and Motorcycle Federation in EuroRAP*, GAMBIT 2008 Seminar, Gdansk University of Technology, April 2008.

Jamroz K, *Main road safety strategies on national roads until 2013*, GAMBIT 2008 Seminar, Gdansk University of Technology, April 2008.

Krystek R, *National Transport Policy for 2006–2025* Ministry of Infrastructure, Republic of Poland, 2006.